

Leading Practices Report for MSME Sector in Haryana

Submitted to:

Department of Industries & Commerce
Government of Haryana

Prepared by:

Ernst & Young LLP

Under the project: PMU for MSME
Ecosystem Transformation in Haryana

EY

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Acknowledgements

We would like to express our sincere gratitude to Department of Industries & Commerce, Government of Haryana and its officials for their involvement and valuable inputs during the preparation of this Leading Practices Report for Haryana MSMEs. We are thankful to **Sh. Devender Singh, IAS, Additional Chief Secretary, Industries & Commerce & Mr. Ashok Sangwan, IAS, Director Industries & Commerce, Government of Haryana** for sharing their respective insights'. A special word of thanks to **Mr R.C Dahra, Consultant (Clusters), Department of Industries & Commerce, Government of Haryana** for his proactive support and guidance to the team, during the entire process.

We would like to convey our sincere thanks to members of various MSMEs, Industry Associations and other stakeholders, for their assistance in facilitating discussions. Their valuable time and insights with respect to various dimensions of the MSME sector and its support requirements was invaluable in the preparation of this report. Without their help, capturing of the industry insights would not have been possible.



15 March, 2018

**Department of Industries and Commerce, Haryana
1st Floor, 30 Bays Building,
Sector17, Chandigarh-160017.**

Dear Sir,

As a part of our engagement to provide Consulting services for establishment of a Program Management Unit (PMU) for Haryana MSME Ecosystem Transformation, we hereby submit the Leading Practices Report for Haryana MSMEs for your kind perusal. The deliverable has been prepared in accordance with our engagement agreement dated 3.01.2017 and our procedures were limited to those described in that agreement.

This Leading Practice Report is based on:

- ▶ Literature Review
- ▶ Primary Visits & Secondary Research
- ▶ Discussion with Stakeholders

Our work has been limited in scope and time and we stress that more detailed study may reveal other issues not captured in this report. The procedures summarized in our Leading Practice Report do not constitute an audit, a review or other form of assurance in accordance with any generally accepted auditing, review or other assurance standards, and accordingly we do not express any form of assurance.

This Leading Practices Report for Haryana MSMEs is intended solely for the information and use of the Department of Industries and Commerce, Government of Haryana, and is not intended to be and should not be used by anyone other than this specified party. We appreciate the cooperation and assistance provided to us during the preparation of this report. If you have any questions, please contact the undersigned.

Very truly yours,

A handwritten signature in blue ink, appearing to read 'Amar Shankar', with a horizontal line underneath.

Amar Shankar, Partner - Advisory Services

Table of Contents

EXECUTIVE SUMMARY	14
EXECUTIVE SUMMARY	16
CHAPTER 1.....	22
FRAMEWORK FOR ENHANCING MSME COMPETITIVENESS FOR HARYANA MSMEs.....	22
1.1 MSMEs IN HARYANA AND RATIONALE FOR A THEORETICAL FRAMEWORK	24
1.2 MSME COMPETITIVENESS FRAMEWORK: SYSTEMIC COMPETITIVENESS.....	26
CHAPTER 2.....	28
THE GLOBAL MANUFACTURING ENVIRONMENT	28
2.1 SETTING THE CONTEXT: MANUFACTURING ENVIRONMENT & GLOBAL CONTOURS	30
2.2 LESSONS FROM TOP PERFORMING COUNTRIES	37
2.2.1 <i>United Kingdom:</i>	37
2.2.2 <i>Switzerland:</i>	37
2.2.3 <i>United States:</i>	38
2.3 BOTTLENECKS FACING LOW-PERFORMING COUNTRIES.....	39
2.3.1 <i>Brazil:</i>	39
2.3.2 <i>Indonesia:</i>	40
2.3.3 <i>Mexico:</i>	40
2.4 OTHER ECONOMIES WITH NOTEWORTHY INDUSTRIAL POLICIES/ INITIATIVES	42
2.4.1 <i>Japan:</i>	42
2.4.2 <i>Germany:</i>	43
2.4.3 <i>South Korea:</i>	44
2.4.4 <i>Singapore:</i>	45
2.4.5 <i>Finland:</i>	46
2.5 BEST PRACTICES FOR MSMEs, JOB CREATION, & ECONOMIC GROWTH	47
2.5.1 <i>Financing of SMEs</i>	48
2.5.2 <i>Business Environment</i>	50
2.5.3 <i>Technology</i>	50
2.5.4 <i>Management Capabilities</i>	52
2.5.5 <i>Access to Markets</i>	53
CHAPTER 3.....	56
BOOSTING INNOVATION & INNOVATIVE CAPACITIES OF MSMEs: KEY TAKEAWAYS FOR HARYANA MSMEs.....	56
3.1 INNOVATION DRIVEN MSME GROWTH: GLOBAL EXPERIENCES AND LEARNINGS FOR HARYANA STATE MSMEs.....	58
3.2 BASIS FOR INNOVATION DRIVEN SME GROWTH	58
3.3 INNOVATION POLICY TRENDS IN SELECTED COUNTRIES:.....	60
3.3.1 <i>China</i>	60
3.3.2 <i>Indonesia</i>	62
3.3.3 <i>Thailand</i>	63
3.3.4 <i>Denmark, Germany, Ireland and Switzerland</i>	64
3.3.5 <i>National innovation systems of catching-up economies</i>	66
3.4 INNOVATION DRIVERS	68
3.5 PUBLIC FUNDED TECHNOLOGY AND INNOVATION-LED PROGRAMS	69
3.5.1 <i>Fraunhofer-Gesellschaft (Germany)</i>	71
3.5.2 <i>InnoRegio Programme (Germany)</i>	75
3.5.3 <i>Inter-University Micro Electronics Centre (IMEC) (Belgium)</i>	79

3.5.4 Industrial Technology Research Institute (ITRI) (Taiwan).....	82
3.5.5 Electronics and Telecommunications Research Institute (ETRI) (Korea)	86
3.5.6 Catapult programme (United Kingdom)	88
3.5.7 Innovation Superclusters & Strategic Initiatives (Canada):.....	94

CHAPTER 4..... 102

PUBLIC & PRIVATE-LED MSME DEVELOPMENT: KEY TAKEAWAYS FOR HARYANA MSMEs 102

4.1 PUBLIC-FUNDED AND PRIVATE-LED INTERVENTIONS ON ENTREPRENEURSHIP / INNOVATION	104
4.2 PUBLIC-FUNDED INTERVENTIONS ON ENTREPRENEURSHIP/ INNOVATION	105
4.2.1 North East Competitiveness and Employment (United Kingdom).....	105
4.2.2 Small and Medium Enterprises Administration (SMEA) (Taiwan).....	112
4.2.3 Upper Austrian Food Cluster (LCOÖ) (Austria)	118
4.2.4 Bio Bio Region (Chile)	121
4.2.5 Japan Finance Corporation (JFC) – the SME unit (Japan).....	126
4.2.6 Manufacturing Extension Partnership (MEP) (United States).....	130
4.2.7 Thai Tanning Industry Association (TTIA) (Thailand).....	135
4.3 PRIVATE SECTOR-LED CLUSTER DEVELOPMENT:.....	138
4.3.1 PASS (Perfumes Flavours Fragrances and Scents) competitiveness cluster (France)	138
4.3.2 Unilever: Manufacturing Sustainability Improvement Programme (Vietnam)	142

CHAPTER 5..... 146

LEADING PRACTICES TO ENHANCE MSME COMPETITIVENESS: KEY TAKEAWAYS FOR HARYANA MSMEs..... 146

5.1 LEADING PRACTICES ACROSS INDIA FOR ENHANCING MSME COMPETITIVENESS	148
5.2 CLUSTERS AS ENGINES OF ECONOMIC GROWTH	148
5.3 CLUSTER DEVELOPMENT IN INDIA THROUGH PROJECT IMPLEMENTATION	150
5.3.1 UNIDO's Cluster Development Interventions in India	150
5.3.2 UNIDO Approach for Cluster Development	151
5.4 LEADING UNIDO CLUSTER DEVELOPMENT INTERVENTIONS: CASE STUDIES FROM INDIA.....	153
5.4.1 Hosiery Cluster of Ludhiana, Punjab, India (2002)	154
5.4.2 Policy Reforms in Clusters of Odisha, India (2008)	154
5.4.3 Cluster Twinning (CT) in Chennai auto-component cluster, India	156
5.5 SIDBI'S - STRENGTHENING THE BUSINESS DEVELOPMENT SERVICES (BDS) IN MSME CLUSTERS (2010)	157
5.6 CLUSTER DEVELOPMENT IN INDIA THROUGH IMPLEMENTATION OF MSE-CDP	163
5.7 IMPLEMENTATION OF MSE-CDP	168
5.8 STATE GOVERNMENT INITIATIVES FOR MSME GROWTH IN INDIA	169
5.9 SUCCESSFUL MSME INTERVENTIONS- POLICY AND REGULATORY FRAMEWORK	171
5.9.1 Scheme for Revival of Small Scale Industries, 2006, Andhra Pradesh	171
5.9.2 Amendments in Labour Laws, 2014, Rajasthan	173
5.10 SUCCESSFUL MSME INTERVENTIONS-ENTREPRENEURSHIP DEVELOPMENT.....	175
5.10.1 India's largest start-up Incubator: Telangana-Hub.....	175
5.11 SUCCESSFUL MSME INTERVENTIONS-ACCESS TO INFRASTRUCTURE.....	177
5.11.1 Infrastructure Facilitator - Gujarat Infrastructure Development Board (GIDB)	177
5.12 SUCCESSFUL MSME INTERVENTIONS-ACCESS TO FINANCE.....	180
5.12.1 Gujarat Venture Finance Limited (GVFL).....	180
5.13 SUCCESSFUL MSME INTERVENTIONS-ACCESS TO MARKETS	182
5.13.1 Madhya Pradesh Laghu Udyog Nigam (MPLUN)	182
5.14 INDUSTRY ASSOCIATIONS AS FACILITATOR OF SOCIAL CAPITAL.....	189
5.15 LEADING PRACTICES BY INDUSTRY ASSOCIATIONS	193
5.15.1 Creation of Networks by Tirupur Exporters Association.....	193
5.15.2 Critical Common Infrastructure Creation by SIEMA	194
5.15.3 Coimbatore Industrial Infrastructure Association (COINDIA).....	194
5.15.4 COSMAFAN Marketing Society.....	195

5.15.5 Coimbatore District Small Industries Association (CODISSIA)	195
5.15.6 Common Infrastructure Creation at Industrial Estate by VATVA Industry Association	196
5.15.7 Cluster Level Technology Interventions by Mohali Industries Association (MIA)	197
5.15.8 Strengthening of Business Development Services Ecosystem by IamSME of India, Faridabad	198

CHAPTER 6..... 204

INCENTIVE BENCHMARKING FOR SC/ STS & WOMEN ENTREPRENEURS: KEY TAKEAWAYS FOR GOVERNMENT OF HARYANA 204

6.1 SC/ST & WOMEN INCENTIVE BENCHMARKING - STATE WISE COMPARISON	206
6.2 SC/ST BENCHMARKING EXERCISE.....	207
6.3 SC/ ST INCENTIVE BENCHMARKING TABLE	207
6.3.1 Land and building related	207
6.3.2 Infrastructure development	209
6.3.3 Concession on Power/ Electricity Tariff.	210
6.3.4 Interest Subsidy	210
6.3.5 Capital Investment Subsidy	212
6.3.6 Venture Capital Fund of Rs 200 Cr.....	213
6.3.7 Self-Employment	214
6.3.8 Assistance for entrepreneurship and incubation support	215
6.3.9 Skill Development.....	216
6.3.10 Quality Certification	217
6.3.11 Other special assistance	219
6.4 INCENTIVES FOR WOMEN ENTREPRENEURS-STATE LEVEL BENCHMARKING TABLE.....	221

CHAPTER 7..... 230

OPPORTUNITIES FOR SERVICE-SECTOR MSMES UNDER GST REGIME: KEY TAKEAWAYS FOR GOVERNMENT OF HARYANA 230

7.1 GST AND THE SERVICES SECTOR IN INDIA:.....	232
7.2 THE SERVICE SECTOR IN HARYANA:.....	232
7.3 SERVICE SECTORS AND THE POTENTIAL FOR THE STATE OF HARYANA	233
7.4 MSMES IN HARYANA AND AREAS OF OPPORTUNITY WITHIN THE SERVICE SECTOR	234
7.5 CHAMPION SERVICE SECTORS: RECOMMENDATIONS FOR HARYANA	235
7.5.1 Tourism and Hospitality:	235
7.5.2 Transport and Logistics:	237
7.5.3 Environmental Services:	239
7.5.4 Construction and Related Engineering Services:	241
7.5.5 IT/ITes and emerging technologies:.....	242
7.5.6 Financial Services:	244
7.5.7 Audio-Visual Services:	245
7.5.8 Telecommunication Services:	246
7.5.9 Education Services:.....	247
7.5.10 Medical Value Travel:.....	249
7.6 MAJOR CROSS-CUTTING ISSUES.....	251
7.6.1 Visa Reforms:	251
7.6.2 Skill development with foreign language capability:	251
7.6.3 Standards in Services:.....	252

CHAPTER 8..... 254

GLOBAL & INDIAN EXPERIENCES WITH MSME SUSTAINABILITY: KEY TAKEAWAYS FOR HARYANA MSMES..... 254

8.1 ENHANCING COMPETITIVENESS THROUGH ENERGY EFFICIENCY IN INDUSTRIAL PRODUCTION	256
8.1.1 Colombia	258

8.1.2 Tunisia	260
8.1.3 Vietnam	262
8.1.4 Moldova	264
8.2 IMPLEMENTING LOW CARBON TECHNOLOGIES: ELECTRIC HEAT PUMP TECHNOLOGY IN PUNJABI DAIRY CLUSTER	266
8.3 ENERGY EFFICIENT POT FURNACE IN THE FIROZABAD GLASS INDUSTRY CLUSTER.....	269
8.4 SCALING UP SUSTAINABLE DEVELOPMENT OF MSME CLUSTERS IN INDIA.....	271
8.5 SMALL & MEDIUM ENTERPRISES PROGRAMME- BUREAU OF ENERGY EFFICIENCY.....	274
CHAPTER 9:.....	282
ANNEXURES	282
9.1 UK: CATAPULT PROGRAMME	283
9.2 USA: MEP STRATEGIC PLAN (2017-22)	293
9.3 OVERVIEW OF INDUSTRY/ OTHER ASSOCIATIONS	305
9.4 INDUSTRIAL POLICY INSTRUMENTS MATRIX: COLOMBIA	312
9.5 INDUSTRIAL POLICY INSTRUMENTS MATRIX: TUNISIA	315
9.6 INDUSTRIAL POLICY INSTRUMENTS MATRIX: VIETNAM	318
9.7 INDUSTRIAL POLICY INSTRUMENTS MATRIX: MOLDOVA.....	321
9.8 INDUSTRIAL POLICY INSTRUMENTS OVERALL MATRIX	324
9.9 INDICATIVE ACTION PLAN OF CHAMPION SERVICES SECTOR SCHEME OF GOI	328

List of Figures

Figure 1: Haryana Economic Snapshot.....	24
Figure 2: Snapshot of Haryana MSME Ecosystem.....	25
Figure 3 MSME Competitiveness Framework	27
Figure 4: Dimensions of Global Manufacturing Scorecard 2018	30
Figure 5: Best Practices Aspects for MSMEs	48
Figure 6: Overview of Programmes to Boost Innovative Capacity.....	52
Figure 7: Basis for Innovation Driven SME Growth.....	58
Figure 8: Innovation Policy trends in Selected Countries.....	71
Figure 9: Organizational structure of the Fraunhofer Model	73
Figure 10: Transforming research into functional technology.....	74
Figure 11 : Strategy for Technology and Innovation Centers in the Catapult programme.....	92
Figure 12: Supercluster Initiative in Canada	95
Figure 13: Leading Agricultural Zones in Haryana.....	98
Figure 14: Public & Private-led Interventions.....	104
Figure 15: Programme Priorities	107
Figure 16: Major Business Operations of Japan Finance Corporation	129
Figure 17: MEP Growth Facilitators	130
Figure 18: MEP Achievements	133
Figure 19: Focus of Thai Tanning Industry.....	136
Figure 20: Main Components of Programme.....	144
Figure 21 UNIDO's Cluster Development Framework	150
Figure 22: Key Actors in UNIDO Approach.....	152
Figure 23: UNIDOs Cluster Twinning Framework	156
Figure 24: BDS Ecosystem	158
Figure 25: SIDBI Small and Medium Enterprises Financing & Development Project	159
Figure 26: MSE-CDP Scheme Framework	164
Figure 27: Rajasthan State Amendments in Labour Laws (2014).....	173
Figure 28: GIDB.....	178
Figure 29: Industrial parks Outline	178
Figure 30: Online Registry.....	179
Figure 31 Gujarat Startup Ecosystem and Venture Capital Fund	180
Figure 32 Vendor Development Programme by MP-LUN, Government of Madhya Pradesh	182
Figure 33 Social Capital Creation: Objectives, Drivers and Enablers	191
Figure 34: Role of Industry Associations in Mobilizing Social capital.....	199
Figure 35: Role of industry associations in implementing gov. programs/schemes.....	200
Figure 36: Service Sector Contribution in Haryana (2011-17).....	233
Figure 37: 12 Champion Services Sectors	234
Figure 38: Evaluation Matrix for IEE Policy Instruments.....	258
Figure 39: Clusters covered under SWITCH-Asia Project.....	273
Figure 40: Major Project Activities	277
Figure 41 Functions of Tirupur Exporter Association (TEA).....	306

List of Tables

Table 1: Summary of Leading Practices	17
Table 2: Country Rankings on Manufacturing Environment	32
Table 3: Breakdown of Country Rankings on Manufacturing Environment.....	33
Table 4: Percentage of Workforce in Manufacturing Sector	35

Table 5: Changes in Country Rank based on Manufacturing Output	36
Table 6: Comparison of Loan Guarantee Conditions of Countries	48
Table 7: Leading Practices under MSE-CDP	148
Table 8: Smart Clusters in Haryana	169
Table 9: Leading Practices for Haryana.....	169
Table 10: Interventions for GoH and Industry Associations	189
Table 11: Geographical Clusters & Energy Intensive Sectors	275

Glossary of Terms

AAQ	Ambient Air Quality
AICTE	All Indian Council for Technical Education
BDS	Business Development Services
BES	Bureau of Energy Efficiency
BIS	Business Impact System
BMO	Business Membership Organization
BMTPC	Building Materials and Technology Promotion Council
CAS	Chinese Academy of Science
CDA	Cluster Development Agent
CDC	Cluster Development Cell
CDCC	Cluster Development Co-ordination Committee
CFC	Common Facility Centre
CODISSIA	Coimbatore District Small Industries Association
CoE	Centre of Excellence
COINDIA	Coimbatore Industrial Infrastructure Association
CSS	Centrally Sponsored Scheme
DBJ	Development Bank of Japan
DMIC	Delhi-Mumbai Industrial Corridor
EE	Energy Efficiency
EIMS	European Innovation Monitoring System
EnMS	Energy Management System
EoDB	Ease of Doing Business
EPI	Electronics Data Interexchange
EPP	Enterprises Promotion Policy, 2015
ESCO	Energy Services Company
ETRI	Electronics and Telecommunications Research Institute
FMC	Foundation for MSME Clusters
FTA	Foreign Tourist Arrivals
GBI	Global Business Incubator
GIDB	Gujarat Infrastructure Development Board
GMIC	Global Market Intelligence Cell
GPW	Government Polytechnic for Women
GRI	Global Reporting Initiative
GVFL	Gujarat Venture Finance Limited
HARTRON	Haryana State Electronics Development Corporation
HITVEL	Hyderabad Information Technology Ventures Enterprises Limited
HSIIDC	Haryana State Industrial and Infrastructure Development Corporation
IADB	Inter-American Development Bank
IAEA	International Atomic Energy Agency
IBC	International Business Certification

ICT	Information and Communication Technology
IICA	Indian Institute of Corporate Affairs
IMEC	Inter-University Micro Electronics Centre, Belgium
IMI	Institute for Manufacturing Innovation, USA
IoT	Internet of Things
IPI	Integrated Production Innovation, Austria
ITRI	Industrial Technology Research Institute, Taiwan
JFC	Japanese Finance Corporation
KIADB	Karnataka Industrial Area Development Board
KSSIDC	Karnataka State Small Industries Development Corporation
LMCS	Lean Manufacturing Competitiveness Scheme
MEP	Manufacturing Extension Partnership
MIA	Mohali Industries Association
MPLUN	Madhya Pradesh Laghu Udyog Nigam
NASSCOM	National Association of Software and Services Companies
NIST	National Institute of Standards and Technology, NIST, USA
NNMI	National Network for Manufacturing Innovation
NOFN	National Optical Fibre Network
NPA	Non-performing Asset
NTAP	National Technology Audit Programme, Ireland
OECD	Organization for Economic Cooperation and Development
OEM	Original Equipment Manufacturer
PMAY	Pradhan Mantri Awas Yojana
PROURE	Programme for the Rational and Efficient Use of Energy
RBSM	Reverse Buyer Seller Meet
SC/ ST	Scheduled Caste/ Scheduled Tribe
SDPC	State Development and Planning Commission, China
SEBI	Securities & Exchange Board of India
SFOORTI	Smart Freight Operation, Optimisation and Real Time Information
SIDBI	Small Industries Development Bank of India
SIDCO	Small Industries Development Corporation
SIEMA	Southern India Engineering Manufacturers Association
SIPCOT	State Industries Promotion Corporation of Tamil Nadu
SMAP	Sectoral Mitigation Action Plan
SPV	Special Purpose Vehicle
SWAN	State Wide Area Network
TERI	The Energy & Resources Institute
TTIA	Thai Tanning Industry Association
UNIDO	United Nations Industrial Development Organization
VC	Venture Capital
VDP	Vendor Development Programme

Executive Summary



Executive Summary

The broad purpose of the Leading Practices Report for Haryana MSMEs is to understand leading models and practices adopted across the World, as well as in India, with a view to augment the competitiveness of MSMEs. The detailed contextual understanding of the leading practices documented in the report will be considered from the standpoint of horizontal replication within the MSME sector of Haryana (in the short, medium or long term depending on the practice to be contextualized and adopted, as well as the goal to be achieved).

In order to structure the analysis in this report, leading practices have been identified and reviewed by the Department of Industries & Commerce, Government of Haryana, with a view to answer specific pertinent questions, critical to the future competitiveness of MSMEs:

1. What is the **current state of the Global manufacturing environment**, what are key contemporary initiatives and interventions of countries in this regard, and what are some of the key principles that form the bedrock for facilitating MSME growth and dynamism?
2. How is **innovation impacting the nature of MSMEs** and the requirements thereof, and what are some of the leading innovative measures (Public & Private-led) across selected economies aimed at boosting the innovative capacities of MSMEs?
3. What are the **roles played by the major ecosystem actors**: Governments, industry associations, donor agencies, financial institutions and entrepreneurs, globally and in India and what are the key takeaways for Haryana from existing International and National dynamics of the manufacturing ecosystem?
4. What are the **specific provisions (incentives, subsidies, policy measures etc.) effected by other manufacturing dominated States** within India, with a view for facilitating the participation of **vulnerable sections** of society (SC/ST, Women)?
5. With the advent of the Goods & Services Tax (GST) regime, besides manufacturing, what are some of the avenues of **engagement for service-sector MSMEs** and how can the Haryana State Government boost the State economy while aligning with Government of India's overall vision in this regard?
6. What are some of the leading examples and practices within the realm of ensuring **sustainable business practices of MSMEs**?

Examples of leading practices and its relevance for Haryana's MSME transformation and the recommendations are pointed out in this Leading Practices Report. Table 1 summarizes the main thrust areas of the Leading Practices Report for Haryana MSMEs.

Table 1: Summary of Leading Practices

AREA OF DISCUSSION	BENCHMARKED PRACTICES/ ASPECTS	GLOBAL/ DOMESTIC LEADING PRACTICES/ COUNTRIES ANALYSED
GLOBAL MANUFACTURING ENVIRONMENT	<ul style="list-style-type: none"> ▶ Policy & Regulation ▶ Tax Policy ▶ Energy, Transport & Health ▶ Workforce Quality ▶ Infrastructure & Innovation 	<ul style="list-style-type: none"> ✓ United Kingdom, USA, Japan Switzerland, Canada, Netherlands, South Korea, Germany, China, Mexico, Indonesia, Poland, Italy Russia, Brazil
BOOSTING INNOVATION & INNOVATIVE CAPACITIES OF MSMEs	<ul style="list-style-type: none"> ▶ Technology ▶ Knowledge ▶ Financing ▶ University-Industry Connect /Linkages ▶ Partnerships for Innovation ▶ Alignment of commercial viability & academic discovery 	<ul style="list-style-type: none"> ✓ Fraunhofer- Gesellschaft (Germany) ✓ Innoregio (Germany) ✓ Inter-University Micro-electronics Centre (Belgium) ✓ Industry Technology Research Institute (Taiwan) ✓ Electronics & Telecommunications Research Institute (Taiwan) ✓ Innovation Superclusters (Canada)
PUBLIC AND PRIVATE-LED MSME DEVELOPMENT	<ul style="list-style-type: none"> ▶ Systematic Innovation Management ▶ Entrepreneurship ▶ Market Intelligence & Strategy Alignment ▶ Skill Development, Training & Capacity Building ▶ Holistic MSME Development 	<ul style="list-style-type: none"> ✓ North-East Competitiveness & Employment (UK) ✓ Small & Medium Enterprises Association (Taiwan) ✓ Upper Austrian Food Cluster (Austria) ✓ Bio-bio region (Chile) ✓ Japanese Finance Corporation (Japan) ✓ Manufacturing Extension Partnership (MEP USA) ✓ PASS Competitiveness Cluster (France) ✓ Unilever Manufacturing Sustainability Programme (Vietnam)
LEADING MSME PRACTICES IN INDIA	<ul style="list-style-type: none"> ▶ Industry Associations ▶ State Government Initiatives ▶ Practices in increasing access to finance, markets, infrastructure, horizontal and vertical networks 	<ul style="list-style-type: none"> ✓ Hosiery Cluster (Ludhiana) ✓ Madhya Pradesh Laghu Udyog Nigam (MP-LUN) ✓ Gujarat Venture Finance Limited ✓ Gujarat Infrastructure Development Board ✓ Kerala Venture Capital Fund Pvt. Ltd. ✓ T-Hub, Telangana

	<ul style="list-style-type: none"> ▶ Export promotion & market assistance ▶ Reverse buyer seller meets ▶ Ecosystem of entrepreneurs, investors, incubators, mentors, academia 	<ul style="list-style-type: none"> ✓ Tirupur Manufacturers Association ✓ Chennai Auto Cluster Twinning ✓ COINDIA, CODISSIA, COSMAFAN (Coimbatore) ✓ AP Small Scale Sick Industries Revival & Rehabilitation Scheme (2006)
BENCHMARKING PROVISIONS FOR VULNERABLE SECTIONS (SC/ST & WOMEN ENTREPRENEURS)	<ul style="list-style-type: none"> ▶ Provisions/ Incentives & Subsidies for SC/ST & Women Entrepreneurs viz. Capital Subsidy, Investment/interest subsidy, Entrepreneurship/ Skill Development, Special initiatives etc 	<ul style="list-style-type: none"> ✓ Maharashtra ✓ Tamil Nadu ✓ Andhra Pradesh ✓ Telangana ✓ Gujarat ✓ Karnataka
BOOSTING SERVICE SECTOR MSMEs	<ul style="list-style-type: none"> ▶ Leveraging the 12 Champion Services Sectors Scheme by Gol 	<ul style="list-style-type: none"> ✓ Analysed with regard to achievements & road ahead
MSME SUSTAINABILITY & COMPETITIVENESS	<ul style="list-style-type: none"> ▶ Industry Energy Efficiency (IEE) Policies ▶ Achieving Sustainability in Manufacturing 	<ul style="list-style-type: none"> ✓ Moldova, Tunisia, Colombia, Vietnam ✓ SWITCH-Asia Project ✓ SME, Bureau of Energy Efficiency (BEE) Project

Below is a synopsis of the various topics covered in the Report;

Chapter One lays the theoretical foundation /framework that has been adopted to examine the various contours of the competitiveness of MSMEs, within the larger economic landscape, and the methodology through which the contents of this Leading Practices Report will add value to ongoing initiatives in the State of Haryana.

Chapter Two sets the context for the larger report and broadly captures **the state of the manufacturing environment across the world**, the various aspects that positively influence the overall manufacturing performance of countries, alongside outlining certain leading practices that could be examined/ contextualized for the State of Haryana. Broad policies and practices adopted by various countries to boost their industrial ecosystem are outlined with a view to provide the State of Haryana with ideas/ avenues to boost their manufacturing environment at a macro-level. While some of these avenues might require changes at the country level, they do reflect agenda items

that could be taken up by the Government of Haryana in the course of National deliberations with Gol. This chapter would provide a gateway into the discussion on specific practices with regard to fostering the MSME ecosystem as witnessed across the globe.

Chapter Three takes a leap into the **realm of innovation and discusses the need for innovation and boosting the innovative capacities of MSMEs**, to place them on a strong footing in the years to come. Innovation trends and global leading practices in this regard are covered for countries such as China, Indonesia, Thailand, Germany, South Korea, Taiwan etc. A brief peek into the concept of 'Innovation Superclusters' as witnessed in Canada is also provided in this chapter. The key driving factors for augmenting innovation are outlined, and finally the key learnings for the MSME ecosystem in Haryana are delineated, with a view to provide valuable takeaways for MSMEs in Haryana

Chapter Four draws on the concept of innovation from the previous chapter, and goes a step further and outlines how the **Public and the Private sector are playing competing yet complementing roles in accelerating innovation among MSMEs of Haryana**. Global experiences from various Public-led practices such as the Manufacturing Extension Partnerships (MEPs) of the United States of America, Small and Medium Enterprises Administration (Taiwan), North-East Competitiveness and Employment (United Kingdom), as well as private led initiatives in France and Vietnam are also highlighted in this chapter. The learnings from all the practices and global ecosystems analysed are distilled to delineate the learnings for the Haryana MSME Ecosystem.

Chapter Five focuses exclusively on **practices followed within India to boost MSME competitiveness**. This chapter is an outcome of field visits conducted to various States to study specific practices, as well as secondary research into systems and processes that have helped shape the MSME ecosystem of that particular State. States that have been recognized for leading practices in boosting access to market, infrastructure, finance sick unit revival etc., as well as particularly novel practices by MSME Industries Associations of certain States, have been studied and key practices and learnings that could be considered with regard to the Haryana MSME context, have been outlined.

Chapter Six recognizes the importance of inclusive development and that **a just and equitable society would not be possible without the provision of adequate support for vulnerable groups**. In this regard, this chapter focuses on benchmarking various schemes/ incentives/ subsidies offered by various States within India to MSMEs owned/ run by Schedules Castes, Scheduled Tribes and Women Entrepreneurs. The findings will help provide a sound knowledge base for the State of

Haryana to leverage in the future to ensure an equitable / inclusive participation of vulnerable groups in the larger MSME ecosystem of Haryana.

Chapter Seven takes a refreshingly different path, and steps back from the exclusive focus on manufacturing, to **focus on how MSMEs in the Service Sector** can boost their standing in the Haryana economy. With the advent of the Goods & Services Regime (GST), a destination based tax, it would behove the State of Haryana to focus on augmenting the offerings of the Service Sector, as these services are likely to be consumed within the State itself, thus benefitting the tax base of the State Economy. In this regard this Chapter expands on the novel initiative being finalized by the Government of India titled the '**12 Champion Service Sector Scheme**'. Avenues of investment and engagement, as well as action points with regard to each of these identified Champion Service Sectors are broadly discussed, alongside achievements of the State of Haryana until now.

Chapter Eight recognizes the importance of **addressing issues of sustainability from the perspective of MSMEs**. Competitiveness of MSMEs is directly related to the level of sustainability achieved in the operations of MSMEs. This chapter outlines key learnings from select countries that have taken steps to achieve energy efficiency through appropriate Industrial Energy Efficiency (IEE) Policies. The Chapter then outlines two projects from within India that have yielded positive results with regard to achieving sustainability in operations. Key learnings for the State of Haryana are outlined as well.

Chapter 1

Framework for Enhancing MSME Competitiveness for Haryana MSMEs



1.1 MSMEs in Haryana and Rationale for a Theoretical Framework

In India, the MSME Sector has made immense contributions to economic & social development of the Country. It fosters entrepreneurship, innovation and supplies a wide variety of goods & services to domestic and global markets. As per the National Sample Survey (NSS) 73rd Round conducted in 2015-16 the MSME Sector has created about 11.10 Crore jobs (Manufacturing, Trade and Services).¹ Furthermore, it is an established fact that the MSME sector contributes about 45% to the Manufacturing output in India, 40% to total exports, thus demonstrating its criticality as the backbone of the Indian Economy, and an integral cog in the Global Industrial Market machinery.

Since its inception in 1966, in a span of over 5 decades, the state of Haryana has sustainably transformed from an agrarian economy to a well-rounded economy with a thriving secondary sector and tertiary sector. The economy of Haryana, in the last four years i.e. 2013-14 onwards has gradually grown to surpass the all-India average growth rate across primary, secondary and tertiary sector.

As in 2017-18 (Advanced Estimates), in terms of gross value added (at constant 2011-12 prices), Haryana's primary sector grew stood at 2.4%, while the secondary and tertiary sector stood at 7.7% and 9.4% respectively (Refer Figure 1).²

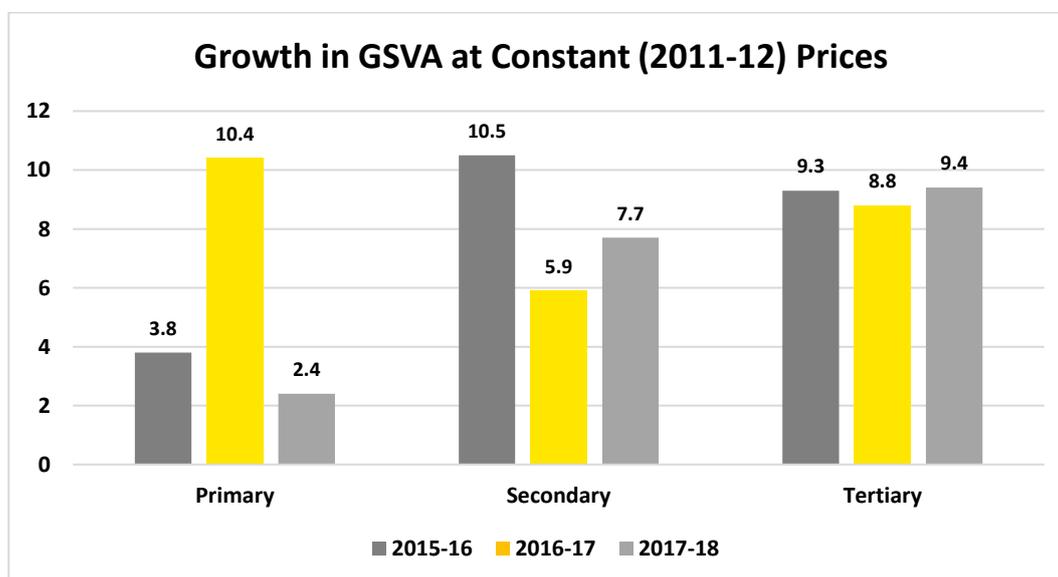


Figure 1: Haryana Economic Snapshot

With close to 18% share of manufacturing in the total GSDP of Haryana and growing consistently at a CAGR of 7% in the last 5 years, Haryana has emerged as one of the leading states in India with the

¹ Annual Report 2017-18, Ministry of Micro, Small & Medium Enterprises, Government of India

² Haryana Economic Survey 2017-18

all-India average manufacturing GSDP contribution (around 17-18%) and competing with industrially advanced states like Gujarat (26-28%) and Maharashtra (18-21%).

Manufacturing has therefore been a bright spot in Haryana’s economic growth story and particularly its industrial transformation.

As in 2018, Haryana has close to 1,00,000 MSMEs (with a total investment-exceeding Rs. 25, 000 crore and generating employment for more than 10 lakh persons) with major MSME concentration around automobile, food & beverages, textiles, engineering and metals.

The manufacturing MSME spectrum in the State comprises of a large number of traditional micro and small enterprises (mainly in districts such as Karnal, Panchkula, Ambala, Panipat, Gurugram, Faridabad, Rohtak, Kaithal etc.)

The MSMEs in the state have been benefitting immensely through the Haryana Enterprise Promotion Policy (EPP) 2015 which has laid out transformational roadmap for industrial growth, keeping MSMEs as focal points of strategic interventions (*Refer Figure 2 for breakdown of sectors and industrial hubs*).

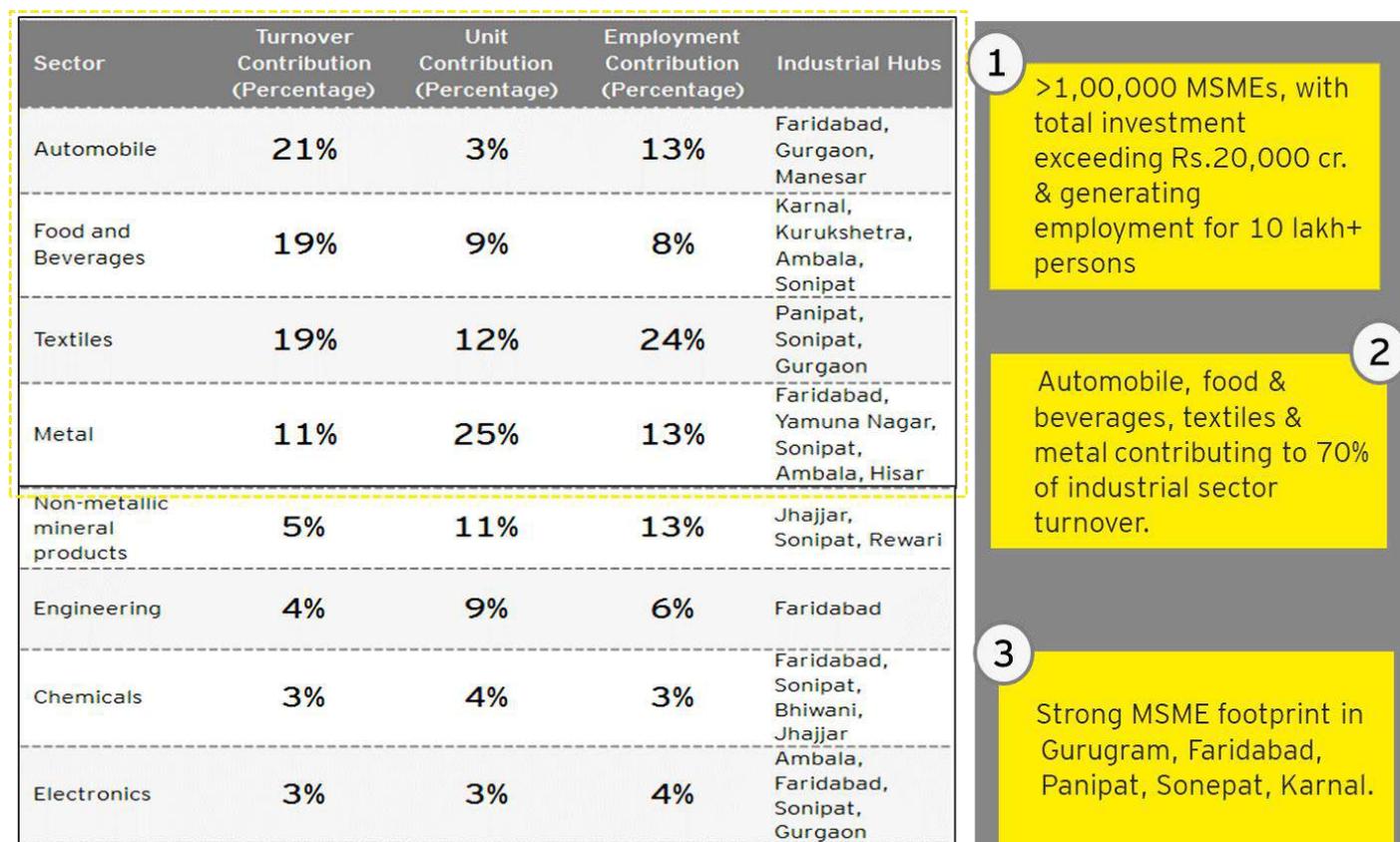


Figure 2: Snapshot of Haryana MSME Ecosystem

The state has a number of strengths on which to build, including an improving business environment, a thriving policy & regulatory environment and a huge derived demand from sectors like construction. Backed by a strategic locational advantage with 57% area falling within the NCR with 21 national highways (2482 kms of length), major rail routes covering the State and its traditional natural resource strengths (cotton, rice, fisheries); Haryana's industrial sector and specifically its manufacturing and MSMEs is strongly positioned in creating a strong footprint on the national manufacturing landscape.

Therefore, manufacturers in Haryana need to capitalise on this and aspire to seize a larger market share (both, nationally and globally) by attaining global competitiveness.

This Leading Practices Report for Haryana MSMEs attempts to compare and contrast approaches from various countries, alongside their respective interventions, policies and initiatives. Following an analysis of the same, key learnings for Haryana MSMEs have been outlined. In dovetailing the leading practices for MSME growth in the state, in this section, a theoretical framework for MSME competitiveness has been outlined to create a base for understanding the rationale of incorporating the selected leading practices in the next chapters.

In order to comprehend the examples, it is important to have a theoretical ground that explains the theoretical mechanisms of enhancing competitiveness.

1.2 MSME Competitiveness Framework: Systemic Competitiveness

The rubric of competitiveness is systemic, based on interactions and inter-dependence amongst the ecosystem forces, both internal and external, which create a pattern in which state and social actors deliberately create the conditions for successful industrial development.

Systemic competitiveness refers to the term "system" as a pattern of actors, institutions, organizations and policies which are inter-linked through complex feedback mechanisms and which, taken together, create a coherent entity - an "eco system". The concept distinguishes between four levels: The 'micro-level' of the firm and inter-firm networks, the 'meso-level' of specific policies and institutions, the 'macro-level' of generic economic and geo-political conditions, and the 'meta-level' of variables like socio-cultural structures, the basic order and orientation of the economy nationally, as well as on the Global stage, and the capacity of social actors to formulate strategies³.

The competitiveness framework is best understood as bottoms up, with enterprise's performance at the micro-level largely dependent on the availability of specialized factors and supporting

³ German development institute (Altenburg, Hildebrand and Meyer-Stamer): Building systemic competitiveness (1998)

institutions at the meso-level and favourable environment for economic development at the meta-level). A stable macroeconomic framework (at the macro-level) is a necessary derived condition, but not sufficient for competitiveness. (Refer Figure 3 for the MSME Competitiveness Framework)

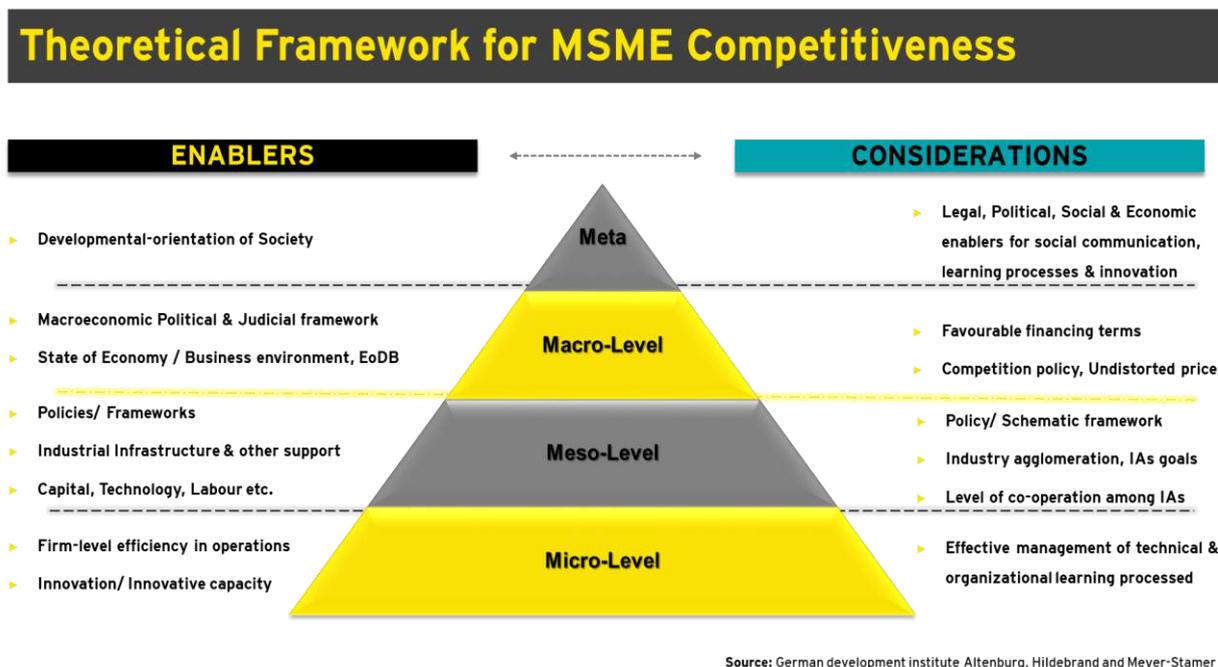


Figure 3 MSME Competitiveness Framework

Therefore, to understand the determinants of competitiveness, this report takes a wide and systemic perspective by identifying the competitiveness drivers across these levels. This systemic competitiveness framework which provides theoretical underpinning to the analysis of leading practices is based on effective government and collective action, which in turn points towards interventions for upgrading individual units (MSMEs), clusters, value chains and business ecosystem.

The broad thematic approaches in this report for identifying the leading practices in MSME development across the world, and across some States of India, have been derived from this systemic competitiveness framework.

Chapter 2

The Global Manufacturing Environment



2.1 Setting the Context: Manufacturing Environment & Global Contours

In order to examine avenues to boost MSME growth in the State of Haryana, and in India as a whole, it is pertinent to contextualize the endeavor against the backdrop of the overall manufacturing ecosystem currently in motion, across various countries.

This Chapter attempts to locate/ slot various countries into a ranking, based on the performance of their manufacturing environment. Through the ranking of countries and subsequent deconstruction of each country's performance we can infer the key drivers and aspects that lead to a successful and dynamic manufacturing sector. This is of criticality to a country like India, whose MSME sector forms the backbone of the industrial economy.

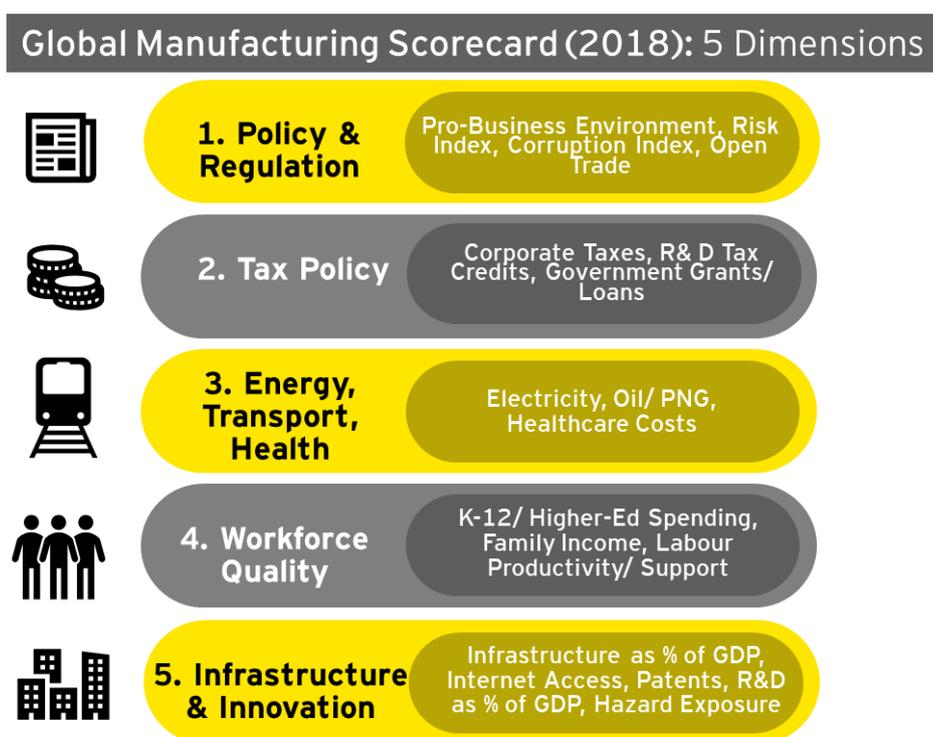


Figure 4: Dimensions of Global Manufacturing Scorecard 2018

The last few decades have shown significant changes in the rankings of countries, based on their manufacturing performance, due to various improvements or practices. While countries such as India have climbed in the rankings of manufacturing output from 14th in 1990 to 6th in 2015, countries such as Spain have dropped in the ranking from 9th in 2005 to 14th in 2015 (Table 3). Similarly, Russia which ranked 2nd in 1980 with regard to manufacturing output, has now dropped to rank 15 in the in the World. Since manufacturing environment is not the sole determining factor of the dynamism of an economy, it is critical to understand these rankings in the context of the

larger macro-economic framework, emerging technologies, dynamic business environment and global practices / regulations.

As distant as few of these geo-political and international occurrences may seem, the ramifications of the same on a globalized world, threatens, yet offered limitless opportunities. This is especially critical within the manufacturing sector, a large portion of which is represented by MSMEs in India.

The Global Manufacturing Scorecard 2018 compiled by the Brookings Institution seeks to assess the Manufacturing Environment in the Global scenario by examining 5 dimensions of manufacturing environment (*Refer Figure 4*);⁴ these dimensions display a remarkable commonality with emerging challenges and opportunities within the manufacturing sector in India as well.

The Rankings on Manufacturing Environment were computed on a scale of 100, based on 20 indicators under 5 areas (*Refer Figure 4*).

- ▶ Overall Policy & regulation'
- ▶ Tax Policy
- ▶ Energy Transportation & Health Costs
- ▶ Workforce Quality
- ▶ Infrastructure & Innovation

The indicators used included pro-business environment, risk index on corruption, open trade policies, corporate taxes, use of R&D tax credit, expensing options, government grants, loans to support manufacturing, electricity, oil/LNG, healthcare costs, Primary education Government spending, higher education spending, family income, labour productivity, labour support, infrastructure spending as percent of GDP, internet access, patent filings, R&D spending as percentage of GDP and hazard exposure.

The breakup of the ranking categories and how the various components of the manufacturing sector play a key role in injecting dynamism and opportunity within the sector are discussed. Lessons/ takeaways which the State of Haryana can adopt wherever possible/ applicable or advocate for with the Government of India are briefly highlighted in the subsequent sections.

⁴ Brookings Institution

Table 2: Country Rankings on Manufacturing Environment

S.No.	Country	Total Score (Out Of 100 Points)
1.	United Kingdom	78
2.	Switzerland	78
3.	United States	77
4.	Japan	74
5.	Canada	74
6.	Netherlands	74
7.	South Korea	73
8.	Germany	72
9.	Spain	72
10.	France	70
11.	Poland	69
12.	Italy	62
13.	China	61
14.	Turkey	58
15.	India	57
16.	Russia	56
17.	Mexico	56
18.	Indonesia	53
19.	Brazil	51

Source: Brookings Institution

The above table (*Table 2*) reveals the current scenario with regard to the State of the Global Manufacturing Environment. As can be seen India ranks number 15 among other countries, while the UK, Switzerland and USA lead the list due to reasons that will be discussed later.

Table 3: Breakdown of Country Rankings on Manufacturing Environment

Country	U.K.	Switzerland	U.S.	Japan	Canada	Netherlands	S. Korea	Germany	Spain
Overall Policies									
Pro-Business Environment	5	5	5	5	5	5	5	5	5
Risk Index	5	5	5	5	5	5	5	5	5
Corruption Extent	5	5	5	5	5	5	4	5	4
Open Trade	5	5	5	4	5	5	4	5	5
Tax Policy									
Corporate Taxes	5	5	1	3	3	4	4	3	4
R&D Tax Credits/Expensing	4	3	4	3	4	4	3	2	4
Govt Grants/Loans	4	4	2	4	4	4	2	4	4
Costs									
Electricity	2	1	2	2	2	1	3	1	1
Oil/LNG	4	5	5	4	1	5	3	4	4
Health care	4	1	1	4	3	3	4	3	4
Workforce Quality									
K-12 Spending	5	4	4	3	4	4	4	3	3
Higher Ed Spending	3	3	5	3	5	3	4	3	3
Family Income	3	5	4	3	4	4	4	4	3
Labor Productivity	4	5	4	3	4	4	3	4	4
Labor Support	4	4	5	4	4	3	3	2	3
Infrastructure and Innovation									

Leading Practices Report for Haryana MSMEs

Infrastructure as Percent of GDP	2	2	2	3	2	1	3	2	3
Internet Access	5	5	5	5	5	5	5	5	5
Patent Filings	2	2	4	4	2	2	3	3	1
R&D Percent of GDP	2	4	4	4	2	3	5	4	2
Hazard Exposure	5	5	5	3	5	5	2	5	5

Countries	France	Poland	Italy	China	Turkey	India	Russia	Mexico	Indonesia	Brazil
Overall Policies										
Pro-Business Environment	4	4	4	1	2	2	2	3	3	2
Risk Index	5	4	5	2	1	3	1	3	2	2
Corruption Extent	4	5	4	3	3	3	2	2	3	3
Open Trade	4	5	3	3	4	3	3	4	4	2
Tax Policy										
Corporate Taxes	2	5	4	4	5	3	5	3	4	2
R&D Tax Credits/Expensing	4	2	3	2	2	4	4	3	3	3
Govt Grans/Loans	4	4	2	2	4	4	2	4	2	2
Costs										
Electricity	1	3	1	4	4	3	5	4	5	3
Oil/LNG	4	5	4	5	5	4	1	2	4	2
Health care	3	5	4	5	5	5	5	5	5	5
Workforce Quality										
K-12 Spending	4	3	3	4	3	3	2	4	3	5
Higher Ed Spending	3	3	2	2	3	2	3	3	2	2
Family Income	4	2	3	1	1	3	2	1	1	1
Labour Productivity	4	1	4	2	3	1	3	2	1	2
Labour Support	2	3	2	3	2	2	2	3	2	2

Infrastructure and Innovation										
Infrastructure as Percent of GDP	3	3	2	5	2	4	2	2	4	2
Internet Access	5	4	4	3	3	2	4	3	2	4
Patent Filings	2	1	2	5	1	2	2	1	1	1
R&D Percent of GDP	3	2	2	3	1	1	2	1	1	2
Hazard Exposure	5	5	4	2	4	3	4	3	1	4

Source: Brookings Institution

The above table (Table 3) very clearly reveals the breakdown of various aspects of the Global Manufacturing Environment and how various countries fare based on this deconstructed classification.

Table 4: Percentage of Workforce in Manufacturing Sector

Region	2000	2007	2011
Developed Countries (U.S., Europe, Japan)	0.169	0.143	0.128
East Asia (China and South Korea)	20.9	21.2	21.5
Southeast Asia (Indonesia, Malaysia, Philippines, Thailand)	16.3	15.4	14
India	11.4	11.9	11.6
Latin America	13.2	12.4	11.5
North Africa	14	12.9	11.9
Sub-Saharan Africa	8.3	8.6	8.4

Source: United Nations Conference on Trade and Development, 2016

As can be seen from the above table (Table 4), the percentage of workforce engaged in the manufacturing sector in India, is lesser than that of Southeast and East Asia, but comparable to Latin America. Developed countries on the other hand reveal a very low percentage

of workforce engaged in the manufacturing sector vis-à-vis its Asian counterparts. However the below table (Table 5) on manufacturing output shows that the developed countries have not faltered in their output.

Table 5: Changes in Country Rank based on Manufacturing Output

Year	U.S.	Russia	Japan	Germany	China	U.K.	France	Italy	Canada	Spain
2010	2	11	3	4	1	10	8	6	14	12
2011	2	11	3	4	1	10	9	6	14	15
2012	2	10	3	4	1	11	8	7	14	15
2013	2	9	3	4	1	11	8	6	14	15
2014	2	11	3	4	1	9	8	7	14	15
2015	2	15	3	4	1	8	9	7	13	14

Year	Taiwan	India	Brazil	Mexico	Switzerland	Turkey	S. Korea	Thailand	Indonesia
2010	16	9	7	13	18	17	5	19	15
2011	17	8	7	13	16	18	5	19	12
2012	16	6	9	12	18	17	5	19	13
2013	16	7	10	12	18	17	5	19	13
2014	16	6	10	12	17	18	5	19	13
2015	16	6	12	10	17	18	5	19	11

Source: Brookings Institution

As can be seen above, India has consistently improved its ranking insofar as manufacturing output is concerned, while other European countries as well as Russia have dropped in the rankings. China, on the other hand, has consistently maintained its position.

2.2 Lessons from Top Performing Countries

2.2.1 United Kingdom:

- ▶ Manufacturing in the United Kingdom continues to maintain a pride of place because of its criticality to the export economy.
- ▶ Despite contributing merely 10% to the GDP of the United Kingdom, the industry sector comprises 44% of the total of UK Exports to the World.
- ▶ A majority of UK manufacturers are of the opinion that the conditions of the global markets are primed for improving export growth and many manufacturers have a concerted strategy to improve the growth of their business in overseas markets.
- ▶ The Government provides tax incentives to facilitate manufacturing and R & D initiatives
- ▶ The automobile and the aerospace industries have benefitted immensely from the supportive environment of the Government and open trade policies.
- ▶ However, given the uncertain political and economic future of the country, it is challenging to predict how the manufacturing sector will evolve and adapt in light of the ongoing Brexit Negotiations.

Key Learnings for Haryana MSMEs-United Kingdom:

- ▶ **Global Integration:** Haryana MSMEs can begin exploring ways to more strongly integrate with global value chains and export markets. Concerted action would especially be required in light of growing opportunities and threats to global trade (protectionism, standardization regimes, trade-wars etc.).
- ▶ **Managing Transitions:** Similar to the UK, Haryana also boasts of a strong automobile sector. With the impending transition to electric vehicles, Haryana Government can take steps to ensure that this transition is achieved smoothly with least disruption to existing supply chains, while augmenting capacities for the automobile industries and providing them with a strong platform to adopt the transition. Higher R & D funding is also critical at this juncture, in addition to alignment and support from GoI.

2.2.2 Switzerland:

- ▶ Transparency, fair process, judicial effectiveness, and politico-economic stability has aided Switzerland to achieve a consistently strong manufacturing economy.
- ▶ Switzerland has placed significant emphasis on maintaining a strong export and import economy due to the favorable business climate

- ▶ The strength of the currency (Switzerland Franc) also helps in maintaining investor confidence.
- ▶ Due to the presence of a highly skilled workforce, the value addition of the manufacturing sector to the economy of the country is massive.
- ▶ Pharmaceutical Companies such as Novartis, Hoffman- La Roche and Computer Giants are all based in the country.
- ▶ At a broad level, Switzerland has leveraged its political stability and high-quality workforce to create one of the most formidable manufacturing economies in the World.

Key Learnings for Haryana MSMEs-Switzerland:

- ▶ **Skilling of Workforce:** One of the key reasons for the success of Switzerland’s economy and robust manufacturing sector, is the presence of a highly skilled workforce that was constantly aligned to the needs of the economy/ industry
- ▶ **Emerging Tech:** Haryana Government indeed has already taken steps to provide for skill and vocational training on various emerging skills and technology applications. These initiatives can be boosted consistently in order to evolve a strong workforce with cutting edge skills in areas such as robotics, 3D printing, Internet of Things (IoT) etc.
- ▶ **Collaborative Platforms:** The Government of Haryana may also promote leading industrial sectors to collaborate through association with existing technical institutions for technology enhancement and developing industry ready skilled work force.

2.2.3 United States:

- ▶ A skilled and talented workforce, use of advanced technology and favourable business policies have helped boost the manufacturing Sector of the United States of America.
- ▶ The manufacturing sector in America accounts for 35% of productivity growth, 60% of exports and 70% of private sector R & D. Furthermore, the manufacturing sector contributed nearly 12.1 percent of the US GDP.
- ▶ US manufacturing is being disrupted with the introduction of additive manufacturing, 3D-Printing, advanced robotics, IoT and big data thus bringing about revolutionary changes to the overall economy of the USA. As a result of these changes and advancements, the USA has become a favoured destination for firms that leverage high-end technologies.

- ▶ Initiatives such as the **National Network for Manufacturing Innovation (NNMI)** that helps create a robust network of Manufacturers, universities, schools, federal agencies, non-profit organizations, has helped create the enabling conditions required to support this technology development in the manufacturing sector, and boost innovative capacity of firms.
- ▶ Some of the leading examples of industries using advanced technology include Rolls Royce, Zimmer Biomet, as well as Government Departments such as the Department of Energy, Department of Defence of the USA.

Key Learnings for Haryana MSMEs-USA:

- ▶ **Engagement Platforms:** A key learning for the Haryana MSME sector is the need to create vibrant 'Engagement Platforms' that integrate the efforts of and augments collaborations between Manufacturers, Universities, Non-Profit Organizations etc. This would help account for the revolutionary changes occurring in the manufacturing sector and keep the Economy of the State of Haryana, relevant to the Indian and Global Economy. Establishing this synergy, as seen in the USA, can be the foundation for achieving greater heights in the years to come.

While the previous examples bear testament to the positive externalities of enabling policies by certain leading countries, it is also necessary to understand the constraints faced by low performing countries. It is critical to understand why certain policies and trajectories can actually prevent economies from realizing their true potential, especially as far as the manufacturing sector and specifically MSMEs in Haryana and India, are concerned.

2.3 Bottlenecks facing Low-Performing Countries

2.3.1 Brazil:

- ▶ High corruption has dampened investor confidence in the economy due to mounting uncertainty, and this in turn has severely hampered long term investment and business growth.
- ▶ While the manufacturing sector accounts for about 60% of the exports of the country, 57% of all bribery cases found in the country between 1999 and 2014 were found to be localized in the manufacturing, transport, extractives and construction sectors.

- ▶ The negative externalities of corruption and lack of transparency in financial dealings have severely affected the growth and performance of business, especially manufacturing.

2.3.2 Indonesia:

- ▶ In 2007 the manufacturing sector in Indonesia contributed about 27% to the GDP, but this has fallen to about 21%, the lowest in the last two decades.
- ▶ The manufacturing economy in Indonesia is suffering from a serious labour productivity challenge. The manufacturing sector has been discussed as having a “missing middle”, implying the presence of a significant number of small and unproductive firms that are causing a negative ripple effect on the manufacturing sector.
- ▶ It has proven difficult for the country to become globally competitive without incentivizing the adoption of new technology to boost productivity.
- ▶ Due to the prevalence of low wages and easy availability of low skilled labour, firms have become complacent and not keen on upgradation of their methods/ processes, and this has resulted in a dampening effect on the entire manufacturing sector in Indonesia.
- ▶ There is also an absence of adequate vocational training.
- ▶ A lack of focus on the export economy has led to a below-par manufacturing sector in Indonesia.
- ▶ Infrastructure inadequacies have severely inhibited the growth of a skilled labour force and spread of international corporations in Indonesia.

2.3.3 Mexico:

- ▶ Mexico is afflicted with poor labour productivity. While the labour productivity grew at the rate of nearly 4% in the 1960's and 1970's, the same has fallen to about 0.8%, and has had a negative impact on economic growth and prosperity.
- ▶ Despite the adoption of newer technologies, a large number of firms continue to depend on informal labour, and this has in turn had a dampening effect on productivity.
- ▶ Poor education has also been outlined to be a critical issue hampering the productivity of the manufacturing sector in Mexico. This is especially pertinent for the economy of Haryana, and in fact, India, given the demographic dividend and the rise in working populace.
- ▶ Infrastructure inadequacies leading to poor connectivity and higher costs of transport of goods, material and services, has had a negative effect on the productivity of smaller firms.
- ▶ The lack of adequate application of rule of law is has led to an estimated 2-3% increase in the cost of doing business in Mexico.

Key Learnings for Haryana MSMEs-Manufacturing Environment

Based on the findings from the country studies, a number of recommendations have emerged, which can be very useful for the State of Haryana to consider. Going forward, in its quest to reinvigorate the industry sector, output, quality and bring about a complete transformation for MSMEs in the State, some points need to be considered. A few of these points require intervention of GoI, and the State of Haryana can take steps to raise some of these points with GoI at the appropriate forum. Key among these areas of focus include the following;

- ▶ **Governance:** It is important to continue pursuing governance strategies that focus on predictability (political, economic) and open trade policies. The manufacturing sector will reap the advantages of policies that enhance access to global markets, and facilitate technological diffusion in an equitable manner. Rise in EoDB rankings bear testament to efforts already made in this regard, but significant scope for improvement remains, both at the State as well as National level.
- ▶ **Incentivize Innovation:** There is a need to incentivize innovation, education and workforce development to a large extent. Further to this, providing grants/ loans to domestic manufactures can aid the growth of small businesses and further their technological innovation.
- ▶ **Leverage Technology:** In the era of information, it is critical to leverage big data, automation and artificial intelligence in order to facilitate the successful delivery of products, wherever possible/ applicable/ feasible.
- ▶ **Strengthen Small Firms:** It is essential to aid small firms in strengthening themselves through technology research and workforce development. This can lead to the creation of higher paid jobs and the supply of skilled labour, as well as reduction in costs of production and marketing. The State of Haryana can take concrete steps to align industry and academia through collaborative platforms.
- ▶ **Business Transparency:** Government ought to continue implementing rules that ensure business transparency and ensuring whistleblower protection in order to weaken corruption/ rent-seeking behaviour.
- ▶ **Infrastructure Development:** Providing necessary financial support to promote physical and digital infrastructure development to boost business development is a key responsibility of the State. In parallel with the development of roads, bridges, dams and

ports, the installation of high speed broadband and mobile technology is critical to the success of the industrial economy.

2.4 Other Economies with Noteworthy Industrial Policies/ Initiatives

Certain economies have implemented successful industrial policies with a view to boost the industrial sector in their respective economies. Some of the steps, contexts, innovations of the same are listed below for specific countries.⁵

2.4.1 Japan:

- ▶ Since the 1950's the Japanese Government leveraged strong industrial policies to develop higher value-added industries viz. steel, automobiles, electronics and machinery.
- ▶ In the place of subsidies, the Japanese Government provided long term financing through the Development Bank of Japan (DBJ) and other public financial institutions. Corporate Governance and financing structures made long term investments a success in the Japanese economy.
- ▶ A key Japanese innovation in the pre-1990's was the improvement of 'information flows' through the establishment of deliberation councils for policy-making for key industries. These councils comprised government officials, industry representatives as well as 'objective observers', such as journalists and academics. These information flows helped to create more robust industrial policies by enabling communication not just between government and private sectors, but also encouraged dialogues between firms themselves, as well as experts.
- ▶ Following the stock market crash of the 1990's Japan was faced with the prospect of stagnation of SMEs. In this period industrial policy was decentralized to the regional level, with a focus on SME development, R & D investments, export credit insurance programmes etc., all of which accounted for about 90% of the total expenditure.
- ▶ Despite all the changes that the industrial policies of Japan underwent in the 1990's such as deregulations, institutional transformations, mergers & acquisitions etc. the key elements that have consistently been incorporated in the industrial policies of Japan have been the promotion and boosting of Innovation/ innovative capacities of SMEs.

⁵ International Industrial Policy Initiatives, Government of United Kingdom & University of Cambridge

- ▶ In the times of stagnation and slow growth some of the key steps that were taken by Japan with the intention of benefitting SMEs included;
 1. Injection of Public Funds into the banking sector to enable low-interest borrowing
 2. Comprehensive package of industrial and innovation policies to promote start-ups and boost the innovation capacities of SMEs.
 3. Subsidies and regulatory reforms (favorable taxation for R & D, removal of minimum capital requirements) in tandem with enabling measures to boost science & technological infrastructure.
 4. Prioritizing industries and sectors which hold the key to meeting society's future needs.
 5. Formulation of a Strategic Technology Roadmap to prioritize targets, identify and deploy key technology requirements.
 6. The establishment of 'regional consortium clusters' on the basis of co-operative as well as competitive relationships.
 7. 'Innovation Super High-ways' to strengthen the relationship between science, technology and industry.

Key Learnings for Haryana MSMEs-Japan:

- ▶ **Cluster Prioritization:** Prioritization of Clusters.
- ▶ **Collaboration:** Increase in R & D spending and boosting innovation in SMEs consistently through necessary policies and introduction of collaborative platforms that bring together all stakeholders within the manufacturing ecosystem (Government, Industry, Academia).
- ▶ **Science and Technology:** Boosting Science & Technology spending, in tandem with infrastructure development.

2.4.2 Germany:

- ▶ From the 1970's the German Government invested heavily in public-funded R & D infrastructure by way of two publicly funded network of institutes, the Fraunhofer Society and the Max Planck Society.
- ▶ This was complemented with a network of sectoral and local associations, with focus on technology transfer, provision of training, organization of focus groups for problem identification and co-operative problem solving.

- ▶ Following the re-unification of Germany, there was a dual industrial policy in play for East Germany and West Germany, While the focus for the former was on the rationalization of State-owned enterprises, the focus for the latter was on 'Mittlestand' Companies (forms with 100-500 employees) and 'hidden champions', companies that dominated global niches.
- ▶ Due to the vast number of players and processes, it is challenging to ascertain the exact nature of the industrial policy in Germany. However, it happens to be a site for some of the most 'active' industrial policies.
- ▶ Since the 1990's a majority of the spending on industrial policy in Germany has been on the following areas
 1. Environmental Sustainability
 2. Energy Efficiency
 3. Renewable Energy
 4. Enhancement of Innovation Capacity
 5. Creation of regional Public-Private Partnerships

Key Learnings for Haryana MSMEs-Germany

- ▶ **Focus on Energy Efficiency:** Focus on Energy Efficiency and sustainability in manufacturing and production
- ▶ **Cross-dialogues:** Strengthen the role of industry associations and platforms that encourage cross dialogue between stakeholders (Government, Industry, Academia, Non-Profits etc.).

2.4.3 South Korea:

- ▶ Since the early 1990's the South Korean Government began scaling down its industrial policies, best symbolized through the termination of 5-year plans, and the abolition of the Economic Planning Board (EPB).
- ▶ With South Korea gradually scaling down its industrial policy, the Government has continued to deem certain industries as strategic in nature, and has provided targeted support for the same.
- ▶ Some of these strategic areas include Bio-tech, Nano-tech and green-tech industries and the way they have been supported include R & D funding, credit guarantees and public funding for training.

- ▶ A key point to note is that the R & D funding has been creeping up steadily in South Korea because of which this country now has one of the highest proportions of Government-financed R&D as a proportion of GDP in the World, at 1% above the OECD average of 0.74%.
- ▶ Despite attempts at developing industrial clusters in economically weaker regions, these efforts have not yielded much benefits due to the absence of strong institutional networks (industry associations, collaborative platforms etc.).

Key Learnings for Haryana MSMEs-South Korea

- ▶ **Strategic-Funding:** Haryana Government can take note of the steady increase in 'strategic' public-funded R & D spending and boosting of innovation capacity. The proportion of Government funding of R&D is a key takeaway here as well.

2.4.4 Singapore:

- ▶ Since the outset, the lack of local entrepreneurial talent and industrial technology implied that the Singapore economy was dependent on external players to industrialize itself. However, a deeper examination of the Singapore growth story reveals a concerted and focused effort by the Government to proactively support the growth of the manufacturing sector. Due to the paucity of resources and additional vulnerabilities on account of the uniqueness of the City-State, the Government of Singapore has set very clear contours to nurture the growth of its manufacturing sector.
- ▶ In 2010, a high-level committee tasked by the Prime Minister recommended that a 'globally competitive manufacturing sector' be maintained at between 20-25% of the economy.
- ▶ 'Strategic Clusters' assessed to have long term potential are actively nurtured and supported by the Government.
- ▶ A key point to note is that Singapore has not let the market have a complete control over the trajectory. Rather the Government actively attracts FDI inflows into targeted areas regarded as critical for the future of the economy. The criteria considered for the grant of subsidies for businesses thus include;
 1. Employment
 2. Growth potential
 3. Technical Contents
 4. Value Additions
- ▶ A wide range of incentives is one of the key reasons why Singapore continues to attract investments. Some of the key incentives include;
 1. Pioneer Investments (Corporate tax exemptions on income from qualifying activities)

2. Development & Expansion Incentives (reduced corporate tax on incremental income from qualifying activities)
 3. Research incentives (grants to develop capabilities in R & D in strategic areas of technology)
- ▶ The Government of Singapore includes significant 'sectoral-targeting' in light of the scarce land resources of the country. Land-related industrial policy measures also specifically target specific clusters within the manufacturing sector. Contiguous land is also made available to certain key sectors such as aerospace and pharmaceuticals.

Key Learnings for Haryana MSMEs-Singapore

- ▶ **Funneling Investments:** Encouraging MSMEs through 'strategic' deployment of resources and policies. 'Funneling' investments towards priority/ contextual sectors with regard to MSMEs and specific clusters might be of relevance to Haryana MSMEs, given the large presence of automobile and textile sector and the emerging opportunities/ threats such as the impending arrival of e-vehicles.
- ▶ **Incentivize R & D:** Government of Haryana needs to enhance the deployment of technology and incentivizing R & D in strategic areas of technology. Academia and private bodies have to be roped in to effect this concerted approach.

2.4.5 Finland:

- ▶ Finland has radically transformed itself from one of the poorest economies in the World, to one of the richest, over a short span of time.
- ▶ Over the last few decades, Finland has taken steps to promote innovation in a general sense, rather than from a sectoral point of view.
- ▶ The Government of Finland continues to play a key role directly through R& D and by providing a strong science and technology grounding, for industries.
- ▶ It is interesting to note that even during times of recession, the Government of Finland continued to be committed to R & D investments, despite cutting down on public expenditure
- ▶ Some of the key steps taken by the Government of Finland include;
 1. Improving access to innovation funding: Through various Government initiatives (SITRA, Tekes)
 2. Facilitating technology transfer and commercialization of research: Through networks of science parks and centres of expertise

3. Fostering Public-Private Cooperation in developing, diffusing and using new technologies and knowledge.
4. Pioneering the concept of 'National Innovation System'. Today the Strategic Centres for Science, Technology and Innovation (SHOKs) continue to play a key role in creating platforms for Government, private sector and academia/ research to collaborate.

Key Learnings for Haryana MSMEs-Finland:

- ▶ **Smart Funding Mechanisms:** Incentivizing innovation through appropriate funding mechanisms as pointed out earlier is critical at this juncture.
- ▶ **Collaborative Platforms:** Creation and sustenance of platforms of all stakeholders (Government, private sector, academia, research) in order to facilitate cross-dialogues and learnings would go a long way in increasing the competitiveness, innovative capacities and overall robustness of MSMEs in the State.

2.5 Best Practices for MSMEs, Job Creation, & Economic Growth

MSMEs account for a majority of jobs in most OECD Countries, especially in countries like Italy, USA, and Japan. It is important to note that MSMEs account for a majority of new jobs created, especially in countries with a good track record of employment created.

However, there are some obstacles that MSMEs face during their operations, ranging from access to financing, to regulatory burdens, and the need for new technological adoption in manufacturing etc.

Keeping in mind the challenges faced by MSMEs across the world, there are some basic key takeaways that one needs to consider while discussing MSMEs. While many of these principles may seem very theoretically basic at the outset, it is important to lay the foundation with the same. The broad contours of best practices for SMEs can be grouped as follows (*Refer to Figure 5*).



Figure 5: Best Practices Aspects for MSMEs

2.5.1 Financing of SMEs

a) **Best Practices in Loan Guarantee Schemes:** In order to tackle the issue of funding SMEs and ensuring ease of borrowing for small firms, some countries (Canada, France, UK) have introduced loan guarantee schemes. A percentage of the loan is guaranteed by the state so that, in the event of default, the loss to the financial institution is only a proportion of the sum at risk. In return, the charge paid by the borrower on such loans is higher than under normal arrangements since an additional premium is paid to the state to cover expected losses. India also has similar programmes viz. Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE). The interesting loan guarantee conditions of these three countries compared below (Table 6).

Table 6: Comparison of Loan Guarantee Conditions of Countries

Loan Guarantee Conditions	France	Canada	United Kingdom
% of Loan Guaranteed	65	90	70-85
Interest Rate Premium	0.6	1.75	1.5

Some of the general lessons for a loan guarantee scheme to succeed, which would be pertinent for Haryana and India, revolve around the following areas;

1. **Minimization of dead-weight:** State to ensure that the funds provided are not used by the banks as a substitute for their own loans.
2. **Job Creation:** State will wish to ensure that there are added benefits ensured such as the creation of jobs.

3. **Developing Banking Expertise:** Due to the frequency and range of lending, banks can develop the expertise needed to distinguish good projects from bad projects, and this in turn can increase lending to smaller firms.
 4. **Speed of Decisions:** It must be ensured that the turnaround times to take decisions about loans must be minimized.
-
- b) **Financing the seed and start-up stages of investment:** While countries such as Canada and the USA have made it relatively easier to obtain early stage financing, raising early stage financing has been found to be a challenge outside of North America. Moreover, while financial support for later stage investments has been made available by commercial banks, there is a gap in early stage financing that needs to be addressed in order to benefit the smaller firms. Similar programmes in India, viz. Stand up Programme have not realized their full potential.
 - c) **Involvement of Institutional Investors in venture financing:** It is a fact that institutional investors prefer larger and later-stage investments, over smaller, early-stage investments. With a view to impact the private equity market, limited partnership models, in tandem with favourable regulatory regimes and changes in the tax code have spurred the growth of the private equity market. It appears that raising private equity through limited partnerships is growing in popularity outside of the USA.
 - d) **Informal Venture Capital:** Venture Capital provided by private individuals or 'business angels' are of critical importance, as they provide significantly more amount of capital to private business when compared to the formal sector.
 - e) **Exit Mechanisms:** Well-designed exit mechanisms are key to evolving a healthy venture capital industry. Trade sales, IPOs, repurchases are some of the popular mechanisms. In Canada and the USA, sales to portfolio investors are used commonly, whereas in Europe, Sales and buy-ins/ buy-outs are commonly used.
 - f) **Role of taxation:** There is a need to reduce distortion in taxation to ensure that the burden doesn't fall unduly on smaller businesses. It is critical to consider the extent to which the tax system can effectively remove obstacles faced by SMEs in a cost-effective manner. Based on international experiences, a few areas where the tax system has a potential beneficial role to play for SMEs include;
 1. Limiting the cost disadvantages faced by small businesses in complying with tax legislation

2. Encouraging the creation of new small business.

2.5.2 Business Environment

There are five ways through which a balance can be struck between the need for regulation of SMEs and the interests of the SMEs in complying with the regulations.

- a) **Scrutiny of Regulation:** There ought to be a systematic scrutiny of new regulations. New procedures stipulated through new legislations ought to be justified, and the economic costs for firms (differential costs as per size of the firms) estimated and quantified. Existing regulations ought to be studied and reviewed thoroughly on a consistent basis with a view to eliminate 'unnecessary regulation'. Canada does the same by identifying regulations wherein the costs outweigh the benefits. Similarly, the Enterprise and Deregulation Unit in the USA has been successful in eliminating 'unnecessary' regulations.
- b) **Business Impact Mapping:** In order to ensure the audit and monitoring of the new legislations, a Business Impact System (BIS) ought to be implemented.
- c) **Sunset Clauses:** Rather than allowing regulations to continue beyond their mandated period on a default basis, it is necessary to introduce legislation/ regulations with a sunset clause. This would mean that rather than letting a policy decision to continue beyond a stipulated time, a case would have to be made to allow the regulation to continue beyond its mandated period. Countries such as the Netherlands have followed this practice in the past.
- d) **Technology Adoption:** With a wider adoption of Information Technologies (IT) and Electronic Data Interchange (EDI) there is a chance of reducing the bureaucratic burdens on SMEs. However, it must also be kept in mind that smaller firms would most likely face immense difficulties in adopting modern technologies, methods and processes. Keeping in mind the fact that these smaller firms are most likely to be disadvantaged, the same needs to be factored into the policy design process.

2.5.3 Technology

Keeping in mind the differing needs of firms at various levels, the Government can take steps to remove obstacles to the firm-level learning of best practice technology, and innovation management. The OECD through its own technology adoption practices and experiences have helped glean a wider picture of the best practices in the domain of technology diffusion and adoption. Some of the best practices are outlined below;

- a) **Ensuring Quality Control:** Quality of service providers, level of training of consultants, effectiveness of local delivery systems is integral to good quality technology diffusion

systems. The Manufacturing Extension partnership (MEP) in the USA is a good example in this regard. While the former resorts to a merit based competition among the MEP Centres, the latter ensures the effective training of consultants to work with firms, to develop strategic upgrade plans.

- b) **Focus on Customers:** Technology Diffusion Programmes ought to focus on customers and aim at meeting the changing needs of companies. The Fraunhofer Society in Germany which promotes technology development and diffusion through 46 centres is a good example of this practice (detailed in subsequent chapter).
- c) **Upgrading the innovative capacity of firms:** Technology diffusion programmes ought to promote awareness on the value of innovation and stimulate demand for organization change within firms. Some of the programmes that best exemplify the boosting of innovative capacities include the Business Development Using Technology (BUNT) programme in Norway, the Integrated Production Innovation (IPI) Programme in Austria, National Technology Audit Programme (NTAP) in Ireland, and the Production 2000 Programme in Germany.
- d) **Integration with National Innovation Systems:** Technology Diffusion Systems ought to build on ensuring synergies and greater coherence between programme design and service delivery. Existing inter-relationships within national innovation systems ought to be leveraged. Germany for instance adopts a 'network based strategy' that emphasizes the development of bridging institutions and partnerships to promote information flows, co-ordination and networking within regional technology infrastructure. Innovation centres in the Netherlands and MEPs in the USA are also other good examples of this approach.
- e) **Building in evaluation and assessment:** One of the bottlenecks/ challenges faced by OECD countries as far as technology diffusion and adoption is concerned revolves around creating adequate mechanisms for assessment, with a view to improve operations and management. The European Commissions 'European Innovation Monitoring System (EIMS) attempts to compare the efficiency and efficacy of similar programmes across various countries (*Refer Figure 6*).

	Benchmarking firms' performance	Diagnostic of firms' managerial and organisational capabilities		
		Overall diagnostic	Thematic diagnostic (e.g. quality, IT)	Focus on innovation management
Government monitors innovation performance; evaluates innovation capacity and screens firms' needs	<i>Innovation Surveys (CIS, national initiatives)</i>	FORBAIT proactive mentoring (Ireland)		Pilot SESSI survey (France) DTI report on "How The Best UK Companies Are Winning"
Government provides benchmarking or diagnostic services	DTI Benchmarking service (United Kingdom)			
Government encourages and coordinates private initiatives	FBS service (United States)	FRAM programme (Norway)		MINT programme (Austria)
			IMIS programme (European Union)	
		MEP (United States)		
Government facilitates access to private service providers	STATEGIS (Canada) Benchmarking Information Service (Australia) Business Links (United Kingdom)			
Private initiatives	Consultants and consulting firms			

Source: OECD Secretariat.

Figure 6: Overview of Programmes to Boost Innovative Capacity

2.5.4 Management Capabilities

a) **Consultancy and Training Services:** Many countries in the G7 have attempted to enhance the 'quality' of the owner/ manager of SMEs by encouraging training and/ or providing access to subsidized advisory and consultancy services. Japan for instance has created a network of MSE colleges since 1962. Currently there are 8 such colleges across Japan which educate SME employees, consultants and managers. Formal training is provided through courses (up to 12 months) and are certified by the Ministry of International Trade and Industry (MITI). In the past the UK also had a subsidized training programme for SME Consultants. Law 44 introduced in Italy in 1986 attempts to develop managerial expertise among young entrepreneurs by the provision of technical training as well as financial incentives. Some of the key points that ought to be kept in mind while deliberating subsidy schemes to improve the skill base of SMEs include;

1. Specification of Objectives
2. Situation after removal of subsidy
3. 'Asking the SMEs themselves'

- b) **Information Network for SMEs:** Due to the onset of globalization, many OECD countries have recognized the need to provide information on other parts of the world, to SMEs within their respective countries. Information is critical to the competitive advantage of SMEs and this demand for information is likely to increase exponentially in the coming years, given the ongoing geo-political shifts, market protectionism and constantly changing standardization measures. Tackling information asymmetry and increasing access to information is an essential path in the trajectory to develop SMEs.

2.5.5 Access to Markets

- a) **International Markets:** Almost all the G7 countries have initiated measures to help SMEs tap into international markets. Japan has taken steps to support the initiatives taken by SMEs by establishing Local Industry Promotion Centres (LIPCs) in which groups of SMEs in similar industries can collaborate for common good. Overseas promotion is coordinated by the Government and greater emphasis is currently being placed on encouraging SMEs to be more aware of international opportunities in Japan.
- b) **Public Procurement:** Governments throughout the world are viewed as 'difficult' customers by SMEs. From the point of view of a small business, a Government is often viewed as slow and bureaucratic. From the point of view of the Government, the smaller firms have poorer administrative and other procedures that is vastly different from that of larger firms. Therefore, while the cost of purchase for a Government may be lower when buying from a small firm, the administrative cost of entering into a contract with a larger firm is more beneficial vis-a-vis entering into multiple small contracts with smaller firms. However, countries such as USA, Australia have taken steps to ensure that the 'share' of purchases from small firms in pursuance of Government Contracts is increased. This USA Policy of '**Set Asides**' even at times for special groups such as the socially disadvantaged, has helped fulfil certain social obligations. India can still achieve greater ground in this regard. However, it remains to be seen whether these initiatives actually result in competitive advantages for the Economy as a whole, which ought to strike a balance with achieving social equality and equity.

Key Learnings for Haryana MSMEs -SMEs, Growth and Job Creation

- ▶ **Smart Financing Design:** Loan Guarantee Schemes and any financial subsidies for that matter, implemented with a view to boost the MSME ecosystem, ought to be designed in a smart manner to ensure easy liquidity and timely disbursement of loans. Moreover, it is

critical that the banking system, in parallel, develop the requisite expertise in the arena of loan granting and conducting due diligence. This assumes significance especially in light of the rising challenge of Non-Performing Assets/ Loans (NPA/ NPL). Furthermore, aspects such as the potential for job creation, boosting entrepreneurship etc. ought to be factored in comprehensively in the design of similar financial assistance schemes.

- ▶ **Venture Capital Ecosystem:** It is important that the venture capital ecosystem be further nurtured and developed through appropriate regulatory regimes and other supportive measures, as venture capital provides significantly more capital when compared to the formal sector. The role of 'business angels' in nurturing and developing the private equity market is extremely critical and integral to the further development of the MSME Ecosystem.
- ▶ **Integration of Platforms:** Given the rise in exchange of electronic data and data interchanges, there is a need to ensure that firms augmenting technological application ensure a seamless integration with larger National Systems, in tandem with ensuring adequate quality control of such technology diffusion. Bridging institutions and partnerships to promote information flows, co-ordination and networking within regional technology infrastructure is critical to efficiency of functioning of firms in the near future.
- ▶ **Augment and Support Public Procurement:** Two key ways of augmenting market access viz. public procurement from smaller firms and widening exposure to international markets ought to be leveraged to the fullest extent possible. The administrative 'cost' of buying from smaller firms, viz. regulations, procedures, etc. ought to be reviewed and 'unnecessary' regulations be removed in order to further ensure an ease of doing business with the Government for smaller firms.
- ▶ **Ensuring Market Intelligence:** The World around us is changing rapidly. Trade wars, geopolitical shifts, and tariff/ non-tariff barriers are sure to affect, and in fact severely disrupt the global supply chains. Some experts point to countries with lower costs of production as benefitting from the current geo-political occurrences (refer last chapter on achieving industrial sustainability/ efficiency). While many countries are maintaining a close watch on these developments, it would behoove the Government of Haryana to begin actively considering the formation of a Global Market Intelligence Cell (GMIC), comprising experts in economics, trade and International Relations. Such a proactive measure could surely help the State navigate tricky waters ahead and ensure continued

and expanded access to markets for its MSMEs, through constant supply of market information, advisories / monitoring, in addition to ongoing efforts by Government of India.

Chapter 3

Boosting Innovation & Innovative Capacities of MSMEs: Key Takeaways for Haryana MSMEs



3.1 Innovation Driven MSME Growth: Global Experiences and learnings for Haryana State MSMEs

In Chapter 2, among many key factors, one of the common factors identified as being critical to the success of top-performing manufacturing economies was their ability and willingness to support innovation. Therefore, it is befitting to delve deep into some of the novel initiatives by some of these leading economies.

Innovation systems interact with global value chains in multiple ways to support the production, identification, appropriation and flow of tacit knowledge. Thus, multinational firms, as well as global value chains, with their organized knowledge bases and sites of innovation and their use of “community of practices”, can very well overcome the absence of geographical proximity. Global Value Chain represents one of the most common options for small suppliers in less developed countries to access international markets, updated knowledge, innovations and new technologies.

An Innovation System can be thought of as the institutional infrastructure supporting innovation and its diffusion within the production structure of a region⁶.

3.2 Basis for Innovation Driven SME Growth

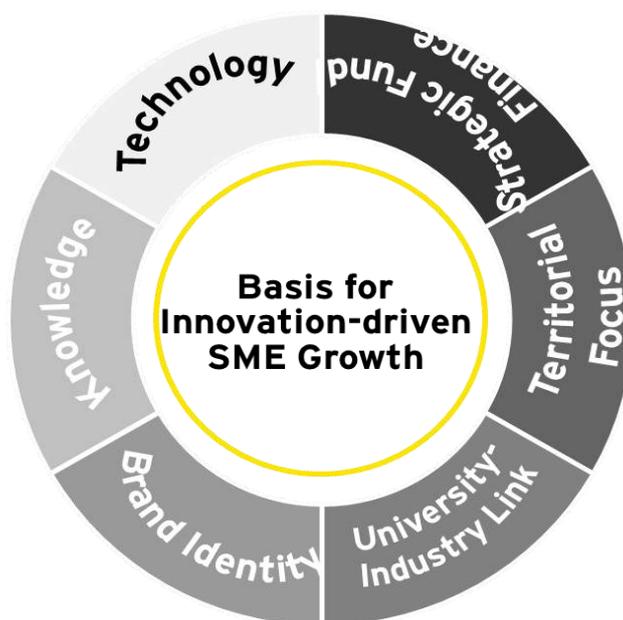


Figure 7: Basis for Innovation Driven SME Growth

⁶ Pietrobelli, C, Inter-American Development Bank: Review of International Best Practices of Programs to Promote Regional Innovation Systems (2009)

There are certain key aspects that form the bedrock of innovation driven MSME Growth (Refer Figure 7)

Technology Transfer

- ▶ Companies are not necessarily informed of or have access to the relevant research and technological knowledge. Moreover, successful innovation requires knowledge from different fields, which a single enterprise cannot produce alone. Innovation often takes place through an exchange of knowledge between users and producers. Hence technology transfer focuses on the process of intermediation and diffusion involving enterprises and research organizations.

Clusters

- ▶ Innovative clusters have a strong territorial/regional identity and are mainly focused on innovation and development of specific sectors. Enterprises, and the linkages among them, and sometimes with other local organizations, play a central role.

University-Industry Linkages

- ▶ University-Industry linkages base their rationale on the leading role of universities, research organizations, and partnership in collaborative projects with enterprises for the development of pre-competitive research to be exploited by the productive sector.

Programs with a clear territorial sector focus

- ▶ These programs promote the interaction among different entities, (Governments, both at national and local level, public organizations, research centers, and enterprises) that operate in a specific territorial context and in specific sector(s) often with focus on science, technology and innovation. Although these programs have specific characteristics, they can easily overlap with other programs.
- ▶ Interactions among companies, research institutions, and local government actors are essential to generate innovation. During the innovation process, economic actors do not act in isolation as they jointly contribute to the production, diffusion and use of knowledge. Innovation represents the true engine for structural change, with a direct influence on productivity improvements, and firms play a central role in both creating and diffusing innovation. The specific characteristics of a territory, its specific assets and networks, and not only the economies of scale allowed by geography, influence its innovation performance.

3.3 Innovation policy trends in selected countries:

Innovation policy trends on how governments, research and development institutions and the private sector in different countries have responded to developing adapted approaches on the promotion of innovation can be valuable learning for MSMEs. A quick glance at the following regions⁷ will help understand innovation-driven SME growth better:

- ▶ **China, Thailand and Indonesia in Asia**
- ▶ **Switzerland, Denmark, Ireland and Germany in Europe**

These examples are rendered from a GIZ Internal discussion paper: Innovation Policy Trends in Selected Asian, MENA, Eastern and Western European countries (2006). The examples show how theory can be put into practice and are therefore of interest to MSMEs.

3.3.1 China

China is gradually setting up a system modelled to a large extent on Western models, yet not through the creation of new agencies, but with the reorganization of existing ones. The Chinese Academy of Science (CAS), a non-profit, non-governmental organization was not only the initiator of this new strategic approach but also has become the key implementing agency. CAS is supposed to act as a bridge between the scientific world and the government.

A first initiative was the Knowledge Innovation Program (KIP) carried out by CAS. The KIP has most importantly resulted into serious restructuring of the R&D community (transformation of state-controlled research institutes into private enterprises, effectively mandating that their activities and operations must be pragmatic and profitable). Ten innovation bases had come into being (combining research forces of relevant CAS institutes in selected areas and thereby becoming special “thrust areas”).

The Strategic Action Plan for Science and Technology (S&T) Innovation (SAPI), was a key measure for CAS “to scale the heights of S&T development and to make fundamental, strategic and forward-looking contributions to China's economic growth, national security and social development. It was also a necessary step for the upgrading of the national capacity for S&T innovation.” SAPI comprises an overall plan, four thematic plans (basic research, life sciences and biotechnology, environmental technology, high-tech research and development) and several “special programmes” (major research projects in key areas, infrastructure and supporting facilities, new research units, science

⁷ GIZ Internal discussion paper: Innovation Policy Trends in Selected Asian, MENA, Eastern and Western European Countries (2006)

communication, industrialization of innovations and headquarters' reform). The plan indicates a modification from China's very pragmatic earlier approach of attracting FDI for cheap mass production, gradually establishing indigenous R&D capabilities, launching pilot operations and scaling up operations in case of success. A new development is to simply "buy" technologies by taking over companies in developed countries.

China intends to move from replication and reengineering to the creation of own, new technologies. China's current Plan for Science and Technology foresees "improving the sustainable innovation capacity of science and technology, under which the industrial enterprises shall be made the mainstream for technical innovations focusing on the key technologies for the industrial development so as to promote the development of high tech industries and transform the traditional industries with high technologies, promoting the industrial technical upgrading and restructuring". The Plan for National Economic and Social Development similarly outlines the importance of innovations in selected high-tech industrial areas.

In China "science and technology" means "industrial development". There is a joint understanding among the relevant ministries and policies. Some examples:

- ▶ **Example 1:** China successfully managed to integrate R&D priorities with the target planning of other government departments such as industrial development planning, environment and health as the example of the "high tech", "digital" and "green" Olympics 2008. This initiative e.g. strikingly attracts stakeholders from the health economy within the EU to participate in working groups for technology development and cooperation in Beijing.
- ▶ **Example 2:** The Chinese government showed its commitment to renewable energy development as outlined the government's renewable energy development program 1996-2010. This has been launched by the three state agencies, the Ministry of Science and Technology (MOST), the State Development and Planning Commission (SDPC), and the State Economic and Trade Commission (SETC). In this frame, development programs have been launched for both fostering research & development and commercialization. As soon as an interdisciplinary goal setting of ministries is achieved, the impact on innovation in enterprises and research institutes is multiplied.

3.3.2 Indonesia

Particularly striking in Indonesia is the deep-rooted incoherency between economic policy and technology policy that has been obvious for many years. Economic policy was attracting FDI based on cheap labor that brought little innovation into the country. The Indonesian Government had invested heavily into the aerospace, telecommunications and energy sectors, seeking foreign technology and partnerships to speed developments in these areas. Technology policy was so high profile and yet inefficient that it had little relevance to market needs.

Wrong priority setting in the past is still a burden on the national innovation system realizing that the technology policy had been inefficient and overambitious for many years, the Ministry of Research and Technology (IMRT) under a new leadership and inspired by studies on national innovation systems in industrialized countries has proposed the “Act of National Innovation System (ANIS)” to the Parliament. This Act is supposed to mark a shift of the government's role from consumer to regulator of science and technology system. IMRT assumes that technological dependency could be diminished by stimulating technological innovation. The German Ministry for Education and Research (BMBF) is assisting the structural modernisation of the Science & Technology landscape. While the Act has been proposed, there is no explicit innovation policy document. However, “Innovation” is included as a key element in the Indonesian Science and Technology Strategic Policy (IPTEKNAS). The policy provides basis and direction for a more defined science and technology development and focuses on efforts to incorporate research, development, and engineering activities as an integral part of the national development.

Technology is mostly brought into the country by multinational companies through imported equipment and machinery and through an inflow of managerial and production expertise. However, since most technological transfers have taken place through on-the-job training, the rate of transfer has been slow. The main problem has been low absorption capacity due to low education levels and an absence of significant R&D activities, both public and private, within the local economy.

The most pressing issues for Indonesia in the near future is how innovation and technology policy can effectively support the present decentralization process and how an efficient transfer of R&D results between research institutions and product development of SME can be facilitated. How do SMEs contribute to innovation processes in Indonesia and how can SMEs become the backbone of a restructured innovative economy in Indonesia? SMEs will find it difficult to become knowledge based, if only incremental but not radical changes at the political, institutional and company level take place.

3.3.3 Thailand

As highlighted in its Ninth Development, the Thai Government has recognized the importance of improving skills and technological capability in all economic and social sectors. Innovation has been accepted as a very significant public policy issue in the country. Policy makers have begun to recognize importance of innovation to Thailand's competitiveness. However, understanding of National Innovation System (NIS) and industrial clustering in Thailand is still at beginning stage. There is no explicit and coherent national innovation policy in Thailand.

There are several government agencies responsible for science, technology and innovation in Thailand. Also, several agencies are doing a number of similar functions leading to redundancy and lacking of specialization among these agencies. These features reflect the inability of government to abolish or reorganize existing institutions when new ones were founded. Consequently, policies to promote industrial technology development are not given high priority and are virtually not incorporated in industrial, trade, and investment policies: Investment policy, especially the promotion of foreign direct investment (FDI), aims primarily at generating employment. There is no explicit and pro-active link between promoting FDI and upgrading of local technological capabilities in Thailand. Equally, trade policy has not been used strategically to promote technological learning.

With only limited success, a new interim National Science and Technology Committee (NSTC) was to review national S&T policy and to report to the cabinet. The NSTC subcommittee, with key persons from the private sector (such as CEOs of large Thai firms and executives of industrial associations) as members, was responsible for setting up the national S&T plan.

The Thai Government lacks a strong "focal point" responsible for delineating a coherent policy strategy or coordinating the government's response to the technological and policy needs of the Thai NIS. Thailand's short-term strategy aims at fostering R&D and innovation to give higher productivity on biotechnology, micro-electronics, automobile and parts, renewable energy, nuclear energy and information and communication technology (ICT), including extension of research and innovation networks, transferring of technology to serve SMEs and community enterprises, agricultural sectors, grass-root groups, developing S&T infrastructures and strengthening S&T management capability and public understanding on S&T. Thailand has a diversified infrastructure of research and technology organizations and holds strong potentials for industry-science relations. However, at present scientific institutions rarely collaborate with industry, and a cultural gap seems to separate the two "subsystems" of research and production. The challenge is to bridge this gap, bringing actors from both "subsystems" together, developing common approaches to relevant problems and creating incentives for cooperation.

The Thai support system lacks efficient measures to bridge the cultural gap between production and research. The National Innovation Agency is not yet in a position to do so. Up to now training programs and business incubators have had very limited outreach and it is unclear how the government target of 50,000 new enterprises can be reached with the given institutional capacities. Although there are fiscal and financial incentives to promote R&D in the private sector, they are not effective as companies usually do not use them. Companies currently prefer services of agencies related to the ministry of industry (e.g. Board of Investment) rather than the Science and Technology agencies. There also seems to be a gap between political goals, resources allotted, suitable mechanisms and the communication of the benefits to the companies.

In Asian countries, there is a considerable diversity with regard to science, technology development and innovation in the Asian region. Hence, innovation policy and support schemes as well as relevant consultancy will have to be tailor made to countries' specific characteristics. However, there are also some common features that can be observed. The development model of all countries studied considers innovation as a key element of success. All countries have adopted or are in the process of adopting innovation policies often with different patterns of governance than Europe. In all countries there is an explicit policy document or a section in a broader economic development vision emphasizing the role of innovation. Asian countries constitute a challenge for co-operation in high-tech industries and a threat of competition for Europe.

As compared to other regions, Asian countries generally managed to create a favorable investment climate (FDI being a driving force for innovation), but they mostly fail to build a common understanding of the concrete development trajectories they need to follow to transform into an "own" knowledge economy. The process of policy formulation and implementation is often not comprehensive, systematic and target-oriented. Moreover, well-designed policies designed to cope with specific challenges in terms of human capital, entrepreneurship development, technology acquisition, research and development, industry-science relations, inter-firm linkages are missing. Generally Asian countries rather seem to promote research and technology transfer more than the whole spectrum of innovation.

3.3.4 Denmark, Germany, Ireland and Switzerland

Germany has a long tradition in innovation policy. Germany pursues a more "traditional approach" with the regional authorities as special actors in the field. The more "modern and dynamic" approach is more evident in the vibrant economies of Ireland and Denmark.

Switzerland's approach is perceived as a special case due to its federal structure. Regarding innovation performance Switzerland holds a top position in an overall ranking of innovation performance among European countries, even though the Swiss economy lost part of its advantage during the long stagnation period 1991-97. Switzerland's weakness in this regard lies in the lack of entrepreneurial spirit and a relatively weak presence in applications such as nanotechnology, biotechnology, information technology (measured by patents).

The German economy is traditionally highly innovation orientated: investment in R&D and innovation as a percentage of value added is among the highest in the EU, the share of SMEs that innovate in-house is the highest in the EU and the share of sales with new products in manufacturing is among the top three in the EU. In Germany, there are challenges regarding the skills base for innovation, the framework for innovation and the bureaucratic burdens. Moreover, the still strong technological performance is increasingly dependent upon the automobile sector, which is dominating the innovation system in Germany more and more.

Ireland has many of the characteristics of a newly industrialized country in terms of its research, technological development and innovation structure. For example, it has no prestigious, long established technological universities, which is a characteristic of the education landscape in continental Europe and the US. Furthermore, Ireland has very few public or private research bodies. The Irish research system is also characteristic of an emerging industrial economy. Approximately 90 percent of fundamental research is performed within the university sector. Neither indigenous industry nor foreign-owned industry (in its Irish operations) performs basic research. Ireland's high growth rates have been largely based on investment trends rather than innovation performance. It therefore needs to fund and develop its innovation capacity to match the increasingly complex demand of sustaining economic growth.

Denmark's overall innovation performance is satisfactory in an European context but its recent performance is broadly impressive. Denmark's main weakness is the low rates of SMEs innovation in-house and non-technological innovations.

Innovation policy is an important part of the economic development/growth strategy and holds a high position on the political agenda in all four countries. For example, in Germany, Innovation is regarded as the most important source to achieve growth and to create new jobs. In Ireland innovation policy is a fundamental part of its industrial and entrepreneurial policy. In general, "knowledge development" has become a broader concept than technological innovation.

Strategies are becoming more explicit and detailed and often address particular segments of the innovation “market” (with a view to achieving critical mass), e.g. the new Action Programme on Innovation in SMEs in Germany (High-Tech Master plan) or the knowledge networks in Denmark are established within high-tech and knowledge areas where the country possesses research and commercial competencies. Improvements of the innovation framework and the innovation culture have become more important (e.g. Germany “Partnership for Innovation”). Switzerland broadened its concept from a rather narrowly science-based view to a view covering social and cultural aspects of innovation activities too (e.g. entrepreneurial spirit).

Innovations rarely results from isolated research activities alone, it is mostly the outcome of collaborative innovative efforts made either by the science sector and the business sector or by networks of various firms. Thus, common innovation policy objectives are the commercialization of research results, strengthening entrepreneurship and strengthening knowledge-transfer and the co-operation between knowledge institutions and the private sector. Creating linkages through new partnership based initiatives aimed at improving the functioning of the innovation system is an emerging trend (e.g. Germany “Partnership for Innovation”; Denmark “Action Plan on Public-Private Partnership on Innovation”).

The regional dimension of innovation policy is gaining in importance and more efforts are made to strengthen the regional innovation capacities. Denmark (e.g. “Regional Knowledge Pilots”), Germany (e.g. special programmes for East Germany) as well as Ireland (e.g. “Southern and Eastern Innovative Action Plan”) have set up special programmes and structures to improve regional innovation capacities ³¹.

There is a strong focus on SMEs in order to increase their innovation potential and their absorbability of new technologies. Their specific needs should be addressed and their barriers to perform R&D and to introduce innovations should be overcome. For example in Germany there has been an “Action Plan for Innovation in SMEs” introduced.

3.3.5 National innovation systems of catching-up economies

The development of national innovation systems in the new EU member e required new approaches⁸. Attempts to copy experience of high income economies in building their national innovation systems were not appropriate and adaptation to systemic change specific aspects were needed. Critically important was the need to increase the learning capacity of the whole society. It

⁸ U.Varblane, D.Dyker, D.Tamm, Universities of Tartu and Sussex: How to improve the national innovation systems of catching-up economies? (2007)

required detection of the major path-dependency problems of national innovation system and implementation of appropriate policy instruments. Dominating linear innovation model based on thinking and policy making was to be replaced by the interactive learning based system.

With regards to building up national innovation systems, developing economies should focus on the following, based on the experience of new EU members:

- ▶ **Long term vision:** Acknowledge the need to implement strategic long-term oriented approach to the innovation system building instead of short-term financial objectives.
- ▶ **Innovation focus:** Linear innovation model should be replaced with the balanced interaction based approach. Innovation should not be equalized with R&D and much broader focus is needed on all levels of the society, with the understanding that non-R&D dimensions of innovation are equally important for developing economies.
- ▶ **Judicious balance in leveraging technology:** Discrimination of low tech industries allocating the majority of resources into creation of the high-tech sector is not an appropriate policy for developing economies. Instead they should be seen in symbiotic partnership - continued viability of the high-tech sector depends on the vitality of low-tech industries.
- ▶ **Diffusion:** More attention should be given to the development of the system of absorption and diffusion of knowledge produced outside and inside of the catching-up economies. On the firm level it requires activities in two directions: firstly, encourage motivations of firms to change; secondly, support the process of building absorptive capacities of the firms. Networking needs to be improved.
- ▶ **Integration of entities:** Sustainability of economic development could not be achieved relying only on the innovation activities of foreign investors and their global networks. Integration of local firms into networks of foreign investors should be supported. Selection must be used by FDI policy in catching-up economies.
- ▶ **Job Creation:** Human capital development is important. But investments into the education system and particularly into higher science and engineering educational institutions should be coupled with the growth of employment opportunities requesting those skills.
- ▶ **Organization Management skills:** Lack of managerial and organizational skills is a very important barrier of innovation in organizations (even more than better access to modern technology) and should not be overlooked.

- ▶ **Benchmarking Assessments of current scenarios:** Appropriate technology policy methods for developing countries could be worked out only after a general audit of technological absorption capacity of the whole population of firms. The results of audit and benchmarking should be widely used inside the national innovation system to encourage the motivation to learn.
- ▶ **Jump to Tomorrow:** Technological path-dependency could be used by developing economies not as a threat but as an opportunity. The lock in position in the field of technology could mean that the resistance to change is weak and offers an opportunity to skip the whole generation of technology and introduce new solutions.

3.4 Innovation drivers

With the globalization of trades and ideas, even a steady business that could have prospered well without innovating 30 years ago can now be washed out by a more innovative competitor in a few months or years. Therefore, it is of outmost importance for all MSMEs to understand the basic principles surrounding innovation to become more innovative, and hence, more competitive. Innovations can come from many sources, and recognizing these sources is the key to initiate innovation processes. Below are some examples of internal and external sources of innovation⁹.

Internal sources

- ▶ **Dedicated employees:** The research and development (R&D) personnel are generally considered to be the main provider of innovations inside the company. As such, they have to be managed specifically and obviously integrated in new product development processes.
- ▶ **Other employees:** Any employee in a company is a potential source of innovations. This has been recognized in many companies for a long time by the introduction of "ideas box" or innovation contests. Even in a company within a technology-intensive industry, where the dedicated highly skilled personnel is usually the main source of innovations, other employees should be regularly involved in the innovation processes. In the IT industry, for example, it means that not just programmers can be sources of new ideas for new software or services.

External sources

⁹ Dr. Francois Therin, U21 Global, Mr. N. Srinivasan: Managing innovation in a knowledge economy – A guidebook for SMEs in Asia and the Pacific Asian and Pacific Centre for Transfer of Technology (2010)

- ▶ **Customers:** Customers are one of the most important, yet neglected sources of innovation. Customers are users of products or services, and, as such, they are very well-positioned to give ideas on how to enhance existing products (incremental innovation) or even to create entirely new products or services (radical innovation). Therefore, they should be regularly asked for feedback on existing products and for pre-tests of potential innovations before these are launched. Nevertheless, customers are rarely good sources of disruptive innovation. As, by essence, disruptive innovation is totally different and addresses markets in new ways and/or new markets, and can be negatively perceived at first by existing customers
- ▶ **Suppliers:** Suppliers can also have good knowledge of products or services. With the development of outsourcing, suppliers are more and more involved in the development of products and services. So, they are also obvious sources of innovations. Firstly, as they are often doing their own R&D on their own parts or products, organisations can directly benefit from innovations developed by them. Secondly, as they are knowledgeable about the technologies being used, they can also suggest enhancements.
- ▶ **Public and private research labs:** In a technology-intensive industry, research labs are one of the most important sources of innovation. Research labs or common facilities all over the world are focusing more and more on applied research and the mission of the public ones is to enhance the competitiveness of local companies. So, they are very open to co-development or to the licensing of their technologies. Generally, they tend to prefer collaborating with large companies than with SMEs as it generates more revenues for them. Nevertheless, most of them are encouraged by governments to also work with SMEs. The collaborations with research labs will be explored in the later sections.
- ▶ **Competitors:** Competitors can be a source of innovation. For projects with a high financial investment or need a research and development level for which one single company does not have all the competences in-house.

3.5 Public funded technology and innovation-led programs

The concept of innovation systems rests on the premise that understanding the linkages among the actors involved in innovation is the key to improving technology performance. Innovation and technical progress are the result of a complex set of relationships among actors producing, distributing and applying various elements of knowledge. Innovative performance depends to a large extent on how these actors relate to each other as elements of a collective system of

knowledge creation and the technologies they use. These actors are primarily private enterprises, universities and public research institutes and the people within them.

In this section, some examples of leading practices for innovation system are presented, with the purpose of identifying relevant learning points that can provide inspiration for the MSME ecosystem in India.

For the purpose of this section, global Technology Centres (TCs) or similar facilities have been defined as organisations focused on the exploitation of new technologies, through an infrastructure which bridges the spectrum of activities between research and technology commercialisation. These can be in both established technology areas and in new, emerging technologies. Such facilities are mission-driven organisations that develop their own in-house knowledge and capability by working closely with leading Universities and other similar organisations including through public sector funded R&D and innovation programmes. This combined with an open access technology infrastructure and contract research provision enables companies to share the costs of R&D, access skills and equipment which might not otherwise be within their reach, thus reducing risk, shortening time to market, and exploiting synergies of know-how across the value chain. Typical activities and outputs of TCs or such common facilities therefore include the development and scaling up of manufacturing processes and the production of technology.

Based on the above definition of innovation system and TCs, the leading practices across countries have been shortlisted for a detailed study (*Refer Figure 8*).

Further, this section discusses the relevance of these examples, in the context of Technology MSMEs in India.

Some of the key steps that could improve the competitiveness of Micro, Small and Medium Enterprises (MSMEs) in key manufacturing industries across India by:

1. Facilitating improved access to manufacturing technology
2. Improving further the availability and employability of skilled workers
3. Establishing strong focus in providing business & technical advisory services

By examining the experiences and steps taken by other countries we can glean certain learnings and understanding of how various countries across the World are integrating innovation into the growth story of SMEs.

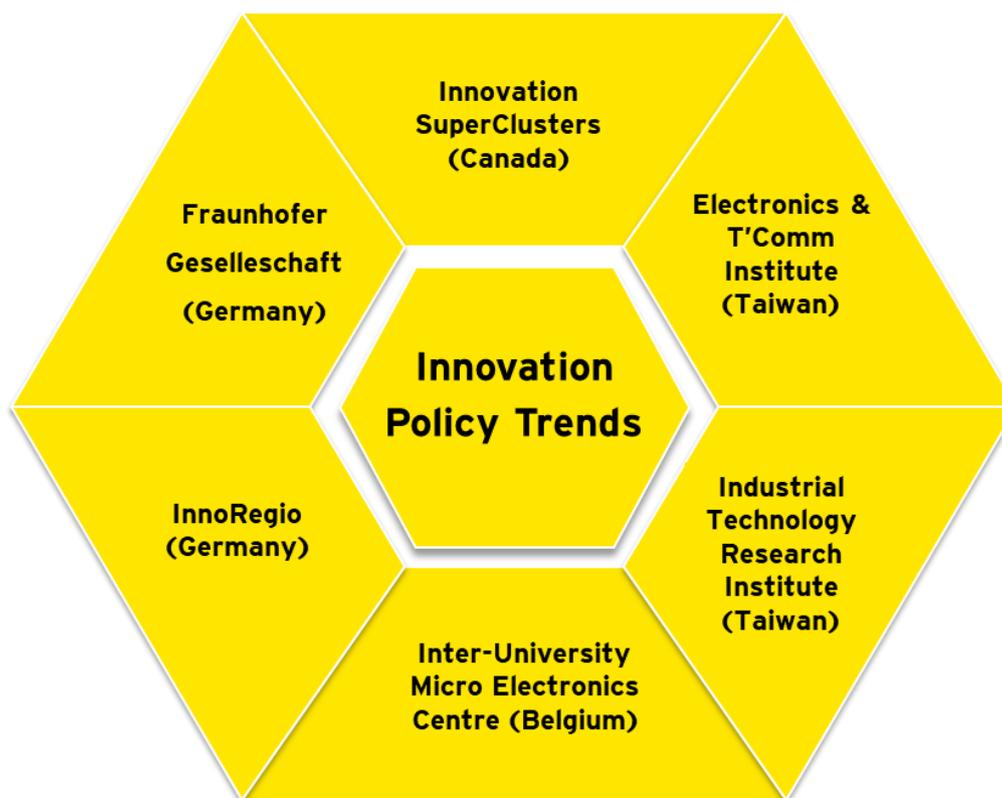


Figure 8: Innovation Policy trends in Selected Countries

3.5.1 Fraunhofer-Gesellschaft (Germany)

Fraunhofer-Gesellschaft is research organisation in Germany established in 1973. It is one of the world's major international research organizations. At present, the Fraunhofer-Gesellschaft maintains 67 institutes and research units. Majority of staff are qualified scientists and engineers almost more than 23,000.

The organization's core task is to carry out research of practical utility in close cooperation with its customers from industry (products & processes) and the public sector. In this way the Fraunhofer-Gesellschaft shapes the innovation process in Germany and drives forward the development of key technologies. The organization's research focuses on the needs of people in the areas of healthcare, security, communication, mobility, energy and the environment. Fraunhofer's international sites and its representative offices act as a bridge to the regions of importance to scientific progress and economic development.

These research centres have an annual budget of €2 billion towards research and development activities. 85% of the budget i.e. €1.7 billion is generated through contract research financed by industry or publicly financed research projects. Almost 30 % is contributed by the German federal and regional governments in the form of base funding.

Put in simple words, the institute / research establishment develop, implement and optimize processes, products and equipment until they are ready for use. The output from these institutes help drive market leading innovation and adapts products/ processes to meet the dynamically changing market requirements.

The Fraunhofer-Gesellschaft has been an innovation leader in Germany. This is evident from the fact that the institute has filed a total of 696 inventions, with patent applications being filed for 499 of those, i.e. over 70 percent, in a single year (2012). Fraunhofer files an average of two patent applications per working day. Fraunhofer's portfolio of active rights (patents and utility models) and **756 patent applications been applied for at the end of 2017 alone**. It currently includes some 2800 patents granted for the German market.

Fraunhofer-Gesellschaft has a decentralized organizational structure which incorporates seven separate line functions that allow it to develop an efficient strategic orientation on the basis of centralized control mechanisms. They collaborate while working on related fields of research within the Fraunhofer-Gesellschaft, to pool essential resources in core disciplines, and to present a unified image in the marketplace.

Governance Structure at Fraunhofer-Gesellschaft

The governance structure consists of:

1. **Presidential Council:** Consists of the members of the Executive Board and the chairmen of six of the seven working alliances. The council is headed by the president.
2. **Scientific and Technical Council:** It is the organization's internal advisory body. It consists of the directors and senior management of the institutes and an elected representative of the scientific and technical staff of each institute.

It provides advice to the Executive Board and other constituent bodies in matters of fundamental importance. It issues recommendations concerning research and human resources policy. Furthermore, the Scientific and Technical Council issues statements of opinion concerning the creation of new institutes or the closure of existing institutes, and participates in the appointment of the directors of the institutes.

3. **Governing Board:** Each of the seven alliance groups has a Governing board of external advisory bodies attached to the institutes, and consists of representatives from science, industry, business and public life. For each institute, approximately twelve members are appointed to the governing board by the Executive Board with the approval of the director(s) of the institute.

4. Senate: Senate consists of eminent figures from the world of science, business, industry, and public life, plus representatives of national and regional governments, and members of the Scientific and Technical Council. The Senate has a total membership of approximately 30 persons. The Senate is responsible for decisions concerning basic science and research policy. It also formulates decisions concerning the establishment, the incorporation or devolution, the merger and dissolution of research entities belonging to the Fraunhofer-Gesellschaft. The Senate is also responsible for appointing members of the Executive Board.
5. General Assembly: General Assembly is made up of all the members of the Fraunhofer-Gesellschaft.

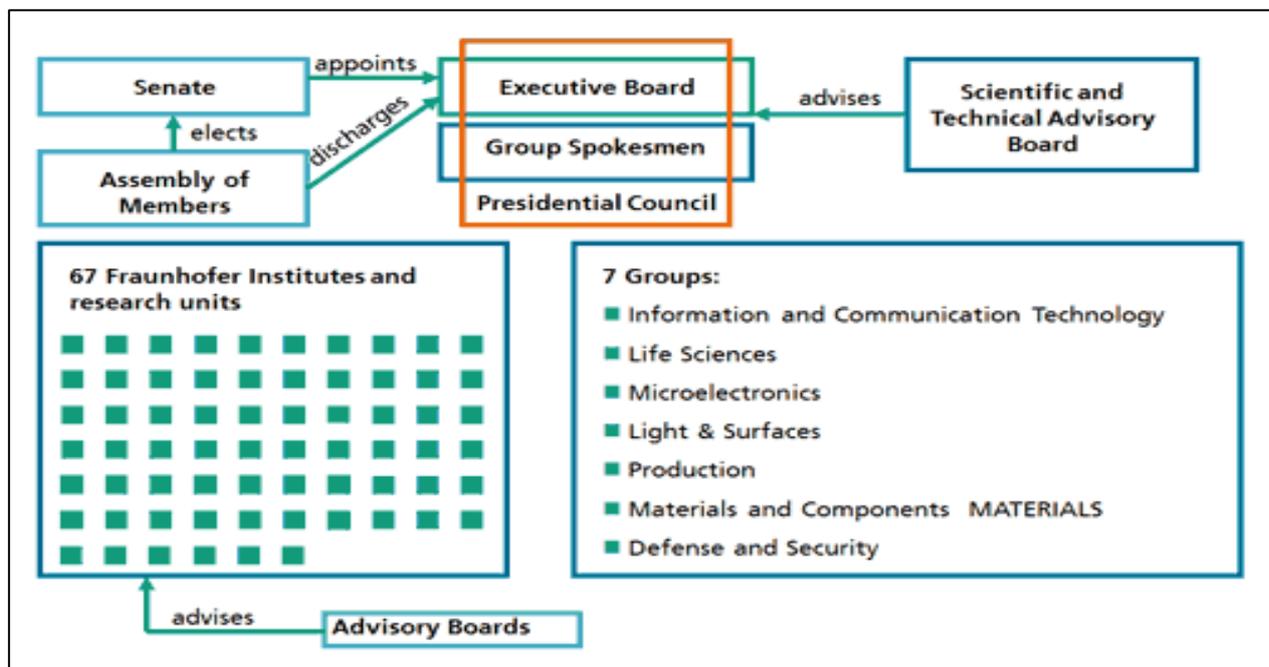


Figure 9: Organizational structure of the Fraunhofer Model

The organisational structure has been cited as one of the key reasons for the success of the Fraunhofer model (Refer Figure 9).

Collaboration with SMEs

By developing technological innovations and novel systems solutions for their customers, the Fraunhofer Institutes help to reinforce the competitive strength of the economy in their region, throughout Germany and in Europe. Their research activities are aimed at promoting the economic development of our industrial society, with particular regard for social welfare and environmental compatibility.

Business Model

Fraunhofer has been bridging the gap between academic research and industrial needs with an annual client base of over 2,000 companies (Refer Figure 10). Many of these are SMEs.

The model is very simple: Fraunhofer Institutes work with industry and universities to scale up cutting-edge research into real working technologies on an industrial timetable. If one looks at the total product development cycle, it seems that the early stage R&D is typically done in universities, national laboratories, and corporate research centers. The latter implementation part is typically done by industry. However, there is a gap in the middle which very few organizations address. This gap, both a knowledge gap as well as a funding gap, greatly slows down the product development cycle. It is precisely this area that Fraunhofer focuses on, allowing it to become Europe's largest R&D organization.

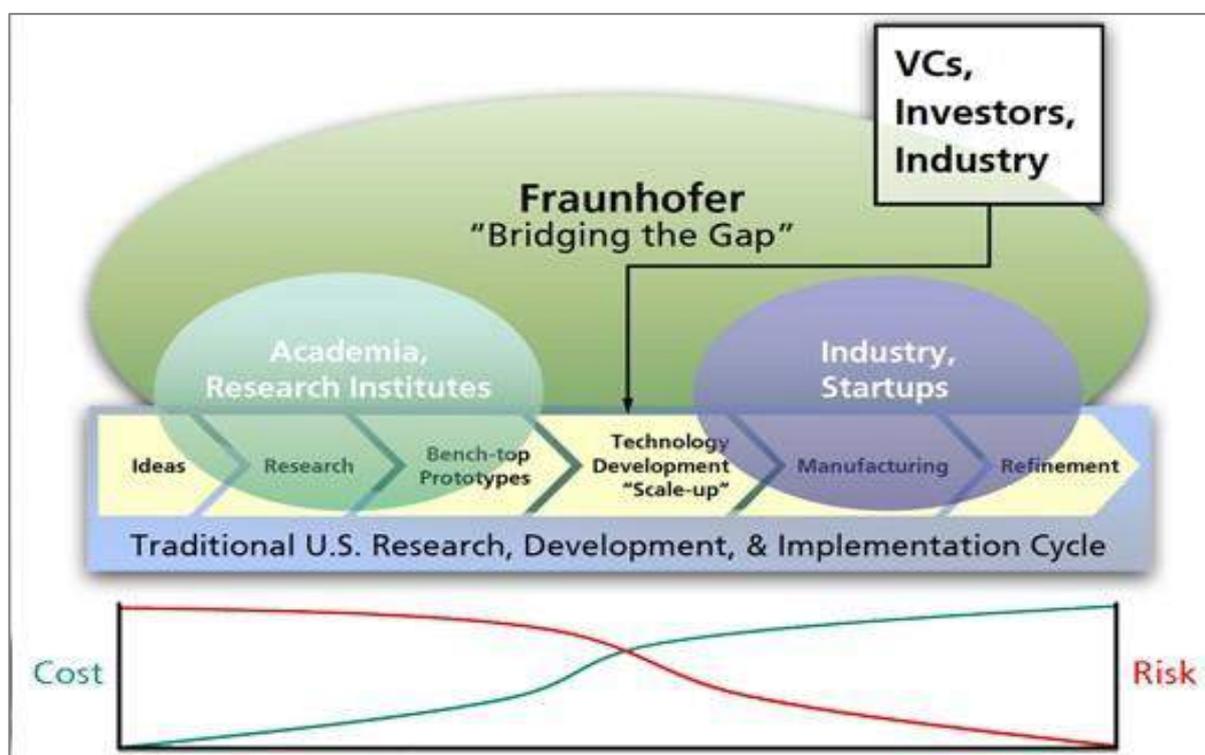


Figure 10: Transforming research into functional technology

This same gap also applies to the research commercialization process in the India. The current process is chaotic and way too lengthy. Innovative ideas often linger on in the research phase for many years because of this gap between research and product development. It can be seen in the graph above that the required funding increases as the total cycle progresses, while the risk of technological failure at the same time decreases. Venture capitalists and most other investors are adverse to technological risk. They typically don't invest until after the intersection of these two curves. Fraunhofer provides a unique resource that addresses this problem by developing the

innovation into a functional technology that can be validated and demonstrated, in effect de-risking it. Thus, investors can make their investment decision solely on their assessment of the market opportunity and business value proposition without the additional risk of the technology not panning out.

3.5.2 InnoRegio Programme (Germany)

While the Fraunhofer institution has existed for more than 40 years and remains a solid and successful institution in western Germany, innovation system in eastern Germany has taken a different form. Ten years after German reunification in 1989, the economic situation was still unsatisfactory in eastern Germany. The East German business and research landscape was marked by small and medium-sized companies, a low level of innovative ability in the economy, a lack of employment and training positions as well as the migration of skilled young people to West Germany. In the light of these specific structural deficits, the innovation policy concepts used elsewhere could not be implemented there. New approaches were being sought in promotional policy so that the weaknesses that were known or suspected could be better targeted and removed. One of these weaknesses was the lack of research, and the consequent shortage of innovation by companies. Another was inadequate regional cohesion between companies and related facilities.

In order to take East Germany's special situation into account, an entirely new type of support programme was conceptualised and launched under the name "InnoRegio" in 1999. The InnoRegio was the most important pillar of the German Government's innovation policy for East Germany.

The basic ideas behind "InnoRegio" and the subsequent programmes that build upon its framework were as follows: new creative ideas arise where disciplines, industries, institutions and particularly people come together. The success factor of a region is the formation of an innovative network or ecosystem with specific abilities and technologies which provide it with competitive advantages. In particular for small and medium-sized companies in East Germany it was of vital importance to strengthen their innovative ability through new forms of cooperation with science and research. Innovation-related activities directed towards new or growing markets and segments have the greatest potential for growth. Successful regional networks thus do not necessarily require the best economic infrastructure as a pre-condition but can be created on the basis of a specific competence, even in regions with previously weak structures. Based on these premises, InnoRegio was advertised by the Federal Ministry of Education and Research (BMBF) as a broad, open-themed competition. The goal was to develop self-supporting innovation networks and create locations with long-term competitive ability. The program aimed at identifying potentials in East Germany that

might still need to develop to become a cluster, and to trigger or enhance long-term success of regions and clusters. The idea was that financial support of local networks and clusters is able to improve the economic situation of regions with insufficient economic structures. The funding in terms of a contest between competing regions can trigger mobilizing effects, even in regions that are not supported. The corporate elaboration of the regional concepts intensifies the relation between the local actors and causes a better knowledge about the skills and needs of the participating firms.

Over 444 regional networks applied for the program, which was organized as a competition for financial funding. Finally, 23 initiatives were supported. With this decision the winning networks were authorized to realize innovation projects and accompanying activities, supported with a budget between 4 and 20 million Euros. Additionally, external consultation and technical assistance was provided. The selection of initiatives was made on the basis of network and project features, such as the expected impact of projects, sustainability of development and quality of generated cooperation activities.

BMBF facilitated and evaluated the competition while state funded facilitators, mediators and consultants supported the networking process. A jury selected the initiatives in order to support them with funding, coaching and facilitation. This secured a high standard of innovation. Scientific research monitored the regional processes and evaluated the competition InnoRegio as a political instrument.

The main goals for the InnoRegio programme were to:

- ▶ Create opportunities for work.
- ▶ Promote economic productivity and competitive advantages of regions.
- ▶ Establish an enduring structure for innovation.
- ▶ Initiate a process for regional innovation by a state-funded competition with high spill-over effects.

Key steps in achieving the goals:

Step 1: Regional networks for innovation apply and qualify for InnoRegio:

- ▶ Regional actors cooperate in order to determine their specific idea innovation.
- ▶ The actors define the scope themselves.
- ▶ The networks represent a diversity of themes, actors and potentials including business (especially SMEs), science, society, politics, schools etc.

Step 2: The actors develop a regional network for innovation (clusters)

- ▶ The partnerships formulate a new concept for regional networks for innovation.
- ▶ The networks build up a self-supporting structure for innovation which fosters the potentials found in the region and create new ideas and benefits for the region.
- ▶ The cooperative process implements effective ways of communication and cooperation between a critical mass of actors, who are oriented towards a common goal of regional innovation.

Step 3: Implement innovative concepts and projects

- ▶ The networks implement projects, which result out of the work of the regional networks.
- ▶ The regional concept for the innovation process is the background out of which the specific projects are realized.

The InnoRegio Program was evaluated during the program phase. It could be demonstrated that firms received funding as a result of their innovation behavior. The evaluation studies also indicated that the supported firms seem to perform much better in terms of innovative activity and slightly better in terms of employment growth than non-funded firms. Between 2000 and 2004 the number of employees in InnoRegio companies rose by 11%. In approximately one third of the companies every second employee was working in R&D. 44% of the InnoRegio were able to apply for patents and 40% of them even introduced entirely new products.

Below are some of **the key learnings from the program:**

- ▶ An **unexpected high dynamic** in development: in 8 months business-profile for strategic networks/"regions" were developed and cooperation established; in 8 months first economic successes were realized.
- ▶ Positive image-effects for the regions.
- ▶ The networks realized a market-oriented technology-transfer.
- ▶ Networking is seen - after positive experiences - as the major success of the programme and as one the most important factor for successful business.
- ▶ External coaching, facilitation/mediation and consultancy in network-management and business-problems is critical.

Critical success factors for the programme:

- ▶ Working cooperation with external consultancy/coaching.

- ▶ Cooperation based on a well (stated and) defined mutual interest.
- ▶ Profile for innovation and development that focusses on specific aims.

The InnoRegio program established that self-sustaining structures/networks for business create work and economic growth. This program follows the cluster theory to a high degree. The support of the connection of historically grown competences, new technologies and existing network activities between economic actors, applied research institutes and education providers generates innovation potentials that may help to improve the economic situation of a region. This led to specific outstanding competences in the region that caused the emergence of local clusters.

InnoRegio example: BioMeT (Dresden)

One example of a successful InnoRegio project is the network BioMeT in Dresden. Over a period of five years the Dresden region has succeeded in establishing biotechnology - together with microelectronics - as a key 21st century technology. The concept of the Dresden BioMeT Innovation Network which has proven it to be viable and future-oriented and the InnoRegio project combined regional competencies in order to exploit existing innovation potential and support new company spin-outs from the scientific community.

To implement this a contact and communication network was established which is actively cultivated by an agency established by the GWT - Gesellschaft für Wissens- und Technologietransfer der TU Dresden mbH (Knowledge and Technology Transfer Company of the Technical University of Dresden). By integrating many regional biotechnology partners from science, business and society, a positive environment was created for company relocations and new start-ups. This gave rise to a platform on which proven economic growth could be organized.

The name 'Dresden BioMeT Network' name stands for Dresden's special symbiosis of the disciplines of biology, medicine and technology/materials science. The network was established with the aim of creating a link between science and business, thereby ensuring improvement in Dresden region's competitiveness over the long term.

In 2000 the German Ministry of Education and Research gave the impetus for its InnoRegio initiative, providing some 24 million euros for BioMeT Dresden network.

A study of the BioMeT office over a four year period recorded the scientific and commercial results for biotechnology. 82 per cent of the companies surveyed said that there had been a positive trend in sales since the beginning of the biotechnology campaign in 2000. During the

period investigated sales of the network partners increased to 510 million euros annually, of which 20 million euros alone were in biotechnology.

Growth was stepped up by the innovations subsidized by the InnoRegio programme. The network also acquired 36 associated “molecular bioengineering” projects, especially in tissue engineering, bio-nanotechnology, functional pharma-genomics and biocomputing; of these 17 have already been completed. 13 university and college research institutes and 10 non-university centers adapted their research during the period of the study and are cooperating on projects with the companies in the network. In a unique nationwide model, molecular bioengineering projects are being carried out by research and business under a single roof in the BioInnovations-Zentrum Dresden (BioZ).

One main aim of the InnoRegio project was to create jobs. The study showed that 583 primary jobs had been created in the commercial community and almost 400 in scientific centers. However, this did not include those jobs created indirectly, such as service jobs or jobs with suppliers. Research results showed 16 new companies were founded, and through active marketing, four companies relocated to the region.

Permanent public relations work and carrying out information events meant that the public was included in the development process and created a general acceptance of biotechnology among the population. The regional study proved that the people of Dresden occupied one of the top places in Europe with their knowledge of this new discipline.

3.5.3 Inter-University Micro Electronics Centre (IMEC) (Belgium)

IMEC (Inter-University Micro Electronics Centre) was founded in Belgium by the Flemish government in 1984. IMEC headquarter is in Leuven, with an initial investment of 62 million euros and about 70 members of staff, IMEC is now one of the largest independent centres for R&D in micro and Nano-electronics in the world. The centre was created to carry out cutting-edge research for application in the Information & Communication Tools (ICT) domain with focus on maximizing transferability of R&D into the market. Its mission is to operate a decade ahead of industrial needs and to foster the development of the local industrial base through spin-off creation, collaboration and training.

IMEC's legal status is that of a not-for-profit organisation. IMEC is organised in three main units covering Business Development, R&D Operations (with specialised subgroups) and Corporate Support. IMEC's CEO supervises activities with the aid of a Corporate Strategy and Strategic relations office, an HR department, selected Executive Advisors and a training division.

IMEC's research focuses on the next generations of chips and systems, and on the enabling technologies for ambient intelligence. IMEC's research aims to bridge the gap between fundamental research at universities and technology development in industry. IMEC is active on various domains such as Nano- technology, Nano-electronics - Characterization, reliability and modelling, Multi-mode multimedia (M4) technologies, Wireless autonomous transducer solutions, Solar cells, Advanced packaging and interconnection technologies, Power-efficient devices based on III-V Materials (GaN, GaAs...), Bioelectronics, Organic electronics, RF devices and technology etc.

For designing technologies IMEC collaborates and works with companies, Flemish universities, polytechnic schools and associated laboratories, including funding of a large number of PhD students. Furthermore, IMEC provides industrial training in ICT and works on knowledge transfer to society.

The local context in which IMEC is set typifies the challenges of innovation systems in small countries. Belgium has a few public research centres of excellence (for example the Catholic University of Leuven) and local links with some major corporate headquarters (among them Alcatel Microelectronics and Philips) but overall counts on a less rich ecology of research organisations than the other larger European countries. IMEC's were faced with the problem of critical mass, so IMEC's have focussed their strategy on international diversification which has emerged as an effective strategy for sustained growth. In 1999, IMEC based on this strategy started a US subsidiary company, IMEC Inc. to strengthen and expand services to partners in the US. Through the new frame agreement, in 2002 the Government of Flanders increased government grants from 5 million € up to 34 million € which constitutes almost 24% of IMEC's total revenue. IMEC's revenues from contract research exceed 100 million € which ensures sustained growth within IMEC institutions and research centres.

With respect to its overall strategic positioning in technologies' lifecycles, IMEC's core research activities are concentrated in early phases where potential commercial value starts to emerge out of basic science. The earlier the stage in the developmental process, hence the longer the period of expected returns, the higher the probability that IMEC co-operate with universities. Early stage research is carried out on a co-operative basis and results are shared by the agreements set in the so-called Industrial Affiliation Programmes (IIAP). In cases where the potential for growth of innovative ideas is identified after a phase of shared fundamental research, IMEC enters bilateral agreements with partners and the intangible assets generated throughout the applied research process become proprietary.

IMEC's Industrial Affiliation Programmes (IIAP) is broad R&D schemes through which industrial partners embed in IMEC as resident researchers members of their staff together with relevant equipment where necessary. These are often prototypes that are studied, further developed and tested at IMEC. The principle behind these schemes is the sharing of risk and resources, as well as the sharing of new knowledge generated through information-exchanges, joint work and cross-fertilisation of projects.

According to the extent of their interest and capacity in partnering IMEC, firms can contribute to, and acquire in exchange, non-proprietary knowledge shared among different partners, shared licensed IP, co-owned IP or proprietary and exclusive rights. To join the research 'pool', firms pay a fee that entitles them to non-exclusive and non-transferable rights to exploit the existing know-how of the programme and participate in joint research activities. When valuable results are generated in the course of R&D processes, possibly leading to patents, each firm that has contributed to it can choose to co-own the IP. This can also be made freely available on a non-exclusive and non-transferable basis to a partner that has not contributed to it but might have an interest in using this know-how, for example as an end-user/manufacturer. Moreover, if a partner has an interest in pursuing specific research activities that cannot be shared with other firms collaborating to the IMEC programme, the firm can negotiate with IMEC terms and conditions for conducting proprietary research.

Beside the industrial partnerships programmes, there was significant eagerness of local institutional investors to invest in technology transfer through spin-offs aligned with IMEC's business model. The precondition for a spin-off is that key IPs are generated through IMEC's research processes. This might happen inside or outside one of centre's R&D programmes. In the first case, a large amount of know-how will be spread across many partners and many patents and the potential market for the spin-off is likely to be large. With respect to IP exploitation, although the baseline is the non-exclusive transfer of property rights to the new company, IMEC will have the option to grant exclusive rights. If instead the IP has been generated outside an IMEC programme but with the involvement of IMEC scientists, IMEC will also consider the full transfer of ownership. In this case, however, the potential market for the spin-off is likely to be fairly small. There might be difficulties is attracting venture capitalists investments in both scenarios. In the first one, a complex IP distribution will not incentivise investment; in the second a niche market might not be attractive enough. As a consequence a phase of incubation can be supported by IMEC until the team is mature, a prototype exists, the business model is sufficiently clear and market opportunities have been fully researched.

The incubation phase can last up to 1.5 year while the plan for a spin-off typically covers a five-year period. Innovative ideas are screened to select those that can enter the incubation facilities and 'sales fora' are organised to identify commercialisation routes. When an idea is approved for incubation, an activity roadmap is drafted to move the technology from an idea to a product, then a new legal entity can be set up together with a team willing to take forward the business. CEO and business development capacities are typically sourced from outside IMEC. They will contribute to the development of a business plan for a spin-off. In order to pursue financial gains, IMEC had to create a for-profit arm to the organization (FIDIMEC). This separate legal entity is owned by IMEC. It supports and manages the incubation programme by investing in the start-up and reinvesting revenues from start-up businesses in new spin-offs and in IMEC's stock option plan. FIDIMEC also interacts with potential corporate and VC investors once the new company has been set up.

3.5.4 Industrial Technology Research Institute (ITRI) (Taiwan)

Industrial Technology Research Institute (ITRI) was founded in 1973 and is one of the leading high-tech R&D institution in Asia. ITRI was formed after merger of three research-oriented organisations previously operating under the Ministry of Economic Affairs: the Union Industrial Research Laboratories, the Mining Research & Service Organisation and the Metal Industrial Research Institute.

Before the 1970s, agriculture and labor-intensive light industries were the core of Taiwan's economy. Between 1960 and 1970, the import substitution and export subsidy policy took effect and the trade surplus became the norm. With the rise of textile, plastic, and electronic goods industries, the government's main strategy was to accumulate foreign reserve through mass production. With pressures coming from political crisis (Taiwan's withdrawal from the United Nations), economic backlash (the first Oil Crisis in 1973), and the rapid emergence of neighbouring economies, the government was anxious to lend its force to industrial development and trigger an economic take-off. To realize this goal, the focus had to shift from labor-intensive consumer goods industry to technology-intensive manufacturing industry. Learning from successful models overseas, the government contributed the funds to combine existing technology research institutes, and with the assistance of Taiwanese scholars abroad, founded the Industrial Technology Research Institute in 1973.

ITRI is dedicated to promoting the advancement of Taiwan's diverse high-tech industries with the mission of:

- ▶ Expediting the development of new industrial technologies.

- ▶ Aiding the process of upgrading industrial technology techniques.
- ▶ Shaping the future of industrial technologies for greater efficiency and sustainability.

ITRI focuses on six research fields including information and Communications, Electronics and Optoelectronics (Combined use of light & electronics), Material, Chemical and Nanotechnology, Medical Device and Biomedical, Mechanical and Systems, Green Energy and Environment. ITRI has aggressively researched and developed countless next-generation technologies, including WIMAX wireless broadband, solar cells, RFID, light electric vehicles, flexible displays, 3-D ICs and telecare technologies.

ITRI, headquartered in Taiwan, has offices in the United States, Japan, Germany, Russia and Netherlands in an effort to extend its R&D scope and promote opportunities for international cooperation.

ITRI employs around 6,000 personnel, including over 1,300 who hold Ph.D.s and 3,000 with master's degrees. ITRI fosters entrepreneurship by disseminating both technology and talent. Through business advisory and HR development programs, ITRI has cultivated over 140 CEOs in the local high-tech industries in Taiwan.

In its first years of operation the Institute's revenues came entirely from government while contracts from industry grew slowly over time in number and volume. The growth of ITRI was inextricably linked with the development of the Taiwanese semiconductors industry in the mid 1970s. At the time the problem for the policy maker was to foster the emergence of a whole new sector in the absence of significant infrastructures and competences. Universities might have provided a starting point but they were not considered as a suitable environment for commercialisation processes. The decision was taken to transfer technology in from abroad and to invest heavily in training through ITRI.

Key Successes

ITRI was the bedrock for the creation of two spin-offs that grew into market leaders of the global semiconductor business. The first one, UMC, was founded in 1980 from a group of about 40 ITRI people, including technicians and equipment operators, and additional staff specifically recruited from outside. The company's new lab was funded by the government but capital was also sourced from a consortium of private firms operating in traditional sectors (including petrochemicals and consumer products). The original ITRI lab where operations had started, and which later developed into a complete facility, spun out of ITRI as part of the new company. Much of the technology was again bought on the market through a special government R&D fund and transferred in. ITRI

sustained the broader ecology of small and medium size firms by centrally managing the acquisition, integration, development and organisation of IP to be licensed to local companies (from which the Institute also generated good licensing revenues).

After - and on the basis of - its success in semiconductors, in 1990s ITRI played an important role in the development of the Taiwanese TFT-LCD industry, the second high tech area where Taiwanese firms have achieved market-leading positions. Again, the government took the initiative with resolve.

Although ITRI did not itself generate the technologies taken up by the market, it greatly contributed to the governance of the process and the training of engineers and technicians. It is, however, important to observe that at the time when the TFT-LCD industry was emerging, Taiwan already had strong large companies who played at least as important a role as ITRI. Moreover, after the outstanding results in semiconductors and LCDs, successful spin-outs have been fewer, private companies now have or can independently acquire top-of-range facilities.

ITRI has an open and multi-disciplinary R&D Cooperation to meet the industry's technology demands, ITRI has been promoting multi-disciplinary integration and developing advanced technologies to support the upgrading of the nation's industries and the nurturing of new businesses.

ITRI is open to collaborations with local and overseas industrial partners, but aims to enforce the option of retaining fundamental IP to favour the creation of start-ups. Arrangements for collaboration are flexible; they include single-firm as well as multi-firm agreements and there is always the possibility that the government chooses to match industry funding on selected projects. About 80 or 90 per cent of companies in Taiwan have or have had contracts with ITRI.

In addition, ITRI has joint research centres of small proportions at six national universities in nano-materials and biomedical, micro-to-nano manufacturing engineering, semiconductors, environmental technologies, communications and IC chips, optoelectronics. Agreements entail the sharing of staff (all of whom already have positions at either ITRI or the university), facilities and IP.

ITRI has recently been keen to enhance its innovation culture. It was felt that more risk-taking and creativity were needed to further develop and diversify the Institute's activities in new directions. International co-operation with global leaders in research has also become highly strategic: a scheme of institute-to-institute relationships, for example, has been put in place to develop cutting

edge research in areas of strategic importance. Partners include Carnegie Mellon, MIT, AIST (Japan), UCB, CMU, NRC (Canada) and MSU (Russia).

Like the Fraunhofer and IMEC, ITRI was founded by legislative act and is a not-for profit organisation. It has therefore developed a separate VC/incubation branch through which it can attract capital and eventually retain excess returns.

ITRI is trying to move away from a catch-up paradigm and to focus on innovation in an environment where local firms are still rather conservative when it comes to accepting technology risks. ITRI still excels at delivering reliably and fast (“because we have the speed to get there first!” is one of the selling point of ITRI’s services). It does, however, recognize the need for more risk taking at the frontier of technological opportunities. The incentives in place for innovation are strong; inventors can capture up to 50 % of the revenues generated by a successful idea. Good incentives complement a lively entrepreneurial culture. One of the strengths of ITRI has been the network of CEOs of new companies who were former employees of ITRI. Labour mobility between ITRI and industry has traditionally been high and highlights both the role of ITRI in training engineers/entrepreneurs and its role in supporting start-ups.

There are two groups of client firms: start-ups (many of which are local firms producing components for overseas markets) and established companies (including multinationals). They come to ITRI to strengthen their products and access lab facilities. They also have the option of pitching to ITRI’s VC branch for investment in their business. ITRI’s spinoffs are less likely to come back in search for further funding (to date ITRI has spun off 15 companies). One of the advantages of ITRI is that it provides clients with a one-stop shop opportunity comprehensive of testing services. Overall, after the success of the largest spin-offs (UMC, TSMC and Taiwan Mask) the perception is that it is becoming more difficult to spin out companies.

In order to link up and aggregate regional industrial R&D capacity for value-adding development in emerging industries, ITRI has been promoting industrial alliances and the clustering of regional businesses (SMEs) from the same industrial chain. ITRI has set up an industry service platform and service offices in northern, central, southern, and eastern Taiwan to assist any new business opportunity that may present itself in those strategic alliances.

Facing fierce global competition, industries (even in India) are in urgent need of upgrade assistance. They need to acquire key technologies for products competing in the market, recruit and nurture talents for increased R&D capacities, and collect investments for new and potentially competitive businesses. ITRI integrates its technologies with corresponding intellectual properties of its own

and from third parties to provide total solution business packages for industries. ITRI also promotes the collaboration of domestic industries and international manufacturers to form strategic business alliances. Further, ITRI is aggressively working to commercialize and industrialize its technology innovation achievements. To do this, ITRI provides total solution packages that include such services as new product development, fabrication technology optimization, patent consultation, venture capital, government resource accessing, and operation management assistance.

Working with the industry, ITRI conducted 14,228 industry services in 2012, 73% of which were for small and medium businesses. ITRI transferred 590 technologies to 640 businesses and promoted 1,065 business investments worth 25.2 billion NT dollars. To meet industry's business development needs, ITRI introduced prospective technologies and assisted in the integration of those technologies into their existing operations.

3.5.5 Electronics and Telecommunications Research Institute (ETRI) (Korea)

The Electronics and Telecommunications Research Institute, Korea is a government-backed research institute in Daedeok Science Town in Daejeon, Republic of Korea. ETRI makes contribution to the nation's economic and social development through research, development and distribution of industrial core technologies in the field of Information, Communications, Electronics, Broadcasting and Convergence technologies.

South Korean experience with intermediate research organisations differs in many respects from the case of Taiwan. The Korean Government also adopted robust technology-push policies. In the electronics and advanced electronics domain, ETRI has played a fundamental role in executing the government's science and technology policy objectives and has made important contributions to gradual build-up of the country's strengths in information and communication technologies.

As of 2008, ETRI had about 3,000 employees where about 2,000 of them were researchers. Established in 1976, ETRI is a non-profit government-funded research institute that has been at the forefront of technological excellence for more than 25 years. ETRI has successfully developed information technologies such as TDX-Exchange, High Density Semiconductor Microchips, Mini-Super Computer (TiCOM), Digital Mobile Telecommunication System (CDMA), and High Speed Data Transfer at 3 Gbit/s rate with 12 patents to its credit. The main functions of ETRI include:

- ▶ Creation, development and dissemination of knowledge and technology required for the development in the field of information, telecommunications, electronics, broadcasting and related convergence technology.

- ▶ Information security and standardisation of information, telecommunications, electronics, broadcasting and related convergence technology.
- ▶ Training professionals in the field of science and technology.
- ▶ Technical consulting and providing technical information for the industry in the field of Information, telecommunications, electronics, broadcasting and related convergence technology.
- ▶ Cooperation with domestic and foreign institutions in the field of Information, telecommunications, electronics, broadcasting and related convergence technology.

ETRI has also been under increased pressure to generate income through contracts from industry. One of the difficulties appears to be the perception that it operates quite far from market applications and progress is slower than in large companies' R&D divisions. The traditional model of economic development based on imitative strategies and reverse engineering is no longer sufficient to sustain industries that have caught up with US and Japanese leading firms. As a consequence, a stronger focus on creativity is emerging in the Korean innovation system. Universities have become competitors, and not only collaborators, of ETRI by virtue of their superior competence in fundamental research. Moreover, large firms have grown to such extent that they no longer need to rely on government agencies and public labs to build up or upgrade the foundations of their technological know-how. They can choose to co-operate directly with universities, where staff costs are lower than ETRI and job security higher. ETRI itself can operate as contractor of research and subcontracts, for example, more basic research to universities and the production of prototypes to other companies, including foreign companies. In this respect, ETRI still acts as a vehicle for targeted government spending in its competence area.

Emphasis seems, however, to be shifting from a licensing-based to a spin-off model of revenue generation for the original know-how produced or acquired and recombined by the Institute. This is paralleled by increased focus on the role of ETRI in supporting SMEs, which is proving difficult. ETRI backs spinoff companies with IP, technical staff and R&D support. It can also generate demand for the new companies by purchasing technical services from the company or by securing government contracts. Part of the internal process of venture selection involves ETRI showcasing technologies that might be ready for market exploitation. Teams formed with ETRI staff can take up these ideas and negotiate with the Institute requirements for starting up new business and shares of returns. When revenues are generated from, for example, stock market flotation of start-ups, these are reinvested in new spin-offs.

3.5.6 Catapult programme (United Kingdom)

UK Government has provided structured support for innovation and technology development in business for decades through a range of policy mechanisms. The trends based on the change in policy focus have been summarised below for quick review:

- ▶ During the 1930s and 1940s, the UK Government encouraged the establishment of research associations that served the needs of specific industrial sectors. These operated on a matched funding model, with government providing equal funding to industry in support of research and technology programmes. Many of these Research Associations were established as membership organisations, to generate more industrial funding, and only provided services to their member companies. This effort was aimed more towards consolidation of industrial research.
- ▶ In the post-war period, technology and research investments had been made by Public Sector Research Establishments (PSREs) in a wide range of sectors, including defence, agriculture and animal health, transport and water to re-build economies.
- ▶ UK Government promoted research funding for UK Universities (almost £2.8 billion in 2007-08). Later, the industry focus changed from generic R&D activities in favour of more routine and commercially lucrative laboratory and technical consultancy services. Even though Research Councils encouraged more commercially informed research through their support for, and the establishment of, academic centres such as Innovative Manufacturing Research Centres (IMRCs) adaptability was an issue. In parallel, these centres were faced with additional challenge of gradual withdrawal of public funding from Research Associations thereby witnessing a reduction in revenue.

Catapult Programme intends to help UK overcome the problem of translating the potential its leading research into economic benefit, which has traditionally been an area where UK performance has been relatively weak. To compete successfully in the global knowledge economy, UK Government has identified innovation is vital growth booster. UK Government in 2010 decided to invest 200 million GBP in a network of technology and innovation centres over the years 2011-2015. The new network of centres is a transformational long-term strategic investment by the UK Government to help generate economic growth by filling a critical gap in the UK's national innovation landscape. Technology Strategy Board, UK's national innovation agency, was entrusted with the responsibility of creating and overseeing the new facilities.

Catapult programme aims to accelerate business innovation by building a bridge between UK's world-leading research base and the companies, large and small, which are ambitious for growth in technology-enabled markets. This is a fast-paced initiative with long-term benefit. Focusing on a small number of areas, it will harness the UK's strengths, build capacity and generate the critical mass needed to compete effectively in global value chains and high growth markets.

The technology and innovation centres create a new framework for long-term investment and joint working between business and the UK research base, complementing the other programmes and resources available to stimulate innovation. It aims to transform the resource available to accelerate the translation of research into profitable products and services, and expect UK businesses of all sizes to use the centres to find new opportunities to accelerate and reduce the risk of product and service development.

The Catapult program main objective is summarised below:

- ▶ **Access to the best technical expertise, infrastructure, skills and equipment:** These resources will be used by companies, particularly SMEs, which can seldom afford these on their own.
- ▶ **National Focus for joint work between businesses and the research base:** Individual centres will create a critical mass of activity which will benefit the entire sectors in which they operate, and beyond.
- ▶ **Sustainability:** The centres will attract work and engagement from a wide cross-section of industry ranging from multinationals to small businesses, and will have the reputation to work closely with the best universities and other technology organisations in the UK and internationally. They will also act as connectors, sharing expertise between centres and across research institutions.
- ▶ **Provide an innovative and entrepreneurial environment:** Enabling the development of new value chains and facilitating a variety of routes to the commercialisation of new products, processes and services. They will have international reach, connecting with other countries' centres of business and research excellence, and building an international reputation which will also help to attract inward investment.

Criteria for establishing centres

An essential part of the strategy to establish the new network was the adoption of the right criteria for assessing and prioritising options for the focus of future technology and innovation centres.

Across the UK there are many examples of different geographical groupings and physical clusters of companies and research bodies which have an important role to play in innovation. An assessment was done on where and in what technology areas to establish a centre, sector with the maximum potential for economic impact or have impact on growth rate of innovative businesses.

The new centres occupy a distinctive territory. While there may be small clusters of businesses with bright ideas in a particular area, it may be too early in terms of technological development to establish a centre in that area. Equally, to justify a technology and innovation centre, a sector or technology area, even if well developed, must demonstrate the potential for substantial growth - and for a physical centre to make a powerful difference to the pace of innovation.

Therefore, the specific criteria to guide these decisions were:

- ▶ Are the potential global markets which could be accessed through the centre predicted to be worth billions of pounds per annum?
- ▶ Does the UK have world-leading research capability in the area?
- ▶ Does UK business have the ability to exploit the technology and make use of increased investment to capture a significant share of the value chain and embed the activity in the UK?
- ▶ Can a proposed centre in this area enable the UK to attract and anchor the knowledge-intensive activities of globally mobile companies and secure sustainable wealth creation for the UK?
- ▶ Is a proposed centre closely aligned with, and essential to achieve, national strategic priorities?

These criteria formed the assessment framework for the many possible focus areas for these centres. Location selection had also been selected based on readiness of UK business community ready to benefit from such a technology and innovation centre.

Governance Structure

Technology Strategy Board, UK's national innovation agency, was entrusted with the responsibility of creating and overseeing Technology and innovation Centres created under the Catapult program.

The Technology Strategy Board provides each centre with core funding and reviews their performance under an agreement with the organisation or body running the centre. The agreement thus:

- ▶ Provide sustainable long-term funding generally for a minimum of five years, with an expectation of continuing for at least 10 years, subject to continuing satisfactory performance and the future funding environment. This is to be complemented by long-term business support.
- ▶ Define the governance arrangements, remit and bounds for the centre.
- ▶ Specify quarterly reporting requirements against agreed metrics and performance measures and an annual performance review.
- ▶ Specify aspects such as financial liabilities, step-in rights if appropriate, and equipment ownership.
- ▶ Encourage the centres to link with, and draw on the outputs of, the research base and other centres.
- ▶ Define the membership agreement for the network of centres covering branding, networking communications, publicity, environmental sustainability and other common aspects.
- ▶ Outline the principles for intellectual property management
- ▶ Require annual plans to be submitted and approved.

The partners under the Catapult program are the Advanced Forming Research Centre (based in University of Strathclyde), the Advanced Manufacturing Research Centre (based in the University of Sheffield), the Centre for Process Innovation (located in Wilton and Sedgefield), the Manufacturing Technology Centre (sponsored by the universities of Birmingham, Loughborough and Nottingham, and TWI Ltd), the National Composites Centre (based in the University of Bristol), the Nuclear Advanced Manufacturing Research Centre (sponsored by the universities of Manchester and Sheffield) and the Warwick Manufacturing Group (based in the University of Warwick).

Strategy for Technology and Innovation Centres

To have the right impact centres must be timely - working in the space between research and the stage where the technology is part of specific business plans and, for example, venture capital is available. They must work in the space between concept and commercialisation.

Technologies evolve through different phases and need different approaches to speed them along - from connecting communities around embryonic ideas, through to demonstrator projects to encourage wider take-up. There are often very high barriers to the adoption of a technology; for example the need for long-term investment in capital facilities and technical expertise may be well

beyond the funding ability and appetite for risk of businesses, especially SMEs. In such cases, and at the right time, a technology and innovation centre will provide a powerful resource to help businesses develop new products and services based on the innovative technologies made available by the centres. (Refer Figure 11)



Figure 11 : Strategy for Technology and Innovation Centers in the Catapult programme

Broadly the strategy is currently focussed at investing only in those areas technology is more easily commercialised with maximum economic impact.

Role of Technology and Innovation Centres

A technology and innovation centre provides a dynamic environment in which multi-disciplinary teams from a diverse range of backgrounds can work together.

The role of a centre is to:

- ▶ Enhance businesses access to leading-edge technology and expertise.
- ▶ Reach into the research base for world-leading science and engineering.
- ▶ Undertake collaborative applied research projects with business.
- ▶ Undertake contract research for business.

- ▶ Be strongly business-focused with a highly professional delivery ethos.
- ▶ Create a critical mass of activity between business and research institutions.
- ▶ Provide skills development at all levels.

Funding and operation

Centres gain their funds from a mix of core Technology Strategy Board investment, and competitively won business and public sector funding.

The typical funding model, which may vary through the life of the centre, can be expressed in simplified terms one-third, one-third, one-third. This means that when fully established the centres would generate their funding roughly equally from three sources:

- ▶ Business-funded R&D contracts, won competitively.
- ▶ Collaborative applied R&D projects, funded jointly by the public and private sectors, also won competitively.
- ▶ Core public funding for long-term investment in infrastructure, expertise and skills development.

Core funding for each centre touched £5m to £10m a year - corresponding to an annual turnover of around £20m-30m. Each centre, requires around £10m to £15m per annum from business to be viable. Centres require substantial capital investment or equipment in order to provide access for business to the best technical expertise, infrastructure and skills that would otherwise be outside the reach of individual companies. They will be run with a commercial mind-set but with any surplus being reinvested into the centre itself.

Stakeholders:

The key stakeholders who invested in centres to address objectives aligned with their core remit are a range of public sector bodies. These include:

- ▶ **National Government/Devolved Administrations:** A range of investments or co-investments to develop a strategic capability or address market failure.
- ▶ **Technology Strategy Board:** Supporting technology development and innovation for the benefit of business, which includes national programmes of activity in which a range of centres participate.
- ▶ **Regional Development Agencies:** Focused on driving regional economic growth and investing in centres as strategic drivers of this.

- ▶ **Research Councils:** primarily aimed at supporting excellent academic research, often with a clear requirement to address business or societal needs or opportunities.
- ▶ **More details on the Catapult Programme can be seen at Annexure 9.1**

3.5.7 Innovation Superclusters & Strategic Initiatives (Canada):

About SMEs in Canada:

Small and Medium Enterprises are the engine of country's economy and their success vital to Canada's prosperity. The SMEs contribute to more than 30% of country's GDP. The SME categorization is based on the number of people working the company. It is observed that more than 99% of the companies in the country are SMEs and responsible creation of maximum number of jobs in the market. Manufacturing is one of Canada's most important economic sectors, employing 1.7 million people in a wide range of industries across the country and contributing to 10% of GDP. Manufacturers export more than \$354 billion each year, representing 68% of all of Canada's merchandise exports.

The majority of exports from Canada are to US followed by Europe. Over the past three years, there has been steady growth of SMEs in the country. Canada manufacturing industry is currently in a transition phase as the SMEs are entering into a technology revolution.

Challenges Faced by SMEs in Canada:

Canadian SMEs face a plethora of challenges which are comparable to the challenges faced by MSMEs in India. A few current challenges that are being faced by the SMEs of the country which need to be addressed for better growth prospects are listed

- ▶ The online business sector is under developed. Currently, only 17% of SMEs are selling their products online and 40% of companies have their own websites.
- ▶ There is no access to new customers to increase the market share. The country is heavily dependent on the US and have not explored the options of exporting to the other countries.
- ▶ The ability to adopt to new and intelligent machinery and productivity systems. There is no system for continuous improvement exercises.
- ▶ Lack of skilled workforce. The SMEs are not able to recruit and retain high quality workforce.
- ▶ Developing new products is a challenge as there is no proper research and development by the SMEs.

- ▶ The purchase of new innovative technologies is a challenge as access to finance is an issue.

Canada's Innovation Superclusters:

The Canadian government realized the above mentioned challenges and is setting up the 5 innovation superclusters where 10 units in each cluster will work on technology leadership, partnerships for scale, skilled talent pools, access to innovation and global advantage.

The Innovation Superclusters Initiative is investing up to \$950 million to support business-led innovation superclusters with the greatest potential to energize the economy and become engines of growth.

This initiative is a first of its kind for Canada, fostering stronger connections—from large anchor firms to start-ups, from post-secondary institutions to research and government partners—and opening the door to new forms of industry partnership.

It represents a significant commitment to partnering with industry and supporting the success of leading domestic and global companies that choose to innovate in Canada.

The following are the top 5 clusters which are selected as part of super cluster initiative (Refer Figure 12):

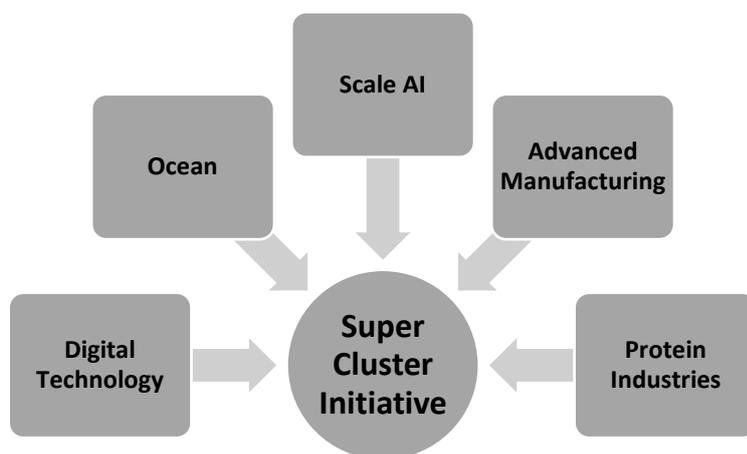


Figure 12: Supercluster Initiative in Canada

These clusters shall be implemented over a period of 5 years across five themes such as technology leadership, partnerships for scale, diverse and skilled talent pools, access to innovation and global advantage. The funding for each cluster for implementation of five themes varies between \$150 - \$250 million.

Other Key Initiatives and Leading Practices for SMEs by the Government of Canada:

1. Strategic innovation fund

This fund allocates repayable and non-repayable contributions to firms of all sizes across all of Canada's industrial and technology sectors. The program has a budget of \$1.26 billion over five years. It consolidates and simplifies the Strategic Aerospace and Defence Initiative, Technology Demonstration Program, Automotive Innovation Fund and Automotive Supplier Innovation Program.

2. Encourage SME growth through procurement

The Canadian government is launching USD 100 million procurement program dedicating its procurement through start-ups.

3. Food Development Centre (FDC) -Manitoba

FDC is fee-for-service special operating agency under the Manitoba Agriculture authority. It is recognized as global centre of excellence for development and commercialization of food products. The Food Development Centre is part of the Manitoba Agri-Health Research Network (MAHRN) in partnership with Canadian Centre for Agri-Food Research in Health and Medicine (CCARM) and Richardson Centre for Functional Foods and Nutraceuticals (RCFFN). The Food Development Centre's pilot plant is federally registered for meats, processed products, organic foods with global processing and quality standards.

4. Investment in clean technology

The Canadian government is funding USD 25 million in a three-year time line for adoption of clean technologies through investments in, and promotion of precision agriculture and agri-based bio-products.

5. Promotion of agri food industry

The Canada government has set an export target of USD 75 billion by 2025. Currently, the agri-food exports are about USD 50 billion annually. Canada aim to target 8% global market share by 2027.

6. Focus on fostering innovation in aerospace sector

The aerospace industry is one of the most innovative industries in Canada as it provide over 2.1 lakh jobs. The Canadian government had announced that it will provide USD 372 Million to Bombardier for developing long term competitiveness. This shall lead to new manufacturing platform and enable the country to maintain a competitive position in global supply chain.

7. Reduction in tax rate

The Canada government is in the process of reducing the tax rate on the small and medium business to 9% by 2019. With this initiative, the average small business in Canada shall have an additional 1600 dollar per year to reinvest in new equipment and job creation.

8. Support in advanced manufacturing

Government created the \$200 million Advanced Manufacturing Fund to support new and innovative products or production methods in all of Ontario. The program invests in advanced manufacturing in Ontario and contributes directly to an innovative and sustainable manufacturing base that will continue to be an important economic driver for prosperity.

Key Learnings for Haryana MSMEs from Canada

- ▶ **Integration R & D components under State Mini-Cluster Scheme:** Canadian and Indian MSMEs display a commonality in terms of the nature of challenges they face. Haryana Government can transition its focus to R & D under the Mini-cluster scheme. Given that already 20 clusters are underway under this scheme, the Government of Haryana can couple and **make funding for the same, contingent on the incorporation of R & D components** within the respective clusters.
- ▶ **Incentivization of Innovation:** A key learning from the Government of Canada's interventions targeting SMEs appears to be the focus on incentivizing and supporting innovations among SMEs. The strong and robust network that exists between anchor units, start-ups, government institutions, academia and research bears testament to the comprehensive and dynamic approach followed in the development of SMEs in Canada.
- ▶ **Focus on Aviation/ Aerospace:** Given the upcoming Air hubs in Haryana (Hisar being the most recent development), the Haryana Government can follow in the footsteps of Canada and augment the capabilities of this industry. Augmenting innovation in this sector ought to be a key priority for the Government of Haryana.
- ▶ **Sustainability in Manufacturing:** Besides providing strategic pool funding and other forms of support to SMEs, a key learning for Haryana could be the focus on inculcating sustainability into the manufacturing base and the use of clean technology in manufacturing especially in certain sectors (agro based processing etc.).
- ▶ **Food Development Centre:** On the lines of Food Development Center at Manitoba (Canada), the State Government of Haryana can come up with Food Development Centre (FDC) in Haryana through a MoU between GoH and the FDC, Province of Manitoba. A Food Development Centre in Haryana will enable farmers and agri-entrepreneurs to:

1. Utilize local commodities and crops to create market ready food products.
2. Access expertise in process and product development.
3. Respond to Haryana's increasingly health conscious consumers, who are seeking food products that promote good health and wellness.
4. As a leading producer of agriculture and allied products, the opportunity of food processing of high value-added products is tremendous, in Haryana. Given this strong growth potential for food processing in the state backed by strong demand/consumer base and resource abundance, there is a need for technology and infrastructure push through which can be made through a Food Development Centre for value addition / commercialization of food products and increasing the use of local ingredients for food through value-addition.
5. The leading agriculture and horticulture production zones in Haryana (Refer Figure 13) along with the value-added products that can be targeted under the Food Development Center initiative include the following.

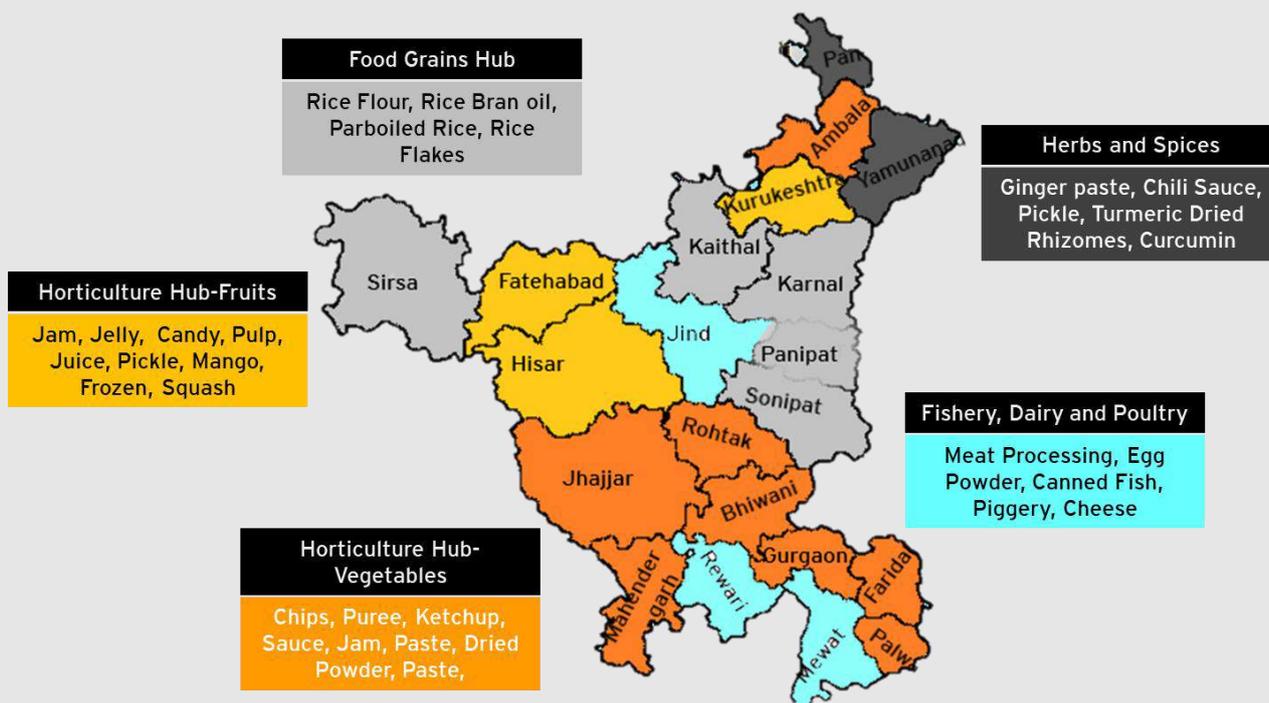


Figure 13: Leading Agricultural Zones in Haryana

Key Learnings for Haryana MSMEs-Innovation & Innovative Capacities of MSMEs

The innovation systems that Fraunhofer-Gesellschaft, InnoRegio, IMEC, ITRI, ETRI, Canadian Superclusters and the Catapult Programme represent have a strong focus on innovation to create commercial technologies in collaboration with industry and governments. In the above context;

- ▶ **Need for Aligning with applied research/ projects:** Limited focus on innovation and technology upgrade by MSME is perhaps a result of inadequate alignment with applied research organisations and projects.
- ▶ **Multi-faceted and Balanced Personnel:** Portion of staff may not be qualified scientists, industry experts or have deep research experience in the MSMEs, unlike Fraunhofer-Gesellschaft, IMEC, ITRI and ETRI which have considerable representation from the industries and universities. This balanced representation is beneficial as there is constant exchange between resources moving into industry segment and returning to innovation and incubation centres.
- ▶ **Industry partnerships:** Currently, the focus is on providing skill up-grading or technology courses which are more in demand by MSMEs or industry at large. MSMEs may not have the right skills to promote and safeguard market leadership, and lead firms are ahead of many MSMEs' current capability. This has been leveraged by ITRI or Fraunhofer-Gesellschaft to create partnership with leading firms in the industry for contract research generating sustainable source of revenue.
- ▶ **Technology Trends Analysis:** Current business focuses more on 'As-Is' technology transfer with limited focus on defining technology trends most relevant in specific industry and very limited capability for carrying out applied research to develop technological innovation and novel system solutions. MSMEs scope and mandate does not cover "integration of the scientific community as a whole with industry trends" which can lead to more profitable revenue in terms of patents, royalty, spin-off etc.

The specific needs of MSMEs varies according to the innovation system and economic and social landscape of the countries they operate in. MSMEs in Haryana State can learn the lessons from the above presented examples:

- ▶ **Bridge gap between industry and discovery:** Strong rationale exists for bridging the gap between academic discovery and commercial market viability.
- ▶ **Leverage Strengths:** It is common to be focused on sectors or technologies which capitalise on local and national strengths rather than have a wider spread of institutes in many technology or sectorial fields.
- ▶ **Horizontal Movement of Personnel:** Transfer of workforce from the academic and private sector may be considered through joint research programs.
- ▶ **Commercialize Partnerships:** MSMEs should aim at evolving their applied research and technology innovation capability by aligning with applied research institutes to cater to additional income from public and private sector contract research, and through the commercialisation of IP.
- ▶ **Brand-building:** A strong singular brand may be built to reinforce networks of MSMEs by making them an attractive partner to the private sector and for international collaborations.

Chapter 4

Public & Private-Led MSME Development: Key Takeaways for Haryana MSMEs



4.1 Public-funded and Private-led interventions on Entrepreneurship / Innovation

MSMEs play a key role in developing countries as they typically account for more than 90% of all firms outside the agricultural sector, constitute a major source of employment and generate significant domestic and export earnings. As such, SME development emerges as a key instrument in poverty reduction efforts. SMEs, due to their size, are particularly constrained by limited access to finance, cumbersome procedures in setting up, operating and growing a business, poor state of infrastructure and lack of effective institutional structures. The removal of these constraints is a daunting task calling for holistic SME support, i.e. an enabling environment for SME development consisting of functioning macro, meso and micro-level institutions.

Development of an effective business support system is also a key condition for the success of both trade and investment capacity building. It requires business support agencies (including financial institutions), which are customer-oriented and which have a demonstrated capability of penetrating the SME sector. The facilitator of the linkage between the SMEs and business development system can be an independent actor, such as a donor or a government institution in the Public or Private Realm, a few practices of which are outlined (Refer Figure 14).



Figure 14: Public & Private-led Interventions

4.2 Public-Funded Interventions on Entrepreneurship/ Innovation

In this section, some examples of leading Programmes and Schemes for SME / MSME development across the world are presented, with the purpose of identifying relevant learnings for MSMEs. These are:

1. North East Competitiveness and Employment, UK
2. Small and Medium Enterprises Administration (SMEA), Taiwan
3. Upper Austrian Food Cluster (LCOO), Austria
4. Bio Bio Region, Chile
5. Japan Finance Corporation (JFC), Japan
6. Manufacturing Extension Partnership (MEP), U.S.
7. Thai Tanning Industry Association (TTIA), Thailand

These leading practices are discussed in the following section, and key learnings for the Haryana MSME ecosystem are outlined at the end of each of the above examples.

4.2.1 North East Competitiveness and Employment (United Kingdom)

Situation prior to the launch of the programme

The North-East UK economy has traditionally lagged behind the UK average. But, within the context of a strong UK economy since year 2000, there have been signs that the region has at last begun to turn the corner. More recent data on Gross Value Added (GVA) suggested that the region's economy had been growing faster than the UK, for the first time since the recession of the early 1990s. This provided a strong basis on which to build, and to address the underlying structural barriers to greater economic opportunity in the future.

The North East has had a greater dependence on manufacturing and public services in terms of contribution to GVA than England. Despite a slightly larger than average share of manufacturing where GVA per employee is above the national average, the North East's average labor productivity has been relatively low across construction and most service sectors which have accounted for most of the employment created in the region.

Further progress needed to be made in creating employment opportunities for the region's working age population to relatively high levels of unemployment, labor market inactivity and social and economic exclusion. While the North East had experienced a higher rate of decline in unemployment and the number of people classed as economically inactive in comparison to England as a whole, the proportion of people aged 16 years or over who were classed as economically inactive had been significantly higher than the English average.

Manufacturing jobs, which are usually associated with relatively high Gross Value-added (GVA) per job, have been declining, though this is not unique to the North East. Decline has been most prominent in lower added-value activities such as textiles. Although the North East has traditionally had a higher representation of jobs in manufacturing than the English average, this trend has been changing, with a fall in the proportion taking manufacturing representation closer to the national average. The shrinkage of traditional manufacturing in the North East emphasizes the need to develop higher value-added products and services using the region's science and technology strengths.

Between 1998 and 2003 R&D in the North East as a proportion of GVA was half the England average. Overall R&D expenditure in the North East has traditionally been low. For the region to develop competencies in high value adding sectors, greater investment in R&D was required to enable businesses to explore new markets, develop process and product innovations, improve efficiency and raise productivity levels.

Key issues addressed

The European Regional Development Fund regulation, published in July 2006, states that the European Regional Development Fund should primarily focus on the following three priorities:

- ▶ Innovation and the knowledge economy
- ▶ Environment and risk prevention
- ▶ Access to transport and telecommunication services of general economic interest

There are additional two priorities, which, according to the ERDF regulation, may be taken up by programmes under the Regional Competitiveness and Employment Objective. These are:

- ▶ Interregional cooperation
- ▶ Sustainable urban development

The Global Objective of the programme will therefore be pursued through a strategy comprising three Priorities weighted as follows and discussed in the following section (*Refer Figure 15*):

- ▶ Priority One: Enhancing and Exploiting Innovation (53.5%)
- ▶ Priority Two: Business Growth and Enterprise (43.5%)
- ▶ Priority Three: Technical Assistance (3%)

The challenge of future economic development is to create wealth while reducing environmental impacts. Strong growth in the regional economy will present environmental challenges, notably in

conserving a more heavily used natural environment and in managing resource use and CO2 emissions caused by increased use of private transport. The North East has substantial capacity to develop the renewable energy sector, which represents both an economic opportunity (business growth/start-up potential) and environmental opportunity (clean and lower carbon energy).

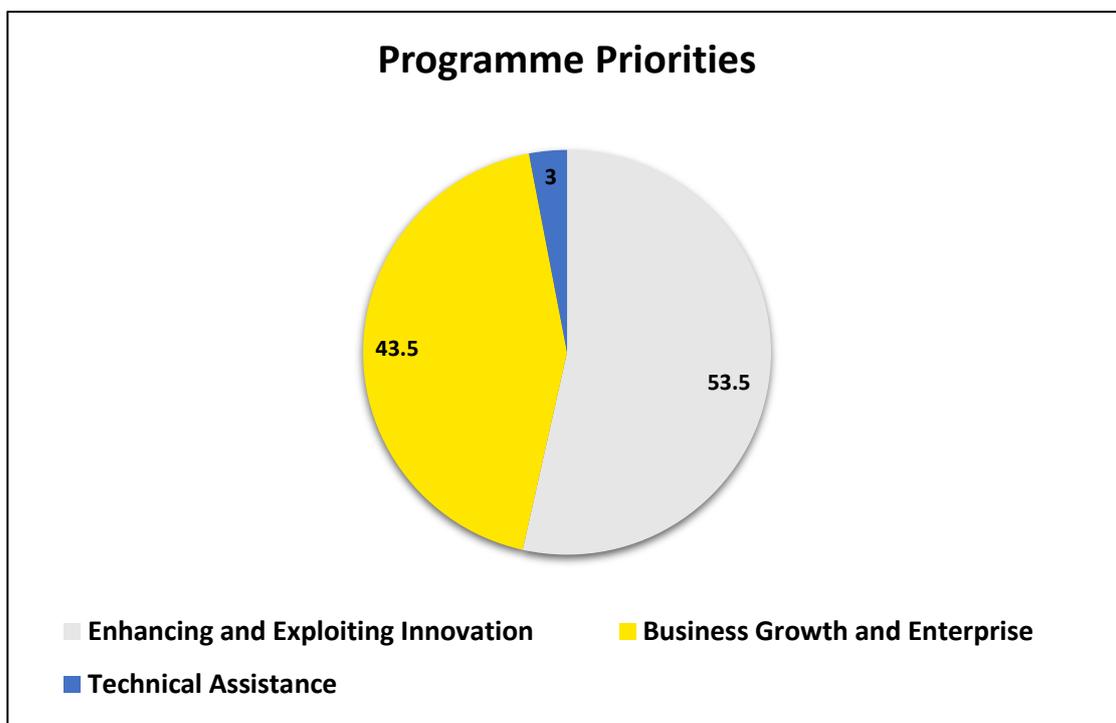


Figure 15: Programme Priorities

A number of key sectors have been identified for the targeting of support in the Regional Economic Strategy (RES) for North East, with the selection criteria based on the contribution to GVA and employment, the future growth opportunities they present and/or the potential to increase levels of participation. The key manufacturing sectors identified are Automotive, Chemicals and Pharmaceuticals, Defense and Marine, Energy and Food and Drink. Four sectors within Services have also been prioritized: Knowledge Intensive Business Services, Tourism and Hospitality, Commercial Creative and Health and Social Care.

The ERDF Programme (2007-2015) provided an excellent opportunity for the North East of England to further progress its economic development, through priorities determined by the region itself and defined by a strong regional partnership drawn from all parts of the region.

The North-East Competitiveness Operational Programme will by 2015 have made the region a more cohesive, ambitious and attractive place in which to invest and work based on the creation of a modern, innovation focused economy that is well placed to exploit the economic and social

opportunities associated, in particular, with energy efficiency technology and renewables that contribute towards a healthy environment and smart, sustainable and inclusive growth. It will strengthen the region's entrepreneurial culture and grow the region's business base resulting in an outward facing regional economy and society that is self-reliant and confident of its ability to compete in the global market place (Programme vision).

The region needs to achieve a step change in economic performance if it is to raise its prosperity and achieve the targets set out within the Regional Economic Strategy. That is:

- ▶ To raise the region's GVA per head from 80% to 90% of the national average.
- ▶ To get between 61,000 and 73,000 more people in the region into work.
- ▶ To create between 18,500 and 22,000 new businesses.

Within the main priorities, the following fields of action have been defined in order to achieve the targets and the overall programme vision:

Priority 1: Enhancing and Exploiting Innovation:

The focus of this priority is to promote and embed 'opportunity' by advancing science, technology and innovation within the region's business base and broader communities.

Fields of action:

- ▶ Investment in Innovation Connectors.
- ▶ Reclamation and preparation of sites and associated infrastructures, including management of environmental risks and opportunities.
- ▶ Premises and capital works associated with exploitation of innovation, science and energy (including site specific energy related infrastructure).
- ▶ Community awareness and engagement actions related to science, energy, technology and innovation agenda and promotion of employment opportunities linked directly to Innovation Connector projects.
- ▶ Innovation focused, tailored support geared towards the needs of groups of or individual SMEs with high growth potential and their supply chains.
- ▶ Network facilitation to enhance cooperation between SMEs in key sectors.

- ▶ Revenue actions by Centers of Excellence and Innovation Connectors in delivering technology support to key sectors, including support with the development of new products and processes.
- ▶ Financial and technology support for the development of new products and processes.
- ▶ Reclamation and preparation of sites and associated infrastructures, including management of environmental risk and opportunities (including site specific energy related infrastructure).
- ▶ Premises and other capital works aimed at unlocking the growth potential of innovation and technology led sectors.
- ▶ Associated environmental improvements.
- ▶ Exploitation of Science base.
- ▶ Support for research into commercial feasibility of scientific and technical innovation.
- ▶ Direct support to SMEs to build capacity linked to science and design base.
- ▶ Financial assistance with working capital and investment.
- ▶ Investment in Innovation Connectors
- ▶ Support for innovation and technology-led sectors
- ▶ Exploitation of Science base

Priority 2: Business Growth and Enterprise:

In order to address the relative underperformance of the North East in terms of business formation and sustainability the focus of this priority will be to address 'need' by developing the enterprise base of the region, in particular in disadvantaged parts of the region, and to support a more dynamic, growing business base across the region as a whole through;

- ▶ Cultivating and sustaining enterprise (including social / community based enterprise) in particular, but not exclusively, in disadvantaged areas.
- ▶ Enhancing the competitiveness and growth of existing SMEs (including social / community based enterprises).
- ▶ Cultivating and sustaining enterprise (including social / community based enterprise) in particular, but not exclusively, in disadvantaged areas.

- ▶ Support for the development of an entrepreneurial culture in disadvantaged areas, in particular amongst young people, promoting enterprise as an alternative career path, including through the provision of packages of support, opportunities to research and test out ideas, coaching and mentoring provision.
- ▶ Support to start-up business, including social enterprise, including pre-start-up guidance and advice, assistance with business planning, business systems and processes and assistance with exploitation of ICT applications including e-commerce.
- ▶ Large scale investments in strategic sites and premises aimed at unlocking the employment potential of disadvantaged areas.
- ▶ Enhancing the competitiveness and growth of existing SMEs (including social / community based enterprises).
- ▶ Specific initiatives to improve productivity, including support with environmental management actions such as energy efficiency and waste minimization.
- ▶ Large scale investments in strategic sites and premises linked to targeted economic sectors.
- ▶ Individualized advice, information and diagnostic services including account management for SMEs with identified growth potential. ERDF will extend range of business solutions available to regional SMEs.
- ▶ Actions to promote sales growth, including through promoting supply chain development, actions to help SMEs take advantage of the liberalization of public procurement, assistance with exporting and other internationalization.
- ▶ Financial assistance with working capital and investment, building on the region's experience with financial engineering in current programme.

Key stakeholders of the programme

- ▶ European Regional Development Fund (ERDF): ERDF is allocated by the European Union. ERDF invests €375.7 million in the programme
- ▶ Department for Communities and Local Government, UK Government
- ▶ Government Office for the North-East Competitiveness and Employment ERDF Operational Programme

Key achievement of the programme

The programme was evaluated thoroughly mid-term in 2011. The Programme is well designed and has been implemented effectively to this date. Key achievements mentioned here are based on this evaluation.

It is important to mention that the programme was developed prior to the recession. The region suffered a harsher business environment, credit crunch and business cash flow issues (and the knock-on effect on business confidence) during 2008-2010 and the recession made many local businesses risk averse in terms of their growth plans and when it comes to making new investments. A major issue for SMEs since the start of the downturn was access to finance as banks became increasingly unable or unwilling to lend to SMEs and credit terms became more onerous. Credit conditions have improved, although the volume of lending continued to be lower than before the recession.

With respect to outputs and results, the Programme to mid-term has prioritized contracting for jobs created and businesses created; two key programme indicators, although perhaps the most challenging to achieve in the current economic climate. The Programme has made good progress on businesses created (46% of overall programme target already achieved), especially in disadvantaged areas (target already exceeded).

The Programme has successfully used ERDF to increase the scale of existing major regional business support programmes, building on existing structures rather than create new ones, and helping to foster efficient management and delivery of ERDF activities. Support for local enterprise programmes has enabled the Programme to target support on underperforming parts of the region, fostering the equitable allocation of ERDF resources.

There has been significant progress in providing advice and guidance to existing SMEs and start-ups (and individuals wishing to set up a new business). At the end of 2010 this type of business support accounted for two thirds of the total ERDF spent across all projects.

Key Learnings for Haryana MSMEs- North East Competitiveness and Employment (United Kingdom)

MSMEs in Haryana and in India can learn from the experience of the North-East Competitiveness and Employment ERDF Operational Programme in the below mentioned areas:

- ▶ **Alignment of Program Strategy with Regional Context:** The importance of aligning program strategy with local regional economic strategies to encourage local engagements, benefit from existing initiatives and infrastructure and ensure benefit realization for regional government, as well as for the programme.

- ▶ **Job Growth Augmentation:** Support direct efforts to link job growth to areas and/or groups of people where there is a need to increase economic participation. Especially focus on support for people in areas of high unemployment to benefit from jobs being created in the wider economy the regional economy or direct support for employment creation in areas of need.
- ▶ **Policy Strategy:** The time lags associated with land and property schemes will need to be carefully considered, as should the risks of depending on a property market which is subject to continuous change.

4.2.2 Small and Medium Enterprises Administration (SMEA) (Taiwan)

Context in Taiwan

In the nineties, Taiwan gradually lost its competitive advantage in labor-intensive products with low added value. The government thus promulgated the Statute for Small and Medium Enterprise Development, along with the Statute for Upgrading industries and the Six-year National Development Plan. In 1997, the SMEs Protection Clause was incorporated into the Constitution, and the government began to pay more attention to the survival and development of SMEs. Public construction was stepped up, and tax incentives were used to stimulate R&D, manpower training, the automation of production and pollution prevention. SMEs gradually upgraded or transformed themselves so that they became more knowledge-intensive, technology-intensive and innovation-intensive.

The arrival of the knowledge-based economy era, aided by the application of the Internet, e-commerce and IT, has provided SMEs with a new operating model and has enhanced the speed and efficiency of business operations. Since January 2002, when Taiwan joined the WTO, the economic environment has become more liberalized, making Taiwan a part of the global industrialized system. The 2008 Challenge includes the promotion of innovation-oriented industrial policy, the creation of R&D centers in Taiwan by foreign corporations, the setting up in Taiwan of local innovation and incubation centers for SMEs, the establishment of the Nankang Software Incubation Center, Southern Science Incubation Center, and Nanking Biotech Incubation Center. The ultimate objective of all these projects is to lead SMEs towards a high value-added industrial era featured by innovation, invention, and R&D.

Key issues addressed

Some of the key issues that SMEA focus on are:

- ▶ The need for appropriate guidance to SMEs in key areas, addressing real needs and challenges.
- ▶ The need for service across the board, provided by a unit that is decisive and respond rapidly.
- ▶ The need for close collaboration between SMEs and other central government agencies, with local government and with specialist service agencies.
- ▶ The need for a clearly formulated plan objectives for SME development in Taiwan that are being reviewed on a regular basis.
- ▶ Effective use of both internal and external resources to achieve synergy in the SME sector.

Furthermore, SMEA is positioned to serve as a support for SMEs, engaging in rapid and effective integration of resources and helping SMEs to enhance their competitiveness.

In line with the changes taking place in Taiwan's industrial structure, the Administration is also required to undertake work in the following areas:

- ▶ The provision of support for entrepreneurial activity and innovation, coordinating the provision of financing for new start-ups, and coordinating incubator operation.
- ▶ Helping SMEs to adopt information technology, and providing guidance with respect to computerization.
- ▶ Reinforcement One-stop Service Center to help solve funding difficulties.
- ▶ SME Financing Service Team project - assisting in the establishment of a sound accounting system and in capital funding.
- ▶ Micro Enterprise Start-up Loan Promotion Program.
- ▶ The SME Credit Guarantee Fund and to the Assistance Fund related matter.

Main components of the SMEA

The vision of the SMEA is to create an environment beneficial to the establishment and growth of SMEs. The main operational areas are described below:

Creating a healthy environment for the development of SMEs:

Creating a healthy environment for the development of SMEs includes coordinating, reviewing and modifying regulations concerning SMEs, providing needed information on regulations and consultative services, safeguarding the rights of SMEs, planning and building a management system for evaluating the Small and Medium Enterprise Administration's performance, promoting an

objective mechanism for the evaluation of management and performance, conducting various research projects and surveys, and building a quality operating environment.

Strengthening the SME's management guidance function:

SMEs are the foundations of economic development. With their great flexibility, they can create economic miracles. In recent years, due to the rapid domestic and foreign politico-economic changes, SME operations become difficult. In light of this, the administration aims to provide guidance appropriate to SMEs' needs in the areas of operational management, financing, mutual assistance, and the development of industries with local characteristics, etc. In this way, it can offer SMEs comprehensive management guidance to help them strengthen and upgrade themselves. For example, SMEA is in charge of hosting meetings on the status of 11 SME assistance systems. Each year, a national SME development conference is held to formulate SME development policies. Each quarter, an SME assistance system working meeting is held to coordinate and consolidate the assistance functions.

Building a Platform for Enterprise Start-up and Incubation:

To develop the innovation and entrepreneurial capabilities of SMEs, SMEA endeavor to build a platform for enterprise start-up and incubation. This includes building an innovative support mechanism for starting an enterprise, creating a knowledge-based platform to start an enterprise, various incubation mechanisms, developing the funds and human resources needed to start an enterprise, participating in international affairs and providing support to SMEs in terms of starting an enterprise.

Enhancing SMEs' information Technology Capabilities:

The degree of information and communications technology (ICT) adoption varies greatly among SMEs. In an effort to help transform, modernize, and encourage innovation for SMEs, it is imperative to introduce ICT to SMEs in an effort to expand their market opportunities and enhance their competitiveness. To achieve this goal, SMEA provides a number of services, including implementation of basic infrastructures, ICT applications, e-commerce, ICT training, and utilizing ICT to encourage and facilitate innovation in businesses. The Administration also provides guidance in the areas of information management, enterprise computerization, quality upgrading and implement the Plan of "e-Business service team" for the SMEs, "Bridging the Digital Divide of the SMEs Project", etc., promoting the use of knowledge management applications, so that the SMEs' ability to make effective use of information technology can be significantly enhanced.

Integrating the SME financing mechanism:

In order to build up communication channels between SMEs and the SME Credit Guarantee Fund or the financial institutions and assist the SMEs to achieve perpetual development, SMEA carry out our mission through several programs and services. This includes raising SMEs' financial management ability, establishing proper accounting systems for SMEs, and consolidating Credit Guarantee Funds, Small Business Integrated Assistance Center and private-sector investment resources to assist SMEs in obtaining investment and financing funds and credit guarantees in order to open financing channels for SMEs.

Strengthening quality management capabilities:

In order to assist SMEs in implementing quality upgrade and strengthening their quality management capabilities, SMEA have been providing quality improvement guidance for industry clusters in individual industries, helping them to conform to international environmental regulations, and providing SMEs with the guidance they need to secure relevant certifications, which in turn will help them to secure contracts from leading international companies. SMEA have also been working to promote quality awareness, and to encourage the adoption of new quality management methods and concepts.

Promoting mutual assistance and collaboration:

The purpose of mutual assistance and collaboration guidance is to promote of mutual assistance between enterprises. SMEA is seeking to expand the promotion and collaboration between SMEs, so that SMEs can share operational resources and work together to develop new products and new technologies. This will help SMEs to develop new market opportunities. Furthermore, SMEA makes use of existing industry cluster resources to provide guidance for the establishment of sound enterprise networks, strengthen collaboration between companies in the same cluster, and upgrade overall management capability.

Promoting local culture industries:

In order to help local culture industries to develop value-added products and services based on their "uniqueness", SMEA has launched a series of guidance projects to stimulate the growth of local cultural enterprises. Through providing these projects and services for local feature industries and small community enterprises and assisting businesses in using existing resources with leisure and tourism events to develop and promote business features. SMEA also encourages the development

of innovative local SMEs in rural areas in order to integrate industries with local characteristics, and thereby improve local industries and encourage innovation and industrial development.

Encouraging SMEs to strive for growth:

To select the superior SMEs, SMEA organize the National SME Award, the Rising Star Award, the SME Innovation Research Award, the Golden Book Award, and the Superior Guidance Service Personnel Awards, with the aim of creating a first-class image through these awards, encouraging SMEs to strive for further growth, and spreading successful experiences far and wide for other SMEs to learn from.

Key stakeholders

- ▶ Ministry of Foreign Affairs
- ▶ SMEs in Taiwan

Key achievements of the SMEA

In order to help SMEs to enhance competitive strength, besides helping SMEs to upgrade and transform their businesses, SMEA has encouraged SMEs to engage in innovation and R&D, enhance technical standards, strengthen operational and quality management, increase operational efficiency with IT, and create higher added value. Regarding the capital financing needs of SME development, besides aggressively providing them with financing guarantees and strategic project loans, SMEA have arranged consultation and diagnostic services through financial service teams. In order to encourage SMEs to utilize local resources and development characteristics, SMEA promotes projects related to the One Town One Product (OTOP) and integrated local association tourism resources to promote the development of local characteristic industries.

The performance of SMEs has improved largely the past years. In 2011, the number of enterprises was 1,279,784 accounting for 97.63% of the total enterprises in Taiwan. This figure represented an increase of 31,786 enterprises (2.55%) compared to 2010, which was the highest level it had ever reached. Moreover, SMEs' sales total NT\$11,226.9 billion, representing 4.84% up from 2010, a better performance than large enterprises. SME employed total 8,337,000 people, accounting for 77.85% of the total employments, was also higher than 2010.

Key Learnings for Haryana MSMEs- Small and Medium Enterprises Administration (SMEA) (Taiwan)

The way the Taiwanese government manages and supports SMEs has proven to be very effective in terms of improving the growth and competitiveness of SMEs in Taiwan. The initiatives SMEA

has taken in order to make SMEs engage more in innovative activities as well as R&D can be relevant for the State of Haryana and India to replicate.

MSMEs in Haryana can be inspired by several of SMEA's initiatives:

- ▶ **Start-up and incubation:** India also needs to build a stable platform for enterprise start-up and incubation as this will develop the innovation and entrepreneurial capabilities of Indian MSMEs.
- ▶ **MSME management:** MSMEs are the foundations of economic development, but company operations can be challenging. In order to ensure effective management that lay the basis for growth, India needs to assist and educate MSMEs on management issues.
- ▶ **Quality upgrade:** In order to secure certifications and business contracts MSMEs must obtain and sustain a certain level of quality. The Indian authorities can provide quality improvement guidance and promote quality awareness to encourage better quality management of MSMEs. This will in turn result in growth and profitability.
- ▶ **Finance assistance:** Indian MSMEs has a need for communication channels between MSMEs and relevant financial institutions that authorities can supply and maintain, in order to achieve perpetual development.
- ▶ **Information management:** To help transform, modernize, and encourage innovation for Indian MSMEs, it is imperative to introduce ICT to MSMEs in an effort to expand their market opportunities and enhance their competitiveness. Some components are basic infrastructures, ICT applications, e-Commerce, ICT training, and utilizing ICT to encourage and facilitate innovation in businesses.
- ▶ **Mutual assistance and collaboration:** Mutual assistance and collaboration between enterprises is crucial to the success of clusters and SME growth and development. One way to encourage this is to provide guidance for the establishment of sound enterprise networks, strengthen collaboration between companies in the same cluster, and upgrade overall management capability.
- ▶ **Local Culture Industries:** Identifying and supporting industries which are rooted in local factors such as resource availability, history, and cultural ethos. Such as handicraft, Leather & Footwear, Welding, etc.

4.2.3 Upper Austrian Food Cluster (LCOÖ) (Austria)

Situation prior to the launch of the programme

Traditionally, the province of Upper Austria can be characterized by:

- ▶ Long industrial tradition in manufacturing, primarily based on metal and steel.
- ▶ Disproportionate large share of machinery, transport, and mining compared to the Austrian industrial structure.
- ▶ Significant structural adjustment process in the eighties following a severe crisis of the large state-owned companies.
- ▶ Farming as an integral part of the cultural identity in the region.

Despite structural problems, the region's economic performance has been above the Austrian average in the post-war period. The recovery after the economic crisis in the 1990s was successful. At present, Upper Austria is one of the provinces of Austria with the best economic performance.

Consequent development of clusters has been an essential part of the Upper Austrian cluster policy for the past almost 20 years, with the aim to boost the innovation efficiency of the companies when cooperating with other firms in their areas. In accordance with the state's line-up of major industries, seven single-sector clusters and five multi-sector networks have been founded since 1998. This clusters initiative's motto was "achieving innovation through cooperation and competence". The initiatives have by now joined together some 1,600 partners. These are largely companies that are active in the automotive, plastics processing, furniture and wood-based construction, medical technologies, mechatronics, environmental technologies, eco-energy and food processing sectors. Some 85% of them are SMEs. To further enhance the power to innovate possessed by Upper Austria's people and companies, multi-sector networks have been set up in the areas of human resources, logistics and design and media. The cluster and network initiatives initiate and coordinate the working relationships linking companies and R & D facilities. This strengthens the ability of companies and of their sectors to compete. An important thrust is meeting the needs of the state's SMEs.

Key issues to be addressed

The Upper Austrian Food Cluster (LCOÖ) was founded in 2000 as part of the "Upper Austria 2000+ Strategic Programme". The objective of this programme was to *"establish strategies and measures for the Upper Austrian region in the three areas of technology, vocational qualifications and location marketing, in order to secure the spending of the funds according to their allocation. The results are oriented towards the year 2000 and the subsequent period"*.

Within the food industry the following issues were to be addressed through cluster development:

- ▶ Development of foods with specific benefits for the consumer (convenience food, functional food, organic food).
- ▶ Research of the processing characteristics and possibilities of use for traditional local raw materials and additives of their effects.
- ▶ Development of quality and hygiene standards for raw materials and additives, and for packaging materials.
- ▶ Innovation in storage and packaging technologies.

Main components of the programme

In an age of retail concentration and increasing competitive pressure, the need to use cutting-edge technologies and increased expectations on the part of consumers and co-operations are an absolute necessity for small businesses in the food industry. The creation of the Upper Austrian Food Cluster (LCOÖ) was focused around the following components to address this need:

- ▶ *Support for initiation of and accompanying co-operation projects at regional level.*
- ▶ *Participation at co-operation projects at international level.*
- ▶ *Organization of specialized events for know-how transfer on trends and technologies.*
- ▶ *Providing a broad information and communication platform.*

In terms of food processing, LCOÖ with its over 270 members quickly established itself as the most prominent player in Austria with its vision and competence. Upper Austrian food producing companies leading position is being strengthened and expanded with innovations and research coordinated by the LCOÖ. The whole cluster is represented and coordinated by the Upper Austrian Food Cluster management, which is settled in the Upper Austrian Chamber of Commerce (UACC) who is in charge of the cluster management.

Key stakeholders of the programme

- ▶ Upper Austrian Chamber of Commerce (cluster management)
- ▶ Economic department of the regional government of Upper Austria
- ▶ Agricultural department of the regional government of Upper Austria

Highlight of the implementation of the programme

The Upper Austrian Chamber of Commerce is the body responsible for the Upper Austrian Food Cluster. All measures within the framework of the Upper Austrian Food Cluster are financed by the

Province of Upper Austria, the Upper Austrian Chamber of Commerce and contributions from network partners.

The objectives for the cluster creation were:

- ▶ Increasing competitiveness and innovatory strength through co-operation.
- ▶ Strengthening economic power by establishing strategic networks without endangering the partners' autonomy and flexibility.
- ▶ Intensification of horizontal, vertical and diagonal relationships within the network.
- ▶ Exchange of specialist knowledge and the generation of new knowledge.
- ▶ Increasing food competence through R&D projects.
- ▶ Image work for the Upper Austrian food sector and an increase of Upper Austria's attractiveness as a business location.

Key Successes of the Programme:

- **Infrared spectroscopy for saccharides:**
In this cooperation project three partners attempted to implement a time-saving method for the IR-spectroscopy of honey and to expand the list of parameters for the sugar spectrum.
- **BistroBox - Development of a high-performance pizza oven:**
Within this project a pizza oven for a pizza vending machine was developed.
- **Quality assurance for food packaging:**
With the aid of two innovative measurement techniques detailed knowledge of the internal structures and properties of food packaging could be obtained in this collaborative project.
- **Combination of phytogetic substances with alternative natural food additives in the pig production**
In the project various vegetable raw material combinations were tested and compared in combination with other alternative feed additives on growth performance and health status of weaned piglets and fattening pigs.

Key achievement of the programme

The evolution of the LCOÖ has been extremely dynamic since the formation of the cluster, providing impressive evidence of the innovative energy and technological orientation of the food industry.

Special mention should be made of the close co-operation within the LC OÖ network between the farming industry and commerce. Over 1.000 farmers are involved in LC OÖ projects, their contributions guaranteeing the success of these collaborations.

The exchange forum for operational supervisors in food producing companies, coordinated by the UACC has been very successful. The exchange forums aim to bring into contact employees from different companies but who face the same challenges concerning questions of personal resources and/or other topics. Within the regular meetings the participants can share their experiences and develop a network for solving problems together.

Key Learnings for Haryana MSMEs- Upper Austrian Food Cluster (LCOÖ) (Austria)

Based on the LCOÖ experience, a few elements can be of interest for the MSMEs in Haryana:

- ▶ **Focus on R&D:** The LCOÖ cluster administration has a dynamic focus related to innovation and R&D as the needs are constantly changing. The administration keeps a close eye on market needs at all times, ensuring that R&D focus remains relevant at every step.
- ▶ **Exchange Forums:** Establishment of exchange forums and platforms for sharing information. The forums and platforms should be managed by a central, coordinating party, such as the cluster network manager.

4.2.4 Bio Bio Region (Chile)

Situation prior to the launch of the programme

Chile's Region VIII, Bio Bio, consists of four provinces, which are further divided into 13 territories. It is the country's second most important region after Metropolitan Santiago. In 2004, Bio Bio's output was 8.7% of the country's gross domestic product, and its GDP growth is above the national average. Bio Bio's economy is strongly tied to natural resources; it is the country's premier agricultural region, and is also distinguished by the development capacity of its forestry and fishing sectors, particularly in the area of exports—US\$4.602 billion in 2006, with forestry and fishing accounting for 74% of the total.

The regional government's productive development strategy included the goals of greater technology dissemination, giving priority to activities that incorporate greater value addition, and enhancing the region's foothold in the global marketplace. It also maintained the priority of developing a regional innovation system in coordination with the business community. Advances in this area include: (i) coordination of development instruments through a program called "Región

Emprende"; (ii) creation and operation of the Investment Management Center; (iii) creation of the Technology Innovation Fund for the Bio Bio Region (INNOVA Bio Bio) to finance innovative business initiatives.

Two facts suggested a certain weakness in terms of productive development and the capacity for maintaining the competitive growth of small and medium-sized enterprises (SMEs) in the region. First, while the region has seen significant productive momentum compared with other regions of Chile, it had the highest unemployment rate, indicating that regional economic growth was not creating enough jobs to absorb the available workforce. Secondly, there was a technology gap among SMEs, largely because entrepreneurs found it difficult to introduce technological changes in their businesses. These two tendencies may have to do with flaws in the region's production linkages, owing mainly to the limited incorporation of technology.

Key issues to be addressed:

Although Bio Bio had considerable capacities in terms of knowledge centers and the presence of producers, which should sustained development of the knowledge economy, its supply of technology and technology services did not match demand, and it lacked a systemic vision to facilitate the incorporation of technology into the productive system, particularly into value chains. The weakness of the region's innovation system was reflected in:

- ▶ Insufficient capacity for managing technological innovation processes owing to the lack of trained human resources.
- ▶ Weak linkages between businesses within the same cluster or production chain, and between businesses and technological institutions for implementing innovation initiatives that transcend individual capacities.
- ▶ Disconnection between training opportunities and the specific requirements of the productive sector. This was evident in the few projects focused on boosting competitiveness to meet global market standards, and in research and development projects that had little to do with industry needs.

While business demand existed, they did not approach local research centers and universities for solutions, and as a result regional products offered little value addition, because they did not incorporate applied research. A consequence of the productive system's insufficient innovation capacity was the limited participation of small business in production chains with the large companies present in the two territories.

Given the innovation-based development strategy, the project introduced a framework for collaboration between the public and private actors (entrepreneurs and their organizations, public entities, and knowledge institutions) that shape the productive and technological development of the region in order to help:

- ▶ Build capacity for innovation process management among businesses by introducing soft technologies, which value the systemic promotion of innovation.
- ▶ Develop potential linkages.
- ▶ Align the supply of and demand for training and technology services associated with promoting innovation processes.

Main components of the programme

The general objective of the program was to help enhance the innovation capacity of the Bio Bio region by strengthening interaction between the public sector, private enterprise and applied research institutions. Its specific objective was to strengthen the capacity for innovation process management among the enterprises and institutions (entrepreneurs and their organizations, public entities, and knowledge institutions) that shape the productive and technological development of the metalworking cluster in the Pencopolitano territory and of the Itata Valley (“Secano Costero”) territory in the Bio Bio region.

The two concerned areas are very different: one urban and semi urban—the Pencopolitano territory, with a productive sector consisting primarily of steel and metalworking SMEs; and another rural—the Itata Valley or “Secano Costero” territory, with an agroindustry and natural-resources focus, a fragmented productive sector made up of MSMEs, and a significant productive investment by a forestry company.

Below is a description of the main components of the programme:

Component 1: Sharing of best practices and networking

This component seeks to raise awareness among entrepreneurs and the institutions involved in SME development as to the importance of innovation for boosting competitiveness and, in doing so, bring together private, public, and institutional actors. To this end, activities will be aimed at systematizing, sharing, and disseminating successful innovation experiences and at easing the way for network building and for collective actions by multiple enterprises.

Component 2: Building capacity for innovation process management

The objective is to transfer specialized tools to SMEs in the metalworking cluster and the Itata Valley territory to raise their productivity, specifically by improving basic management, and to boost their competitiveness by enhancing innovation management. This would promote and increase innovation in products, processes, marketing, and organizational models. The methodology calls for an educational process that involves training and monitoring of how the SMEs introduce the newly acquired techniques and tools.

Component 3: Developing and implementing tangible innovation projects

Using the various development instruments available, particularly those offered by INNOVA Bio Bio, this component helped beneficiaries present and implement their innovation projects. Technical assistance was given to at least 18 projects, to more clearly define them—especially in terms of objectives, action plans, and budget. Projects were selected by the General Manager and the technical committee for the territory in question.

Key stakeholders of the programme

- ▶ Inter-American Development Bank (IADB)
- ▶ Multilateral Investment Fund (MIF)
- ▶ Instituto Regional de Administración de Empresas [Regional Institute for Business Administration] (IRADE) (responsible for implementation of the programme)
- ▶ Project Steering Council (consisting of the president of IRADE, representatives of the Association of Metallurgical and Metalworking Industries of the Bio Bio Region (A.G. Met Bio Bio), the Association of Itata Valley Municipalities, Universidad Santa Maria, Universidad del Bio Bio, INNOVA Bio Bio, Arauco, and a large firm from the metalworking cluster)
- ▶ Consultative Council (consisting of representatives of the regional and municipal governments, CORFO, large businesses, the Regional Innovation and Development Agency (ARIDP), the Industrial Corporation for the Regional Development of Bio Bio (CIDERE), and the Bio Bio Association of Manufacturing Exporters (ASEXMA Bio Bio))

Highlight of the implementation of the programme

The project is implemented by the Instituto Regional de Administración de Empresas [Regional Institute for Business Administration] (IRADE), a private, nonprofit corporation with more than 16 years of experience in developing business management capacity and in building regional social capital. IRADE has 49 member businesses that have formed a 15-member board of representatives,

to which the institute's general manager reports. While it's main clients are large and medium-sized enterprises in Region VIII, its mission is broader, seeking to contribute to comprehensive business development and to build social capital by creating and maintaining trust networks, stimulating business excellence, and promoting innovation and entrepreneurship.

Key achievement of the programme

The project has helped 220 enterprises and institutions. Of this, 60 enterprises were selected and assisted in developing an innovation project. In addition, the project established collaborative efforts between universities and businesses, public development agencies and other actors in the territory.

Below are some key achievements with respect to each component:

Component 1: Sharing of best practices and networking

- ▶ Documentation and sharing of best practices in fostering innovation systems among 15 public and/or private institutions.
- ▶ Forming two territorial innovation system (TIS) committees to coordinate efforts between public, private, and institutional actors: the Itata Valley TIS and the Metalworking Cluster TIS.

By the end of the project:

- ▶ The committees formulated six initiatives based on consensus among the principal actors, as follows:
- ▶ Ranking areas to support development programs in the Itata Valley territory.
- ▶ Standardizing criteria amongst Itata Valley municipalities with respect to development and production linkages.
- ▶ Establishing the key actors that should form the TIS in each territory.
- ▶ Establishing mechanisms for centralized coordination of the many studies conducted by different public and private organizations and consultants in each territory, resulting in duplication of efforts in some areas.

Component 2: Building capacity for innovation process management

18 months into the project:

- ▶ Analysis of 30 small businesses and microenterprises from the Itata Valley territory and 30 SMEs from the metalworking cluster.

By the end of the project:

- ▶ The 30 enterprises from the Itata Valley equipped with innovation management tools covering basic management practices, information and communication technologies (ICTs), and corporate identity development.
- ▶ Training and advisory services provided for 10 municipalities and 9 institutions from the Itata Valley.
- ▶ The 30 enterprises selected from the metalworking cluster equipped with innovation management tools covering SME management, ICTs, corporate identity development, sales and negotiation, formulation of innovation projects, and intellectual property management.

Key Learnings for Haryana MSMEs- Bio Bio Region (Chile)

MSMEs can benefit from the experience in this programme in the following areas:

- ▶ **Training / courses:** In this programme, a lot of courses and training were involved within basic management improvement practices, productivity enhancement practices and innovation enhancement practices on a more general basis to improve MSME performance.
- ▶ **Tools for innovation management:** Also, the programme has focused on equipping SMEs with tools for innovation management, covering basic management practices, information and communication technologies (ICTs), and corporate identity development.
- ▶ **Centralized coordination of studies:** Coordination of the many studies being conducted by different public and private organizations and consultants to ensure an efficient and holistic approach.

4.2.5 Japan Finance Corporation (JFC) - the SME unit (Japan)

Situation prior to the launch of the programme

Japanese SMEs account for 99.7% of all companies in Japan and around 70% of the total workforce. On this basis, the health and well-being of SMEs are essential, not only for regional employment and the creation of added value, but also for the revitalization of the Japanese economy as a whole. SMEs are also expected to serve as the driving force of the nation's economic revitalization through the creation of new industries, products and services.

If SMEs are to grow and prosper, they must continually invest capital appropriately and consolidate their financial strength. To do this, they need to be able to raise long-term funds in a stable manner. However, SMEs are at a disadvantage to larger enterprises in gaining access to funds from capital markets. In addition, private financial institutions tend to prefer short-term loans of one year or less, thus making it difficult for SMEs to raise sufficient long-term funds. Difficulty in procuring funds is one of the greatest managerial issues for SMEs, which are in most cases unattractive loan recipients for private financial institutions. Therefore, there were not enough suppliers that could provide funds to SMEs. Thus, financial institutions that can provide a stable supply of fixed long-term and low-interest funds to SMEs regardless of fluctuations in the economy, in the form of governmental SME financial institutions, were needed.

Key issues to be addressed

Japanese SMEs were in need of a strong economic government policy to deal with the economic crisis in mid 2000s as well as the Great East Japan Earthquake and other natural disasters. Thus, the key issues to be addressed were:

- ▶ Measures to support the fund-raising needs of SMEs in the difficult business environment.
- ▶ The need for a “safety net” through Loan Programs and Credit Insurance Programs for SMEs.
- ▶ Support to overseas expansion by SMEs, through loans for overseas business development and offered local managerial assistance through our overseas Representative Offices.

Main components of the programme

JFC was established in October 2008 with the integration of the National Life Finance Corporation (NLFC), the Agriculture, Forestry and Fisheries Finance Corporation (AFC), the Japan Finance Corporation for Small and Medium Enterprise (JASME) and the International Financial Operations (IFOs) of the Japan Bank for International Cooperation (JBIC). However, the Japan Bank for International Cooperation was separated from JFC in April 2012.

Following the national policy, JFC were to provide flexible policy based financing by utilizing a variety of financing programs and schemes to meet the needs of society, while complementing the activities of private financial institutions. Below are the main components of JFC:

- ▶ Supplementing private financial institutions both in quality and quantity with a stable supply of long-term funds.
- ▶ Promoting policy-based special-purpose loans in response to demands of the times.

- ▶ Facilitating the smooth flow of funds to SMEs by working together with the credit guarantee system.
- ▶ A powerful tool for promoting the government's economic policy.
- ▶ Proactively supporting SMEs dealing with internationalization in both funding and information.
- ▶ Supporting greater business opportunities overseas for SMEs, by utilizing collaborative networks with various overseas-related organizations, and by holding seminars and business negotiation meetings in Japan and overseas.
- ▶ Providing financing and other support for the recovery and business resumption of SMEs that have sustained damage due to the disaster.
- ▶ Utilizing securitization methods to support the smooth supply of unsecured funds to SMEs and the diversification of financing instruments.

JFC strive to conduct highly transparent and efficient operations based on a high level of corporate governance and hold itself accountable to the public. Furthermore, JFC is committed to becoming a self-governing organization continuously evaluating and improving its activities. The major business of JFC can be looked at in this section (*Refer Figure 16*).

The SME Unit of JFC specializes in providing long-term funds that private financial institutions have difficulty in providing. Over 50% of the SME Unit's loans have lending periods of longer than five years, with fixed-interest rates that make it easier to map out repayment schedules. By covering those areas that private financial institutions find it hard to cover, the SME Unit meets the long-term funding needs of SMEs, which are a vital component of the Japanese economy.

The SME Unit offers a variety of Special-purpose Loans designed to facilitate the government policy guidance by channeling funds into targeted sectors, funding for which remains insufficient when relying on private financial institutions alone. These sectors include venture businesses, business revitalization, overseas expansion, safety nets, regional economic revitalization, environmental measures, countermeasures against natural disasters, and stimulation of capital investment to promote employment, among others. During FY2011, amid the Great East Japan Earthquake and the global financial crisis, the SME Unit took concerted steps to fully exercise its safety-net function. In this manner, the SME Unit made every effort to support SMEs, which continued to experience increasingly difficult cash flow conditions brought on by a deteriorating operating environment.

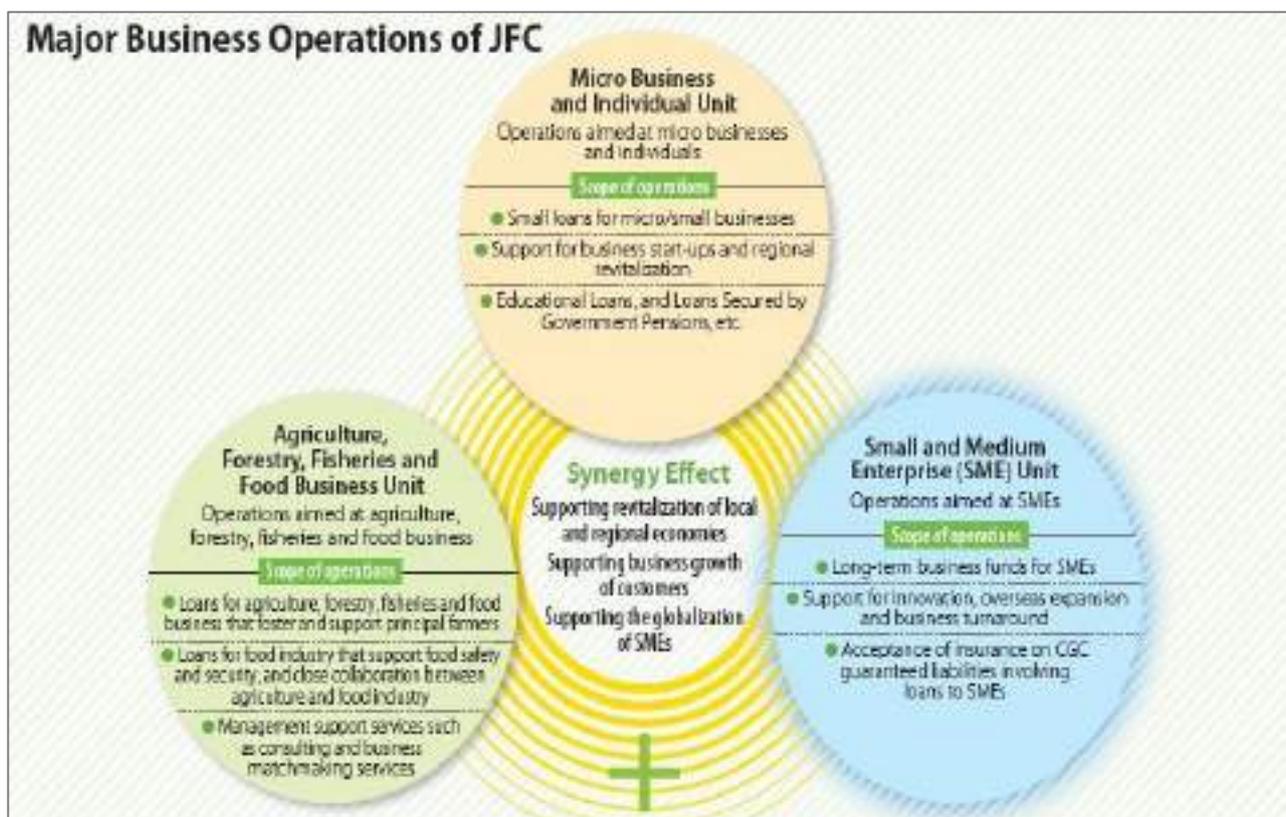


Figure 16: Major Business Operations of Japan Finance Corporation

The SME Unit promotes the sound operation of the system while building close relationships with other institutions such as CGCs and Bureaus of Economy, Trade and Industry, through measures such as the provision of information and the exchange of opinions. Given the heightened risks associated with modified loan terms and conditions and the effects of the Great East Japan Earthquake, the strong yen, and other factors, the SME Unit will continue to promote partnerships in support of efforts aimed at the operation of sustainable systems.

Key stakeholders of the programme

- ▶ Japanese SMEs
- ▶ Japan Bank for International Cooperation (JBIC) (part of JFC)
- ▶ Japanese Ministry of Finance

Highlight of the implementation of the programme

Policy-based financing in Japan involves providing financial support based on the nation’s key policies. These fields include new business development, management innovation, business revitalization and overseas development; areas that involve high risk which private financial institutions may have difficulty in supporting. The SME Unit established quantitative supplements

the loans provided by private financial institutions whose willingness to lend may be affected by economic stagnation. Based on a policy of supplementing private financial institutions as a policy-based financial institution specialized in SMEs, the SME Unit supports the growth and development of SMEs through its financial tools as well as serving as a safety net.

Key achievement of the programme

Over the years, the SME Unit has provided SMEs with stable, long-term business funds by supplementing private financial institutions whose lending attitudes and activities are subject to impact by changes in prevailing business conditions.

Some 1.54 million SMEs, or approximately 37% of all SMEs in Japan, were raising funds with the support of the Credit Guarantee System in March 2012. By providing insurance on such guarantees, the Credit Insurance System is contributing to the management stability of SMEs, and to their growth and prosperity by facilitating the smooth flow of funds.

Key Learnings for Haryana MSMEs- Japan Finance Corporation (JFC) - the SME unit (Japan)

▶ **Stability of Funding:** It is crucial to ensure stable funding for SMEs in order for them to make the necessary investments for growth. The JFC model can be an interesting model to further investigate in order to establish a secure financial system for SMEs in the context of the MSMEs. Such model can facilitate a system to improve access to finance for MSMEs in India.

4.2.6 Manufacturing Extension Partnership (MEP) (United States)

Situation prior to the launch of the programme

United States manufacturing firms employ over 13 million people and represent two-thirds of total U.S. R&D spends. Manufacturing accounts for more than 80 percent of all U.S. exports. In fact, if U.S. manufacturing sector were a country, it would be 8th largest country in terms of GDP in the world.

To grow, manufacturing entrepreneurs need certain key considerations to be addressed in a process oriented manner (*Refer Figure 17*):



Figure 17: MEP Growth Facilitators

Key issues to be addressed

- ▶ The U.S. manufacturers were threatened by the competitiveness of the manufacturing sector in Asia (Japan primarily) in the eighties.
- ▶ There was a need to establish a network to improve the competitiveness of American manufacturers.

Main components of the programme

In 1985 the National Institute of Standards and Technology (NIST) established and later it became the Manufacturing Extension Partnership (MEP):

- ▶ Regional Centers for The Transfer Of Manufacturing Technology Program (MTC)
- ▶ Assistance to State Technology Programs (also known as the Boehlert-Rockefeller Technology Program and later the State Technology Extension Program or STEP)

MEP is a catalyst for strengthening American manufacturing - accelerating its ongoing transformation into a more efficient and powerful engine of innovation driving economic growth and job creation.

The objectives of MEP are to work with small and mid-sized US manufacturers to help them create and retain jobs, increase profits and save time and money. In specific the objectives are:

- ▶ Transferring new manufacturing technology & techniques
- ▶ Capturing participation from industry, academia, and Government
- ▶ Leading efforts to make new technology and processes
- ▶ Disseminating manufacturing analysis
- ▶ Utilizing federal laboratories
- ▶ Bringing awareness to skills gap

The mission of MEP is *“to act as a strategic advisor to promote business growth and connect manufacturers to public and private resources essential for increased competitiveness and profitability”*.

The nationwide network provides a variety of services, from innovation strategies to process improvements to green manufacturing. MEP also works with partners at the state and federal levels on programs that put manufacturers in position to develop new customer, expand into new markets and create new products.

Innovation is at the core of what MEP does. Manufacturers that accelerate innovation are far more successful than those who do not. By placing innovations developed through research at federal laboratories, educational institutions and corporations directly in the hands of U.S. manufacturers, MEP serves an essential role sustaining and growing America's manufacturing base. The program assists manufacturers to achieve new sales, lead to higher tax receipts and new sustainable jobs in the high paying advanced manufacturing sector.

Key stakeholders of the programme

- ▶ Department of Commerce (U.S. government)
- ▶ SMEs in manufacturing and SME agencies
- ▶ National Network for Manufacturing Innovation (NNMI)
- ▶ The National Institute of Standards and Technology (NIST)

Highlight of the implementation of the programme

MEP was built around manufacturing extension centers locally positioned throughout 50 states and Puerto Rico. MEP Centers were set up as a diverse network of state, university-based, and non-profit organizations, offering products and services that address the critical needs of their local manufacturers.

Each center was set up to work directly with area manufacturers to provide expertise and services tailored to their most critical needs, ranging from process improvement and workforce development to business practices and technology transfer. Additionally centers were to connect manufacturers with government and trade associations, universities and research laboratories, and a host of other public and private resources to help them realize individual goals.

Key achievement of the programme

MEP has been a catalyst for change as demonstrated by key metrics (*Refer Figure 18*). As a public/private partnership, MEP delivers a high return on investment to taxpayers. For every one dollar of federal investment, the MEP generates nearly \$17.9 in new sales growth and \$27 in new client investment. This translates into \$2.3 billion in new sales annually. For every \$1,501 of federal investment, MEP creates or retains one manufacturing job. America needs a robust manufacturing base and MEP is critical to the small and mid-sized U.S. manufacturers who strengthen that base.

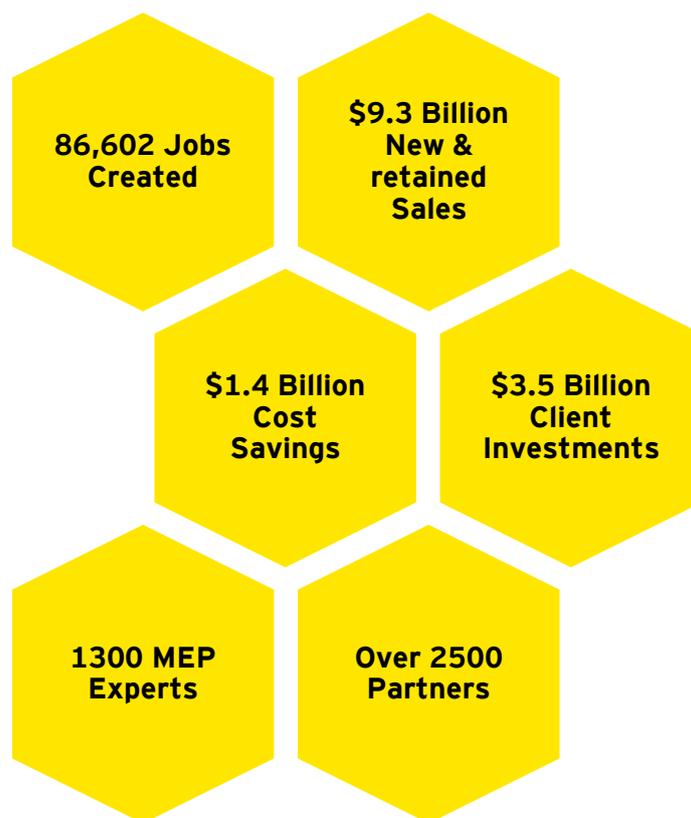


Figure 18: MEP Achievements

Through local and national resources, MEP centers have helped thousands of manufacturers reinvent themselves, increase profits, create jobs and establish a foundation for long-term business growth and productivity.

Following the MEP, the USA Administration proposed building the National Network for Manufacturing Innovation (NNMI), consisting of regional hubs that will accelerate development and adoption of cutting-edge manufacturing technologies for making new, globally competitive products. The Federal investment in the National Network for Manufacturing Innovation (NNMI) serves to create an effective manufacturing research infrastructure for U.S. industry and academia to solve industry-relevant problems. The NNMI will consist of linked Institutes for Manufacturing Innovation (IMIs) with common goals, but unique concentrations. In an IMI, industry, academia, and government partners leverage existing resources, collaborate, and co-invest to nurture manufacturing innovation and accelerate commercialization. Over the last two years, the administration has launched four innovation hubs and initiating the establishment of four more, all by executive order while awaiting congressional action.

Individually and together, these regional hubs will help strengthen the global competitiveness of existing U.S. manufacturers, spur new ventures, and boost local and state economies. The

administration strived for the creation of a full-fledged nationwide network devoted to innovating and scaling up advanced manufacturing technologies and processes. A one-time \$1 billion investment—to be matched by private and other non-federal funds—to create an initial network of up to 15 IMIs was initiated. Over the span of 10 years, the plan is for the expansion of NNMI to encompass 45 IMIs.

Key Learnings for Haryana MSMEs-MEP, USA

Below are some key learning points from the MEP that can be useful for MSMEs in Haryana:

- ▶ **Emphasis on Proven Technology:** Original emphasis was on transfer of cutting edge manufacturing technology, techniques and utilization of facilities, but the reality turned out to be different - The advanced technologies that centers wanted to transfer were not what the manufacturers needed. What was needed was basic quality systems, plant layout & automation - proven technology. In a short period, the programme settled on proven technology in manufacturing as the business model.
- ▶ **Network Learnings:** The initial emphasis was on establishing the national network - making sure there was a center within each of the nation's SMEs and linking centers to one another so they could learn from each other.
- ▶ **Holistic Strategic Approach:** Point solutions necessary to solve specific problems, but make modest difference. Generic solutions in the absence of more complete knowledge of context (strategy, business state, etc.), may miss out on critical aspects - this led to working with CEOs and provide holistic strategic solutions rather than working with manufacturing leads of SMEs.
- ▶ **Handholding post-implementation:** MEP Centers do not just provide training and consulting on a topic, and withdraw post-training. They stay engaged in the implementation to make the difference.
- ▶ **Advisory Support to MSMEs:** Recognition that needs of manufacturing businesses are beyond productivity improvements, MEP began to sponsor pilot efforts in finance, marketing, energy efficiency, environmental efficiency etc. - leading to the direction of centers becoming trusted advisors across the manufacturing enterprise.
- ▶ **Common Identity Creation:** Recently, MEP has been developing a common national brand for the system and expanding service offerings beyond lean to growth and technology acceleration. Through these efforts, the MEP system has developed a

common national identity, standards of service and ways of cooperating / collaborating across Centers.

- ▶ **More details on the MEP can be referred to at Annexure 9.1**

4.2.7 Thai Tanning Industry Association (TTIA) (Thailand)

Situation for the tanning industry in Thailand

The tanning industry in Thailand was first established over 60 years ago and is regarded as one of the country's oldest industries. The tanning industry is the only industry in Thailand to be located in a single industrial estate. According to TTIA, there are 146 tanneries in Thailand, over 90 percent of which are SMEs, and it employs over 150,000 workers.

The majority of tanning factories in Thailand are concentrated in the Samutprakarn tanning industrial area, as a result of the government's policy to relocate industrial factories from the Klongteoy area in Bangkok, which was becoming too crowded. A few major tanneries in the Klongteoy area decided to relocate their factories to the new sites at 30 km and 34 km from Sukhumvit Road in Samutprakarn, which have since become major industrial tanning areas.

The relocation of the pioneer group in the 1950s initiated the tannery cluster in Thailand. The Ministry of Industry (MOI) issued an announcement, on 29 April 1993, officially establishing the cluster as the industrial tanning area. The tanning industry plays an important role in adding value to hides and supplying leather to the footwear and leather products industry. At present, the production capacity of the industry is approximately 42.5 kilotonnes, or 18 million square meters of leather per year. The export volume and value have been rising since 1990. And more than 80% of export value comes from wet blue, cow and buffalo leather, of which Hong Kong is the top buyer. Other important import market of Thai leather includes the United States, Taiwan, Denmark, Australia and Germany.

Key issues to be addressed

The Thai Tanning Industry has been aiming to address key issues (*Refer Figure 19*).

Faced with crushing competition from China, the strategy of the Thai tanning industry is to consolidate the comparative advantages of the country in niche markets, with a higher added value. The government put in place tax incentives to develop the use of products manufactured locally and to rationalize the costs of industries which traditionally export. Since the country's growth currently depends two-thirds on exports, the intention behind these measures is to reduce this ratio by half.

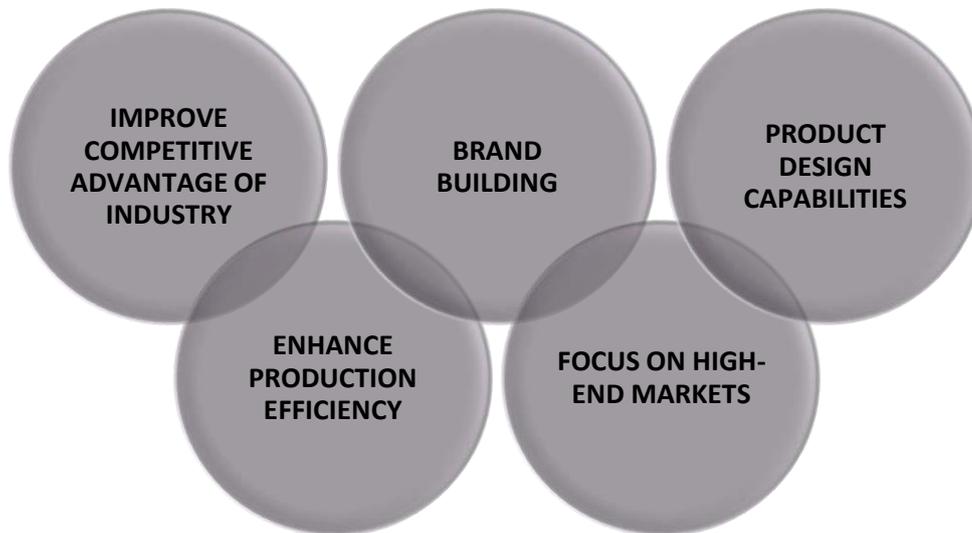


Figure 19: Focus of Thai Tanning Industry

So, rather than encouraging multinational companies to come to Thailand in search of cheap labor, the intention is to develop small and medium sized businesses which can leverage local culture and skills.

Main components of the association

The role of Thai Tanning Industry Association is to:

- ▶ Promote the tanning industry in Thailand.
- ▶ Manage and provide members with tanning techniques, industrial waste management, environmental control, trade co-operation, and foreign business development.

The association has a Board of Directors lead by one president. The board has 17 members in addition to the president.

At present, TTIA is concerned with the following activities:

- ▶ Operating two modern water treatment plants, for supporting the production of 141 member firms. All of them are SMEs.
- ▶ Setting up a Laboratory Center for research on leather products and technology development.
- ▶ Promoting the improvement of new skills and new technology in the Leather Business. This should improve product quality enabling companies to be competitive in the global markets and improve meeting of standards in external markets.

One of the focus areas for the Thai tanning industry is to develop brand names that can improve the competitiveness of SMEs in the tanning sector. In 2013 Thailand's leather cluster of 27 manufacturers launched a shoe brand called 'Clus' to encourage product development. The project, supported by the Industrial Promotion Department, also plans to improve product designs and increase the value of leather goods.

Certain types of shoes, including casual, moccasins, slippers and sports shoes, will be available under the brand, which will be marketed locally and exported to nearby countries. The department estimates the cluster could earn an extra 60 million baht (US\$1.9 million) from branded products, which will be extended to other leather goods items. Building up local brands is one strategy to improve the capability of the Thai leather industry.

Key stakeholders

- ▶ Thai Industrial Standard Institute (TISI)
- ▶ Department of Industrial Promotion in the Ministry of Industry (MOI)
- ▶ Department of Export Promotion (DEP) in the Ministry of Commerce

Key achievements

Exports of leather goods rose 11% to reach 14 billion baht (US\$450 million). Hong Kong, mainland China and Vietnam are major buyers of Thai leather products.

TTIA manages 2 central waste-water treatment plants on 21 acres of land, costing about USD 20 million. These treatment plants serve all of the 130 tanneries. The members have made strong commitment toward environmental control and thus this is the only industry that throws as much resources for waste water treatment in Thailand.

For many years, TTIA has operated a cooperative buying scheme for the purchase of chemicals. Most chemicals are costly for individuals, and nearly all of them are imported. The association began with a very modest capital of USD 90,000 and a stipulation that profit taking be limited to just six percent. The members as a result pay less for their chemicals.

The traditionally close relationship among the tanneries has been a success factor for the cluster. Members have developed mutual trust, which helped in stimulating collaboration among them. The level of cooperation among all members enables them to compete more effectively in the world markets. At the same time, competition is important to keep cluster members conscious of price and cost awareness necessary in order to compete in a global market.

Key Learnings for Haryana MSMEs- Thai Tanning Industry Association (TTIA) (Thailand)

Below are some of the key learnings from the Thai Tannery cluster that can be useful for MSMEs:

- ▶ **Social Capital and Systematic Management of Shared Facilities:** Shared facilities can help in increasing overall economic efficiency through sharing of costs, personnel, and other associated resources between MSMEs. Shared facilities require systematic management in order to provide equity and accessibility to all users. This point is particularly important for Haryana viz. raising the issue of common raw material procurement as seen in Rohtak District in Haryana.
- ▶ **Common Brand Creation:** Creating a common brand for a collaboration of manufacturers in a cluster can be profitable and improve the capability of an industry.

4.3 Private Sector-led Cluster Development:

Cluster development is the economic development of business clusters. Many governments and industry organizations across the globe have turned to this concept in recent years as a means to stimulate urban and regional economic growth. More specifically, cluster initiatives are organizations or projects that are organized as collaborations between a diverse number of public and private sector actors, such as firms, government agencies, and academic institutions to promote economic development within the cluster by improving the competitiveness of one or several specific business sectors. Clusters can be managed by a cluster network manager from the private sector who facilitates the connection between private sector and the different service providers.

In this section, some examples of cluster development led by private actors across the world are highlighted, with the purpose of identifying leading practices for MSMEs in Haryana State. They are¹⁰:

- ▶ **PASS (Perfumes Flavours Fragrance and Scents) Competitiveness Cluster, France**
- ▶ **Unilever: Manufacturing Sustainability Improvement Programme, Vietnam**

4.3.1 PASS (Perfumes Flavours Fragrances and Scents) competitiveness cluster (France)

Background information

Emerging in the 16th century as a result of the fashion for scented gloves, the flavours and fragrance industry has evolved through a process of vertical integration. From the traditional cultivation of aromatic plants, the activities in the Grasse area in France have grown to include the

¹⁰ All references listed in chapter 7

manufacture of ingredients, formulations and composition of finished products such as perfumed toiletries, detergents, food products and supplements.

The Provence-Alpes-Cote d'Azur region is France's leading producer of medicinal and aromatic plants (MAP). This production is based on age-old tradition and nearly 3,000 producers growing 80 species of medicinal and aromatic plants representing a turnover in the region of about 40 million Euros.

An unparalleled concentration of companies producing aromatic ingredients and resolutely focused on export (70%) account for over half of French production and 8% of worldwide turnover. These aromatic ingredients target four key markets, with strong growth potential: **alcoholic perfumery, cosmetics, detergents and agro-food products**. A network of service companies working in phytosanitary products, toxicology tests, analytical chemistry, etc. and which market the products offered by the sector's companies completes the ecosystem.

The skill base, from the extraction of raw materials to the creation of fragrance compositions or the production of sweet and savoury food flavours, attracts the world's leading perfume, cosmetics and agro-food companies, forming a particularly efficient ecosystem.

Key issues addressed

The cluster was funded by the following private actors:

- ▶ PRODAROM: National aromatic product manufacturers union
- ▶ SNIAA: National union of the food flavouring industries
- ▶ COSMED: Association of the cosmetics sector
- ▶ ONIPPAM: National inter-professional bureau of aromatic, aromatic & medicinal plants
- ▶ UESS: European University of flavours and fragrances
- ▶ Club of Entrepreneurs of the Region of Grasse

The ambition and motivation for forming the cluster was:

- ▶ To become a major international cluster for characterizing and evaluating the flavor and aromatic ingredients, cosmetics and agro-aromatic products.
- ▶ To meet the challenges facing this area in terms of innovation: innocuity tests, botanical conservation and the use of natural products for general consumption.

Main components of the programme

The aim of the PASS Cluster is to develop international competitiveness of a sector of excellence (fragrances, flavours, cosmetics and agro-aromatic products) in Provence-Alpes-Cote d'Azur. It represents:

- ▶ 154 members including companies, laboratories and training bodies, representing 7,800 employees.
- ▶ 58 approved R&D projects worth 88 million euros including nearly 18.3 million Euros of public funding.
- ▶ 9 accredited training courses, and the creation of a new food safety training curricula (Master Polytech).

The PASS cluster was named as a competitiveness cluster in July 2005 and as PRIDES (a regional cluster for innovation and mutually supportive economic development) in March 2007. It brings together many players in this sector from industry, research and education, across Provence-Alpes-Côte d'Azur and southern Drôme. The PASS Cluster intends to become an international benchmark for identifying, assessing and producing the natural extracts used in the aromatics and cosmetics industry. Another of its main objectives is to “innovate for a sustainable sector”, which means to ensure that new products launched are ecologically responsible and safe for the consumer and the environment.

The cluster strategy is part of a sector-wide policy which extends from growing aromatic and medicinal plants and transforming them to finished product. It therefore includes three major strategic axis appropriate to each level of the value chain:

- a. Production of raw materials principally of natural origin
- b. Transformation: producing the ingredients
- c. Manufacturing finished products

Faced with growing demand for natural ingredients, Grasse has today positioned itself as a global centre of expertise for natural products, from extraction to plant transformation including new product development and quality control. The project is supported by the PASS Cluster, since one of its strategic priorities is the development of “sustainable chemistry”.

Key stakeholders of the programme

1. Faculties and universities involved in research
2. National and world leaders in the aromatics industry

3. Food companies specializing in Mediterranean specialties
4. Suppliers of equipment and young companies innovating in predictive testing

Highlight of the implementation of the programme

The “axis” for cluster excellence has been defined as:

Health and safety, people and the environment: To develop understanding of the mechanisms of allergy, irritation and sensitivity, to anticipate undesirable reactions better without experimenting on animals, and to control them better by offering consumers solutions that will not trigger such reactions.

Promotion of regional biodiversity: To open up new markets for the use of aromatic and medicinal plants.

Technologies and analytic procedures: To find technologies for processing, identifying and analyzing natural raw materials, so as to develop products with reduced impact on the environment.

Structuring of training opportunities: To ensure that the training on offer meets the needs of industry.

Key achievement of the programme

Grasse is the leading region in France with 55% of the national production of cosmetics and perfumes and also leading region for the production of aromatic and medicinal plants and production of hybrid lavender, and is a region unique in Europe for its concentration of companies in this sector: 25% of the headquarters of business in this field in France and 120 out of the 130 distilleries of essential oils in France. The PASS cluster cover the complete value chain of the sector, from growing scented and aromatic plants to the finished products, via the production of natural essences.

Backed by an exceptional concentration of aromatic and medicinal plant growers, the family-run distilleries that built the reputation of the Grasse area have become international success stories. Mane and Robertet are two of the world’s leading companies in the fragrance and flavours sector, according to the Leffingwell & Associates ranking. They rely on a network of international subsidiaries with R&D centres and production facilities, while pursuing a strong investment policy designed to increase their production capacity in the Grasse area. Other uses are also illustrated through a particularly rich range of dynamic companies in the perfumes and cosmetics sector. Laboratories such as those owned by Lancaster, So.f.i.a Cosmétiques and Biocyte have developed specialities in cosmetics and dermatology. Finally, there is an abundance of SMEs/SMIs offering

expertise in sweet and savoury food flavours and fragrance compositions, used by the major detergent manufacturers, among others. Packaging manufacturers like Tournaire supply businesses with the hi-tech equipment and packaging they need for their business. This complete ecosystem for the values chain of fragrance, aromas, scents and flavors industry has made the cluster a world leading cluster for this specific industry.

Forming a cluster enables groups to collaborate to confront a new and related challenge. A few years back, companies around Grasse faced environmental challenges over water pollution, industrial waste and odours. These issues have to a large extent been resolved by the cluster partners together.

Key Learnings for Haryana MSMEs-PASS

Some key points for MSMEs to consider:

- ▶ **Value Chain Integration:** The importance of a complete ecosystem that covers the whole value chain for the most efficient cluster network outcome.
- ▶ **Environmental Awareness:** To have a common focus on developing technologies for processing, identifying and analyzing natural raw materials with respect to reducing the impact on the environment.
- ▶ **Dynamic Adjustment of training to Industry:** Structuring training opportunities to ensure that the training on offer meets the needs of industry.

4.3.2 Unilever: Manufacturing Sustainability Improvement Programme (Vietnam)

Situation prior to the launch of the programme

Unilever was attracted to Vietnam in the early 1990s for a number of reasons. Growth rates then exceeded 7 per cent per year, there was political stability, and literacy was high (over 92 per cent). Vietnam also had an impressive record in reducing poverty. Only 37 per cent of its population of more than 81 million lived below the poverty line. In addition, it was increasingly more open, and foreign direct investment was growing at 3 per cent per annum. Nevertheless, the negotiations to enter Vietnam were lengthy, slowed down by a negative social and political attitude toward the private sector, a dual pricing structure for foreigners, regulations and policies that continually changed, and excessive bureaucracy. In this regard Unilever did not enjoy the active government support. Nevertheless, it knew it was important to build trust with the Government and to prove to it that Unilever was in Vietnam to stay and to share.

Key issues addressed

Unilever's philosophy encouraged it to work with local enterprises and suppliers despite the fact that the SME sector in Vietnam was small and vulnerable. SMEs were heavily dependent on local and central officials. Most were producing low-entry-barrier, low-margin products in garments and footwear. With increasing trade liberalization fostered by AFTA and WTO, they faced a more competitive market particularly from Chinese exports. In addition Unilever's potential partners seemed to lack a code of business principles and strategic vision.

Manufacturers and suppliers needed special help to make the massive jump to work with a transnational like Unilever. Nevertheless, Unilever was motivated to work with them in order to keep its operations slim, cost-effective and flexible by outsourcing. In increasing the capabilities of the local enterprises, Unilever knew that it would be increasing its own competitiveness.

Main components of the programme

To strengthen its local partners, Unilever used a step-by-step approach. 1) In the first step it carefully selected its partners. 2) In the second step it treated the local enterprises as preferred business partners. 3) In the third step it upgraded their technology through its Manufacturing Sustainability Improvement Programme. This programme focused on improving many key aspects (Refer Figure 20).

Highlight of the implementation of the programme

Unilever provided contract manufacturers with both training and access to technology in order to improve the above aspects. Transfer of technology was achieved through the supply of world class equipment, full time hands-on technical support and supervision, access to Unilever's Innovation Centers and training in quality and hygiene, safety and productivity. Its experts told local enterprises what they needed in terms of modern plant and equipment and how much they needed to invest and taught them to invest only what was needed to grow gradually. Unilever provided in-house training since it did not have the benefit of a cooperatively managed training centre.

Regarding its suppliers, Unilever adopted a similar approach. It provided training in the above-mentioned areas and audits to improve customer service, quality and safety. Unilever specialists were also available to upgrade technology. For both the contract manufacturers and suppliers, loan guarantees were provided as Unilever guaranteed a certain volume of sales. Besides producing its usual line of personal care products, Unilever was also open to the introduction of new products based on local culture and tastes.



Figure 20: Main Components of Programme

One of its contract manufacturers had a unique product: Quoc Duong “Pha Quoc” fish sauce. The company had a prestigious source of raw materials—an abundance of good anchovies—and was experienced in processing them. It also possessed 90 per cent brand recognition. Unilever Best Foods NV Ltd. invested \$650,000 to build a bottling plant, expand Quoc Duong’s fishing and fermentation capacity, and develop operational and management skills, and protect its intellectual property against counterfeits.

Key achievement of the programme

During the linkage process Unilever built up a healthy supply chain of growth-oriented contract manufacturers, suppliers and distributors. As a result, by 2001 contract manufacturers accounted for 48 per cent of Unilever Vietnam’s total production volume. Unilever was able to source 40 per cent of its raw materials and 80 per cent of its packaging from local enterprises. They benefited in terms of increased turnover and employment. Unilever’s employment policy to recruit, develop and retain local talent clearly benefited 7,500 Vietnamese workers (5,500 of these were new jobs) in its four plants and nine contract manufacturers.

Duy-Tan, a supplier of bottles, increased its total turnover from \$900,000 to \$6.67 million and employment from 160 to 664 between 1996 and 2002 through its association with Unilever. The transfer of technology to local enterprises enabled them to comply with international product quality standards and obtain ISO certifications. Since they were competitive in terms of costs and quality, they were also able to enter export markets and diversify their business partners and thus avoid total dependence on Unilever.

Unilever gained additional capacity with low capital investments, cost competitiveness and a nationwide distribution reach. It was able to pull ahead of its competitors because of local sourcing, which gave Unilever a competitive advantage in price.

Key Learnings for Haryana MSMEs-Unilever, Vietnam

When the Chairman of Unilever Vietnam was asked in 2004 about critical success factors he identified four of them:

- ✓ **Vision and commitment**
- ✓ **Commercial sense**
- ✓ **Utilizing local cultural traditions**
- ✓ **Being in it for the long term**

The effect of a private anchor facilitating improvements of the whole value chain in order to improve its own competitiveness through SME development in its connecting environment has in this example led to growth for MSMEs in several sectors. This approach can also be relevant in India, given that a private actor or OEM has the capacity to initiate SME development with commercial sense for own value chain development.

Chapter 5

Leading Practices to Enhance MSME Competitiveness: Key Takeaways for Haryana MSMEs



5.1 Leading Practices across India for Enhancing MSME Competitiveness

5.2 Clusters as Engines of Economic Growth

The concept of a 'cluster' as a driver of economic growth has been oft-quoted and discussed in the context of MSMEs in India as well as around the World. The Cluster Development Programme in India follows the same contours as can be seen in Table 7.

Table 7: Leading Practices under MSE-CDP

<i>Leading Practices for Haryana</i>	
<i>Project Implementation</i>	<i>Cluster Development under MSE-CDP</i>
<ul style="list-style-type: none"> ▶ Formation of Cluster Consortiums & Networks of exporters, marketers, high-end technology manufacturers. ▶ Traditional sectors (handloom, textiles) Ecosystem Transformation Program (s). ▶ Cluster Twining of Matured and Emerging Clusters of Haryana. ▶ Dedicated Business Development Services Program across the major industrial clusters towards creation of macro clusters. 	<ul style="list-style-type: none"> ▶ Creation of Cluster Development Cell within the Department of Industries and Commerce. ▶ Cluster Development Co-ordination Committee (CDCC) under the Chairmanship of Director of Industries & Commerce for effective project implementation. ▶ Cluster Development Managers for the focus sector clusters in the state. ▶ Soft Interventions under other developmental programs such as M-CIP to supplement efforts under MSE-CDP and Mini-Clusters Scheme towards creation of Smart Clusters.

Summary

In line with State's vision of sustainable industrial transformation; one that strives for global competitiveness while being locally relevant; the importance of cluster development for strengthening of the local content, finds reinforcement. The industrial growth trajectory of many nations including India bear testimony to the significance of cluster development right from the Silicon Valley (USA), Brazil to Bangalore (India), wherein regional clusters led by the more established industry players generated forces relevant for economic development: scale economies, income, employment, innovation and productivity. In line with India's egalitarian growth principals, successful clustering can help balance the two critical and often conflicting outcomes: sustainable, long-term generation of local jobs and wealth; and global competitiveness (Table 7). As an ideal cradle for MSMEs, industrial clusters are known to provide the following benefits:

- ▶ Give rise to external economies (e.g. specialized suppliers of raw materials, components and machinery, sector specific skills etc.);
- ▶ Favor the emergence of specialized technical, administrative and financial services;
- ▶ Create conducive ground for the development of inter-firm cooperation and specialization as well as of cooperation among public and private local institutions to promote local production, innovation and collective learning.
- ▶ Creation of social capital and strong network linkages which involve not only collective benefits but also investment in terms of financial resources, knowledge resources and trust building.
- ▶ Provide advantages of similar or dependent sectors of the economy; through the use of new joint purchasing strategies, raw material demand aggregation, common critical infrastructure by attraction of service providers (as those found in clusters the critical mass for their services to become profitable), or through different forms of cooperation which reach from cooperation in production to joint marketing etc. This cooperation with other enterprises, can enable global value chain integration.
- ▶ Forge complex network of relationships with suppliers, customers, competitors and public authorities. With each entity having a unique role in the ecosystem; joint capability is enhanced. This is the added value of a strategic alliance, also known as “synergy effect”.
- ▶ The various forms of cooperation through clustering are:
 1. Joint R&D
 2. Joint marketing
 3. Export promotion, developing new markets
 4. Joint procurement, sourcing
 5. Providing and using services to businesses
 6. Training and professional education
 7. Utilising synergies and economies of scale
 8. Lobbying
 9. Promoting innovation

Given Haryana’s strong focus on cluster development and for positioning itself as a model state for cluster development, the learnings and opportunities for adoption of leading practices in cluster development across India are captured in this chapter.

5.3 Cluster Development in India through Project Implementation

5.3.1 UNIDO's Cluster Development Interventions in India

The United Nations Industrial Development Organization (UNIDO) has played an active role in assisting the development of clusters in relatively less developed regions/developing countries, actively since the mid-1990s. At the heart of UNIDO's cluster development approach lies the vision to address the root causes of cluster stagnation and promotion of UNIDO's pro-poor agenda¹¹ which envisages an active role played by well-performing clusters in alleviating poverty, job creation, alleviating poor incomes and empowering poor people by providing a broad range of products and services at lower prices.

What is a cluster?

According to UNIDO cluster is a "critical mass of enterprises located in geographical proximity to each other sharing common features.

Some of the common features are:

- ▶ May have same suppliers of raw materials and other inputs when active in the same industrial sector.
- ▶ May cater to the same markets and clients (e.g. the local handicraft market), even when producing different goods.
- ▶ All enterprises share the same territory, its infrastructure, services and, in many cases, a common cultural identity.

UNIDO's **participatory and empowering approach** aims to mobilize existing resources and competencies, strengthen them and enhance their impact on cluster performance. This is done through channelization of efforts and resources for attaining collective goals directed towards providing **support to local institutions as implementation** **functionaries** to formulate, implement, monitor and evaluate the initiatives. The intervention approach focuses on **incentivizing and building the capacities**

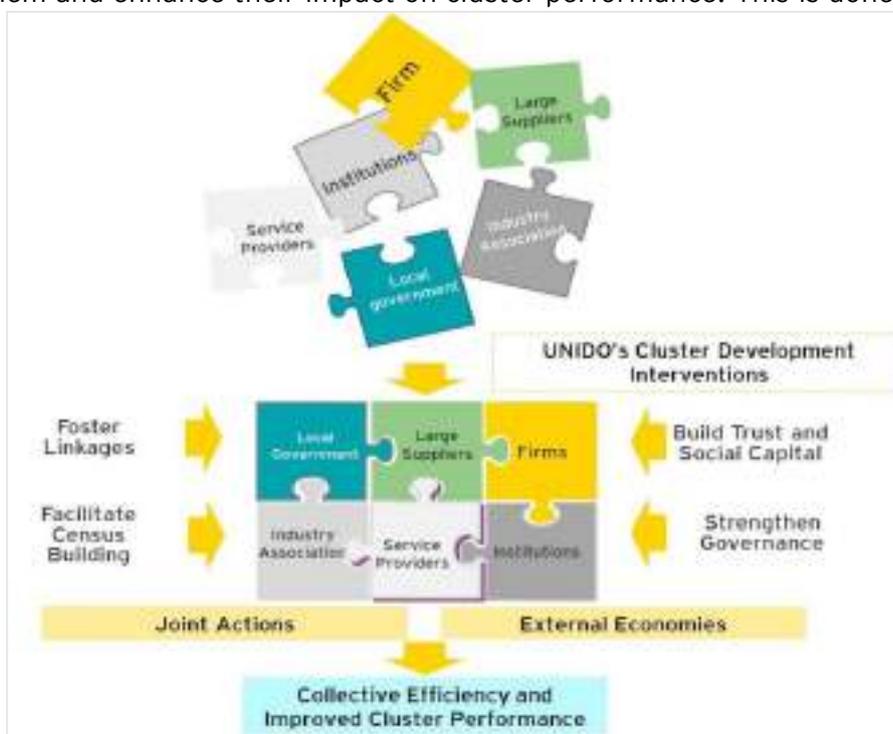


Figure 21 UNIDO's Cluster Development Framework

¹¹ Cluster development for pro-poor growth: the UNIDO approach (2010)

of public and private sector bodies to more effectively promote cluster development (Refer Figure 21).

In strengthening the critical cluster mass, the relevant local, regional and national institutions, including chambers of commerce, industry associations, local-governments, NGOs, universities, training institutions and regional as well as local economic development agencies are assisted to gradually assume a strong supporting role in the development of the cluster. Interventions include establishing/supporting business networks, building public-private partnerships and promoting dialogue among service providers and/or policy makers. In addition to the mobilizing social capital, UNIDO also technically assists business development service (BDS) providers, vocational schools etc.) to make their services more responsive to the demands from within the cluster.

5.3.2 UNIDO Approach for Cluster Development

The step by step UNIDO methodology to assist throughout the complete cycle of cluster development initiative is given below:

Phase 1: Cluster selection (role of UNIDO)

- ▶ Recommended criteria and variables in line with the achievement of the overall development objective as the basis for cluster selection.
- ▶ Identify those clusters, where the impact of planned interventions can be maximized given the available time and resources.
- ▶ Provide technical inputs and act as a facilitator to encourage the participation of national and regional actors.

Phase 2: Selection of a CDA

Once a cluster has been selected for support, a Cluster Development Agent (CDA) is appointed to facilitate the process of cluster development, right from the formulation of diagnostic study to planning and implementing development activities. A core task of the CDA is the promotion and coaching of business networks. After undertaking a cluster diagnostic study (phase 3), the CDA will work closely with key cluster stakeholders to take the cluster from an underdeveloped one to a performing cluster

Phase 3: Cluster Diagnostic

Once the cluster is selected, a diagnostic study is undertaken that helps achieve the following:

1. Develop understanding of socioeconomic and institutional environment of the cluster.
2. Detect potential leverage points for the intervention.
3. Provide a baseline for monitoring and evaluation.

4. Build initial trust between the CDA and the cluster stakeholders.

Phase 4: Vision building and action planning

Starting with a discussion on the results of the diagnostic study, cluster stakeholders formulate a shared vision for their future cluster performance or the overall cluster development path, which will be periodically reviewed and, if necessary, refined with time to take into account changes in the cluster or related framework conditions. Action planning then relates to the translation of the vision statement into a realistic and achievable development strategy over time and can be understood as a roadmap. Action plans are also revised periodically and by all cluster stakeholders based on a sound monitoring and evaluation framework.

Phase 5: Implementation

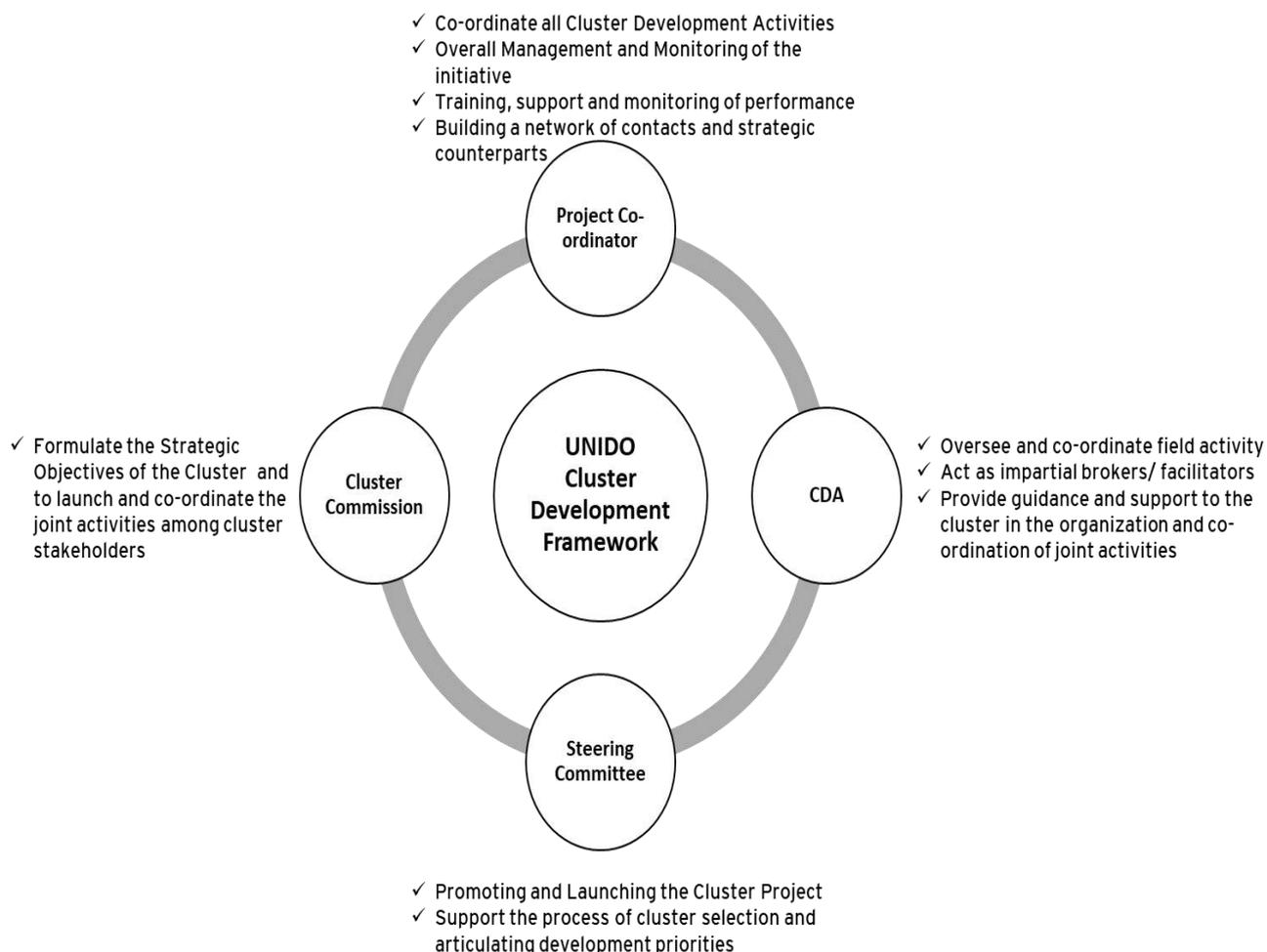


Figure 22: Key Actors in UNIDO Approach

The Cluster Development Agent facilitates the implementation process, but does not engage in direct service provision or resource disbursement to cluster stakeholders.

The CDA does not substitute for functions that can be performed by existing private or public sector organizations, but rather builds their capacity for implementation and enhance their responsiveness to the needs of the cluster.

Phase 6: Monitoring & Evaluation

The Monitoring and Evaluation (M&E) of cluster initiatives starts with the drawing up of a clear result chain. A result chain outlines how specific inputs and project activities are linked to the expected outputs and outcomes and how they contribute to the impact or overall development objective of a cluster project.

In line with the information needs of various stakeholders, KPIs, data collection methods, and reporting responsibilities and frequencies are defined and integrated into an overall monitoring framework. The institutional capacity building and trust building activities are reinforced during implementation and monitoring and evaluation.

A snapshot of major actors in the execution of UNIDO's cluster development interventions can be seen in Figure 22

5.4 Leading UNIDO Cluster Development Interventions: Case Studies from India

Since the MSME clusters in Haryana are at the different stages of development (new, emerging and mature stage), the nature of interventions required in each cluster may differ depending upon the stage of development and the need of the cluster.

No one-size-fits-all leading practice (s) may suffice. Therefore, in this section the report captures leading practices based on UNIDO's interventions across the three critical dimensions a) Institutional Capacity Building b) Policy Reforms c) Cluster Twinning

Area 1: Institutional Capacity-Building

The central focus of UNIDO's participatory cluster development interventions is to encourage enterprises and institutions in the clusters to undertake joint actions that can be propelled towards shared benefits for the cluster as a whole and for communities they represent. As highlighted in the previous chapter, an important role can be played by associations and institutions through the generation of social capital via horizontal and vertical networks.

The former, as alliances of enterprises engaged in the similar products or processes that seek synergies in pursuing shared commercial goals, allow producers to reap the benefits of economies of scale and of a larger and more diversified product offer. While the latter is the relationships

between enterprises located at different levels of a production chain which can be forged backwards and forwards including subcontracting agreements, supplier development initiatives.

Snapshot of cluster development interventions by UNIDO for institutional capacity building:

5.4.1 Hosiery Cluster of Ludhiana, Punjab, India (2002)

The competitiveness of the hosiery cluster of Ludhiana, was severely affected by the Insufficiency of the trained labour force. Several technical support institutions existed in the cluster but had no interaction with the industry and could not match the skill needs of the cluster. With UNIDO's support, a network of exporters (APPEAL), created a committee that documented the various mistakes workers unintentionally made which led to production loss or rejection. Based on these inputs, five training modules were elaborated. These included industrial stitching and tailoring, linking, cutting and pattern making, designing and merchandising and overall supervisory skills. The Government Polytechnic for Women (GPW), an existing technical institution, was entrusted with the provision of this demand-based training and formulated a training course that became progressively tuned to the needs of the industry. APPEAL and GPW thus obtained support from the All India Council for Technical Education (AICTE) to create a skill development Centre on the GPW premises. The improved match between skill demand and training is illustrated by the increase in the number of GPW students now working in the industry. Finally, the program's success laid the groundwork for establishing of a fully-fledged design Centre within GPW¹².

Area 2: Strengthening Governance and Policy Reforms

5.4.2 Policy Reforms in Clusters of Odisha, India (2008)

In the state of Orissa, India, clusters are a widespread phenomenon and employ a considerable share of the population, particularly among the poor. To support pro-poor growth, UNIDO implemented a cluster development initiative based on a two-pronged strategy. On the one hand, it assisted four clusters, one each in the sectors of handlooms, engineering, non-timber forest products and handicraft. On the other hand, it assisted the government of Orissa, particularly the Departments of Handicrafts and Cottage Industries, Handlooms and Industry, to replicate cluster development projects across the state. The Government departments were exposed to the achievements recorded within UNIDO-assisted clusters, received training in the

¹² UNIDO (2002) End of project report. Knitwear cluster of Ludhiana, India and UNIDO (2010) Cluster Development for Pro-Poor Growth

UNIDO methodology and were supported in the implementation of the approach in other clusters under their jurisdiction. At the same time, UNIDO facilitated the review of other SME policy schemes to harmonize them with cluster development principles. New tools and procedures were also formulated and a dedicated budget created for cluster development activities within each department. Finally, knowledge resources were transferred to a business school, based in the capital city, and its personnel trained, in order to establish a focal point for the dissemination of the concepts and methodologies of cluster development. As a result, an increasing number of clusters, 150 by 2008, have received assistance from the government of Orissa based on the UNIDO methodology, wherein the adoption of an explicit focus on poverty is expected to trigger a process of equitable and inclusive economic growth¹³.

Snapshot of cluster development interventions by UNIDO to strengthen governance by propelling cluster development initiatives into policy reforms.

Area 3: Cluster Twinning

In view of a conspicuous difference between foreign (matured) and Indian (developing) clusters, within the same sector, the potential of tapping foreign headwinds into India's underachieving SME clusters remains to be large. This cross-synergizing was conceptualized and achieved by UNIDO's twinning arrangements between Indian and foreign clusters, to strengthen the capacities of firms within clusters through linkages among the firms, between the firms and the other cluster level institutions and between specific clusters in India and abroad.

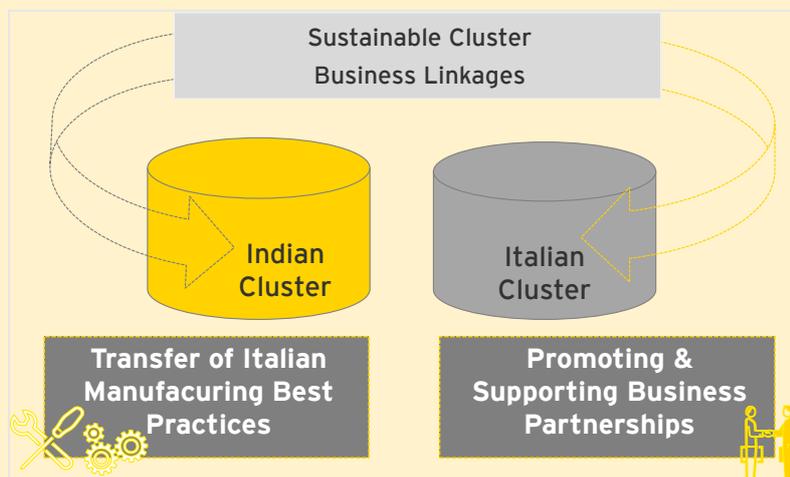
Cluster twinning has been an approach championed by UNIDO (UNIDO/Italy Program) providing solutions for business cooperation between a range of stakeholders of the clusters and in areas such as markets, skills, technology, quality and infrastructure (*Refer Figure 23*). Successful cluster twinning attempts have been made in India in Chennai Leather Cluster (2007-08), Chennai Footwear Cluster (2008-09), and Chennai Auto-Components Cluster (2008). No such twinning attempt has so far been made in Haryana.

¹³ UNIDO (2002) End of project report for the State of Orissa, India and UNIDO (2010) Cluster Development for Pro-Poor Growth

5.4.3 Cluster Twinning (CT) in Chennai auto-component cluster, India

At the outset, Chennai's auto-component cluster was facing major challenges in terms of absence of vision, policy support, absence of marketing strategy, HR challenges, lack of technical capability in implementing (5S, TPM, Lean, SPC), low productivity, lack of product design capability and product technology/ collaboration to break into the demanding auto segment (as a tier-1 supplier).

Accordingly, the objective of the CT programme was to start the process of creating a vision statement and support plan for the next five years for the units and budgeting for the same. To promote the process of twinning between India and Italy, the entry points were identified as



concerned associations and technical institutions (refer adjacent diagram). The process of implementation was broken down into three phases - creating initial acceptance, identifying the more interested recipients and providing unit-level handholding for actual delivery.

Figure 23: UNIDO's Cluster Twinning Framework

CT was focused around trust-building activities in the cluster. These included creation of cluster-level network of about 45 micro units, trust-building/action plan- oriented activities.

The Cluster development program component covered the following major types of activities as part of CT:

1. Gap assessment for the development of firm-level visions and strategic goals
2. Implementation of gap assessment tools for vision-building at firm level
3. Exposure to benchmarks within India
4. Creation of websites
5. Supplier Development Programme
6. Lean manufacturing
7. New knowledge generation in social accountability, waste minimization
8. A number of ITP activities, e.g. meeting consultants and experts with cluster firms

The impact of CT outcomes at the unit level were positive and reassuring. There was 3 to 5% rise in unit level profitability, 5 to 7% rise energy savings, 5 to 10% rise in productivity, 15 to 20% new customers developed, 30 to 50% retention of employees.

5.5 SIDBI's - Strengthening the Business Development Services (BDS) in MSME clusters (2010)

Small and medium Enterprises Financing & Development Project - Business Development Services (BDS) was commissioned with the support of the World Bank, Department for International Development (DFID), UK, Kreditanstalt für Wiederaufbau (KfW) and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Germany. Small Industries Development Bank of India (SIDBI) was the implementing agency in this project. Developing BDS market and ensuring provisioning of quality BDS to the MSMEs were the main objectives of this project. At the heart of project's objective was a market-based development of clusters through robust BDS framework related to technical, financial and marketing aspects and strengthening of existing institutions in the cluster. This project was a unique attempt to address the demand and supply side of the BDS market through adoption of strategic measures and addressing issues like availability and quality of raw material, technology upgradation, productivity and quality improvement, marketing and export development, improving management practices, adoption of financial discipline, increased access to formal finance etc.

For strengthening **the overall BDS ecosystem in selected clusters** (*Refer Figure 24*), the objectives of this project were:

- ▶ Building the capacity of existing and potential BDS providers to serve the cluster MSME market more effectively.
- ▶ Facilitating networking between MSME business associations and other BDS providers.
- ▶ Developing linkage programs between large corporations and MSMEs, working through the major MSME business associations.
- ▶ Developing high quality, affordable management training for local MSMEs.
- ▶ Entrepreneurship training programs to create new entrepreneurs.
- ▶ Providing MSMEs with better access to technology, for example, through technology transfer agents/supporting dedicated institutions to facilitate dissemination of information on technology transfer and match-making between MSMEs and service providers.

This project promoted forging partnerships amongst various stakeholders of the cluster in implementing the action plan. Special attention was paid towards developing local service providers within the cluster, linkages between local industry and service providers and strengthening of local institutions. Another unique feature of this intervention was strong governance mechanism in the form of a cluster coordination committee, responsible for overall monitoring, coordination and providing strategic direction towards better implementation.

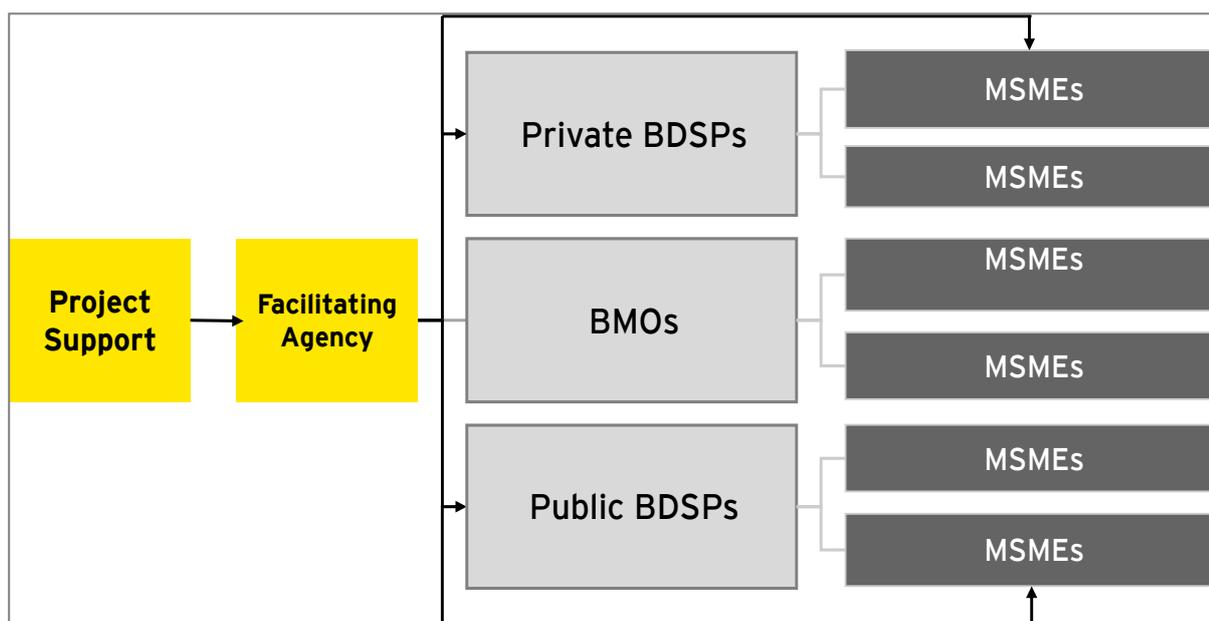


Figure 24: BDS Ecosystem

SIDBI's Approach in Implementing the "Small and medium Enterprises Financing & Development Project"

Unlike the previous BDS interventions in many countries, with primary reliance laid on providing direct services to the MSMEs through public BDS or permanently subsidizing their services, SIDBI's intervention approach emphasized on BDS market development wherein efforts were made to upgrade quality of existing services, offer value added services through training of BDSPs, introduce new service products, capacity building of business membership organizations (BMOs)/industry associations, establish MSME-BDS-Institution linkages and increasing demand for BDS amongst MSMEs. Here both private and public BDSPs were assumed to take higher responsibility in terms of providing quality business development services to the MSMEs. A unique features of the program was **gradual decrease in subsidy support** as project progressed (i.e. from 100% in 1st year to 70% and 50% in 2nd and 3rd year respectively). This was aimed towards driving

the units towards self-sufficiency. An overview of the SIDBI Small and Medium Enterprises Financing & Development Project has been illustrated below (Refer Figure 25):

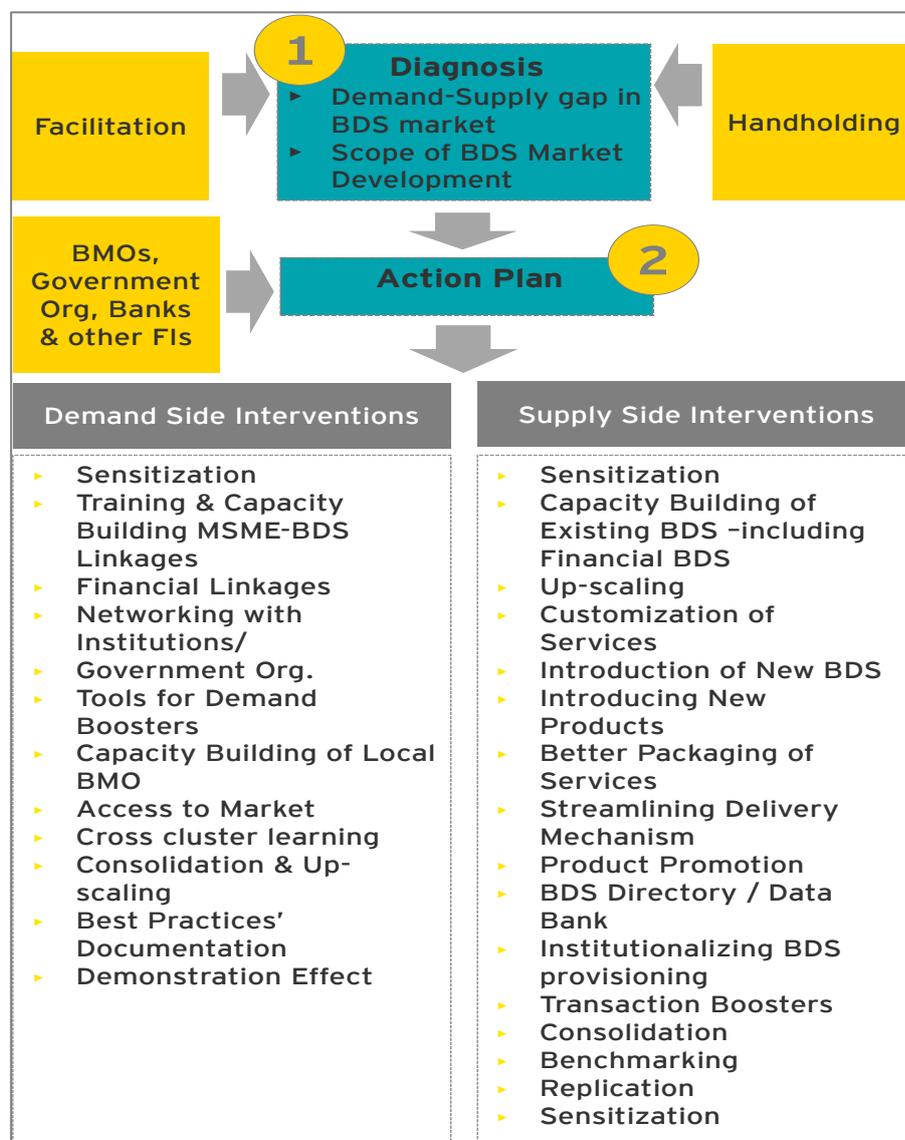


Figure 25: SIDBI Small and Medium Enterprises Financing & Development Project

The project was implemented in 15 selected MSME clusters across various sub sectors like engineering, knitwear, pharmaceuticals, leather, food processing etc. throughout India and for the Mohali Panchkula–Chandigarh and Rajkot engineering clusters, SIDBI collaborated with The Energy and Resources Institute (TERI) (as the implementation partner) to execute the project.

The phased execution of the project in this cluster has been explained as follows as a case study:

Phase 1: Diagnosis

Through various interactions with industry stakeholders, TERI obtained a clear picture of the problems faced by vendors in meeting the demands of Original Equipment Manufacturers (OEMs) in an increasingly competitive market. In order to obtain the OEMs' perspective in the matter, TERI held a series of meetings with the main OEMs of the region to understand the problems they faced with their vendors and to pinpoint specific areas in which the OEMs wanted their vendors to improvise.

These interactions revealed the following broad areas in which OEMs faced problems with their existing vendors:

1. Inability to adapt to new product/process requirements
2. Little or no use of production management techniques for quality improvement
3. Inefficient manufacturing practices
4. Improper factory layouts
5. Near absence of environmental and safety considerations

This stage also included preparing a detailed inventory of BDS providers, present and potential.

Phase 2: Action Plan

Having obtained a clear picture of the **issues involved on both 'demand' and 'supply' sides of the vendor– OEM relationship**, TERI adopted a strategy for its **vendor development program centered on promoting 'lean manufacturing' (LM) among vendor units, so as to reduce their production costs and thereby improve their profitability and competitiveness with minimal investment.**

The aim was to identify and support BDS providers capable of promoting and sustaining LM initiatives among 10 vendor units through the capacity building of entrepreneurs and worker.

Activities as part of the action plan also envisaged strengthening and enhancing the outreach of existing BDS providers, and also capacity building of existing and potential service providers.

Key Activities Undertaken:

i. Awareness workshops:

As a first step, TERI in collaboration with local industry associations organized three workshops to create awareness on the potential benefits of LM for both MSMEs and LM consultants, and also to encourage entrepreneurs and BDS providers to take advantage of the 'Lean Manufacturing Competitiveness Scheme' (LMCS) of the Ministry of MSME, Government of India, which was being implemented by National Productivity Council (NPC). Around 200 entrepreneurs and BDS providers participated in these events.

The workshops evoked considerable interest among entrepreneurs in adopting LM techniques. The project team followed up the workshops with visits to individual units to motivate their owners to form Special Purpose Vehicles (SPVs) and apply to NPC for participation in the LMCS. As a result of these efforts, two SPVs were formed by light engineering units in Mohali to avail the benefits of LMCS: 'MIA Alpha Light Engineering Cluster' with 10 member units and 'MIA Beta Light Engineering Cluster with 12 member units.

ii. Professional Empanelment:

In parallel, TERI reviewed the LM consultants already empaneled with NPC and identified two BDS providers who possessed both the expertise and enthusiasm to undertake LM initiatives among the two mini-clusters. They were: (1) International Business Certifications (IBC) with MIA Alpha Light Engineering Cluster, and (2) PTU's Gian Jyoti School of TQM and Entrepreneurship (GJS) with MIA Beta Light Engineering Cluster. TERI provided advisory support to the entrepreneurs and consultants in preparing the proposals for both SPVs, which were duly submitted to NPC for approval.

While the SPV proposals were under consideration by NPC, IBC and GJS undertook preliminary study visits to the units in their respective mini-clusters. As the process of examining and approving the SPV proposals was taking a lot of time, TERI decided to capitalize on the momentum generated by the two LM consultants among the light engineering units, and extended support to their initiatives to promote LM techniques in an additional 10 MSMEs in the MPC cluster. All these 10 units were vendors to large-scale tractor manufacturers, and were selected in consultation with the local industry associations. In addition to IBC and GJS, a third LM consultant—Taaran Industries—was identified to participate in this initiative under the project.

Initial steps: During 2010-11, each of the three BDS providers initiated efforts to promote and establish LM practices in the 10 selected vendor units in the MPC cluster. The BDS providers conducted preliminary surveys in the vendor units allotted to them and identified a number of common shortcomings in all the vendor units (refer adjacent box).

Major Drawbacks Observed:

- ▶ Unnecessary clutter in and around work stations
- ▶ Machines not maintained properly with no regular maintenance scheduled
- ▶ Inefficient record keeping with non-existent inventory control
- ▶ Poor scheduling of production processes
- ▶ Excess inventory
- ▶ Over-production as the units produced 15% or more in excess of their confirmed orders just to compensate for reworks, breakages, defects, etc.

iii. Spurring innovation through 5S

The BDS providers therefore undertook their campaigns in the units with intensive awareness and training sessions on '5S—its benefits and applications'. From top management executives to the lowest-level factory floor worker, all the units' personnel were taken through these training programs and guided on implementing the 5S principles in their own work-stations, stage by stage. The 5S topics covered were:

1. Seiri—sorting and removal of unwanted or redundant items
2. Seiton—arranging items systematically on the principle 'a place for everything and everything in its place'
3. Seiso—cleaning up the workplace and maintaining cleanliness
4. Seiketsu—standardizing methods to maintain orderliness and cleanliness
5. Shitsuke—evolving self-discipline and commitment

iv. Kaizen events

The 5S sessions enabled personnel to realize, through hands-on efforts, that they could themselves bring about substantial improvements in their working conditions as well as quality of work by following simple principles and techniques. This realization strengthened the confidence of the personnel and unlocked their innate creativity. In turn, this paved the way for the conceptualization and implementation of a range of LM principles and practices by the personnel themselves (with guidance as necessary by the BDS provider). Typically, these efforts culminated in a 'kaizen event'—that is, the development and adoption of an innovative measure that yielded benefits in terms of higher production efficiency, better working conditions, and the like. With each successful kaizen event, the personnel were further motivated to think up and implement innovative ideas for improving their work practices and working conditions; thus, LM principles and practices became progressively entrenched among the unit personnel.

v. Ensuring sustainability of Lean Manufacturing

In each unit, the concerned BDS provider developed and put in place systems for good management practices (e.g. formats for monitoring production, controlling inventory, and scheduling maintenance tasks; posters and notice boards indicating production targets, working rules and procedures, safety and health aspects, and so on). Also, the BDS providers established a system of rewarding personnel who came up with innovative ideas or solutions (i.e. kaizens) to improve operational efficiency and/or working conditions; and of 'penalizing' personnel who broke any procedure or rule that had been established. The rewards were given in kind—typically, utility items like soaps, glasses, and so on. Penalties were usually levied in the form of a nominal but exemplary fine; for instance, in case a worker smokes tobacco while on

duty. These systems spurred enthusiasm of factory personnel at all levels and engendered in them a sense of participation in the unit's production processes, strengthened loyalty and commitment, and thereby helped in ensuring the sustainability of LM principles and practices.

5.6 Cluster Development in India through Implementation of MSE-CDP

In line with the constitutional principles of creating a welfare state and promoting bottoms-up growth while promoting wealth creation, the development of clusters as engines of economic growth has become one of the priority issues for the Government of India for enhancing the productivity, competitiveness as well as capacity building of MSEs through its flagship MSE-CDP Scheme.

Given the diverse nature of the MSEs in terms of both geographical location and sectoral composition, the objective of the scheme is to address the needs of MSEs by augmenting the economic health of the clusters. This can enable the achievement of economies of scale in terms of deployment of resources as well as focusing on the specific needs of similar industries. The capacity building of associations, setting up of special purpose vehicles (SPVs), consortia, etc. which are an integral part of the scheme enable MSEs to leverage their resources and have better access to public resources, linkages to credit and enhance their marketing competitiveness. In a nutshell, the MSE-CDP scheme aims at holistic competitiveness of the MSEs.

The establishment of CFC and hard infrastructure as part of cluster development is a result of strong social capital mobilization through stakeholder partnerships and higher levels of knowledge transfer between MSMEs and other stakeholders, both internal and external. The MSMEs can also aggregate raw material demand, via SPV, by procuring the same in bulk at reduced price resulting in a direct cost benefit.

The overall scheme framework is explained in the diagram below (*Refer Figure 26*): As on date, there are 40 completed CFC's in India and close to 68 ongoing CFC's under the MSE- CDP scheme. Haryana has been one of the few states which has been extremely proactive in developing clusters throughout the state under the CDP program. Haryana has identified about 30 clusters for MSE-CDP interventions with interventions in advanced stage at 06 clusters in the state at Karnal (02- Print, packaging and Pharmaceuticals Cluster), Panipat (Textile Machinery Cluster), Kundli (Stainless Steel Cluster), Yamunanagar (02-Plywood and Stainless Steel Cluster) and Bahadurgarh (Footwear cluster). The state has also announced a Mini Cluster Scheme, one of its kind in India, and intends to set up 25 mini clusters across the state.

In elevating Haryana as a model state for cluster development, the MSE-CDP Scheme and State Mini Cluster Scheme will be critical intervention areas which are expected to gain significant

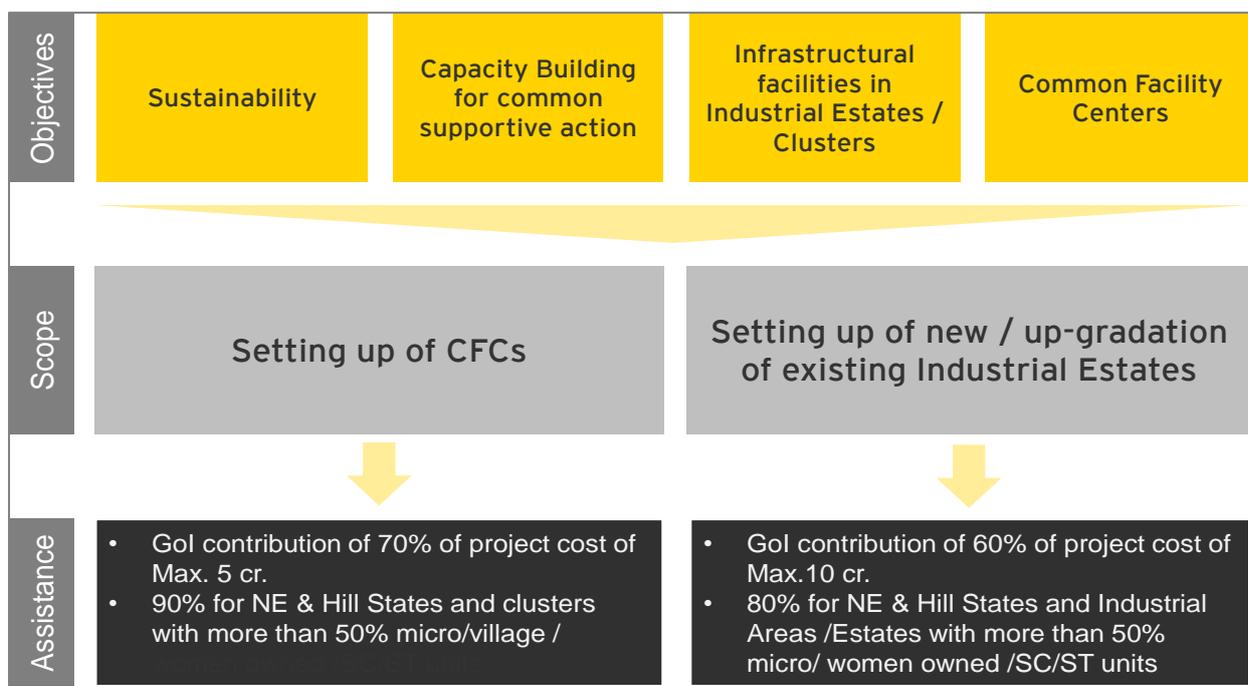


Figure 26: MSE-CDP Scheme Framework

traction in the immediate future. Therefore, this section highlights the action points for Haryana for horizontal replication in better implementation of the MSE- Cluster Development Program based on recommendations and experiences of all Indian states & UTs.

In addition to field inputs (cluster visits) from Andhra Pradesh, Tamil Nadu, , Jharkhand, Punjab and Haryana; pan-India experiences in implementation of MSE-CDP Scheme have been captured from MSME-DIs cluster development officers (CDOs) of all states & UTs during National Workshop for Cluster Development Officers Under MSE-CDP held at Hyderabad during June 2017. Some of the best practices highlighted by these CDPs that could be replicated in Haryana are mentioned below. Some of these have already been implemented by Haryana.

Snapshot of pan-India experience in implementation of MSE-CDP scheme around 5 broad thematic areas-:

Area 1: Robust Monitoring & Evaluation for a more streamlined implementation of MSE-CDP

- ▶ Dedicated 'cluster development cells' within the industry department and appointment of CDOs at selected districts across the state.
- ▶ Empanelment of a consultancy firm for scheme implementation to ensure consistency in quality.
- ▶ Hiring of a CDE to be made mandatory for all SPVs.
- ▶ Systematic cluster selection process with proper need identification to be undertaken prior to taking up the DSR.
- ▶ A robust M&E framework from DSR preparation to financial project closure.
- ▶ Handholding support to SPV members for UAM and MSME databank filing. Additionally, UAM and MSME Data Bank to be filed and verified by DICs before the submission of DPR.
- ▶ SOPs to be put in place post the final approval with a concrete action plan for 2 years to expedite CFC establishment.
- ▶ Checklist on evaluation of DSR and DPR to be prepared.
- ▶ Standardized templates for DSR and DPR preparation.
- ▶ A technical agency to be engaged during development of DPR for machinery finalization.
- ▶ Larger empanelment of financial institutions for speedy appraisal of DPR.
- ▶ Standardized template for reporting by CFCs with a pre-defined time for bank for appraisal.
- ▶ Prescribed preform for joint physical verification, physical targets vs physical achievements report, PERT Chart, utilization certificate, etc.
- ▶ Mandatory empanelment of Programme Management Service Provider (PMS) for every SPV implementing CFC.

Area 3: Ease of Operations and Special Relaxations under Mini Cluster

- ▶ The condition for a minimum 10 members in SPV under Mini cluster scheme may be relaxed in exceptional cases, particularly for /backward districts.
- ▶ Reduction in mandatory building lease period from 10 years to 5 years.
- ▶ Reduction in the contribution of SPV members (from 5% instead of 10%) in micro-clusters.
- ▶ Funding should be provided to set up 'Flatted Factories' which could be run by SPVs.
- ▶ Units should be allowed to brand the products in cluster's name.

Area 4: Awareness creation and Trust Building

- ▶ Trust building workshops among MSMEs and industry associations should be conducted.
- ▶ Knowledge support and capacity building of the DIC staff and state implementing agencies as per the MSE-CDP and Mini Cluster guidelines.
- ▶ Dedicated budget allocation for awareness programs on various government schemes.
- ▶ Cross - Cluster activities and exposure visits to best performing clusters nationally and internationally.
- ▶ Mass dissemination of success stories under MSE-CDP.

Area 5: Formulation of BoPs for SPV

- ▶ Consultant/NDE to be hired immediately by SPV after in principle approval for regular coordination among various departments.
- ▶ Apply for CLU in time, right after project identification.
- ▶ Land identification and finalization while the DPR is being prepared so that SPVs ownership is generated.
- ▶ Support the growth of industry associations.

Learnings for Haryana

Based upon the case studies presented, leading practices for cluster development in Haryana can be categorized into the following two areas:

Project Implementation

- ▶ The Haryana State Government through the Department of Industries and Commerce can leverage technical expertise (area experts, consultants, technical agency) in formation of **consortiums/networks of exporters, marketers, high end technology manufacturer's etc.** Consortium building lies at the heart of cluster development which can help build the critical cluster mass through inter-firm and inter-actors collaboration and trust-building. Some of the specific interventions through consortium formation that the state Government should aim for can be- Skill Development Centers, Technology and R&D Centers, Export Corporations, Export promotion instruments, joint advertising campaigns & marketing consortiums.
- ▶ Also few emerging clusters from the state can serve as **model clusters for an end-end vision formation to on-ground vision implementation** and also be provided focused **mentorship and technical advisory support.**

Targeted sectoral programs/ interventions

- ▶ Sectoral Programs can be propelled into most traditional clusters in the sectors such as handicrafts, textiles in replicating the best practices of similar clusters in other states like Punjab (Ludhiana), Odisha and Rajasthan (such as UNIDO interventions). Focus of interventions can be an end-end ecosystem transformation of these clusters. Accordingly capacities of the related department agencies in these sectors can also be built.

Reference Leading Practice:

- ▶ Hosiery Cluster, Ludhiana- Consortium Formation
 - ▶ Cluster Development, Odisha- Focus sectors cluster ecosystem Transformation
- ▶ The Department of Industries and Commerce can implement a phased **cluster twinning** program between the developed clusters across the focus sectors of the state such as automobile, textiles, footwear with the leading international clusters in Italy, Germany etc. In the second stage, the emerging clusters of the state can be twinned. Sufficient mechanisms to transfer positive pilot experiences (stage 1) to other clusters (stage 2) to be put in place during the design phase of the projects.
 - The focus of cluster twinning program can be adoption of manufacturing best practices, business partnerships, collaborations and knowledge flow. By promoting cross-cluster activities, the cluster critical mass can be thickened by twinning not only the principal firms but also the support stakeholders. In line with the industrial growth priorities of the state. In case of the emerging clusters, export promotion must be a key priority and must map the demands and needs of companies and clusters and then, the matching markets, clusters and companies can be identified in the twinning partner. Same must be the case for the developed clusters which are focusing on outsourcing and delocalization.
 - The twinned clusters may be the ones which are created as the model clusters for an end-end vision formation to on-ground vision implementation (as mentioned in the point above) and these clusters can eventually serve as the **smart clusters of Haryana**.

Reference Leading Practice:

Chennai Auto-Component Cluster-Cluster Twinning

- ▶ The Department of Industries and Commerce can facilitate a targeted BDS program across five clusters of Haryana (selected from the clusters where interventions are ongoing under MSE-CDP and Mini Cluster Scheme) to bridge the gap between existing MSMEs and business development services providers in these clusters. Through a targeted BDS intervention, Haryana will be able **create macro-clusters by forging powerful synergies between the focus sectors clusters and the existing BDS ecosystem.**
- ▶ A targeted BDS intervention will augment the business services ecosystem across these clusters and compliment the efforts being made under the MSE-CDP Scheme and the Mini Cluster Scheme.

Reference Leading Practice:

Mohali-Chandigarh-Panchkula Engineering Cluster- SIDBI-BDS Programme

5.7 Implementation of MSE-CDP

- ▶ A dedicated **Cluster Development Cell** can be set up within the Department of Industries and Commerce, Government of Haryana responsible for identifying, mapping, and monitoring the implementation as well as assessing the impact of cluster development initiatives on regular basis.
- ▶ For implementation of cluster development projects in Haryana under MSE-CDP and Mini Cluster Scheme, a **Cluster Development Co-ordination Committee (CDCC)** can be constituted under the Chairmanship of Director of Industries & Commerce, Government of Haryana. The committee may operate under the overall monitoring of the State Level Project Steering Committee (SLPSC).
- ▶ The department's capacity must also be augmented comprising of professionals with managerial and technical expertise along with Cluster Development Managers for the focus sector clusters in the state.
- ▶ In addition to the interventions under the MSE-CDP and Mini-Clusters Scheme, the department can also effect interventions under other Government programs such as the MSME-Cluster Intervention Program (M-CIP) with an overall objective of creating **Smart Clusters in Haryana** (Table 8), as one of its kind in India.

Table 8: Smart Clusters in Haryana

Smart Clusters in Haryana: The Vision	
I. Well maintained basic infrastructure	<ul style="list-style-type: none"> ▶ Approach roads / internal roads. ▶ Regular power supply / own power plant and water supply. ▶ Green / climate friendly
II. Self-sufficient internal infrastructure	<ul style="list-style-type: none"> ▶ Common Facility Centre - Tool rooms, design centre, testing laboratories. ▶ Common Effluent Treatment Plant. ▶ Own Raw Material bank/warehouse. ▶ Own trade fair/exhibition centre. ▶ Knowledge centre. ▶ Permanent skill development arrangement. ▶ Own website
III. Cluster management	<ul style="list-style-type: none"> ▶ A strong industry association, with proactive role in channelizing credit to its members. ▶ An SPV with active member-contribution ▶ Financing tie up with at least one leading bank ▶ Access to experts for problem resolution ▶ Proactive support to banks/FIs in developing customized financial products/schemes for the cluster.



5.8 State Government Initiatives for MSME Growth in India

The below table (Table 9) gives a synopsis of various State Government initiatives within the State of Haryana.

Table 9: Leading Practices for Haryana

Leading Practices for Haryana	
1. Policy and Regulatory Framework	
	<ul style="list-style-type: none"> ▶ Sick unit revival and rehabilitation roadmap (scheme) ▶ Sick unit revival cell ▶ Progressive labour policies and reform
2. Entrepreneurship Development	
	<ul style="list-style-type: none"> ▶ Closely knitted entrepreneurial ecosystem and start-up infrastructure (space/campus) across select industrial hubs like Gurugram, Faridabad, Karnal ▶ Policy for innovation and start-up ▶ Incubation and entrepreneurship development fund

3. Access to Infrastructure
<ul style="list-style-type: none"> ▶ Role expansion of HSIIDC for providing project life cycle support ▶ Industrial area and cluster specific information repository on project shelf, infrastructure availability, demand-supply forecasting (infrastructure), to be maintained by the HSIIDC
4. Access to Finance
<ul style="list-style-type: none"> ▶ Venture capital fund maintained by Haryana State Financial Corporation (HSFC) as the venture capitalist ▶ Focus sector venture capital fund (textiles, agro-processing etc.)
5. Access to Markets
<ul style="list-style-type: none"> ▶ Focus sector vendor development programs (VDP) and Reverse Buyer seller meet (RBSM) ▶ Value chain analysis & strengthening cell

Summary

A competitive regional industrial ecosystem involves a multi-layered landscape of functions, economic enablers and policy context in which industrial growth evolves and competitiveness is attained. In line with the theoretical competitiveness framework for MSMEs (as outlined in chapter 1), the **role of government as a facilitator in developing competitive ecosystem has direct impact on meso-level competitiveness** which depends on supporting institutions, regulations and availability of specialized factors (as forces) such as infrastructure, finance, markets.

Meso-level competitiveness is specifically concerned with shaping specific environment in which firms operate and this makes government interventions most effective in this segment. This is so because at the meso level, the state and societal actors interact in creating competitive advantages, often by pursuing opportunities that cannot be realized by individual business entrepreneurs due to high barriers to entry, scale intensity and/or other market failures.

Over the past few years, The Haryana State Government has made positive strides by introducing strategic interventions for transforming the industrial ecosystem of the state spearheaded by the Haryana Enterprise Promotion Policy 2015. However, there persist certain gap areas in the overall industrial ecosystem of the state, with special focus on MSMEs, which have been identified for Haryana based upon reference leading practices across other Indian states.

The focus of this chapter is therefore to document some of the most successful interventions by state Governments in India for MSME growth which can be replicated in Haryana. Relevant to Haryana's industrial ecosystem, the ecosystem components **captured in this report include**

targeted schemes & policies, infrastructure and entrepreneurship development, access to finance and market.

5.9 Successful MSME Interventions- Policy and Regulatory Framework

The MSME sector has emerged as an engine of growth in the country. This sector has exhibited tremendous capacity for employment generation, technical innovation, promoting inter-sectoral linkages, raising exports and reducing regional imbalances.

Having access to information on various schemes and government support initiatives is crucial for effective facilitation of MSMEs.

5.9.1 Scheme for Revival of Small Scale Industries, 2006, Andhra Pradesh

The high incidence of industrial sickness, given the uncertainties in the business accentuated by lack of ecosystem support has been largely responsible for plodding the pace of industrial growth of states in particular and the nation at large. In recognition of this sickness problem being faced by the MSMEs, there needs to be a systematic diagnostic and recuperation support with respect to rehabilitation of potentially viable sick units, identification of a unit as sick and early detection of incipient sickness. There is also a need to lay down procedure to be adopted by banks before declaring a unit as unviable.

In doing so, Andhra Pradesh Government through the **A.P. Small Scale Sick Industries Revival & Rehabilitation Scheme-2006** has laid down a systematic framework for MSEs for rehabilitation of potentially viable enterprises and preventing incipient sickness.

The backbone of the scheme is tapping banks/financial institutions for servicing the sick units and provide rehabilitation package for their quick revival to join the main stream. The scheme focuses at units that are considered potentially viable after a careful scrutiny by the financing banks/institutions for feasibility of revival and rehabilitation. As per the scheme provision, 6% interest subsidy will be provided to all identified/eligible sick units, subject to maximum of Rs.2.00 lakhs per year for a maximum period of three years. The scheme with a package involves part compensation of a few sacrifices by the financing institutions and the Government agencies involved. Some of the key incentives of the scheme include relaxation from Urban Land Ceiling (ULC) Act, deferment of CT arrears and relief in energy charges.

Another unique feature of State's schematic framework has been **rigorous identification process for sick units through district-wise surveys** in 2004 to ascertain the feasibility of revival of sick

industries through various agencies/institutions like A.P Industrial & Technical Consultancy Organization (APITCO), National Institute for Small Industry Extension Training (NISJET), Federation of Andhra Pradesh Small Industries Association (FAPSIA). The state Government also ascertained views of industries association and chambers like the Federation of Andhra Pradesh Small Industries (FAPSIA), Federation of Andhra Pradesh Chamber of Commerce and Industry (FAPCCI), Confederation of Indian Industry (CII) etc.

Key Features of the Scheme:

1. **Creation of Small Scale Sick Industries Revival and Rehabilitation Fund:** Role: Separate fund earmarked in the Department's annual budget which is responsible for partially compensating the sacrifices made by the Financing Institutions, Banks, etc. Advantage: A unit which has been closed due to sickness during the pendency of the incentive scheme of the State Government normally faces recovery of the incentives enjoyed by it. However, the APSSSIRRS may waive the recovery and consider rehabilitation package under the scheme, provided, the unit resumes production for at least 5 years or remaining period of incentives under the incentive scheme.
2. **Constitution of Special Cells:** Creation of State Level Special Cells to consider the recommendations of the financial institution for the sanction of rehabilitation/revival package as per guidelines.
3. **Constitution of State Level Rehabilitation Committee:** A State Level Committee Headed by the Commissioner of Industries is constituted for processing, extending reliefs and concessions as also to formally approve the recommendations of the financial institutions/banks.
4. **Constitution of AP Small Scale Sick Industries Rehabilitation Board:** At the highest level, the 22-member board, headed by the Chief Minister, is responsible for taking policy decisions for implementing AP Small Sick Industries Revival and rehabilitation Scheme-2006. It also responsible for reviewing the action taken by the Banks/Financial Institutions and the State Level Committee including the quantum of assistance released to sick industries under the scheme.

5.9.2 Amendments in Labour Laws, 2014, Rajasthan

As one of the first in India, the Government of Rajasthan in a bid to create an opportune regulatory framework for industries, attempted an **overhaul of the labour and industry related regulations in the state**. In 2014, for improving ease of doing business in the State, the Government introduced a string of amendments to key labour and industry regulations in the form of State amendments.

The amendments were incorporated taking into account recommendations from various expert committees, judgments of Supreme Court, keeping in view the Environment Protection Act, 1986 and also various International Labour Conventions.

The Act and Regulations which have been subjected to changes include(Refer Figure 27):

1. Industrial Disputes Act 1947
2. The Factories Act 1948
3. The Contract Labour Act 1970
4. The Apprentices (Rajasthan Amendment) Act 2014

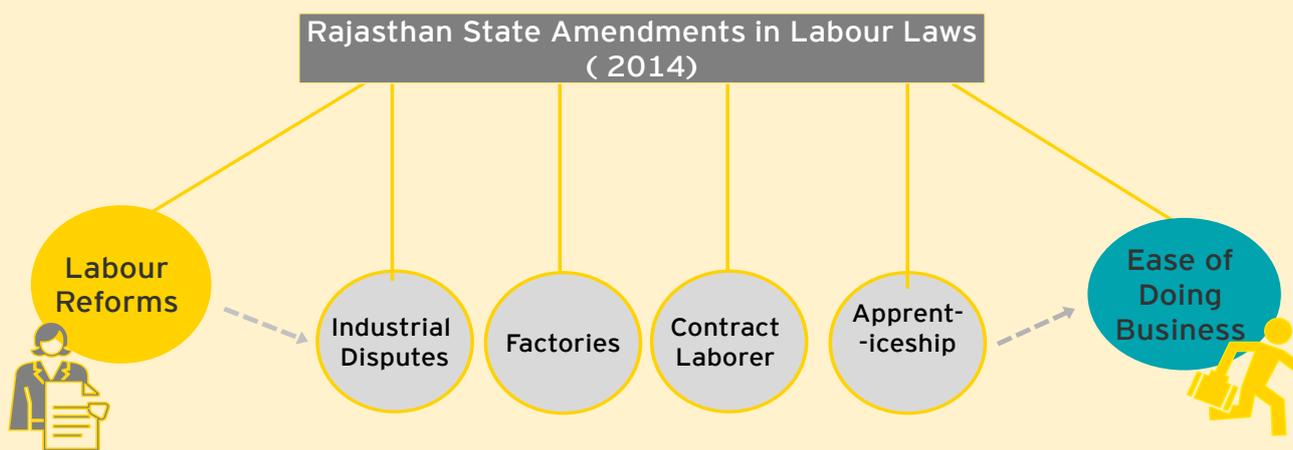


Figure 27: Rajasthan State Amendments in Labour Laws (2014)

1. The key amendment made to the **Industrial Disputes Act** seeks to remove the prescribed Government nod required for companies employing up to 300 employees for laying off or shutting down units as against the previous norm of 100 employees. The amendment has

given **greater flexibility for a large number of companies for hiring and laying off to adjust to market demand supply scenario, enabling loss making business to exit without delays.** Amendments have also been brought in with regard to unions where the amended law requires unions to have 30% of total employee membership to form a union while the previous norm required membership of only 15% of the workmen. The amendment is aimed at limiting the number of unions and labour- management interface.

2. The applicability of the **Factories Act** has also been amended by the state Government. Previously, under the act, the applicability was for companies employing 10 or more employees with a power connection and 20 or more employees without electricity. **The amended act changed the applicability of Factories Act for companies with more than 20 workers with electricity and 40 workers without electricity, to reduce the burden of compliance on companies in the State.**
3. With the amendments to the **Apprentices (Rajasthan Amendment) Act 2014**, the Rajasthan Government has addressed the long standing industry demand for **exemption from bearing recurring cost of basic training given to trade apprentices.** Section 9-8(a) has been amended to enable the state to reimburse to industry in each case of successful completion of training of an apprentice, half of the cost of establishment (in units employing more than 250 workers) and full cost of establishment (employing less than 250 workers). Another amendment allows third party training provider to conduct practical training of apprentices. **Since many industries lack proper training infrastructure, this is expected to provide relief to both industry and trainees and create an ecosystem for job creation.**

Another welcome amendment to this act grants **autonomy to the State Apprenticeship Council which is no longer mandatorily affiliated to the Central Council along with a State Apprenticeship Advisor.** This is likely to ensure more flexibility at the State level for faster decision making related to the apprenticeship /training sector. The amended act also ensures that any stipend paid is not less than the notified minimum wage of unskilled workers.

5.10 Successful MSME Interventions-Entrepreneurship Development

5.10.1 India's largest start-up Incubator: Telangana-Hub

As India's first and largest start-up incubation ecosystem, T-Hub, is a technology incubation center initiative of the government of Telangana to promote entrepreneurship in the State. T-Hub has been envisioned by the State Government with the purpose of creating a conducive entrepreneurial ecosystem within the State to attract the next wave of technology companies for the full cycle of growth from seed stage to maturity by bringing the entire start-up community in the state under one umbrella - the T-Hub.

Located in IIT Hyderabad, **T-HUB is a unique technology collaboration (PPP) between the Telangana State Government, IIT (Hyderabad) NALSAR (Hyderabad), Indian School of business and key private sector leaders.** The T-Hub provides one central business location to members of the local start-up community for entrepreneurs, mentors, investors and academia to interact and collaborate.

The entire ecosystem is anchored to a world-class, state-of-the-art 70,000 sft. building called **Catalyst**, the largest building in India entirely dedicated to entrepreneurship. The T-HUB premise hosts co-working spaces, meetings, mentoring, networking sessions and conferences.

T-Hub's main methodology is¹⁴:

1. Provide state-of the art infrastructure to attract the best start-ups and entrepreneurs from across the world to Hyderabad.
2. Create a tightly knit ecosystem of entrepreneurs, investors, incubators, accelerators, mentors and academia.
3. Work with an extensive network of partners to help entrepreneurs launch and scale innovative Businesses.
4. Equip innovators and organizations alike with the entrepreneurship skills required to succeed, using methodologies that transcend traditional learning.

¹⁴ Telangana ICT Policy Framework 2016

T-HUB: The Bright Spot

- ▶ Collaboration with 30 companies and 40 top mentors from the Tech world.
- ▶ Seed funding, mentorship, incubation space, industry hand-holding, partners and investors.
- ▶ Significant global presence with T-HUB outposts planned in Silicon Valley (USA), St. Louis (USA).
- ▶ 12 global business leaders as T-Hub promoters including Microsoft CEO Satya Nadella, Adobe president and CEO Shantanu Narayen, MasterCard president Ajay Banga.
- ▶ 2 concrete proposals - Global Business Incubator (GBI) from US and LEDMAC from UK at an advance stage of execution.

The Government of Telangana is working actively in establishing Telangana as an IT destination, not only in India but globally. In addition to the T-HUB, the State Government is encouraging both private and public institutions to set up Incubation centers, accelerators, seed funds and other similar concepts that can provide critical support to early stage entrepreneurs. **Telangana is one of the few states to offer an elaborate**

information technology ecosystem through a very comprehensive policy framework which includes the ICT Policy Framework 2016 and 4 allied policy frameworks- Innovation Policy, Policies on Rural Tech Centers, Innovation Policy, Electronics and Gaming Policy.

5.11 Successful MSME Interventions-Access to Infrastructure

5.11.1 Infrastructure Facilitator - Gujarat Infrastructure Development Board (GIDB)

In creating an elaborate legal and organizational framework for infrastructure development in the state, Gujarat Government created the Gujarat Industrial Development Board, as the nodal agency under Gujarat Special Investment Region 2009 for all SIRs related approvals in the state. In 1999, the Gujarat Infrastructure Development (GID) Act was enacted which provided legal framework and roadmap for PPP and in 1999 GIDB was established as the first ever PPP legal framework in India and as an advisory body for PPP projects in the state.

GIDB has been at the forefront of executing large scale infrastructure projects in the state and mobilizing support from the private sector. GIDB's key accomplishment has been chalking out of clear cut and comprehensive policies supported by a legal framework.

The key features of GIDB have been highlighted below (*Refer Figure 27*):

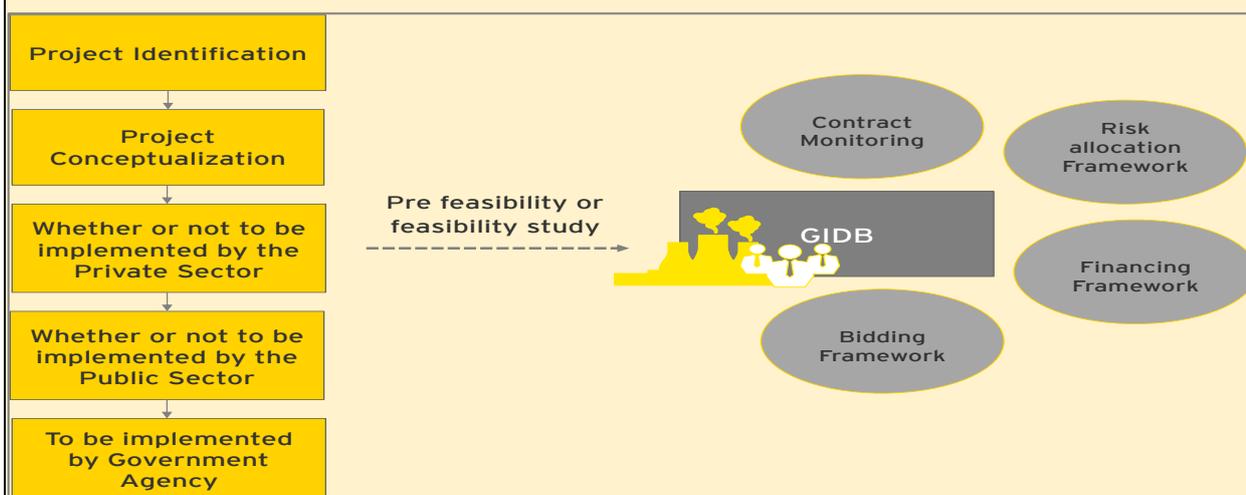
Functions of GIDB:

1. Monitor overall planning and implement framework studies.
2. Conduct pre-feasibility and feasibility studies for various infrastructure projects.
3. Selection of developer is done through a transparent bidding process.
4. Framing, vetting, approval and monitoring of Concession Agreements.
5. Advise the Government on policies on infrastructure such as the Road Policy, Port Policy, Civil Aviation Policy, Power Policy.
6. Capacity building amongst Government agencies and their staff for public private participation.
7. Nodal agency for viability gap funding for Central and State Government. The viability gap funding scheme of the State Government is implemented by GIDB.

The provision of end-end implementation **support across the project life-cycle** by GIDB) is a unique practice in the infrastructure development space in India. Another unique feature of GIDB is the maintenance of a detailed repository of industrial parks on the state.

The Board maintains **detailed information from macro-level (economic profile, demand-supply scenario, infrastructure availability at the industrial estates) to the micro-level detailing (project shelf and feasibility studies)** (*Refer Figure 29*).

A detailed up-to date project shelf is being maintained across the major sectors of the state economy (14 in no.) such as electricity, ports, railways, engineering, chemicals in addition to the general category along with information on investments and financing requirement of developing the industrial lands. A district-wise distribution of industrial investment is also captured along with the IEM figures and District-wise industrial park capacities being planned. In a bid to provide end-end investor facilitation, GIDB is maintaining information on critical components of the project life cycle such as clearances, list of projects and the sector specific value chain.



The GIDC information repository (Refer Figure 30) is equipped with tools for plot-search (refer illustrative) and estate wise tree feeling maps.

Figure 28: GIDB



Figure 29: Industrial parks Outline

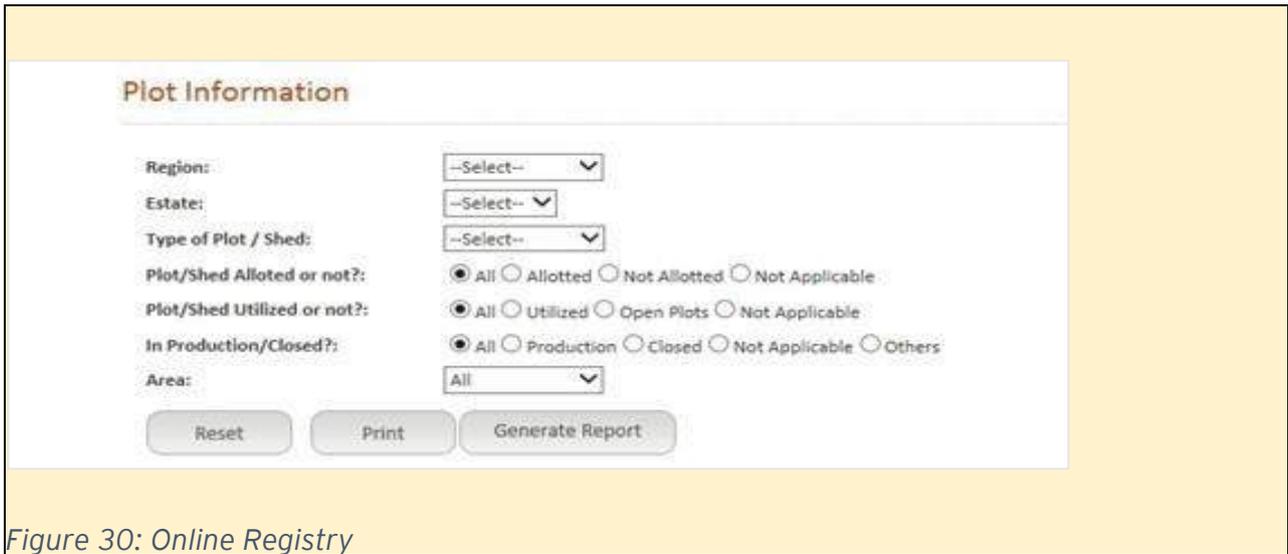


Figure 30: Online Registry

5.12 Successful MSME Interventions-Access to Finance

5.12.1 Gujarat Venture Finance Limited (GVFL)

Gujarat Venture Finance Limited (GVFL) supported by the Government of Gujarat is one of its kind venture capital fund created in the country to support MSMEs and promote entrepreneurship by enabling finance (Refer Figure 31).

The Government of Gujarat has set-up a **venture capital fund** in the State for the purpose of making venture capital investment towards promoting entrepreneurship in **innovative and new concept in sectors like MSME, IT & ITES, Biotechnology, Energy, Clean technology, etc.** Following suit (Gujarat as an example) different types of venture funds have been created by various states like Punjab, Karnataka, Rajasthan and Madhya Pradesh.

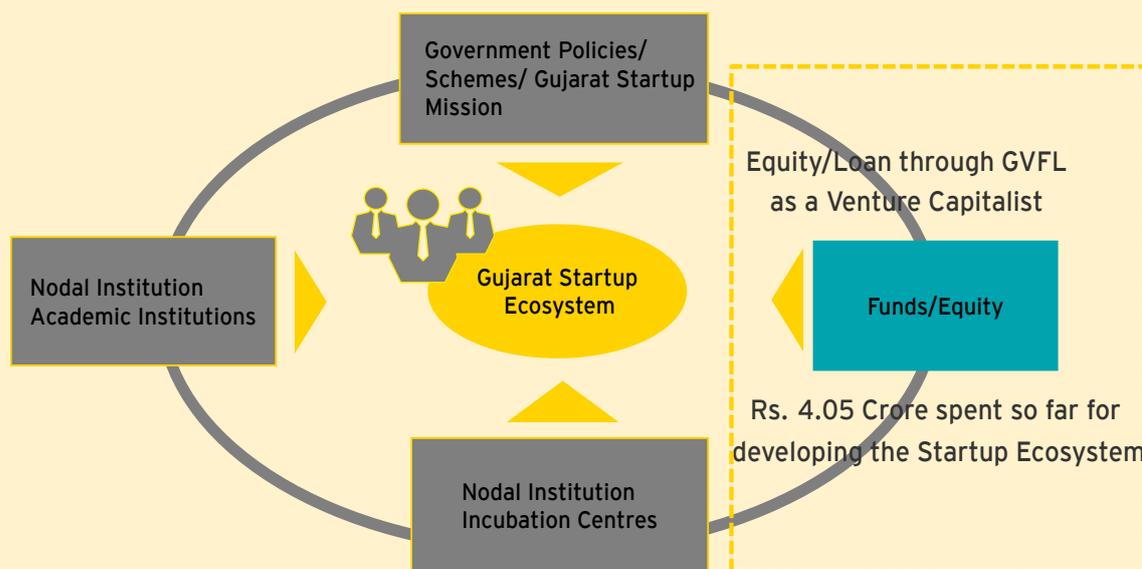


Figure 31 Gujarat Startup Ecosystem and Venture Capital Fund

Standard Structure of the Fund:

- ▶ State MSME Fund: Formed as a Trust under the Indian Trust Act 1882, with corpus of close to Rs. 100 Crores. This State MSME Fund is registered with SEBI.

- ▶ State Venture Capital Trustee Private Limited: Formed with nominal capital, this company acts as a Trustee to the Fund. The Trustee Company is required as per SEBI guidelines.

Features:

- ▶ Oversee the functioning of the fund and appointment of fund manager.
- ▶ Execution of investment management agreement with the manager assigning some of its functions and duties to the Manager.
- ▶ The Board of Trustee Company comprise of eminent professionals, industry experts and nominees of investors. Anchor investor can also nominate a member in the Board of Trustee Company.
- ▶ The MD/CEO of the AMC may be appointed as Executive Trustee. There is usually no physical existence of trustee-company and all day to day operations of the Trustee Company are handled by AMC as per the Investment Management Agreement.
- ▶ State Venture Capital Limited: The SVCL acts as a Manager of the Fund and is formed as a public limited company. It performs the following functions:
 1. Fund raising from various investors.
 2. Source the deals, conduct due diligence and present to the investment committee for approval for investment.
 3. Responsible for regular monitoring of the investee-company, providing exits and return of funds to the investors.
 4. Build team of investment professionals and support staff like accounts, legal etc.
 5. Responsible for all day-to-day operations of the fund like audits, compliance, NAV etc. with a periodic reporting to the Board of the Trustee Company.
 6. The SVCL is paid management fee (~2% of Fund corpus every year) for its services provided to the Fund.

5.13 Successful MSME Interventions-Access to Markets

5.13.1 Madhya Pradesh Laghu Udyog Nigam (MPLUN)

This is first of its kind initiative in India to develop Madhya Pradesh vendors (mainly MSMEs) as competitive manufacturers & suppliers of components required by anchor units and MNCs. The mission of the program is *“Exploring the concept of export marketing for small-scale sector with optimum utilization and expanding future possibilities”*.

The vendor development programme being undertaken by The Madhya Pradesh Laghu Udyog Nigam (MPLUN) (Refer Figure 32), is targeted towards developing MSMEs capable of supplying to various components to large government sectors like railways, defence, power, PSU like BHEL/ coal fields and other private sector large industries. The program is targeted on local and outside state markets by establishing industrial linkages. The program is being implemented in a phased manner with an exclusive focus on key sectors such as textile, automobile, defence, pharmaceutical, food processing in the first phase.



Figure 32 Vendor Development Programme by MP-LUN, Government of Madhya Pradesh

The major objectives of the program were:

- ▶ **Export promotion:** Enhancing export capacity of these vendors which will lead to business expansion and increase in production as well as profitability. This will help the industrial sector to achieve sustainable growth.
- ▶ **Import substitution:** In order to leverage the profitability of vendors, the emphasis needs to be towards increasing volume of production along with quality and technology assurance to meet anchor unit requirements. This will increase supply from local vendors.
- ▶ **Contribution enhancement in states industrial output:** The focus of the program will be to increase production volume by maintaining quality standards with the use of latest technology.
- ▶ **Marketing assistance:** Marketing assistance will help business or enterprise to enter/tap new markets and gain market sophistication through international network of marketing and product development expertise.
- ▶ **Capacity building of vendors:** Capacity of vendors will be enhanced pertaining to working capital management, technological upgradation, skill development, facilitating micro credit, financial inclusion and revival of sick industrial units in wake of rising land prices which will lead to increase in volume of production.
- ▶ **Institutional re-orientation:** The primary implementation functionary of the VDP is through MSME-DIs. Accordingly, the capacity building of MSME-DIs is a key consideration for the success of the program. The MSME-DIs are responsible for the following:
 1. Identification of ancillary opportunities of new ventures of existing medium & large undertakings.
 2. Vendor development program, seminars & exhibition for ancillary development.
 3. Sub-contract exchange for enlisting units with additional production capacity, facilitating tie-ups.

One of the highlights of the VDP is the *RBSM (Reverse Buyer seller meet)* which is a unique opportunity provided to SMEs of the state to explore the possibilities of overseas business at their door step. It is an annual event being organized by MPLUN with the help of the Government of India and the Commerce, Industries and employment Department of the MP.

Through this initiative, SMEs get an opportunity to interact with the overseas prospective buyers in a business environment facilitated by MPLUN. This helps in connecting international consumer markets across the world with export industries of MP and create **international network of marketing and product development expertise** with the help of international designers and trend-setters. So far, 6 reverse buyers sellers meet have been organized successfully across the state.

Learnings for Haryana

The case studies presented in the section above highlight as to how other state governments have anchored ecosystem level interventions for developing MSMEs in terms of regulations, infrastructure, markets, finance and entrepreneurship. These pan-ecosystem initiatives and responses can be useful learnings for Haryana state Government in promoting MSME ecosystem transformation in the state. The recommendations based on these leading practices have been documented below and can be categorized into the following 5 areas:

Conducive “pro-MSME” regulatory framework

At present, the state has sizeable presence of sick units, with approx. 15, 900 identified sick industrial units that are yet to get the required help from the government. Since this industrial sickness can be a major deterrent for Haryana’s industrial growth, the state Government can prioritize sick unit revival, as the most pressing lever for intervention from the standpoint of regulatory enablement. This can be a short term intervention by the state government.

The state government’s sick unit revival approach can be designed in the form a **holistic scheme which is cross cutting across major gap areas such as flow of institutional finance, non-productive asset management. The scheme should provide incentives based support for technology upgradation, skilled manpower availability, better managerial know-how and enabling market access for the potentially viable units.** The proposed schematic framework for sick unit revival must delineate a **strong identification mechanism for sick units** with district-wise information on aspects like debt and date of closure of each sick unit. The schematic framework will have larger focus on rehabilitation effort of the sick units identified in terms of **early detection of signs of incipient sickness, adequate and intensive relief measures and their speedy application rather than giving a long span of time to the units for rehabilitation.** The scheme can also lay roadmap for units which are not capable of

revival through bank offered settlement and/or resorting to other recovery measures expeditiously.

In preparation of schematic framework and undertaking **surveys at the district level for sick unit identification**, the state government can leverage services of professional consultants, sector experts/organizations and specialist survey organizations.

For an effective implementation and long term support, the Industries Department may also create a dedicated **sick unit revival cell** (2-3 dedicated members/staff with mandatory participation of bankers/ex-bankers) dealing exclusively with sick unit revival cases. One of the important functions of the cell can be working on recommendations of the financial institutions for sanction of rehabilitation/revival package. In addition, the schematic framework must identify an implementation framework and functionaries such as State Level Rehabilitation Committee (mid-level) and a rehabilitation board (highest-level), on lines of Andhra Pradesh's Scheme for Revival of Small Scale Industries, 2006.

In the medium-long term, the state Government can retune its labour and industry related regulations and make it enabling by reducing the burden of labour compliance for industries. This can be done on the lines of Rajasthan's Amendments in Labour Laws, 2014. Any proposed amendments can be incorporated by taking into account recommendations from expert committees, High Court judgments, environment acts and rules and also various International Labour Conventions.

Reference Leading Practice:

Scheme for Revival of Small Scale Industries (APSSSIRRS), 2006, Andhra Pradesh

Entrepreneurship Development

The Haryana Government has taken reassuring steps in assisting and guiding entrepreneurs in obtaining industrial approvals and clearances and thereby creating an enabling environment for creating an enabling environment for doing business. But for sustaining the culture and leapfrogging to the ranks of industrially advanced states with robust MSMEs, a competent pool of entrepreneurs need to be created within Haryana. Towards this, the Haryana State Government can anchor **end-end entrepreneurial ecosystem and start-up infrastructure across selected industrial hubs like Gurugram, Faridabad, Karnal** on the lines of T-Hub (Telangana) with **world-class incubation space, seed funding, mentorship and international exposure**.

The state government can **forge PPP partnerships with the leading managerial and engineering institutes of the state such as MDI, IIM Rohtak, NIT Kurukshetra, Ashoka University and key private sector leaders.** The incubation ecosystem can bring together entrepreneurs, incubators, accelerators, mentors, academia and big-ticket global and national investors. The state Government can also facilitate the creation of **centers of excellence for incubation and entrepreneurship development with high sectoral focus** (around Haryana's major focus sectors) for proposed entrepreneurship hub of the state.

To provide a long-term institutional support for entrepreneurship development, the state Government can introduce **dedicated policy for innovation and start-up** with globally benchmarked social infrastructure for promoting start-ups and dedicated incubation support through **incubation and entrepreneurship development fund.**

Reference Leading Practice:

T-Hub (Telangana)

Access to Infrastructure

For leveraging agglomeration benefits, each district of Haryana can function as a spoke to the key regional economic hubs (possibly Gurugram-Faridabad, Panchkula-Ambala, and Sonapat-Panipat) based upon its competitive advantage. Given that each district has unique economic strength, both the regional hubs and district spokes can play an instrumental role in attracting significant amount of investments, creating huge employment opportunities and developing export potential.

In order to promote this **hub-spoke economic growth** and securing orderly establishment & organization of industries in industrial estates/areas, the state Government through its nodal agency for infrastructure development, **HSI IDC**, needs to provide an **end-end investment facilitation support and infrastructure development across the project life-cycle**, on lines of GIDB, right from project identification , conceptualization to project bidding and contract management. The HSI IDC also needs to strengthen the **PPP route for big-ticket infrastructure investments in the state**, as these are likely to have a positive spill over on the MSMEs.

In addition, there is also a need to streamline and strengthen the information access for the potential and existing investors in the state, as regards infrastructure development. For this, HSI IDC can create detailed information repository on infrastructure colocation for industrial parks/hubs colocation (i.e. support network infrastructure) disseminated through its website.

Presently, the website provides only baseline information on infrastructure development in terms of estate management, financial services, legal and social activities with no information on project shelf, infrastructure availability, demand-supply forecasting (resources) for industrial estates/areas in the state. Therefore on lines of GIDB, the HSIIDC can create **detailed infrastructure related information repository for its major industrial estates/areas and clusters with end-end portfolio (for districts, key industrial agglomerations and projects)** containing **macro-level information (economic profile, demand-supply scenario, infrastructure availability)** and **micro-level details (feasibility studies, value chain analysis)** along with up-to date project shelf for major focus sectors.

Reference Leading Practice:

Gujarat Infrastructure Development Board (GIDB), Government of Gujarat

Enabling Access to Finance

The Haryana state government can set up **venture capital fund** for financing full array of business start-up and growth initiatives, programs to support innovation, venture investment support, entrepreneurship, collaboration and commercialization. The fund seeded by the State Government can be targeted towards promoting innovative initiatives focusing on inclusive growth for MSMEs. This can play a crucial role in creating conducive entrepreneurial culture in the State.

Additionally, for supporting focus sectors of Haryana, this venture capital fund can have separate earmarked components for the focus sectors such as **textile venture capital fund, agro-processing venture capital fund** etc. The fund can be controlled by the state finance corporation (e.g.: Haryana Venture Capital Limited as SPV) and its standard structure can be designed on the lines of Gujarat Venture Finance Limited (GVFL).

For creating and scaling up the fund, the state government can collaborate/invite participation from financial institutions such as SIDBI, Government agencies, such as Infrastructure/Industrial Development Corporations, by way of subscribing to equity to special purpose vehicle or by providing special grants.

The venture capital fund is expected to:

- ▶ **Inject long term equity finance** providing solid capital base for future growth.

- ▶ The venture capitalist as a **business partner can share both the risks and rewards with the MSMEs**. This can be extremely critical for some of MSMEs in the most traditional sectors such as dairy, agro-processing etc.
- ▶ Provide **practical advice and assistance** to the company based on past experience with other companies in similar situations.
- ▶ Extend **network of contacts** in many areas that can add value to the company, such as recruiting key personnel, providing contacts in international markets, introductions to strategic partners, and co-investments with other venture capital firms when additional rounds of financing are required.

Reference leading practices:

- ▶ Gujarat Venture Finance Limited (GVFL)
- ▶ Kerala Venture Capital Fund Pvt. Ltd.
- ▶ Punjab Infotech Venture Fund
- ▶ Hyderabad Information Technology Venture Enterprises Limited (HITVEL)

Enabling Access to Markets

The Haryana state Government can adopt a **vendor oriented market development strategy** for MSMEs. The government, on lines of MPLUN, can create anchor-vendor platforms, connecting the MSME units to national and international markets with export oriented units of Haryana and create international network of marketing and product development expertise. Some of the state government promoted initiatives (through the Department of Industries and Commerce) can be **focus sector vendor development programs (VDP) and Reverse Buyer seller meet (RBSM)**.

In addition to this, value chain strengthening for vendor MSMEs is a critical requirement and bolstering market competitiveness and integration, both nationally and globally. However there is an absence of value chain analysis across focus sectors at an institutional level. Therefore as a one of its kind initiative, the state Government can set up a dedicated **value chain analysis & strengthening cell** (technical wing) within the Department of Industries and Commerce providing a clear roadmap for productivity enhancement over the long-term. The roadmap will include sector-specific programmes/reforms at a pan-industry level and mechanisms and institutionalizing value-chain mapping, as a practice, across industries. Also specific programmes for increasing the value-addition in each sector through diagnostic studies.

Reference leading practices:

Vendor Development Program, Madhya Pradesh Laghu Udyog Nigam, Government of MP.

5.14 Industry Associations as Facilitator of Social Capital

The Below Table (Table 10) discusses the complex interplay of interactions that ought to be considered with regard to the Government of Haryana and Industry Associations in the State.

Table 10: Interventions for GoH and Industry Associations

Leading Practices for Haryana	
<i>Recommended Interventions for GoH</i>	<i>Recommended Interventions for Industry Associations</i>
<ul style="list-style-type: none"> ▶ Dedicated Scheme for Industry Associations for to enable their Infrastructure Upgradation with special provisions/incentives for SPV's. ▶ Introduce a scheme for Awards to Industry Associations of Haryana who have undertaken some developmental work. ▶ Preferential/free of cost land allotment to leading state associations to set up office/premises and other infrastructure. ▶ Capacity building of industry associations through training/workshops in collaboration with NI-MSME, Hyderabad. 	<ul style="list-style-type: none"> ▶ Facilitate business partnerships with the critical cluster actors. ▶ Financial cushion/fund for infrastructure creation and technology interventions at pan-cluster level by addressing venture capital crunch. ▶ Common procurement of raw material at cluster level by aggregating demand for material/services from the member units ▶ Facilitate formation of trade-specific consortiums, common branding and marketing platforms at the cluster level. ▶ Democratic governing structure of associations with technical expertise. ▶ Set up a secretariat for effective functioning of the association.

In India, micro and small sized enterprises are characterized by fragmented nature of operations besides the sheer magnitude in terms of numbers. With an absence of institutional aggregators, the realization of scale economies in resource-use becomes challenging in addition to only a smattering interface with latest technology, infrastructure and innovations. It is therefore by the mobilization of rich social capital that critical infrastructure gets created at the cluster level which can be accessed by a large number of units (traditionally small in both scale and scope).

Social capital is an economic idea referring to **connections between individuals and entities that create economic value** through mutual trust, relationship and common interests.

Infrastructure creation through social capital not only helps address the problem of economies of scale but also harness the region's competitive strength by building capacities to generate the critical mass needed to compete effectively in global value chains and high growth markets. This way, industry associations can help create a new competitiveness framework for long-term investment and joint working between enterprises and the local/national institutions.

The essence of social capital lies in 'trust building' among the stakeholders. By building 'early trust' based on prior relationships via industry associations, the success of cluster development activities can be realized.

In India, there are several leading examples of industry association's pivotal role in fostering a culture of competitive collaboration towards common infrastructure both, at the cluster as well as for the region as a whole. Therefore, capturing the leading association practices as regards social capital formation and subsequent ecosystem strengthening is the theme of this chapter.

Context and Challenges

The MSMEs in India are heterogeneous (in terms of the size of the Enterprises, variety of products and services produced and the levels of technology employed) and fragmented despite being geographically concentrated (clustered). They also lack presence of effective aggregators (industry associations, business chambers) who can otherwise play a critical role in accumulating the need and demand of individual units and mobilize resources for creating institutional mechanisms for their capacity development.

An example of fragmentation is evident in Haryana which, despite a significant footprint of auto and automobile manufacturing in districts like Gurugram and Faridabad, has most of the MSEs falling into the tier II supplier or below category and mostly operating in the unorganized sector (catering to parent foreign and/or domestic large auto anchor units). Similar is the case with MSMEs in other sectors and Indian states.

Unless aggregated by a third party, MSMEs are unable to come together and pool collective demand for raw material (through raw material banks), technology, infrastructure and business development services at subsidized prices. As a result, the negotiation powers remain poor which limit the pricing power and devoid the entrepreneur of huge potential cost savings. In the absence of social capital creation, attaining economic competitiveness by units in clusters/agglomerations remains to be a long-shot.

Key Solutions

By tapping the quintessential social capital which is defined as the “connections among individuals -social networks and the norms of reciprocity and trustworthiness that arise from them” (Putnam 2000, 19); resources can be mobilized and shared demand be created (Refer Figure 33). Through sustainable linkages between MSMEs, the larger scale business partners and support institutions; common infrastructure can be created. A leading example for this is the SPV in Coimbatore cluster (COINDIA) which by tapping the network of cluster actors was able to attract funding for not only development of CFC but also expand the CFC from just for pumping industries to engineering and foundry industries as well.

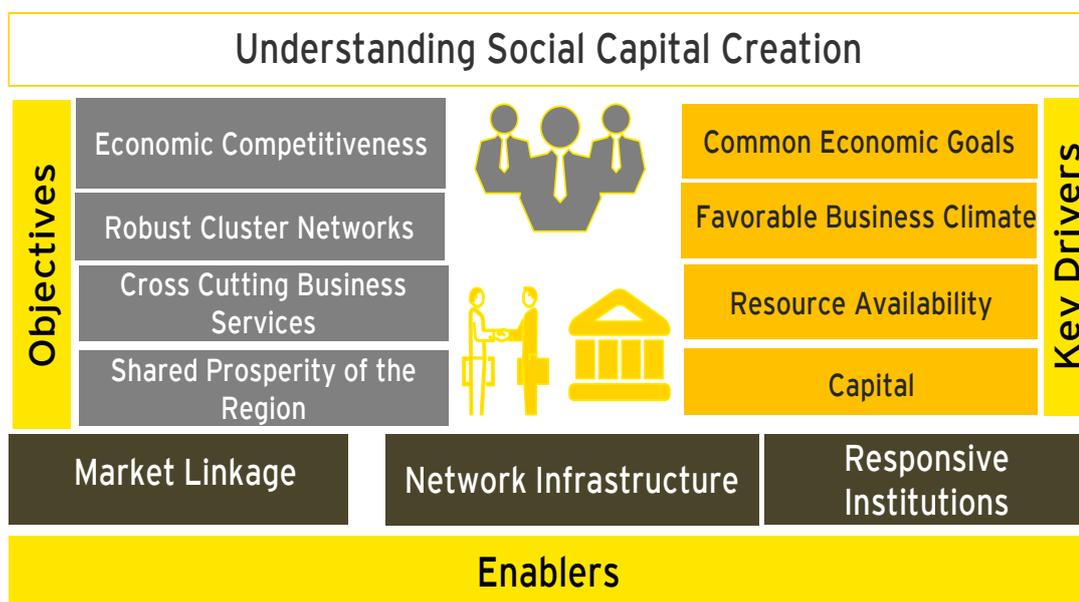


Figure 33 Social Capital Creation: Objectives, Drivers and Enablers

Working towards an economic goal, networks can be established between firms, both within the cluster as well existing outside of the cluster. Such networks can be horizontal and vertical.

- ▶ **Horizontal networks** are built between firms that compete for the same market.

- ▶ **Vertical networks** are alliances between firms belonging to different levels of the same value chain, such as a buyer assisting its suppliers for upgrading.

Industry associations are well suited for establishing such networks amongst key cluster actors such as related institutions, stakeholders, governance machinery, banks and particularly people and communities. Through effective aggregation and successful alliance creation with institutions and private sector, industry associations can facilitate provision of critical infrastructure and services to smaller units at competitive costs. This can directly benefit them by bringing down the costs (production cost and operation costs) and result in higher profits.

If channeled appropriately through industry associations, local networks can provide financial support to anchor the growth of the particular industry of the region and also improve the economic situation of regions which have insufficient economic structures to start with.

5.15 Leading Practices by Industry Associations

5.15.1 Creation of Networks by Tirupur Exporters Association

One of the leading examples of an industry association's catalyzing the economic growth of the cluster and perhaps the entire region is the Tirupur Exporter Association's (TEA) intervention in the Tirupur Knitwear Cluster (Tirupur, Tamil Nadu). TEA was successful in mobilizing cluster entrepreneurs to foray into exports in order to tap the favorable export headwinds which were prevailing for the region and encourage the individual units to establish forward and backward linkages simultaneously to cut down the cost.

Through strong 'gounder' community ties, an enterprising DNA spearheaded by common vision and collective bargaining, TEA has successfully raised resources from its members to create critical infrastructure and a robust business development ecosystem in the Tirupur Knitwear Cluster.

With the motto of **"Yesterday's Labor Today's Owner"**, the Tirupur Knitwear Cluster has provided the strongest evidence of how small enterprise can scale up as a thriving large business. The vital ingredient of the success of this cluster has been the proactive interventions by TEA spearheaded by the astute enterprising acumen of the knitwear cluster members. Through its interventions, TEA has successfully changed the cluster landscape of Tirupur and elevated the status of Tirupur from an obscure village to a leading producer in the global knitwear market.

An essential part of the strategy was resource mobilization for purchase of land parcels in and around Tirupur solely through funds and donations made by the more established association members. The interventions such as Knitwear Industrial Complex, NIFT-TEA Knitwear Fashion Institute, TEAKTEX were completely supported by TEA members in the initial stages. However at a later stage, effective collaborations with state government agencies as well as private players were forged which bore testimony TEA's efforts in mobilizing cluster actors for creating common critical infrastructure. Further, realizing the necessity of environmental compliance by the cluster in 2012 and in the wake of a potential ban on polluting units, TEA was able to quickly mobilize resources from its members to support the creation of effluent treatment plants-ETPs (18 CETPs and 75 IETPs), in addition to the government funding. Also in order to address the issue of water scarcity, TEA set up TIDCO with participation from exporters and dyers and raised Rs. 10 cr which were then channeled towards the creation of New Tirupur Area Development Corporation Limited (NTADCL). NTADCL was established under the PPP model and Rs. 1200 cr were raised for

creation of water supply infrastructure which enabled uninterrupted water supply at every industries' door step.

More recently, Tirupur cluster is all set to become a one of its kind cluster in India to adopt zero discharge (ZLD) technology in its ETPs. The leadership at TEA is also actively involved in political networking at the highest levels towards dedicated policy focus for the Knitwear Industry in India. TEA has also created a common brand called "*Vibrant Tirupur*", a one of its kind initiative in the country for branding the entire cluster as one entity and creating a strong market identity for Tirupur' s knitwear industry. Under the common brand of Vibrant Tirupur, TEA has conceptualized Tirupur Vision 2020 to elevate the status of Tirupur as the Knitwear Capital of India with the ultimate objective of reaching Rs. 1000 cr worth of exports from the cluster, creation of a multi-skilled talent pool and introducing innovative competitiveness enhancing manufacturing practices.

5.15.2 Critical Common Infrastructure Creation by SIEMA

Southern India Engineering Manufacturers' Association (SIEMA) in Coimbatore is a similar success story. This industry association, through collaboration amongst the individual entrepreneurs has led to the creation of social capital and physical infrastructure (tool room, testing center, skill development center) in order to advance the growth of the engineering industry in Coimbatore, particularly pump, motor and foundry industries

5.15.3 Coimbatore Industrial Infrastructure Association (COINDIA)

Promoted by SIEMA as an SPV, **Coimbatore Industrial Infrastructure Association (COINDIA)** was funded by Government of India, Government of Tamil Nadu and the progressive industrialists of Tamil Nadu. As in case of the Tirupur Knitwear Cluster, COINDIA facilitated infrastructure creation through mobilization of resources for purchase of land parcels in Coimbatore and adjoining areas through margin money support from visionary member industrialists. The unique selling proposition of COINDIA'S collaborative approach has been an exclusive focus on addressing the technology and infrastructure related concerns of the pump, motor and foundry units and a spontaneous and credible participation from the front line industrialists of the region. The industry association has also remained at the forefront of hard infrastructure creation through tapping government funding through schemes such as IIUS Scheme 2003 (Modern Tool Room, Rapid Product Development Center) and donor agency support from UNIDO (Energy

Management Cell under GEF-UNIDO BEE Project). COINDIA has successfully forged big ticket business partnerships within the region, taking active support from a large engineering company of Coimbatore to create a raw material bank for Pig Iron. This is expected to benefit micro and small foundries to reap the advantage of volume business in procurement. Overall, COINDIA has been able to facilitate the creation of common physical infrastructure which is operational at 8 locations in and around Coimbatore.

5.15.4 COSMAFAN Marketing Society

An industry association exclusively for small foundries in Coimbatore, **COSMAFAN Marketing Society**, with support from COINDIA has been successful in facilitating the relocation of polluting foundry units outside the city limits, successfully convincing 150 members (out of the total 300) to pool in money for purchasing the first land parcel. As one of its kind gated community for foundries, this dedicated foundry complex has been spread across 3 locations in Coimbatore. The association has been working actively towards expansion of the common foundry infrastructure in the region by availing support under government schemes such as MSE-CDP. The association has plans to set up sand reclamation plant and common melting system for distributing liquid iron to individual units, a first of its kind for foundries in the region.

5.15.5 Coimbatore District Small Industries Association (CODISSIA)

Another leading example of common infrastructure creation by industry association is that of **Coimbatore District Small Industries Association (CODISSIA)**. With an objective of making Coimbatore as the Hannover of India, CODISSIA facilitated the creation of a mega trade complex with a capacity of around 50,000 exhibitors. As one of the biggest in Asia, CODISSIA trade fair complex provided a much needed market infrastructure boost for conducting exhibitions, trade fairs and buyer seller meets.

Overall, it can be stated that the Industry Associations in Coimbatore and Tirupur offer horizontally replicable practices for social capital and common infrastructure creation towards making Haryana's industrial agglomerations competitive.

5.15.6 Common Infrastructure Creation at Industrial Estate by VATVA Industry Association

For creating common infrastructure at GIDC Vatva industrial estate, Vatva industry association (VIA), an association formed by industries located in GIDC Vatva, has signed a MoU with Ahmedabad Municipal Corporation (in 2005) for re-claiming 75% of property tax collected from GIDC Vatva. **This 75% property tax shall be transferred to VEL (SPV created as part of the MoU) for upgrading the infrastructure at GIDC-Vatva.** This is a one of its kind initiative by an industry association in raising finance for developing infrastructure at industrial estates.

For the same, VEL has opened separate bank account as per term lenders stipulation with a scheduled bank.

The VEL has been actively engaged in infrastructure development works of the following types:

1. Resurfacing of existing roads and construction of new roads
2. Construction of storm water drain
3. Domestic sewage
4. Street light
5. Water supply upgradation
6. Plantation for creating a green belt

5.15.7 Cluster Level Technology Interventions by Mohali Industries Association (MIA)

Founded in 1973, as one of the leading industry associations of northern India, MIA has been exemplary in effecting technology interventions in Mohali's engineering industry through clustering. At the time of its formation, MIA brought together 70 industrialists as members including vendors to make voluntary donations for sponsoring infrastructure creation and technology interventions in the cluster. The MIA successfully conducted multiple collective actions at the cluster level towards adoption of advanced technology for light weight and precision engineering. One such attempt was conducting a comparative study by performed by Mohali Hi-Tech Metal Cluster, a SPV promoted under the banner of MIA for improving the energy efficiency of bathroom fittings units of Mohali on Induction vs Oil Furnace for which the expenditure of approx. Rs. 20 lacs was completely borne by the SPV and further creation of joint demand and cost negotiation resulting in a large scale adoption of induction furnace within the cluster units (28 in all) at a competitive price of Rs. 3.5 lacs, half the market price. Again out of the SPVs funds (and with some contribution by the frontline members of MIA), the SPV imported state of the art Special Purpose Machines (SPM) from China at competitive prices for its members.

The MIA through it's SPV has been at the forefront of adopting best manufacturing practices such as energy efficiency and lean manufacturing. In 2000, a group of 19-20 members collectively financed the pan-cluster energy efficiency project. Later lean manufacturing scheme was implemented in the cluster for which an upfront contribution was made by 9 members (majority of which was made by the then association President himself).

In addition to technology interventions, more recently MIA has made significant progress in creating hard infrastructure leveraging schemes such as the MSE-CDP which has resulted in a Common Facilities Center (CFC) for the Bath Fitting Cluster at Mohali.

As an example of social capital creation, MIA has made persistent efforts in strengthening the critical cluster mass at Mohali by forging collaborations with the State Government and SIDBI (Credit Facilitation Cell and CNC Vocational Training Center). Another skill development center- PM Kaushal Kendra Center is also being implemented in collaboration with the National Skills Development Corporation of India.

5.15.8 Strengthening of Business Development Services Ecosystem by IamSME of India, Faridabad

Integrated Association of Micro Small & Medium Enterprises of India (IAMSME of India) in Faridabad is a leading example of industry association's role in tapping business networks for mobilizing and aggregating demand for services from the members with similar lines of business. The strategy of the association is to leverage the power of collective bargaining and provide MSMEs upto 30 % savings in raw material when they place order for raw materials through the association. The association consolidates the material requirements from all its members and then negotiates a price as a combined entity on behalf of the members.

By giving rise to external scale economies, IamSME of India has led to creation of a robust business development ecosystem in Faridabad's industrial sector space with emergence of specialized technical, administrative and financial services for Faridabad's industrial units.

I am SME of India has distinguished itself by providing a gamut services around credit facilitation, technology transfer, IT enablement, skill development, energy efficiency, mentoring & advisory services, lean manufacturing, international exhibitions & trainings, cluster development, etc. to its members at highly subsidized prices. As a specific example, for enabling access to finance, the company has created Credit Facilitation Centre, opening a line-of-credit for fixed assets. The cell also provides collateral-free special finance scheme for the members for solar rooftops and has aggregated raw material demand from MSEs towards lower raw material costs (average 30%). As on date, close to 100 individual MSEs have made solar installations with an average offtake of 2.8 lakh per unit.

In a nut-shell, the role of these leading industry associations in India for creation of social capital has been summarized and depicted in the diagram below (*Refer Figure 34*):

Learnings for Haryana MSMEs

Based upon the studies presented, leading practices for horizontal replication by Industry associations in Haryana can be categorized into the following two areas:

Direct Interventions by the Industry Associations with an Indirect Role of the State Government:

- ▶ The industry associations in Haryana need to push the pedal in forging business partnerships with the state government agencies, donor agencies like World Bank, GEF and front line industrialists of the respective regions in creating common physical

infrastructure and introducing environment friendly practices in the respective clusters; energy efficiency for instance.



Figure 34: Role of Industry Associations in Mobilizing Social capital

The detailed working (features, achievements) and the leading practices followed by the above-mentioned industry associations have been annexed.

- ▶ The associations also need to create enough capital reserve of its own to effect interventions at the cluster level and channel funds for land procurement. This will aid the respective cluster to easily and effectively tap funding under the various GoI and GoH schemes like MSE-CDP, IIUS (GoI), Mini-Cluster Development Scheme (GoH) and Scheme for CETP (GoH).

Reference Leading Practice:

- ▶ TEA and SIEMA- Business partnerships with key stakeholders- Government, Private Sector, Donor Agencies
- ▶ Aggregating raw material/services demand at the cluster level and creating the requisite infrastructure for creation of raw material banks. The associations across the state can consolidate the material requirements from all members (in the respective clusters) and negotiate a competitive price as a combined entity on behalf of the members. This way the industrial units in Haryana can gradually leapfrog towards competitiveness by availing gamut of services, both high end and low end and across the value chain at competitive prices through external scale economies.

Reference Leading Practice:

- ▶ COINDIA and COSMAFAN-Raw Material Banks
- ▶ SIEMA, I am SME of India- Subsidized Business Development Services
- ▶ Well defined democratic governing structures of industry associations with management committee as the approving body, 2-3 year mandatory rotation of senior leadership, office bearers and creation of sub-committees (such as finance, legal, technical) to execute project implementation. The sub-committees should have the requisite technical representation of subject experts in each specific area and industry leaders. This will help provide strategic direction to overall mandate for increasing competitiveness at the unit level by providing access to technical expertise/know-how which otherwise may not be available to smaller units.
- ▶ The industry associations also need to create a dedicated office/premise for the industry association and ensure conducting meetings/interactions amongst the members at the weekly or fortnightly basis. There is also a need to streamline the business process operations of the association.

Reference Leading Practice:

- ▶ COINDIA, SIEMA and TEA-Democratic Governance/Management

Common branding and marketing at the cluster-level by the respective/nodal industry association to enhance of the market potential of the cluster products. For example on the lines of Vibrant Tirupur, Haryana's industry associations can come up with cluster branding like Progressive Panipat (Textile Cluster, Panipat) or Make in Faridabad (Auto-Component Cluster, Faridabad). The associations in Haryana must also work towards forming effective consortiums to create market and trade-related infrastructure and complexes in the advanced clusters in Haryana.

Reference Leading Practice:

- ▶ Tirupur Exporter Association for common branding-Vibrant Tirupur
- ▶ CODISSIA- Trade Fair Complex

Direct Interventions by the State Government:

As implementation functionaries, industry associations play a key role in implementing government programs/schemes (Refer

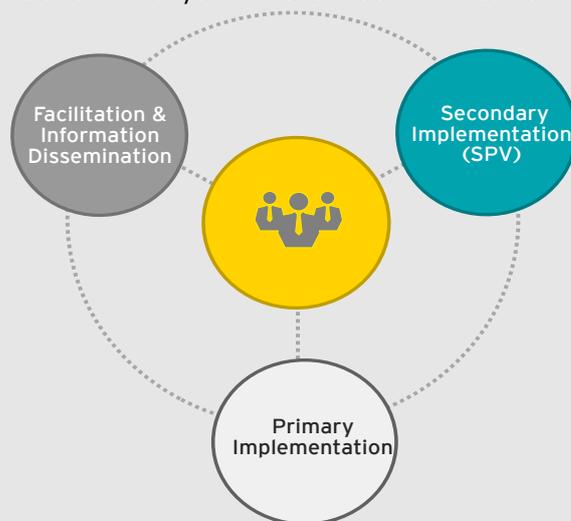


Figure 35: Role of industry associations in implementing gov. programs/schemes

Figure 35). However, there remain challenges in the effectiveness of scheme implementation with low level of participation, time overruns in execution of the projects undertaken and a wide gap between sanctions (approvals) and disbursements (actual release of funds). One of the reasons for this implementation gap is related to the capacity and capability of industry associations in executing schemes.

A majority of the schemes under the Central and the State Government today, envisage a key role of associations for its implementation. In Haryana, more recently with schemes such as Mini Cluster Development, the need for building the capacities of industry associations as collaborators is highly warranted.

Some of the interventions to be taken up by the State Government for promoting industry associations in the state are:

- ▶ Dedicated **Scheme for MSME Industry Associations of Haryana for Upgradation of Infrastructure** (on lines of Scheme for capacity building, strengthening of database and advocacy by Industry/Enterprise Associations-DC-MSME) with financial incentives for leadership development, soft skills, training for staff functions/ project management and vision building.
 1. The scheme can also provide for technical capacity building of industry association members through financial support for term modular programs/ academic courses and e-learning platforms.
 2. The scheme makes specific provisions for the special purpose vehicles (SPVs) formed for scheme implementation.
- ▶ Dedicated **Scheme for Awards to Industry Associations** to reward the leading associations in the state and incentivize further adoption of proactive initiatives by them through financial award. Some of the parameters for identifying the leading associations can be sustainable development (in terms of adoption of environment friendly technologies, energy efficiency), infrastructure creation, GoI and GoH schemes/program implementation.
- ▶ In order to provide the essential physical infrastructure to the industry associations, **HSI IDC can offer preferential/free of cost land allotment** to few leading associations of the state to enable them to set up their own offices/premises.

The state Government can also facilitate knowledge dissemination and technical training for industry associations of the state by sponsoring and offering financial support for attending training programs at National Institute for Micro, Small and medium Enterprises (NIMSME).

More details on best practices by Industry Associations can be seen in Annexure 10.1

Chapter 6

Incentive Benchmarking for SC/ STs & Women Entrepreneurs: Key Takeaways for Government of Haryana



6.1 SC/ST & Women Incentive Benchmarking - State wise comparison

One of the key indicators of any progressive society is the degree to which the needs of vulnerable sections within the society are addressed. India, being a diverse and a unique country requires specific attention to be paid to vulnerable categories of the population in every endeavour.

MSMEs are an important and a critical instrument of India's Economic development agenda and are considered 'pro-poor' and inclusive.¹⁵ Yet there remains a number of gaps to be filled in order to enable the participation of vulnerable groups such as Scheduled Castes, Scheduled Tribes and Women Entrepreneurs.

Recent reports paint a dismal picture of the number of women entrepreneurs, founders and co-founders in the startup ecosystem as well. ¹⁶. Lesser opportunities and avenues for women to participate in the workforce and engage in entrepreneurial activities have been inferred from many such studies.

Some of the broad factors stymieing the participation and continued success of such vulnerable sections, especially SC/ST and women entrepreneurs, include the following;

- ▶ Difficulties in access to finance
 - ▶ Limited Social Capital
 - ▶ Resistance to accessing the markets
 - ▶ Lack of Knowledge and awareness of policies, support, technologies, market conditions, management
 - ▶ Non-availability of highly skilled labour
 - ▶ Lack of availability of early stage funding
 - ▶ Legacy models of collateral based lending by traditional financial institutions leading to entry barriers
 - ▶ Lack of adequate knowledge bases on contours of global capitalism
- Sticky Floor Phenomena**

In the following sections we discuss how various States in India are attempting to bridge existing gaps and create greater equitability.

¹⁵ Gender Issues in the MSME Sector in India, International Centre for Research on Women (ICRW), August 2014

¹⁶ NASSCOM, Mastercard Index of Women Entrepreneurs

6.2 SC/ST Benchmarking Exercise

- ▶ The Scheduled Caste (SC) population in the State of Haryana comprised 20.17% of the total population, and stood at 51,13,615 out of a total population of 2,53,51,462 in 2011.¹⁷
- ▶ The District of Fatehabad has the largest share of SC population (30.2%) followed by Sirsa (29.91%), Ambala (26.25%). The majority of the SC population in Haryana resides in rural areas (72.74%) and the remaining in urban areas (27.25%).¹⁷
- ▶ The percentage of Scheduled Caste population in the State has increased from 18.8% in 1971 to 20.17% in 2011.¹⁷
- ▶ With a view to benefit SC entrepreneurs in the State of Haryana, a benchmarking exercise was conducted by compiling leading industry practices aimed at supporting SC/ST entrepreneurs in select States, across the country.

6.3 SC/ ST Incentive Benchmarking Table

S No	Maharashtra	Telangana	Karnataka	Andhra Pradesh	Gujarat
6.3.1 Land and building related					
1.	<p>Land allotment: Allotment of 20% plots on priority basis to SC/ST entrepreneurs in MSME sector out of total plots available for allotment to MSMEs.</p> <p>Duty & Other Charges on purchasing of Land:</p>	<p>Land will be allotted to SC / ST Entrepreneurs in proportion to the SC/ST population in the State on lease basis for period of 10 Yrs with lease rent @ Rs 100/- per annum per acre</p> <p>Land allotment:</p>	<p>Land allotment: KIADB and KSSIDC will reserve 22.5% of the allottable land/shed for SC/ST entrepreneurs in all the future industrial areas/estates.</p> <p>On land conversion:</p>	<p>Land will be allotted on lease basis for period of 10 Yrs with lease rent @ Rs 100/- per annum per acre</p> <p>Land allotment: 33 1/3 rebate on the land cost (subject to Rs. 10 Lakhs) which is being</p>	<p>Assistance for plots developed by GIDC: Assistance @70% of the allotment price of GIDC.</p> <p>Assistance to GIDC for developing multi-storeyed shed in estates:</p>

¹⁷ Census 2011

S No	Maharashtra	Telangana	Karnataka	Andhra Pradesh	Gujarat
	<p>Rebate on cost of land at the rate of 30% (maximum Rs. 10 lakh) for MSMEs in MIDC areas AND in other areas @ of 20% (max up to Rs. 5 lakh) for MSMEs will be given from the budget of Social Justice & Special Assistance Department and Tribal Development Department</p>	<p>33 1/3 rebate on the land cost (subject to Rs. 10 Lakhs) which is being allowed to the SC/ST Entrepreneur</p> <p>On land conversion: 25% Land conversion charges for industrial use limited to Rs.10.00 Lakh for Micro, Small and Medium Enterprises only.</p> <p>Duty & Other Charges on purchasing of Land: 100% reimbursement of Stamp duty and transfer duty paid by the Enterprises on purchase of land/shed/building meant for industrial use.</p>	<p>Reimbursement of land conversion fee in the range of 75-100%</p> <p>Duty & Other Charges on purchasing of Land: NA</p> <p>Exemption from stamp duty</p>	<p>allowed to the SC/ST Entrepreneur</p> <p>Of the land reserved for MSME industries in its plots / industrial estates, APIIC shall allocate 15% of plots to Scheduled Caste Entrepreneurs, 5% of plots to Scheduled Tribe Entrepreneurs.</p> <p>GoAP shall provide 25% rebate in land cost limited to ₹10 lakh in Industrial Estates/ Parks.</p> <p>On land conversion: GoAP shall reimburse 25% of land conversion charges for industrial use limited to ₹10 lakh.</p>	<p>Assistance @70% of the allotment price of GIDC.</p> <p>Assistance for shed developed by private developers: Private developers (who will allot shed to SC/St entrepreneur) will be eligible for additional assistance upto 15% of total cost of land building and other infrastructure facilities</p> <p>Assistance in rent for rental premises P&M investment up to Rs.50 Lakhs: Assistance @ 65% of rent paid (max Rs 1 Lakh per annum)</p>

S No	Maharashtra	Telangana	Karnataka	Andhra Pradesh	Gujarat
		<p>100% reimbursement of Stamp duty for Lease of Land/Shed/ Buildings and also mortgages and hypothecations deeds.</p> <p>Assistance for rental premises</p> <p>The land will be allotted on lease basis for a period of 10 years with lease rent @ Rs. 100/- per annum per acre or part thereof.</p>		<p>Duty & Other Charges on purchasing of Land:</p> <p>100% of stamp duty for lease of land/shed/buildings, mortgages and hypothecations shall be reimbursed. 100% of stamp duty and transfer duty paid by the industry on purchase or lease of land meant for industrial use shall be reimbursed.</p>	<p>From Rs.50 lakhs - 2 Crs: Assistance @ 60% of rent paid (max Rs 1 Lakh per annum)</p> <p>From Rs.2 Crs - 10 Crs: Assistance @ 55% of rent paid (max Rs 1 Lakh per annum)</p>
6.3.2 Infrastructure development					
2.	NA	<p>Infrastructure facility will be provided at doorstep of industry for standalone units by contributing 50% of the cost of infrastructure from IIDF (ceiling Rs 1 Crore)</p>	NA	<p>50 % on infrastructure cost (limited to 1 crore or 15 % cost of the Fixed capital Investment.)</p>	<p>75% of cost of capital investment for infrastructure expenditure (water, gas etc) max upto 15 Lakhs</p>

S No	Maharashtra	Telangana	Karnataka	Andhra Pradesh	Gujarat
6.3.3 Concession on Power/ Electricity Tariff.					
3.	Power tariff subsidy to the tune of INR 2 per unit (units in Vidharbha, Marathwada and north Maharashtra etc) and INR 1 per unit for the units in other areas of the State for a period of 5 years from the date of production.	Fixed power cost reimbursement @ Rs. 1.50 per unit for a period of 5 years from the date of commencement of commercial production.	100% exemption of tax on electricity tariff for the initial period of seven years, six years, five years, four years, eight years and seven years in Zone 1, Zone 2, Zone 3, Zone 4, HKZone 1 & HKZone 2 respectively.	“Power for all” scheme to ensure 24x7 quality and reliable power across the State. Fixed power cost reimbursement is proposed to be provided at ₹1.00 per unit for 5 years from the date of commencement of commercial production.	P&M investment up to Rs.50 Lakhs: @ 60% of charges paid to distribution licenses (max 5 Lakhs) From Rs.50 lakhs - 2 Crs: @ 50% of charges paid to distribution licenses (max 5 Lakhs) From Rs.2 Crs - 10 Crs: @ 25% of charges paid to distribution licenses (max 5 Lakhs)
6.3.4 Interest Subsidy					
4.	The interest subsidy payable on the interest actually paid to the banks and public financial institutions on the	Interest subsidy on the term loan availed on the fixed capital investment by New Micro and Small Enterprises in excess of	Interest subsidy of 6% per annum on term loans.	Interest subsidy on the term loan taken for fixed capital investment by New Micro and Small Enterprises in excess of	Within Municipal Corporation area: 6% or Rs. 25 lakhs per annum for 5 years. Other areas:

S No	Maharashtra	Telangana	Karnataka	Andhra Pradesh	Gujarat
	<p>amount of term loans taken for acquisition of fixed assets.</p> <p>The amount of interest subsidy will be calculated at effective rate of interest, after deducting the interest subsidy receivable from any institution or under any Govt. of India scheme and the penal/compound interest or 5% per annum, whichever is less.</p>	<p>3% per annum subject to a maximum reimbursement of 9% per annum for a period of 5 years from the date of commencement of commercial production.</p>		<p>3% per annum subject to a maximum reimbursement of 9% per annum for a period of 5 years from the date of commencement of commercial production.</p>	<p>8% Rs.30 lakhs per annum 5 years.</p> <p>1% additional interest subsidy, if entrepreneur is <35 Yrs of age.</p> <p><i>Maximum rate of interest subsidy shall not exceed 7% in municipal corporation areas and 9% in other areas.</i></p>

S No	Maharashtra	Telangana	Karnataka	Andhra Pradesh	Gujarat
6.3.5 Capital Investment Subsidy					
5.	New units will be given capital subsidy in the range from 15% to 30% of Fixed Capital Investment within the limits of INR 15 lakhs to INR 30 lakhs in 5 equal instalment with effect from date of production	35% investment subsidy on fixed capital Investment (max limit per unit as Rs. 75.00 Lakhs). Additional 5% investment subsidy for units in Scheduled (max limit per unit as Rs.75.00 Lakhs). Additional 10% investment subsidy for SC Women and ST Women Entrepreneurs on fixed capital investment subject to a maximum of Rs. 10.00 lakhs to MSE's. (total investment subsidy	Capital investment subsidy for setting up of Effluent Treatment Plant @75% (max 50 Lakhs): Zone 1-3 @75% - 100% (max 100 Lakhs): Zone 1 & 2	15% investment subsidy on fixed capital investment subject to a maximum of ₹20 lakhs for micro and small enterprises	For Investment up to Rs.50 Lakhs in Plant and Machineries: @ 20% of term loan amount with the maximum Rs. 25 lakhs in Municipal Corporations area and @ 25% with the maximum Rs. 35 lakhs in other area. For Investment from Rs.50 lakhs - 2 Crs: @ 15 % of term loan amount with the maximum Rs.25 lakhs in Municipal Corporations area and @ 20% with the maximum Rs.35 lakhs in other area outside the municipal corporations' area. For Investment from Rs.2 Crs - 10 Crs: @ 10

S No	Maharashtra	Telangana	Karnataka	Andhra Pradesh	Gujarat
		limited to Rs.75.00 lakhs only)			% of loan amount maximum Rs. 25 lakhs in Municipal Corporations area and @ 15 % maximum amount of Rs.35 lakhs in other areas outside the municipal corporations.
6.3.6 Venture Capital Fund of Rs 200 Cr.					
6.	Venture capital fund of INR 200 crore for giving assistance to start up units. INR 50 crore will be provided as INR 33 crore by Social Justice & Special Assistance Department and INR 17 crore by the Tribal Development Department for creating a specific	Government will also create a fund of Rs. 200 crores from the SCP funds for direct lending to SC entrepreneurs and Rs. 100 crores from TSP funds for direct lending to ST entrepreneurs	NA	NA	NA

S No	Maharashtra	Telangana	Karnataka	Andhra Pradesh	Gujarat
	venture capital fund for SC/ST Entrepreneurs.				
6.3.7 Self-Employment					
7.	<p>Special scheme to be launched under which one entrepreneur from SC and one from ST in each.</p> <p>For effective implementation and success of employment promotion programme, beneficiaries will be provided handholding services at regular intervals after the loans are disbursed under schemes of GOI/GOM to beneficiary. MCED will conduct</p>	<p>The Seed capital assistance to First Generation Entrepreneurs to set-up Micro Enterprises, @20% of the Machinery cost will be paid and the same will be deducted from the eligible investment subsidy.</p>	NA	<p>Margin money assistance: Soft loan/ seed capital@20% of project cost limited to Rs 20 Lakhs and 5% of project cost shall be borne by the applicant.</p> <p>Seed capital assistance to First Generation Entrepreneurs to set-up Micro Enterprises @10% of the Machinery cost, which will be deducted from the eligible investment subsidy.</p> <p>Margin money scheme:</p>	<p>Assistance for special entrepreneurship training wit 360 degree approach @ 100% of course fee (Max 10,000 pm) payable to nodal institution.</p> <p>Reimbursement of course fee for contractor development programme (max 1 Lakhs Rs) per head.</p>

S No	Maharashtra	Telangana	Karnataka	Andhra Pradesh	Gujarat
	<p>Entrepreneurship Development Programme(EDP) . SC/ST entrepreneurs to market their products and undertake vendor development programme</p>			<p>Margin money loan repayable @3% pa subject to 20% of project cost (max 20 Lakhs) ; Reimbursement of course fee for professional certificate course sceme (max Rs 3 Lakhs) per head.</p>	
6.3.8 Assistance for entrepreneurship and incubation support					
8.	<p>For setting up an Incubation Centre for SC/ST entrepreneurs through SPV, MIDC will provide land to SPV for implementation of the project. The grant of INR 5 crore will be made available from the budget of Social Justice & Special Assistance Department and Tribal</p>		<p>MSME units established using recycling of electronic waste and plastic waste: Additional investment promotion subsidy of 5% with a ceiling limit of ! 15.00 lakh in zone 1,2,3 and HKZone 1&2 For incubation support: Reservation of space in Government funded incubation centres and</p>	<ul style="list-style-type: none"> • Exclusive entrepreneurship development programme and skill development programme scheme. • Capacity building programme for supply Diversity scheme • Free of cost training programme for Residential EDP (2 	<p>Assistance for mentorship support @100% of mentorship cost (maximum Rs 5000 pm per person) to be paid to mentors (max upto 3 month)</p>

S No	Maharashtra	Telangana	Karnataka	Andhra Pradesh	Gujarat
	Development Department.		skill development centres for SC/ST- MSME entrepreneurs.	Wks) and Skill development programme (2 months to 3 months) <ul style="list-style-type: none"> • Mentorship support by DICCI • Incentive for setting new industrial enterprises 	
6.3.9 Skill Development					
9.	Skill development scheme of State Govt will be implemented for the SC/ST beneficiaries that will help in knowledge upgradation and social upliftment of SC/ST beneficiaries. MCED in consultation with EDI, Ahmadabad and NSDC will design programme modules and organise residential	50% reimbursement of cost involved in skill upgradation and training the local manpower (max Rs 2000 per person)	NA	a. As outlined in the Industrial Policy 2015-20, GoAP shall create a model for development of skilled manpower and for improving employability in the State. Under this model, State will identify the quantum requirement of skilled manpower, identify industry specific skill sets required and	NA

S No	Maharashtra	Telangana	Karnataka	Andhra Pradesh	Gujarat
	Entrepreneurship Development programmes for duration of 1 month to 3 months. The grant of INR 5 crore will be given by Social Justice & Special Assistance Department and Tribal Development Department.			provide courses at different levels of education - matriculation and above. b. GoAP recognizes that MSME requires additional support for skill development. GoAP will reimburse 50% of the cost involved in skill upgradation and training the local manpower limited to ₹5000 per person for 10 persons in micro and 20 persons in small and medium industries.	
6.3.10 Quality Certification					
10.	NA	100% subsidy for quality certification/ patent registration limited to Rs 3 Lakhs for micro and small enterprises	Interest subsidy on technology upgradation loan (@5%), ISO certification: 75% of the cost,	75% subsidy on the expenses incurred for quality certification/patent registration limited to ₹5	Quality certification: Assistance for ERP, ICT and technology upgradation Technology Upgradation:

S No	Maharashtra	Telangana	Karnataka	Andhra Pradesh	Gujarat
		25% subsidy on specific cleaner production method	<p>BIS certification : 50% of fee</p> <p>Technology Adoption: 50% of fee</p> <p>Technology business incubation centre: 50% of cost</p>	<p>Lakhs for MSMEs.</p> <p>Trademark: 50% of the cost of the application for trade mark registration or ₹25,000, whichever is less</p>	<p>a). For Investment up to Rs. 50 lakhs in Plant and Machineries:</p> <p>ERP: @ 75% of the cost for establishing ERP (Max 1 Lakh)</p> <p>ICT: @ 75% (Max 5 Lakh)</p> <p>Technology: @ 75% of cost payable to the institution, (max Rs. 50 Lakh) for the acquisition of appropriate technology. Including royalty payment for first two years.</p> <p>P & M investment Rs.50 lakhs to Rs.2 Cr:</p> <p>ERP: @ 70% (Max 1 Lakh)</p> <p>ICT: @ 70% (Max 5 Lakh)</p> <p>Technology: @ 70% of cost payable to the institution, (max. Rs. 50 lakh) for technology from</p>

S No	Maharashtra	Telangana	Karnataka	Andhra Pradesh	Gujarat
					<p>recognised institution</p> <p>Royalty payment for first two years.</p> <p>P & M investment Rs. 2 Cr - 10 Cr:</p> <p>ERP: @ 50% (Max 1 Lakh)</p> <p>ICT: @ 50% (Max 5 Lakh)</p> <p>Technology: @ 50% of the cost payable to the institution, (max Rs. 50 lakh) for the acquisition of appropriate technology including royalty payment for first wo years.</p>
6.3.11 Other special assistance					
11.	<p>Cluster Development scheme:</p> <p>100% grants for the clusters where minimum 50% members are from SC/ST entrepreneurs for setting up critical infrastructure in the</p>	<p>Tax Exemption Small and micro enterprises:</p> <p>Reimbursement of 100% net VAT/CST or State Goods and Services Tax for a period of 5 Yrs</p>	NA	NA	<p>Assistance to MSME for raising Equity Capital through BSE/NSE : P & M investment up to Rs. 2 Crore : 30% of expenditure incurred on raising of fund through</p>

S No	Maharashtra	Telangana	Karnataka	Andhra Pradesh	Gujarat
	<p>Clusters approved under Central and State scheme. The grant in aid of INR 30 crore will be provided for infrastructure development in the clusters as INR 20 Crore from Social Justice & Special Assistance Department and INR 10 crore from Tribal Development Department.</p> <p>State Govt will promote 10 clusters for manufacturing industries under Maharashtra State Industrial Cluster Development programme (MSI-CDP). The maximum limit of grant in aid will be 90% of the project</p>	<p>Medium enterprises: Reimbursement of 75% net VAT/CST or State Goods and Services Tax for a period of 7 Yrs</p> <p>Large enterprises: Reimbursement of 50% net VAT/CST or State Goods and Services Tax for a period of 5 Yrs</p>			<p>SME Exchange maximum up to Rs.5.00 Lakhs</p> <p>P&M investment Rs. 2 - 10 Cr: 20% of expenditure incurred on raising of fund through SME Exchange maximum up to Rs.5.00 Lakhs.</p> <p>Assistance for participation in exhibition/ trade fair Assistance @70% for rent of stall or space, cost of literature and display material (max Rs 4 Lakhs)</p>

S No	Maharashtra	Telangana	Karnataka	Andhra Pradesh	Gujarat
	cost and the grant in aid of INR 30 crore will be provided from the budget of Social Justice & Special Assistance Department and Tribal Welfare Department.				

6.4 Incentives for Women Entrepreneurs-State Level Benchmarking Table

Women form an integral part of any progressive society. The manner in which the women of a society are cared for, reflects the trajectory of our development as a Nation. Despite being endowed with similar capabilities, and being a active part of the economic cycle, systematic bias as well as lack of an ecosystem to facilitate entrepreneurial spirit, stymies their progress and prevents them from realizing their true potential. With a relatively low sex ration of 877 (per 1000 males) and with a relatively lower literacy rate of 66% (as opposed to 85% for males), women are at a disadvantage. Specific provisions to ensure skill/ vocational training, enable entrepreneurship and development of women enterprises. According to a study conducted by Kurukshetra University (2013) many challenges faced by women entrepreneurs emerged ranging from **lack of start-up funding, reluctance of bank officials, discouragement from families/ officials/ other industry entrepreneurs, financial institutions etc.** Against this concerning backdrop it becomes imperative to see how other States are addressing their respective challenges in this regard, and how the State of Haryana can further customize its policies for women entrepreneurs.

Category of Incentive / Subsidy/ Provision	a. Tamil Nadu ¹⁸	b. Maharashtra ¹⁹	c. A Pradesh ²⁰	d. Karnataka ²¹	e. Telangana ²²
Women Industrial parks	<ul style="list-style-type: none"> Out of 70 Industrial Estates set up by SIDCO, 5 Industrial Estates are Women Industrial Parks (379.36 Acres in Total). Furthermore, administrative sanction has been granted for formation of "Centre of Excellence" in the 5 Women Industrial parks (comprising marketing center, common business center, common 	<p>Industrial Policy for Women Entrepreneurs:</p> <p>In order to boost and encourage women entrepreneurship the Maharashtra Cabinet has approved a standalone policy for Women Entrepreneurs.</p>	-Not Outlined in Policy-	<ul style="list-style-type: none"> Proposal to promote 2 industrial areas for women in Karnataka State. 	<ul style="list-style-type: none"> Each of the 9 districts of Telangana (excluding Hyderabad) to have 1 or more industrial parks exclusively for women.

¹⁸ MSME Department, Policy Note 2016-17, Government of Tamil Nadu

¹⁹ Maharashtra Government Announces Special Policy for Women Entrepreneurs, Indian Express, 2017, Accessed at <http://www.newindianexpress.com/nation/2017/dec/05/maharashtra-government-announces-special-policy-for-women-entrepreneurs-1719292.html>

²⁰ AP Industrial Development Policy 2015-20

²¹ Karnataka Industrial Policy 2014-19

²² Industrial Policy Framework for the State of Telangana

Category of Incentive / Subsidy/ Provision	a. Tamil Nadu ¹⁸	b. Maharashtra ¹⁹	c. A Pradesh ²⁰	d. Karnataka ²¹	e. Telangana ²²
	<p>conference hall, common training shed, administrative office block, bank, crèche, and dispensary).</p> <ul style="list-style-type: none"> To facilitate affordable housing for industrial work force SIPCOT has constructed 1 women dormitory (for 600 persons in Kancheepuram District) and 1 women dormitory in Tirppur Taluk/District. 				
Reservations of Plots/ Sheds	<ul style="list-style-type: none"> While 30% of saleable area of industrial estates is earmarked for micro enterprises, priority is given in 		-Not Outlined in Policy-	<ul style="list-style-type: none"> Reservation of 5% of plots/ sheds in the industrial areas/ estates developed by 	

Category of Incentive / Subsidy/ Provision	a. Tamil Nadu ¹⁸	b. Maharashtra ¹⁹	c. A Pradesh ²⁰	d. Karnataka ²¹	e. Telangana ²²
	allotment of developed plots to the extent of 30% for Women Entrepreneurs.			KSSIDC, KIADB for women entrepreneurs.	
Investment Subsidy	-Not Outlined in Policy-		<ul style="list-style-type: none"> ▪ 25% Investment Subsidy on fixed capital investment by women entrepreneurs with maximum limit of 30 lakhs. ▪ 45% investment subsidy on fixed capital investment for SC/ST and BC Women Entrepreneurs with maximum limit of 75 Lakhs. 	<ul style="list-style-type: none"> ▪ Micro Enterprises Range of 10-30% % value of fixed assets upto max. 12-22 Lakhs for SC/ST Women Entrepreneurs (Exact subsidy dependent on Zone). ▪ Small Enterprises: 10-30% value of fixed assets upto max range of 10-55 Lakhs for SC/ST Women Entrepreneurs (Exact subsidy dependent on Zone). ▪ Medium Enterprises 	

Category of Incentive / Subsidy/ Provision	a. Tamil Nadu ¹⁸	b. Maharashtra ¹⁹	c. A Pradesh ²⁰	d. Karnataka ²¹	e. Telangana ²²
				Range of 20-65 Lakhs for SC/ST Women Entrepreneurs (Exact subsidy dependent on Zone).	
Training programmes and Entrepreneurship Development	<ul style="list-style-type: none"> ▪ Women Entrepreneurship Development Cell has been established within the Entrepreneurship Development Institute (EDI) to guide women entrepreneurs to expand their technical skills, improve managerial capacity and infuse the spirit of entrepreneurship. ▪ Women Entrepreneurship Development Programmes 		-Not Outlined in Policy-	-Not Outlined in Policy-	<p>Organizations engaging with women entrepreneurs such as COWE, ALEAP and FICCI-FLO will be invited to partner with the Government to;</p> <ul style="list-style-type: none"> ○ Identify Women Entrepreneurs. ○ Train Women Entrepreneurs. ○ Develop Project Proposals on their behalf. ○ Link Women Entrepreneurs to Financial Institutions. ○ Handhold and monitor project progress.

Category of Incentive / Subsidy/ Provision	a. Tamil Nadu ¹⁸	b. Maharashtra ¹⁹	c. A Pradesh ²⁰	d. Karnataka ²¹	e. Telangana ²²
	(WEDP) to help women form their own enterprises and Women Entrepreneur cum Skill Development Programme (WESDP) to provide skills training in traditional and non-traditional activities.				
Seed Capital	-Not Outlined in Policy-	-Not Outlined in Policy-	▪ Seed capital assistance to First Generation Entrepreneurs @15% of the Machinery cost, which will be deducted from the eligible investment subsidy.	-Not Outlined in Policy-	-Not Outlined in Policy-
Other Incentives	-Not Outlined in Policy-	-Not Outlined in Policy-	-Not Outlined in Policy-	▪ Exclusive Cluster:	-Not Outlined in Policy-

Category of Incentive / Subsidy/ Provision	a. Tamil Nadu ¹⁸	b. Maharashtra ¹⁹	c. A Pradesh ²⁰	d. Karnataka ²¹	e. Telangana ²²
				<p>Exclusive cluster for women in textile, gem and jewellery.</p> <ul style="list-style-type: none"> ▪ Low Interest Start-up Loans with interest subsidy and flexible repayment for entrepreneurs trained by recognized training institutes ▪ Entrepreneurship Development Programmes exclusively for prospective women entrepreneurs ▪ Market Development Assistance (MDA) 	

Key Learnings for Haryana MSMEs-SC/ST & Women Entrepreneurs State Benchmarking

- ▶ **Holistic Development:** Besides earmarking specific industrial areas for Women, States such as Tamil Nadu have gone a step further and taken a holistic view of these initiatives. Therefore, besides the mere provision of industrial areas in the SIDCO Industrial parks, the Government has provided for Dormitories, dispensaries, crèches, banks, etc. These measures are aimed at creating a favourable ecosystem for women within the working environment and the State of Haryana can ensure that this 'holistic' approach is followed in the course of formulating policies aimed at women entrepreneurs. Telangana has also earmarked specific industrial areas for women entrepreneurs.
- ▶ **Enabling Ecosystem:** As mentioned earlier Mere provision of industrial areas/ plots/ land is not sufficient. An enabling ecosystem is absolutely essential for both SC/ST as well as women entrepreneurs
- ▶ **Focused Policy:** States like Maharashtra have a gone a step further and have already released a new and Standalone Policy aimed at Women Entrepreneurs and boosting their participation in the Economy. The State of Haryana can follow suit and come up with a standalone policy aimed at augmenting the number of women entrepreneurs in the State, as well as the enabling ecosystem required for them to make a meaningful impact on the economy
- ▶ **Boost Venture Capital/ Ecosystem:** The States of Maharashtra and Telangana have boosted the quantum and enhanced the availability of seed/ venture capital to SC/ST entrepreneurs. Studies in the State of Haryana have already pointed out that one of the major challenges faced by women was their lack of access to adequate start-up financing.
- ▶ **Publicity Campaigns:** The State of Haryana can ensure that any provisions/ interventions/ subsidies are popularized to the fullest extent through various channels. Besides this, creating vibrant engagement platforms where aspiring entrepreneurs can interact with other successful women entrepreneurs will go a long way in turning the tide. In Telangana organizations such as Confederation of Women Entrepreneurs (COWE), Association of Lady Entrepreneurs of India (ALEAP) are engaging meaningfully in this regard.

Chapter 7

Opportunities for Service-Sector MSMEs under GST Regime: Key Takeaways for Government of Haryana



7.1 GST and the Services Sector in India:

According to the Economic Survey of India 2017-18, the services sector has been a key driver in the Economic growth of the country. 72.5 % of the Gross Value Added (GVA) to the Indian economy was from the service sector in 2017-18. The various initiatives taken by the Government of India to boost the service sector includes radical reforms including digitization, e-visas, infrastructure status to logistics, start-up India, housing sector schemes etc.

The Goods and Service Tax (GST) Act was passed in the Parliament on 29th March 2017. The Act came into effect from 1st July 2017; Goods & Services Tax Law in India is a comprehensive, multi-stage, destination-based tax that is levied on every value addition. In simple words, Goods and Service Tax (GST) is an indirect tax levied on the production of goods and services. This law has replaced many indirect tax laws that previously existed in India. With the implementation of the GST regime, one single tax replaced seventeen taxes and multiple cesses imposed by the Central and the State Governments.

Due to the-destination based nature of the tax revenue hereafter, States will have to strategically focus their attention on sections of the economy that are likely to yield benefits within the State itself, with a view to increase their tax revenue. Haryana, being a predominantly manufacturing State (Automobiles, textiles, Footwear etc.) there is a possibility that due to the high demand (outside the State of Haryana) and high quality of these products, the revenues from the manufacture of these products may not be realized within the state of Haryana. There is a need to diversify and strengthen the economy of Haryana.

7.2 The Service Sector in Haryana:

Haryana has been engaging effectively in boosting the services sector in the State economy as will be outlined in this chapter. The service sector in Haryana has grown at a rate of 9.79% in the period between 2011-12 and 2017-18 (*Refer Figure 36*).

The service sector in Haryana was the largest contributor to the Gross State Value Added (GSVA) of Haryana with a contribution of 50.9% (2,15,245.06 Cr. as per advanced estimates) in 2017-18.

As can be seen from the statistics provided, the growth of the services sector has been significantly fast. It is also interesting to note that the service sector has remained

consistent/ stable over the years in terms of its growth and outlook. However greater potential of the service sector remains to be tapped, especially in the State of Haryana.

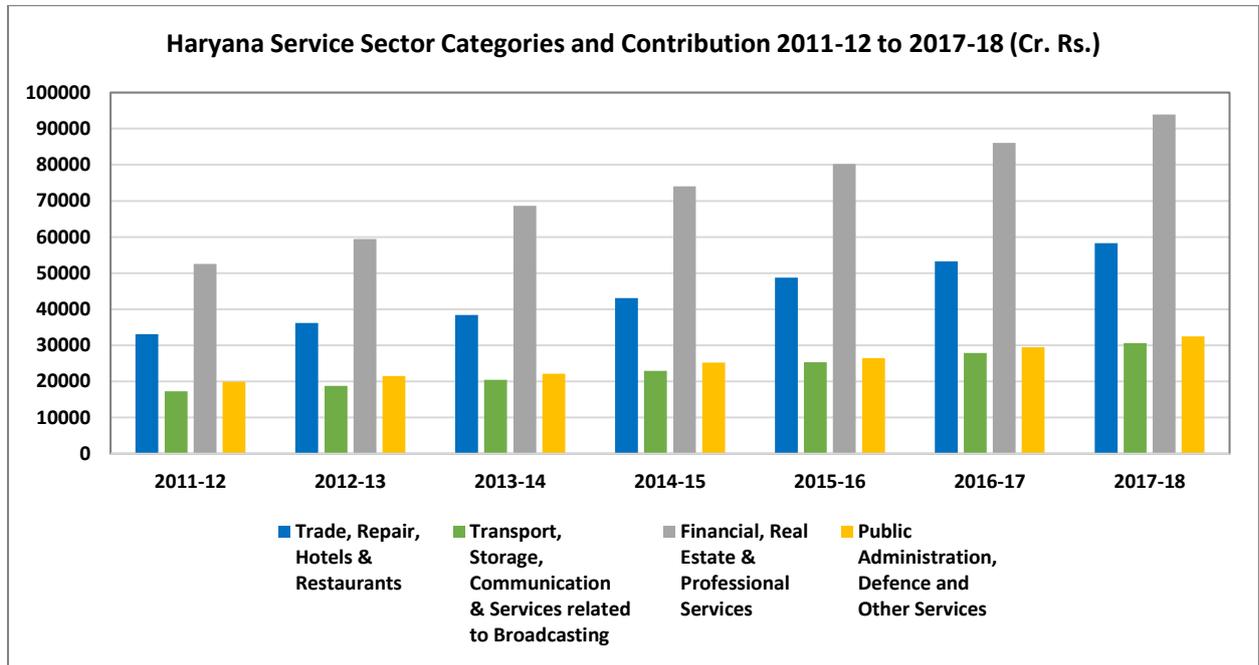


Figure 36: Service Sector Contribution in Haryana (2011-17)

As correctly pointed out by the Organization for Economic Co-operation & Development (OECD) and Department for International Development (DFID), the service sector is an integral part of a country’s economy. It provides a platform to leverage traditional strength, as well as new opportunities. However, in order to ensure that the service sector is leveraged to its full potential a range of complimentary regulations, policies and alignment measures are absolutely essential for service exports as well.²³

7.3 Service Sectors and the Potential for the State of Haryana

There is a higher probability of services being produced and consumed within the State itself. It is almost coincidental that the Government of India (Ministry of Commerce and Industry), at this very point is in the final process of providing a fillip to the Service Sector finalizing the contours and state alignment plans for the “12 Champion Services Sector Scheme”. The 12 champion service sectors cover IT & ITeS, Tourism and Hospitality, Medical Value Travel, Transport and Logistics, Accounting and Finance, Audio Visual, Legal, Communication, Construction and Related Engineering, Environmental, Financial and Education (Refer Figure 37).

²³ The Contribution of Services to Development and the Role of Trade Liberalization and Regulation, ODI Briefing notes, DFID, UK

The Government of India is currently in the process of finalizing specific action plans for each of these sectors in consultations with the Ministries/ Departments under whose jurisdiction these champion services fall, in order to create a conducive ecosystem for these services.



Figure 37: 12 Champion Services Sectors

Indicative Action Plans (IAPs) inviting comments from all States were shared by GoI, inviting comments on the same from the States.

7.4 MSMEs in Haryana and areas of opportunity within the Service Sector

Haryana State as noted earlier, has already been witnessing significant contributions from the service sector. There is considerable potential for MSMEs to engage with many of these services in various capacities of both providing such services as well as at different stages of service sector offerings. Furthermore, many manufacturing activities/ MSMEs make use of many services in the course of their work and there is a great potential for creating as well as facilitating the economy of the state through this opportunity that exists in the services sector.

A closer analysis of each of these 'Champion Service Sectors' along with Haryana's achievements till date, recommendations for these sectors and a further State vision to align with the IAPs of Champion Service Sector Scheme (CSSS) of GoI are detailed; The Indicative Action Plans for each of these Champion Services as outlined by GoI are contained in the annexures.

With appropriate regulatory and policy support from the Government of Haryana, MSMEs in the State of Haryana can partake in many of these opportunities offered by the service sector by taking steps to ensure that it keeps pace with developments in the National and International platforms in this regard. Aligning with the opportunities and avenues listed below would allow MSMEs operating in the service sector to diversify and strengthen their base.

It must be kept in mind that the onus for many of these avenues/ opportunities require a concerted effort by various Ministries/ Departments within the State of Haryana/ GoI (outlined alongside each of the discussed service sector), with collaborative support from GoI. Nevertheless, action with regard to the same, would in due time create opportunities for engagement by MSMEs.

7.5 Champion Service Sectors: Recommendations for Haryana

7.5.1 Tourism and Hospitality:

Haryana Achievements & Recommendations:

- ▶ Haryana State can evaluate potential avenues for tourism investment / offerings, and can draw up a suitable plan to tap into the same, with a focus on traditional / cultural strengths of the State. States such as Sikkim have already diversified their tourist offerings exponentially to include focus areas such as pilgrimage tourism, village tourism, culture tourism, heritage tourism, in addition to others, drawing on their contextual strengths.
- ▶ Haryana can position itself as a favoured destination for Indian systems of medicine, such as Ayurveda, Yoga, Panchakarma, Rejuvenation Therapy, etc., the most ancient systems of medical treatment, in the World.
- ▶ Kurukshetra is currently being positioned as a hub of the 'Krishna Circuit' (Centre already notified the inclusion) as a pilgrimage centre to attract tourists.
- ▶ Meetings, Incentives, Conventions & Exhibitions (MICE) activities have begun to show considerable promise and the State has already successfully begun to project

itself as a prominent centre for MICE activities, and has had considerable demonstrated success in this regard. State-of-the-art convention centres have come up in Rohtak, Panchkula, and Hissar, in addition to other locations.²⁴

- ▶ Lately, Haryana has also been the chosen and favoured destination for Mega-events such as Global Investor Summit 2016, Digital Haryana 2017, Pravasi Haryana Diwas 2017 and the upcoming Automotive Industry 4.0 Summit (2018).
- ▶ In parallel, Haryana can reap the benefits of burgeoning investments by travel portals / tourist agencies in real estate and travel sector. ClearTrip has already tied up with Haryana Tourism Corporation Ltd. to be the exclusive online booking partner for tours/activities in the State.²⁵ Such initiatives can be proactively expanded.
- ▶ Furthermore, Haryana can ensure that the proposed tourism policy or action plan of Gol, strategically aligns with the schemes/ policies in Haryana, and the overall Indian tourism trajectory and opportunities in the State.
- ▶ Safety of tourists especially in areas of adventure tourism, and other outdoor activities ought to be ensured through strict guidelines for tour operators.
- ▶ In parallel, Haryana looks forward to Gol release of its 'New Tourism Policy'²⁶ (scheduled for release in 2018) with schemes and incentives for new areas/ niche products, so that the same can align with the proposed State policy/ interventions. This will lead to greater synergy in boosting tourism in the State of Haryana and India as a whole.

Way Forward:

- ▶ **Boost FTAs:** Concerted efforts are required to boost the growth and earnings of the tourism sector in India, to achieve the target of 21 Million Foreign Tourist Arrivals (FTAs) by 2022. The 5 Special Tourism Zones (STZs) announced in the Budget 2017-18 can gradually be expanded in other States as well, based on FTA inflow and State offerings. The rationalization of taxation policy can also be done as outlined in the Indicative Action Plan to pass on competitive advantages to stakeholders in the sector (Hotels, Restaurants etc.).

²⁴ Haryana Tourism Corporation Ltd.

²⁵ TravelTrendsToday, 2018

²⁶ PIB

- ▶ **Destination Management Organization:** There is a need for a robust approach to Destination Management Organization (DMO) to ensure the seamless operation of the entire tourism sector , encompassing standards, connectivity, safety, access, marketing, human resources etc.

Concerned Gol Ministry/ Department: Ministry of Tourism, Ministry of AYUSH (Associated Ministry)

7.5.2 Transport and Logistics: Haryana Achievements & Recommendations

- ▶ In keeping with Gol initiatives, Government of Haryana is in the process of finalizing a formidable Logistics & Warehousing Policy for Haryana (2018) with various schemes & incentives, to be released by Industries Department.
- ▶ Furthermore, Haryana Government signed a MoU with Verbind in 2017 to attract investments to the tune of Rs. 20,000 Cr.²⁷
- ▶ The Honourable Chief Minister of Haryana also announced the development of a logistics hub at Narnaul (1100 acres) in 2017 and work is underway to attract industrial investments for the same.²⁸
- ▶ In keeping with India's trajectory to assume the rank of the 3rd largest civil aviation market by 2025, Haryana Government is on track to leverage the current benefits of Low Cost Carriers (LCC's), modern airport development, FDI in domestic airlines, regional connectivity and IT interventions, through the development and inauguration of Hisar Airport
- ▶ Hon'ble Chief Minister recently inaugurated the Civil Airport in Hisar which has been selected under the regional connectivity scheme of Gol (RCS-UDAN) and this will also be factored in by the State while developing Masterplans for future development. As a corollary, future development paths of various sector offerings shall also be factored in while rationalizing flight route connectivity and the development of new airports.²⁹ Based on State Government proposals, Airports

²⁷ GES 2018, Proposal for Government of Haryana

²⁸ ToI, 2017

²⁹ Business World, 2018

Authority of India (AAI) has begun feasibility study for three 'greenfield' airports in Kurukshetra, Jind and Chhara.³⁰

- ▶ Furthermore, 4200 acres of land contiguous to the existing airstrip in Hisar has been identified for development under a 3-phase plan targeting the setting up of an Aviation training centre, Aviation University, Aerotropolis (commercial & residential) etc.
- ▶ Besides the high speed rail projects connecting Delhi and Haryana, 7 new railways lines proposed by the Ministry of railways for Haryana can also be expedited to boost travel and freight movement along these corridors.³¹ GoI initiatives such as 'National Rail Plan' and 'Smart Freight Operation, Optimisation and Real Time Information (SFOORTI) are gradually being aligned with the State initiatives on various fronts of warehousing, warehousing hub development, freight corridor development etc. The Manesar-Bawal Investment Region (MBIR) is proposed to develop into a major industrial hub.³²
- ▶ To complement various such initiatives, GoI and the Haryana State Government can work closely to ensure the timely completion of ongoing infrastructural projects in which Haryana has a direct stake. Key among those include the completion of the Delhi-Mumbai Industrial Corridor (DMIC), Dedicated Freight Corridor, and Kundli-Manesar-Palwal Expressway³³. This will complement various GoI as well as State initiatives for this sector.
- ▶ The development of Gurugram and southern regions of Haryana as a logistical and manufacturing hub can get a further fillip and in turn positively impact the real estate market in the region.
- ▶ Above steps can also be viewed as an integral component of enhancing tourism potential in the region.

Way Forward:

- ▶ **Accelerating Infrastructure Projects:** The development of multimodal logistics parks, acceleration of Dedicated Freight Corridors and the digitization of warehousing operations are welcome announcements by GoI. The focus of

³⁰ Tol, 2018

³¹ Financial Express, 2018

³² DMICDC

³³ Invest India, The State

development of air transport infrastructure in tier-2 and tier-3 cities aimed at boosting passenger and goods transportation is sure to boost the domestic aviation sector as well.

- ▶ **Skilled Personnel for Sector:** The availability of skilled personnel in the transport and logistics sector is absolutely essential to the growth and continued success of the sector, and existing curriculum on the same needs to be reviewed and new avenues proposed based on the Logistic Sector Skill Council recommendations/initiatives. The State is also keenly following the development of the E-Commerce Policy, given the criticality of the logistics and warehousing sector, to the State

Concerned Gol Ministry/ Department: Department of Commerce, Ministry of Civil Aviation (Associated Ministry), Ministry of Road Transport & Highways (Associated Ministry), Ministry of Railways (Associated Ministry)

7.5.3 Environmental Services:

Haryana Achievements & Recommendations:

- ▶ Haryana has already notified a Solar Energy Policy in 2016 in keeping with this major objective. Promotion of green and clean power is a major objective of this policy.³⁴
- ▶ Haryana has also notified the 'Procedures and Guidelines for setting up Wind Power Projects in Haryana'.³⁵
- ▶ Haryana is one of the few States to have achieved 100% rural electrification. It has installed rooftop projects of 70 MW so far and is in the process of adding another 22.5 MW.
- ▶ The aim of the State of Haryana is to set up Solar power projects of more than 4000 MW and achieve a target of 1.6 GW of solar rooftop capacity by 2022. 33
- ▶ Haryana is looking forward to working closely with Gol initiatives, in creating an enabling environment for renewable energy by augmenting spending on research and development. Private Sector, University and State-led investments in R & D remain very low.³⁶ Boosting R & D spending in renewables and also facilitate tie-

³⁴ Haryana Solar Power Policy 2016

³⁵ Haryana Renewable Energy Department (HAREDA)

³⁶ National Science and Technology Management Information System (NSTMIS)

ups with private players and innovators will be an integral aspect. Haryana can create value for innovators through R&D support and incubators which can go a long way in boosting employment, while strengthening the service offerings for this sector. GoI help may be sought in addressing inter-state transmission and grid capacity bottlenecks and dynamically adjust the robust framework for energy auctions.

- ▶ Haryana has diligently notified and enforced the various environmental laws and acts as stipulated; Air and Water, Plastics management, E-waste management, Bio-medical waste, Hazardous wastes etc. Yamuna Action Plan projects are underway with a view to stem pollution in water bodies and impose stringent penalties on defaulters. Furthermore in keeping with rising ecological concerns over e-waste management and disposal, the State has diligently notified rules governing the same.
- ▶ Karnal and Faridabad are the two cities identified under the Smart-city mission. 60 projects worth 2,342 Cr. have been identified already and are in the process of tendering/DPR stage.³⁹
- ▶ Besides creating enabling technological infrastructure for the 2 smart cities, Solid Waste Management is a key issue facing the State. Only 3% of the Waste generated is being processed at present.³⁹
- ▶ Haryana in collaboration with GoI assistance can evolve ways to create a remunerative market for by-products from waste generation / treatment. By creating an enabling eco-system for the waste generator, the collection agent and other middlemen, a paradigm shift in this sector can be achieved. Creating a favourable and incentivised waste management system can effect innovative employment, while addressing pressing environmental concerns.
- ▶ Given recent downgrades in the air quality in Haryana and NCR, the State has already taken strict measures to deal with air pollution from old vehicles and crop stubble burning. Haryana State is already in the process of setting up about 10 Ambient Air Quality (AAQ) measurement stations across the State, in addition to existing stations.
- ▶ A healthy environment would be more conducive to allied sectors such as tourism & hospitality, transport, quality of life / health of the populace.

Way Forward:

- ▶ **Skilled Personnel for the Sector:** There is a need for skilled environmental professionals in sewage treatment plants, effluent treatment plants, waste management facilities, incinerators etc. Skill India Mission, as noted in the indicative action plan, could be the nodal initiative for the augmentation of skills in this regard. This would indeed bridge the manpower gap while facilitating compliance.

Concerned Gol Ministry/ Department: Ministry of Environment, Forest & Climate Change

7.5.4 Construction and Related Engineering Services:

Haryana Achievements & Recommendations:

- ▶ Under the Gol's Pradhan Mantri Awas Yojana (PMAY Urban), Gol recently approved over 1 lakh houses, with Haryana getting a sanction of 19,858 units.³⁷ Haryana Government's goal to provide housing for all by 2022, is already well in sync with the PM's vision of a Housing policy for all by 2022, when India celebrates 75 years of independence.³⁸
- ▶ Under the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) scheme 20 regions in Haryana have already been covered. Most recently an outlay for Rs. 326 Cr. has been sanctioned for drainage, water supply and park projects in Sonapat, Ambala and Karnal and work is progressing in a satisfactory manner.
- ▶ Haryana plans to take all steps needed to ensure major components of the housing scheme such as In-Situ Slum Rehabilitation (ISSR) are met.³⁹ Given the 3.3 lakh million slum households as per Census 2011, and the lack of proposals yet for their housing requirements, the same is to be expedited in a well thought out manner. PPP models for service delivery with formidable accountability mechanisms can be considered in this regard.
- ▶ In the near-term, Gol and the State can collaborate to evolve methods of new cost effective and sustainable material use in building construction, by drawing on scientific progress made in this regard. For instance, IIT-Madras has evolved a low cost house design using Glass fibre reinforced gypsum panels (GFRG). This has been approved by the Building Materials and Technology Promotion Council

³⁷ Economic Times, 2018

³⁸ Affordable Housing Policy 2018, Government of Haryana

³⁹ India Smart Cities Council, Feb 2018

(BMTPC). Eco-friendly construction measures can help sync up with continuous efforts being made by the Environment department. Sufficient assistance to pursue these scientific research endeavours can be made available by GoI through more schemes / incentives/ R&D funds for private researchers and innovative companies and/or academic institutions in the State.

- ▶ This would help synergise efforts of GoI, create employment in the construction and fabrication sector and help meet the obligations of the State Government towards the economy as well as the environment.

Way Forward:

- ▶ **Inclusive and Sustainable Planning:** There is a need to place emphasis on the importance of factoring in 'green planning' into the construction & related engineering sector. Factoring in the 'urban poor' into the dynamics of this sector is a very welcome step.

Concerned GoI Ministry/ Department: Ministry of Housing & Urban Affairs, Ministry of Human Resource Development (Associated Ministry)

7.5.5 IT/ITeS and emerging technologies:

Haryana Achievements & Recommendations:

- ▶ With more than 400 IT/ITeS companies, Haryana is a leading destination for IT and ITeS in India. 13% of India's BPO workforce comes from Gurugram, which boasts of the highest BPO workforce density in the World and 6% of National Electronics and IT exports in 2016-17. Haryana has enacted recent legislations and policies to further develop this particular industry; IT & ESDM Policy 2017, Cybersecurity Policy 2017, Amendments to Communications & Connectivity infrastructure, Entrepreneur & Startup Policy 2017.³³
- ▶ Haryana (HARTRON) has also collaborated with NASSCOM for establishing a Centre of Excellence of its own (CoE-IoT). The same will shape and align the State with Industry 4.0. The benefits of this platform are multifarious. Besides bringing down the cost of innovation, CoE-IoT offers young entrepreneurs a chance to solve industry specific and contextual challenges plaguing the Nation, under the guidance and mentorship of industry leaders, and skilled practitioners.

- ▶ Haryana is all set to have the country's biggest Startup Hub in Gurugram by 2020 under a PPP model, which is being organized along the lines of the Telangana-hub (T-Hub).⁴⁰ GoI can assist the State in aligning the industry requirements with training programmes and enhancing apprenticeships so as to help the workforce keep pace with market conditions.
- ▶ Haryana has initiated the setting up of IIIT-Kilhod and Software Technology Park of India (STPI) centre in Panchkula. The former aims to address the skilling challenges of the IT industry, and the latter aims to create more job opportunities while aiding the further growth of the IT industry in Haryana.
- ▶ Haryana is also in the process of identifying 7 universities to act as 'host institutes' for the setting up of incubators, with financial assistance of INR. 30 Lakhs per University for a period of 3 years, with the aim of providing an enabling ecosystem for student entrepreneurs and faculty members.
- ▶ The city of Bengaluru is once again readying itself for the next era of disruptions. The State of Haryana cannot afford to be left behind in this new revolution. While Startups in Kolkata, Kerala, Tamil Nadu, Delhi, Maharashtra have already leveraged the 'Warehouse Startup' Scheme pioneered by 10,000 Startups initiative, companies in Haryana are yet to make full use of the same.
- ▶ Creating greater awareness and sensitization on these programmes and platforms will be key to the continued success of this industry, going forward and the State of Haryana has every intention of following through on the same.

Way Forward:

- ▶ **Leverage New Tech for Modern-day Challenges:** Besides ensuring the growth of the IT/ITeS sector, Haryana welcomes the push to leverage new technologies and innovations to find solutions to societal problems and to address shortcomings in sectors such as Agriculture, education, city governance, waste management, healthcare, power etc. Furthermore, the State would like to lay emphasis on the need for a robust National privacy law/ framework and a comprehensive policy on data sharing and localization at the earliest.
- ▶ **Tackle Global Developments:** Finally, the State also notes with concern, not just the rising protectionist tendencies by certain Countries towards Indian IT

⁴⁰ Tol, 2018

Companies, but also the apparent tightening of visa regimes towards dependants of professionals lending their services in foreign countries such as the USA and UK.

Concerned GoI Ministry/ Department: Ministry of Electronics & Information Technology

7.5.6 Financial Services:

Haryana Achievements & Recommendations:

- ▶ In pursuance of the above GOI initiatives and country trajectory, the State has taken steps to create an enabling ecosystem for financial services and payments with the passage of key policies such as IT & ESDM Policy, Communication & Connectivity Infrastructure Policy, Cyber Security Policy, Entrepreneur and Startup Policy. These policies exemplify the State's commitment to evolving a 'systems approach' aimed at facilitating the growth of the industry, while ensuring that infrastructure and integrity issues of the system are not compromised, at any stage.
- ▶ Haryana has also been placed in Phase-I and Phase-II of Bharatnet (NOFN) Rollout to ensure the availability of quality digital infrastructure to citizens and is constantly pushing the envelope in securing greater rural mobile and internet connectivity with a view to consequently drive financial inclusion and anti-poverty measures.
- ▶ The State of Haryana, in its 2017 Budget, stated that all Government payments over Rs. 5000 would be made through digital means in pursuance of a cashless economy in keeping with the vision of the Hon'ble Prime Minister.
- ▶ Besides ensuring that all stakeholders in the State develop an understanding of Fintech products and their methods of operation, the State can ensure that a level playing field is created for small firms, to keep pace with the big ones.
- ▶ A recent RBI panel mooted the idea of 'regulatory sandboxes'/ innovation hubs with well-defined space/ duration and adequate regulatory support from financial sector regulators. This will positively impact the financial service sector and provide a dynamic platform for established players and new entrants to evolve new products and services for the market.

- ▶ Gol can lend its assistance in the creation of the regulatory sandbox framework, knowledge products, market updates and keep the State apprised of various nuances and potential of this sector.
- ▶ Gol, in consultation with the State, can take steps to continuously evaluate data integrity and cybersecurity of the financial service sector, on account of increased operational risk in the present day and age. Consumer safety and system integrity are critical and should be given due importance.

Way Forward:

- ▶ **Greater emphasis and support for emerging Fintech:** There is a need for greater emphasis be laid on the emergence on Fintech and new players. Furthermore, as noted in the indicative action plan, specialized modules on financial products and services ought to be taught at the college level, in order to prepare students for the completely different landscape likely to confront them while seeking roles in financial companies, banking institutions, rating organizations etc.

Concerned Gol Ministry/ Department: Department of Economic Affairs, Department of Financial Services, Ministry of Finance

7.5.7 Audio-Visual Services:

Haryana Achievements & Recommendations:

- ▶ Haryana, has taken numerous steps to create an enabling ecosystem for many stakeholders engaged in this sector. Haryana notified the Entrepreneur and Startup Policy (2017) aimed at infrastructure augmentation, fiscal support, regulatory easing and encouraging student entrepreneurship.
- ▶ In Haryana, the IT & ESDM policy (2017) was laid out to facilitate the market for new products and offerings. The Haryana Communications & Connectivity Infrastructure Policy (2017) to increase the subscriber base and quality of connectivity. Both these policies aim to create a conducive environment for this segment through increased access and enhanced quality of connectivity and thereby, platforms.
- ▶ The Haryana Enterprise Promotion Policy-2015 further aims to instil a sense of entrepreneurship in the youth of the State.

- ▶ The State in April 2018, launched a Startup incubation centre at Panchkula. This was made possible by a collaboration between the Department of Higher Education and the Startup Accelerator Chamber of Commerce (SACC). The primary objective of this incubator is to foster entrepreneurship through boot camps, workshops and classes.⁴¹
- ▶ High level events such as Digital Haryana Summit 2017 in collaboration with NASSCOM, showcased the latest in thematic areas such as Digital collaboration, Technology shifts, and aligning the building blocks of the digital governance, innovation and citizen partnership. It brought together key industry players and also helped put the State of Haryana on the Map as a hub of this emerging sector.

Way Forward:

- ▶ **Policy Review and Alignment:** There is a struggle to achieve a degree of uniformity in various aspects of this segment, given each States prerogative over the Media and Entertainment Industry. Aspects such as taxation structures, regulatory landscape of States, entertainment tax, footfalls in theatres all have a direct impact on the level of apprehensiveness of long term investments in this sector. Appropriate reviews on the same can be initiated. Transparency, uniformity and predictability are required to boost the commercial success of the film industry, as seen in countries like China.
- ▶ **Infrastructure for Emerging Avenues:** Other avenues within this segment such as VFX, Gaming, TV, Digital Media etc. as they are absolutely critical to this segment. The State's investment in creating quality infrastructure and incubation centres to foster entrepreneurship, stands testament to its commitment to ensure the development of these promising avenues.

Concerned Gol Ministry/ Department: Ministry of Information & Broadcasting

7.5.8 Telecommunication Services:

Haryana Achievements & Recommendations:

- ▶ Haryana has notified enabling policies such as Communications & Connectivity Infrastructure Policy. It is also supporting the National drive to provide mobile and internet connectivity to all regions of the State.

⁴¹ Tol, April 2018

- ▶ Under National Optical Fibre Network (NOFN), Haryana was placed in the Phase-I of BharatNet rollout i.e. covering all 6078 GPs by 2017. Optical fibre laying has been completed in 5355 locations and end to end testing completed for 4051 Gram Panchayats.
- ▶ The State has also signed a MoU with Internet and Mobile Association of India (IAMAI) under which a mobile application development centre is being set up in Gurugram, Haryana.
- ▶ Furthermore, the State has implemented State Wide Area Network (SWAN) under NeGP, Gol, to provide a backbone for citizen-centric services across all districts, through monitoring of schemes through innovative use of wireless technologies, sharing citizen databases, educational content, grievance redressal etc.
- ▶ Villages in Haryana State are all set to benefit immensely through the “Internet Saathi” Programme being run by Google and Tata Trusts aimed at empowering rural women and driving greater internet usage by them to foster entrepreneurship.⁴²

Way Forward:

- ▶ **Expedite Connectivity:** Ensuring rural connectivity and digital literacy is critical and progress is being made under flagship schemes such as PMDISHA and infrastructural acceleration under BharatNet and other initiatives. As stressed earlier, the development of digital policy frameworks encompassing data flow, privacy and localization are integral to a ‘systems approach’ in realizing Digital India.

Concerned Gol Ministry/ Department: Ministry of Communications

7.5.9 Education Services:

Haryana Achievements & Recommendations:

- ▶ The State through The Haryana State Electronics Development Corporation (HARTRON) is coordinating efforts to reach a target audience of 11,91,000 under the PMGDISHA.

⁴² ET, 2018

- ▶ The State has an education network comprising 1 Central University, 17 State Universities, 21 Private Universities, 280 Engineering Colleges, 171 management Institutes, 187 Polytechnics, 388 ITI's and 33 Pharmacy Colleges.
- ▶ The State is also in the process of setting up 'Haryana Science City' in Sonapat aimed at creating awareness and enhancing public understanding of science and technology, especially related to cutting-edge topics. This is proposed to be done through simulators, virtual reality exhibits, science shows, demonstrations etc.⁴³ and is being developed under the aegis of the National Council of Science Museums, Ministry of Culture, at a Project Cost of 28 Mil. US\$.³³
- ▶ The State is taking novel efforts at the school level to enhance learning outcomes and student welfare, such as setting up of Ganit Gyan Clubs (to promote interest in mathematics), crating of career counselling cells, conflict management cells, reading guarantee programmes etc.⁴⁴ 6 language labs have also been set up in model Sanskriti schools facilitate digital learning, listening and speaking skills of students
- ▶ Haryana Vishwakarma Skill University has also been set up to impart skill training while tying up with industry stakeholders, to help instil a spirit entrepreneurship among the youth and impart skill based education across various sectors.
- ▶ The State, with necessary assistance from Gol hopes to expand the number and quality of higher education institutions in the State and also revamp the existing institutions.
- ▶ Possibility of setting up institutes of excellence for higher education in various fields can be discussed with Gol.

Way Forward:

- ▶ **Leverage Education as an Export Commodity:** India is yet to leverage education as a major export commodity. The push to internationalize education by creating 'Brand India', attracting foreign students and encouraging foreign institutions to set up campuses in India through a range of supportive measures are welcome steps

⁴³ Indian Express, 2017

⁴⁴ PTI, July 2018

- ▶ **Alignment of Policy/Regulation with developments:** Given the emergence of distance learning, e-learning, virtual education and hybrid learning models, it is critical that regulatory reforms, accreditation processes, digital infrastructure and connectivity keeps pace with the proposed thrust areas. Procedural and Visa issues for foreign students and rules surrounding proposed foreign University campuses in India, can also be simplified and made transparent.
- ▶ **Accreditation:** Aligning educational institutions with International rankings (QS, or ARWU) can also aid quality assurance and stakeholder buy-in.

Concerned Gol Ministry/ Department: Ministry of Human Resource Development

7.5.10 Medical Value Travel:

Haryana Achievements & Recommendations:

- ▶ The State is uniquely positioned to align with the Gol plan, to promote AYUSH services domestically and to the International community. The State has a formidable presence of 7526 Ayurvedic/ Unani practitioners, and 6229 Homeopathic practitioners. Besides this, the State has a total of 719 facilities (comprising Hospitals, Ayurvedi Prathmic Swasthya Kendras (APSKs), AYUSH wings, OPDS under NRHM).
- ▶ A comprehensive policy termed 'Policy for Opening of AYUSH Facilities 2017' has also been notified by the State Government of Haryana, with the intention of mainstreaming AYUSH and providing for quality infrastructure and highly skilled manpower for the same.
- ▶ Haryana is also offering degree and diploma courses in ayurvedic medical surgery, homeopathic medical surgery, ayurvedic pharmacy etc. which can link up with the education service sector in the State (Study in India Programme for example)
- ▶ Furthermore, enhanced budgetary allocations to increase the activities and reach of AYUSH department has been made, and stood at 213.70 Cr. in 2017-18 (Plan) vis-à-vis 55.38 Cr. in 2016-17 (Plan).
- ▶ The State intends to further align its tourism policy and tourist infrastructure in order to create a conducive ecosystem, for the development of this particular sector.

Way Forward:

- ▶ **Accreditation:** The indicative plan by Gol for adoption of accreditation standards by AYUSH hospitals and subsuming the same under the proposal for standardization of the tourism sector by NITI Aayog/ Bureau of Indian Standards is a welcome step. Further incentive schemes for adoption of NABH accreditation by wellness centers and hospitals is also welcome.
- ▶ **Data Integrity:** In light of recent cyber-attacks on well-developed healthcare systems such as in Singapore, there is need for action plans that focuses on data privacy and improving the security framework and privacy of patient files. Augmentation of tele-medical services as a marketing initiative and as a continuation of treatment or in post-operative stages would augur well with the growth of this particular service offering, as is evident from African and SAARC countries' experiences.

Concerned Gol Ministry/ Department: Ministry of Health & Family Welfare, Ministry of AYUSH, Ministry of Tourism (Associated Ministry)

7.6 Major Cross-Cutting Issues

7.6.1 Visa Reforms:

It is encouraging to see further reforms in the existing visa regime aimed at simplification and designing concessions for select categories and recommends further reforms. The upgradation of 'Conference Visa' category under the e-tourist visa regime with additional exemptions/simplification in procedures, or a potential Visa on arrival for Mega-events, for the same would be welcome, given the burgeoning value significance of the MICE segment in Haryana and across the country. Creation of a 'Group Visa' under the e-tourist visa category would also help boost destination tourism aimed at securing participation of Schools, Colleges in International study or tourist trips.

Furthermore, given the rise in service offerings of medical sector to foreign nationals, a medical visa on arrival coupled with an increase in the number of times a patient can enter from three (existing), upwards, as proposed, would be welcome, to facilitate follow up treatment.

The modalities, requirements and exemptions required for the above can be worked out in consultation with relevant stakeholders at the State level as well as at a National level.

7.6.2 Skill development with foreign language capability:

The proposal by MHRD to initiate a fully funded Centrally Sponsored Scheme (CSS) to mainstream foreign language training in schools, colleges, vocational and professional institutions is a welcome step. Such a move does have the potential to enhance market opportunities for the workforce.

However, at the same time one needs to make a mention about the 'brain drain' of talented citizens relocating to other countries for better professional opportunities. It would behovee Gol to take cognisance of this issue, analyse and address the same at the appropriate forum in order to judiciously balance these two aspects.

7.6.3 Standards in Services:

Haryana has already taken cognisance of International Standardization Regimes and the rising standardisation measures being adopted in the manufacturing sector. It is plausible that these standards would become integral to the fortunes of the service sector. India can set the World Standard in certain areas where the Country is perceived as a leader; IT/ITes, traditional systems of medicine, yoga etc. This needs to be analysed in tandem with the existing structure of independent regulators in India, which is another major cross-cutting issue that can be reviewed for various service sectors, the quality of which has a direct impact on investor confidence.

Aligning National Standards with International guidelines would be critical for the global trade in services, going forward and the State welcomes the proposal to have NITI Aayog take the lead in developing a National Strategy in this regard, in consultation with relevant Government Departments (Bureau of Indian Standards, Quality Council of India).

In conclusion, while at first glance all the listed achievements and ways forward may not appear to have an immediate impact on boosting MSME participation within the services sector, the key aim of this chapter was to highlight broader action areas for the State of Haryana to focus or expedite or work closely with Gol to achieve progress. Addressing these outlined areas is critical to creating a conducive environment for the services sector in Haryana, and would in the near future create exciting opportunities for MSMEs within the service sector. More details on the Indicative Action Plan (IAP) for the Champion Services Sector can be viewed at Annexure 12.1.

Chapter 8

Global & Indian Experiences with MSME Sustainability: Key Takeaways for Haryana MSMEs



8.1 Enhancing Competitiveness Through Energy Efficiency in Industrial Production

The MSME sector of India has been one of the key and salient economy drivers for a very long time. MSMEs take numerous initiatives and make continuous efforts to ensure smooth industrial operations targeted at meeting the demand and reducing operational costs with limited financial and intellectual resources. The efforts made by MSMEs are largely focused to ensure their competitiveness in the market, however in the last more than a decade the global markets have grown exponentially and for MSMEs to remain competitive at a global level requires support in terms of intellect, expertise, technology and finance. The competitiveness of an industry small or large depends mainly on its resource utilization performance, quality of products, compliance mechanism, which altogether relate to the cost of product. For most of the MSMEs the level of technology use is very old and conventional which increase their input operational cost of manufacturing. The operational costs include cost of manpower, raw materials, energy and utilities and quality infrastructure cost. Where in MSMEs generally do not have much control over the cost of manpower and raw materials, since getting and retaining skilled manpower in MSMEs is still a challenge and there is no direct control on cost of raw material, the market only decides the raw material cost. In such a scenario the cost towards energy and utilities becomes a focus area to achieve cost optimization and resource use efficiency through energy efficient technology interventions and adopting best energy efficiency operating practices.

Energy-efficient investments have become a core part of Government strategy especially in the industrial sector. Industrial energy efficiency policy measures vary according to the level of development of the country in question, as well as the implementation capacity of the Government to bring about the proposed changes.

As per the 2014 International Atomic Energy Agency (IAEA) data, the manufacturing industry accounted for about 28% of final energy consumption. BP's energy outlook 2017 predicts a nearly 30% rise in global energy consumption by 2035, with the industrial and building sector accounting for a major portion of the projected demand.

With a drop in the extent of available fossil fuels, and the growth in the use of renewable energy sources, energy prices are gradually being pushed upward, thereby resulting in increased costs of production, logistics and energy intensive commodities. Calculations reveal that energy accounts for about 5% of the costs of an average manufacturing company, and that the leverage of energy-efficiency programmes can result in savings ranging from 10%-30% of energy costs within a 3 year period (IAEA). Furthermore, there is

a huge potential for indirect savings viz. reduced maintenance costs, materials, wastage etc. which ultimately results in increasing the competitiveness of an establishment/industrial sector. Typical energy efficiency measures in the industrial sectors revolve around the use of more efficient motors, boilers, furnaces, pumps, compressors, ventilating & heating systems, etc. There are certain energy efficiency best practices related to industrial operations and management for e.g. flexible energy scheduling during peak times can help lead to further savings. Finally, the promotion of industrial energy efficiency measures come under the larger ambit of the Sustainable Development Goals (SDG 9, 12 & 13) which relate to *"Promoting Sustainable Industrialization"*, *"Ensuring Sustainable Consumption & Production Patterns"* and *"Climate Action"*. Energy efficiency will help lay the path towards lower carbon intensity, thereby justifying firm-level investments in energy-efficiency investments. It must also be kept in mind that investments in achieving industrial energy efficiencies will not only help align with regulatory requirements in the future, but also help in increasing the competitiveness, fulfil corporate social responsibility goals, while also driving forward the demand and supply of innovation.

The classification of UNIDO in this regard categorises countries as being the 'early', 'middle' or 'late' stages of implementing Industry Energy Efficiency Policy measures. UNIDO outlines 5 areas/ policy domains and 2 broad categories of policy instruments that are leveraged in this regard.

The 5 areas/ policy domains comprise the following;

- ▶ Product
- ▶ Labour
- ▶ Capital
- ▶ Land
- ▶ Technology Markets

The policy instruments used range between market based instruments and the use of public inputs. While market-based interventions have an impact on prices and taxes, public inputs reflect the provision of goods or services by the government, including institutional creation and upgrading.

Some of the key principles that ought to be kept in mind while designing policy instruments to boost energy efficiency in the industrial sector include;

- ▶ Simple policy instrument design with transparent procedures
- ▶ Adequate financial resource provisioning/ planning for policy Instruments

- ▶ Harmonizing, aligning and streamlining policies to avoid overlaps, duplication or conflicts in implementation
- ▶ Ensuring co-ordination between all stakeholders and government agencies in the design, understanding and implementation of policy instruments.

Industrial energy efficiency policy measures implemented in four developing countries, namely Colombia, Tunisia, Viet Nam and Moldova provide valuable learnings as studied through the following matrix (*Refer Figure 38*) that may be considered, contextualised and implemented (*if possible and if applicable*) in the State of Haryana.

		Industrial Energy Efficiency Industrial Policy Instruments/Mechanisms		
		Directed at Producer/Manufacturer		Directed at
		Market-based Interventions/Decentralized Provision	Public Provision	Consumer
Policy Domain/Market Failure Being Addressed	Product			
	Capital			
	Labour			
	Technology			

Figure 38: Evaluation Matrix for IEE Policy Instruments

8.1.1 Colombia

Industrial Energy Efficiency (IEE) Policies have been pursued by the Government of Colombia since the 1990's. Some of the major drivers for Colombia's commitment to IEE Policies revolve around the following;

- ▶ Accession to the OECD
- ▶ Increased Competitiveness of the National Economy
- ▶ Attraction of FDI
- ▶ Implementation of International Agreements

The premier Government Agency responsible for the Energy Policy in Colombia is the Mining and Energy Planning Unit (UPME), under the Ministry of Mines & Energy. The specific Government Body in charge of energy efficiency is the Intersectoral Commission for the Rational & Efficient use of energy (CIURE). The key legislation introduced in Colombia was the Programme for the Rational and Efficient Use of Energy (PROURE) which was introduced in 2001 and adjusted subsequently in 2003, 2007 and specially incorporated in the Action Plan for PROURE 2010-15. Some of the key objectives of PROURE include;

- ▶ Development of efficient and sustainable management in energy
- ▶ Establishment of economic, technical, regulatory and information conditions for the promotion of efficient energy goods and services.
- ▶ Strengthening institutions and promoting public-private partnership for the implementation of EE programmes and projects.
- ▶ Creation of incentives, including taxes, for EE programmes and projects.

The specific focus on major IEE Policies with a view to enable action by industry includes;

- ▶ **Introduction of Energy Management Systems (EnMS)**
- ▶ **Optimization of the use of boilers**
- ▶ **Optimization of combustion processes**
- ▶ **Introduction of efficient lighting**
- ▶ **Cold chain optimization.**

One of the critical components of the Energy Efficiency policies for the industrial sector are the 4-year National Development Plans (PND). The plan introduces ambitious targets on energy savings compared with the business-as-usual scenario: from 1.75 per cent in 2015 to 6.91 per cent in 2018.¹⁴ The plan introduces specific targets for the most energy-intensive industries - chemical, cement, iron, steel and non-ferrous metals, beverages and tobacco, and paper and printing.

With a view to improve IEE policies within the larger PND framework, the Government of Colombia is currently implementing the Low Carbon Development Strategy under which the Sectoral Mitigation Action Plans (SMAPs) have been notified thus giving various Government departments the responsibility to implement specific EE policies in their respective areas of engagement. SMAPs are expected to be developed for all industries of the economy to achieve EE improvements and implement national mitigation goals. Industry SMAP cover metal works, iron and steel and bricks in Colombia.

Based on all the experiences of the Government of Colombia the following lessons were learnt to be the major obstacles in the implementation of IEE Programmes in Colombia;

- ▶ Lack of knowledge of IEE Programmes and incentives
- ▶ Lack of expertise at the level of industrial enterprises
- ▶ Insufficient Development of Energy Service Companies (ESCOs)
- ▶ Limited Market Opportunities
- ▶ Significant upfront costs
- ▶ Difficulties in assessing available technologies and uncertainty about their performance
- ▶ Lack of applicability of incentives to all actors
- ▶ Complex application procedures
- ▶ Lack of awareness, sensitization and advice from the Government
- ▶ Long-time taken for decisions on equipment replacement due to complicated application processes and procedures

Based on the experiences of PROURE and PND, one of the key lessons learnt was that there was a need to develop innovative funding tools/ mechanisms to fund IEE projects, while providing the foundation for popularizing ESCOs and marketing their measures and technologies as 'win-win' situations. Finally, an urgent need was felt to augment R & D to achieve a higher degree of efficiency while formulating measures, tools and technologies for the National Context.

The Summary of the Policy instruments leveraged in Colombia as per the evaluation matrix followed, is attached as Annexure 11.1

8.1.2 Tunisia

Tunisia began to engage with energy conserving policies since the 1980s, and the experience since this time was factored into the National Sustainable Development Strategy (SNDD) of 2011. As per the SNDD of Tunisia the total primary energy savings achieved through the implementation of energy efficiency measures is aimed to reach 30 Mtoe by 2020 and 80 Mtoe by 2030. Out of these savings it is expected that industry will be responsible for 44.5% of savings followed by transport (29.5%) and buildings (26%).

In recent years energy security has become a significant concern for Tunisia. It is expected that due to the growth of consumption, driven by industry as well as transport and construction, the country may face a shortage of primary energy by 2020.

Industry comprises around 30 per cent of the national GDP, and is one of the major drivers of the country's economic growth. Some of the key drivers of Tunisia adopting IEE Policies especially keeping in mind the burgeoning industrial sector include the following;

- ▶ Energy security
- ▶ Increased competitiveness of the national economy
- ▶ Implementation of the international agreement (Paris Agreement)
- ▶ Availability of donor funds for IEE improvements.

Over the last few decades the country has been evolving its IEE Policy frameworks through the leveraging of both administrative regulations, as well as the implementation of market-based instruments and incentives for the use of energy efficient equipment and the implementation of IEE measures. The main custodian under the Ministry of Mining, Industry and Energy is the National Agency for Energy Conservation (Agence Nationale pour la Maitrise de l'Energie - ANME), which was established in 1985. Legislations on energy efficiency introduced certain key responsible areas for ANME in the domain;

- ▶ Development of new procedures for the implementation of energy efficiency projects;
- ▶ Implementation of a labelling scheme on energy efficiency for the equipment and products;
- ▶ Promotion of training and research in the area of energy efficiency;
- ▶ Review and assessment. The ANME obtained the right to control the efficiency of supporting mechanisms and the use of government aid.

Some of the key lessons emerging from the experience of Tunisia are summed up as follows;

- ▶ The flexibility of the decision makers was one of the key factors that led to the success of the programme implementation in Estonia.
- ▶ Contributions of International Experts was an integral part of the processes.
- ▶ In terms of financial support, funding opportunities for IEE projects may be limited due to the conservative approach of private financial institutions.
- ▶ A special component of national IEE programmes should focus on the promotion of the energy service companies (ESCO) concept as the key element for additional sustainable IEE improvements in the national economy, e.g. through a set of demonstration projects.
- ▶ Energy efficiency funds require lower-than-market interest rates to attract clients, as well as other incentives for potential customers.

- ▶ Priority should be given to short-term loans for projects with high rates of return;
- ▶ Simplification of the control system to avoid unnecessary audits and increase the transparency of procedures.
- ▶ Cooperation with existing financial institutions, their involvement in project design, minimal government interference, Flexible design and strategic planning.
- ▶ A combination of legislative norms and standards and awareness-raising activities is necessary to encourage investments in energy efficiency.

The Summary of the Policy instruments leveraged in Tunisia as per the evaluation matrix, is attached as Annexure 11.2

8.1.3 Vietnam

The Government of Vietnam began to address IEE Policies as a result of the rapid industrialization witnessed across the country. As a result of the rapid rise in the level of energy consumption by the industrial sector in Vietnam (which rose to 50% in 2015), the Government of Vietnam initiated a target of achieving a reduction in energy consumption per unit of GDP, under the ambit of the National Sustainable Development Strategy for 2011-20. Vietnam, it must be noted, is a very energy-intensive country in East Asia. It must be emphasized that the use of energy intensive methods of production leads to higher production costs for manufactured goods, has consequences for FDI flows as well as global market integration initiatives.

Some of the key drivers that necessitated the IEE Policies for the Government of Vietnam included;

- ▶ Increase in competitiveness of the National Economy
- ▶ Availability of Donor funding for IEE improvements
- ▶ Attraction of FDI

In Vietnam, policy efforts made in the direction of IEE activities mostly stem from the Ministry of Industry and Trade (MOIT). The first National Decree on Energy Efficiency and Conservation was issued as early as 2003, specifying the roles of government agencies in the area of energy efficiency, requiring suppliers of energy-consuming equipment to include data on energy consumption in user manuals and to include special labels on the equipment. The decree was supplemented by the MOIT 2004 circular on the guidance of implementation of energy conservation in the industrial sector (Circular 01/2004/TT/BCN), which established the principles of energy audits and energy management of industrial enterprises. These regulations have been replaced by the more comprehensive Law on

Energy Conservation and Energy Efficiency (50/2010/QH12), particularly the chapter on the economic and efficient use of energy in industrial production, which came into force in 2011.

The specific components that the Government of Vietnam focused on included;

- ▶ Phasing out of low-energy efficient equipment and promotion of high energy efficient equipment. The manufacturers that met the IEE standards would receive technical assistance through programme-supported projects.
- ▶ MOIT planned to establish a model of supervision over energy savings in industrial enterprises. The government provided assistance to industrial enterprises to upgrade, improve and rationalize their energy efficiency.

The current IEE Policy of Vietnam is currently being implemented through the Law on Energy Efficiency and Conservation of 2011. According to this law all industrial enterprises must develop annual plans for efficient energy use. Some of the other measures introduced keeping in mind the industrial sector include;

- ▶ Energy labels for industrial appliances and equipment (already implemented in India/Haryana)
- ▶ Mandatory sectoral energy efficiency standards for appliances, equipment, technology and products.

MOIT via its Energy Conservation Office has implemented the National Strategic Programme on Energy Saving and Effective Use (Viet Nam National Energy Efficiency Programme, VNEEP). The Government agencies cooperating with MOIT on different energy efficiency projects are the Ministry of Construction, the Ministry of Transport, the Ministry of Science and Technology and the Ministry of Agriculture and Rural Development. The combination of expertise possessed by the different ministries is expected to have a synergistic effect on the promotion of various IEE measures.

Based on the implementations of all the plans and policies made with regard to IEE interventions, certain obstacles and learnings were identified;

- ▶ Insufficient financial incentives offered by Government
- ▶ Lack of access to private financing for implementing energy efficient measures
- ▶ Lack of accountability in the enforcement of National Energy Efficiency targets
- ▶ Significant success factor identified was the co-ordination efforts that transpired between various stakeholders and Government agencies

- ▶ Development of procedures, SOPs and assessment of specific monitoring targets helps in keeping track of specific elements of the programme, although a lot more remained to be monitored and enforced.
- ▶ **The Summary of the Policy instruments leveraged in Vietnam as per the evaluation matrix is attached as Annexure 11.3**

8.1.4 Moldova

The energy efficiency of Moldova is three times lower than most EU countries. This has completely undermined the competitiveness of the local industry. Outdated technologies and equipment, lack of knowledge and skills necessary to initiate energy efficient measures are some of the challenges. Therefore, keeping this in mind the Government of Moldova in the National Development Strategy (NDS) Moldova 2020 has placed significant emphasis on energy efficiency and energy security. Furthermore, the Energy Strategy of Moldova 2030, strives to reduce the energy intensity by 10% and its Greenhouse gas (GHG) emissions by 25% by 2020. These two 'pillars' form the core strategy of the energy industry's National Strategic Vision.

Since 95% of its energy requirements are imported, the country places special emphasis on promoting energy security. In Moldova, industry is the second highest consumer of energy (21%) thus pointing to the huge potential to achieve energy efficiency in the industrial sector.

Furthermore, with the steps being taken to strengthen the cooperation of Moldova with the European Union, there is an urgent need for Moldova to meet certain energy efficient targets in order to boost the co-operation.

To implement the NEEP goals, the Government of Moldova uses the National Action Plan for Energy Efficiency (NEEAP).⁶² The Plan for 2013-2015 aimed to reduce the national economy's final energy consumption by 428 ktoe. This result was expected to be achieved through the following measures:

- ▶ Modernization and modifications in the industrial sector to achieve energy savings in the amount of 15.9 ktoe in 2015, 26.5 ktoe in 2016 and 47.75 ktoe in 2020.
- ▶ Introduction of Energy Management Systems (EnMS)
- ▶ Development of the energy services market for the national economy's industrial sector.

As per reports evaluating the performance of IEE measures in the country some of the reasons attributed to the bottlenecks faced include enterprise-level lack of awareness on IEE measures, lack of qualified professionals, energy auditors, energy experts etc., who will be of assistance to enterprises in their transition to EE measures. It was found that training of staff from SMEs was critical to the success for such measures. Leveraging co-operation with industry associations for

implementation of EE policies is also a worthy avenue to pursue. Since many small enterprises focus on price, rather than energy metrics it is critical to factor the same into the policy planning process. Simplified certification measures can also go a long way in enhancing the take up of IEE measures among industries, particularly SMEs.

The Summary of the Policy instruments leveraged in Moldova as per the evaluation matrix, is attached as Annexure 11.4

Learnings for Haryana MSMEs-Industrial Energy Efficiency

It is evident that with the rise in industrialization, the energy demands for the manufacturing sector in Haryana are bound to increase exponentially. Based on the country experiences listed in this section there are significant learnings for Haryana MSMEs and for India as a whole. Some of these valuable lessons include the following;

- ▶ Augmenting institutional strength and public-private partnerships with regard to Energy Efficiency initiatives can help reduce costs of production and result in greater savings to industries/ enterprises.
- ▶ Specific sectoral targeting of high energy consumption industries (such as chemicals, cement, iron, steel and non-ferrous metals, beverages and tobacco, and paper, printing) as witnessed in Colombia would be a worthy foundation to begin Industrial Energy Efficiency initiatives.
- ▶ Innovative funding tools, mechanisms to stimulate IEE initiatives is critical to the success of endeavours made in this domain. Subsidies aside, the Government of Haryana may actively explore ways to sustainably transform the manufacturing sector towards a more energy efficient future. As a corollary, the insufficient level of financial incentives offered by the Government proved to be a bottleneck in Vietnam. In Tunisia, the availability of donor funds helped the country to move forward towards energy efficiency.
- ▶ Haryana Government can take steps to promote Research and Development in the field of energy efficiency and the development of energy-efficient equipment. In turn, this could help increase the competitiveness of the MSME sector in haryana, while boosting savings for small firms.
- ▶ Finally, adequate level of assistance, sensitization and awareness ought to be an integral and mandatory part of the Haryana Government's engagement with MSMEs and the overall industrial sector. Given the robust network of Industry associations in Haryana, the same may be leveraged to push forward endeavours aimed at augment energy efficiency especially for MSMEs.

8.2 Implementing Low Carbon Technologies: Electric Heat Pump Technology in Punjabi Dairy Cluster

Backdrop

The dairy industry is of crucial importance to the Indian economy. India is the largest producer of milk in the world (about 128 million tonnes annually) and also the world's largest producer of dairy products by volume. The Indian dairy industry boasts of an annual growth rate of 7%, and exports of dairy products have been growing consistently at about 25% annually. The dairy industry plays a key role in providing employment and income generating opportunities for millions of rural families, particularly for marginal farmers and women. Cooperatives account for about 60% of the installed milk processing capacity. At the village level, cooperative societies of milk producers undertake the collection, chilling and transportation of milk to the processing plants. The milk is processed and marketed by 170 milk producers' cooperative unions at the district level, which federate into 15 State Cooperative Milk Marketing Federations at the state level. The National Dairy Development Board (NDDB) is the apex institution responsible for the development of the dairy sector.

Despite its impressive and growing production levels, the Indian dairy industry is finding it hard to meet the escalating demands for milk and dairy products arising from changing consumption habits and rapid urbanization. Most of the small and medium-sized (SME) dairy units use conventional-design steam generators (boilers) and refrigeration plants that are low in energy efficiency, and typically account for more than 75% of the total energy costs. Hence, the dairy industry is looking for modern, energy efficient technologies that would help units improve their productivity and profitability by reducing energy costs.

Dairy technology: The basic manufacturing process in dairy units requires both chilling and heating applications. At the village-level collection centres, the milk is chilled to 4° C or below to ensure that it remains fresh during transport to the processing plants. Here, the milk is pasteurized by heating it very rapidly to a high temperature for a precise duration of time, and then quickly cooling it to 4° C or below. This destroys the bacteria naturally present in the raw milk, and helps preserve the milk for a longer period. The pasteurized milk is then packaged for distribution to consumers.

Intervention

In this backdrop, TERI in partnership with Institute for Global Environmental Strategies (IGES), Japan undertook a project to identify, demonstrate and promote the application of an energy efficient, low carbon technology (LCT) in the Indian dairy industry. The project is part of a larger research collaboration titled 'Research Partnership for Application of Low Carbon Technology for Sustainable Development' (ALCTS), funded by Japan Science and Technology Agency (JST) and

Japan International Cooperation Agency (JICA), which aims to promote Japanese LCTs in energy-intensive MSME sectors in India.

The project conducted feasibility studies on a range of LCT options available with Japanese manufacturers, and finally selected the electric heat pump (EHP) technology for demonstration in the Indian dairy industry. In parallel, the project conducted a number of surveys and site visits to different dairy clusters/units in India, based on which the project selected two dairy units for demonstration of EHP technology: one each in the states of Punjab and Gujarat. These states are among the leading producers of milk and dairy products in India (Punjab produces 9.5 million tonnes of milk annually, while Gujarat produces 9.8 million tonnes/year). They host a large number of dairy-based SMEs, and hence offer enormous potential for energy savings and reduction of carbon emissions through the adoption of LCTs by dairy units. This case study focuses on demonstration of EHP technology in the dairy unit of the Punjab State Cooperative Milk Producers' Federation Limited (MILKFED) in Verka, Chandigarh.

Energy and emissions profile of Punjab dairy cluster

Total energy consumption	4.7 PJ
Specific energy consumption (average)	0.51 GJ/tonne
Total CO ₂ generation	0.54 million tonnes
Emission intensity	0.06 t CO ₂ / t product

EHP technology An EHP system works on the principle of the 'heat pump'. This is the cyclic process in which heat is taken up from an area of cold temperature and discarded into an area of high temperature. A heat pump cannot operate by itself; it requires an external energy source. In an electric heat pump (EHP) system, electrical energy is used to drive the heat pump. In simple terms, an EHP system utilizes the heat emitted by a refrigeration process to heat water. Thus, EHP technology provides heating as well as cooling output simultaneously. EHP systems are very suitable for the dairy industry, as they can be used to meet the process cooling and heating requirements of a dairy unit, while reducing the load on its existing boiler and chilling plant.

The project conducted detailed studies at the Verka dairy plant to gather baseline performance data and identify possible energy saving options. The existing equipment in the Verka plant included a chilling facility, two boilers operating on furnace oil (of 4 tonnes and 3 tonnes capacity); and production equipment such as pasteurizer, milk separator, dryer, butter churner, etc.

Based on its analyses, the project recommended the installation of an EHP system which would simultaneously provide pre-heated supply water to the boiler facility and pre-cooled return chilled water for the chiller facility. The EHP system was designed and customized by the Japanese firm Mayekawa. The EHP system uses CO₂ as a refrigerant, and is designed to preheat boiler feed water to around 80° C, and cool the return water for the chiller by about 4° C.

The EHP system was installed, integrated with the existing systems at the Verka plant, and successfully commissioned in June 2013, under the guidance and supervision of the project team from India and Japan.

Results

The project has been monitoring the performance of the EHP system following its commissioning. The results so far indicate that with a potential annual operating time of 3672 hours per year (i.e. 12 hours daily for 51 weeks of the year), the EHP system is achieving an annual primary energy saving of about 35%, or 19 tonnes of oil equivalent (toe). In terms of curtailing greenhouse gas emissions, the EHP system is achieving an annual reduction in CO₂ emissions of 62.6 tonnes (about 38%). The Verka plant personnel have been trained in the operation and maintenance of the EHP system. Under the ongoing project, performance monitoring of the EHP system will continue till the end of March 2014.

About 50 other dairy units in Punjab and Gujarat could potentially adopt the EHP system similar to the demonstration plant. These replications would result in a saving in equivalent primary energy of 952 toe/year, and a reduction in CO₂ emissions of 3128 tonnes/year. The project is undertaking a dissemination workshop in January 2014 to generate wider awareness and motivate other dairy units to adopt the energy efficient EHP technology.

Learnings from the Project for Haryana MSMEs:

As can be seen in the above project, the transfer of a new technology resulted in good production metrics as well as a significant reduction in energy consumption, thereby increasing the competitiveness of the cluster. Some sequential steps that can be taken by the Government of Haryana could include the following.

- ▶ **Bilateral/ Multilateral Agreements:** Haryana Government can take steps to enter into bilateral or multilateral agreements with leading Countries/ Organizations for, technology transfer with regard to any sector, with a view to integrate energy efficient systems.
- ▶ **Benchmarking of Technology:** The Government of Haryana can take steps to understand the various energy consumption metrics and processes of various MSME sectors with a view to prioritize interventions. This would help funnel technology that would result in greater competitiveness, to those MSMEs that require it the most. Haryana's priority sectors such as food

processing, foundry clusters, dairy and textile sectors can be looked at with regard to integrating and testing new systems.

- ▶ **Method of Collaboration:** Leading countries in terms of demonstrated expertise in achieving cost-effectiveness, technological innovation, collaboration (as outlined in earlier sections of the report) to can be identified and synced with those sectors that have been identified for intervention.
- ▶ **Studies & Pilots:** Pilot implementation can be conducted in 4-5 units (subject to feasibility studies, capacity etc.).
- ▶ **Dissemination workshops:** Following the successful implementation of the pilots, the knowledge generated can be shared with relevant stakeholders to create a collaborative platform for future engagements
- ▶ **Technological transfer:** Based on the identified requirements and contexts technology transfer can be initiated.

8.3 Energy Efficient Pot Furnace in the Firozabad Glass Industry

Cluster⁴⁵

Background:

Each day, MSME units in Firozabad produce around 2000 tonnes of glass products, including 50 million bangles, and provide direct employment to an estimated 150,000 people. The Firozabad glass cluster also produces popular low-value glass products (bowls, tumblers, lamp shades, and so on). Glass for making bangles is melted mainly in open-pot furnaces. Till the mid-1990s, the 80-odd traditional pot furnaces in Firozabad were poor in design and coal-fired, resulting in very low levels of operating efficiency and high levels of CO₂ and particulate emissions.

Context:

In 1994-95, the Swiss Agency for Development and Cooperation (SDC) partnered with The Energy and Resources Institute (TERI) in a project to evolve and promote a more energy-efficient pot furnace design— one that would save fuel (coal), and thereby reduce CO₂ emissions. However, the situation changed in December 1996, when the Supreme Court ordered 292 industries located in the Taj Trapezium zone—including the coal-fired pot furnace units in Firozabad—to switch over to natural gas (NG) to protect the Taj Mahal in Agra from environmental pollution. The Supreme Court also directed GAIL India Ltd to supply NG to industries in the region. The coal-fired pot furnace units were plunged into a crisis following the Supreme Court's verdict, because there were no readily available designs for NG-fired pot furnaces at that point of time. Closure of these units would have

⁴⁵ Small and Medium Enterprises: Energy Efficiency Knowledge Sharing Newsletter, Sameeksha

disrupted the entire bangle-making industry, and threatened the livelihoods of thousands of workers.

Approach and Results:

By pooling the competencies of Indian and international experts, and working in close consultation with entrepreneurs, furnace operators, masons, and other local stakeholders, TERI developed an energy efficient NG-fi red pot furnace system—the 'recuperative furnace'. In 2001, TERI successfully demonstrated the recuperative furnace in a unit chosen by the local industry association. The TERI-designed furnace yields energy savings of up to 50%, as compared to the traditional coal-fi red pot furnace; and over 30%, when compared to the 'conventional' NG-fi red pot furnace (which had been adopted by most pot furnace units by 2001, in the absence of alternatives). The payback period ranges from 6-24 months, depending on furnace capacity and NG price. In order to support and sustain replications of the TERI-design furnace, the project has strengthened cluster-level technology delivery systems through Key features of TERI-designed pot furnace

- **Modular waste heat recovery system (recuperator)**
- **Crown-mounted burner for better heat distribution**
- **Improved structural design Use of better quality refractories in crown and floor**
- **5 ongoing awareness generation and capacity-building programmes.**

As a result of these efforts, about 70 (till March 2011) of the 80-odd operating open pot furnace units in the cluster have switched over to the TERI- design furnace, thereby yielding an annual energy saving of over 60,000 tonnes of oil equivalent. TERI is presently working with BEE under the BEE-SME programme, and considering energy conservation options for other types of furnaces.

Key Lessons:

Work with an 'ice-breaker': The project initially faced difficulties in establishing linkages with industry associations, entrepreneurs, and other stakeholders in the cluster. The problem was solved by identifying and working with an 'ice-breaker'—a well-known and widely respected entrepreneur.

Adopt a participatory approach: The success of the project depended vitally on involving the local stakeholders—workers, entrepreneurs, and others— in developing the new/improved technology. Not only did this approach ensure that the technology was adapted to local conditions and requirements; but it also gave the local people a sense of ownership over the technology, and the enthusiasm and confidence to use it beyond the project's term.

First benchmark technology, then explore cost-cutting: The energy efficient technology was developed in stages. The first priority was to maximize energy efficiency during demonstration, and benchmark various parameters of performance. Quality and reliability of equipment and materials were therefore critical factors in setting up the demonstration plant; while cost factors were relatively less important at this stage. After successful demonstration of the technology and

benchmarking of its performance parameters, cost-cutting measures were explored step by step, and in a participatory manner, to make the technology more affordable.

Technology must be flexible to adapt to cluster realities: In certain aspects, tradition and custom wielded far more influence over an entrepreneur than even the proven benefits of the improved technology. It was, therefore, important for the project to be able to modify the technology to suit these local traditions and customs.

Build cluster capacities to spread and sustain the technology. Demonstration of the improved technology was not enough. The industry stakeholders had to be imparted the information and skills required to use and innovate on the technology beyond the project's term. This meant training workers and entrepreneurs in best operating practices; strengthening the capabilities of fabricators, technicians, and masons to support the new technology; identifying and training local consultants to provide advisory and trouble-shooting services; and so on.

Sustained project engagement with the cluster is a must: SDC has a principle of long-term engagement in its funding programmes, which allows the formulation of flexible participatory schemes that can operate for extended durations. Working with SDC enabled TERI to stay engaged with the Firozabad cluster for over a decade. This continuous involvement has paid off, with approximately 80% of the operating open-pot furnace units having adopted the TERI- designed furnace so far.

Learnings from the Project for Haryana MSMEs:

As can be seen in this project, the technical expertise of visiting experts/ organizations/ countries proved to be vital to the fortunes of the Firozabad Cluster.

Some of the ways in which the Government of Haryana can take steps to improve the competitiveness of MSMEs in Haryana are;

- ▶ **Benchmark sectors and energy consumption patterns**
- ▶ **Identify focus Sectors**
- ▶ **Leverage technical Expertise of the country in terms of deriving solutions tailored to Haryana context/ Customize technology to context**
- ▶ **Pilot followed by knowledge dissemination and replication at scale**

8.4 Scaling Up Sustainable Development of MSME Clusters in India

MSMEs in India, as is well documented, are critical to the economy of the country. However numerous challenges exist with respect to maintaining the competitiveness of MSMEs and manufacturing. Many of these challenges lie in the realm of how to ensure energy savings, resource efficiency, while promoting occupational health and safety. The SWITCH-Asia project titled 'Scaling

up Sustainable Development of MSME Clusters in India' attempted to address energy, environmental and social issues, while ensuring sustainability across foundry clusters in India.

About the SWITCH-Asia Project

The aim of this initiative/ project was to achieve an adoption of sustainable business practices through the introduction of improved technologies, scaling up the activities of Business Membership Organizations (BMOs), conducting Training of Trainers (TOTs), institutionalization, facilitating aggregate sustainability reporting and enhancing access to finance for MSMEs through adequate financial linkages.

Project Objectives

- ▶ To facilitate the adoption of clean production methods in 500 foundry enterprises to become commercially competitive through improved energy and research efficiency
- ▶ Improve the working conditions in 200 foundry enterprises with better occupational health and safety practices
- ▶ Enable adoption of voluntary aggregate reporting by industry associations
- ▶ Train about 50 local industry associations and service providers on sustainable production and responsible business practices
- ▶ Strengthen policy makers to develop guidelines, resource and implementation instruments for promotion of sustainable production practices in MSMEs

Target Group/s

The project followed a multi-stakeholder approach by directly intervening with 500 MSMEs and their employees, 500 clusters, Business Membership Organizations and Select Business Development Service providers and Organizations (BDSOs and BDSPs) other than engaging National Resource Organizations, Public and Private Institutions involved in MSME development. Banks and other financial institutions were also one of the major stakeholders in the project.

Implementing Partners & Associates

Foundation for MSME Clusters (FMC): It is a not for profit organization working towards the development of MSME clusters in India and other transition economies.

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ): GIZ offers demand driven, tailor-made and effective services for sustainable development. The services delivered by GIZ are based on draw on a wealth on regional and technical expertise and tried and tested management know-how.

Global Reporting Initiative (GRI): GRI works toward a sustainable global economy by providing sustainability reporting guidance. It has pioneered and developed comprehensive sustainability

reporting framework to enable organizations measure and report their economic, environmental, social and governance performance.

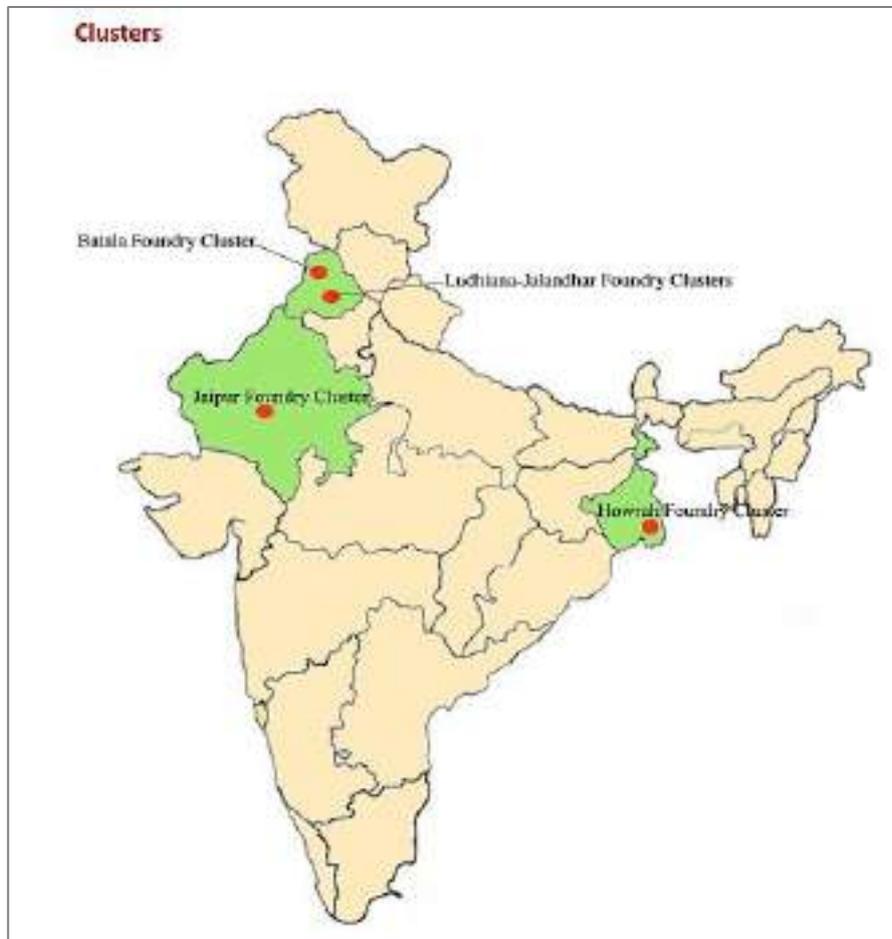


Figure 39: Clusters covered under SWITCH-Asia Project

Indian Institute of Corporate Affairs (IICA): IICA established by the Ministry of Corporate Affairs, Government of India, is a think-tank for knowledge development and dissemination and for rendering policy advice to the Government of India on issues relating to corporate affairs.

Small Industries Development Bank of India (SIDBI): SIDBI is the principal financial institution in India for pro-motion, financing and development of micro, small and medium-scale enterprises (MSME).

United Nations Industrial Development Organization (UNIDO): The primary objective of UNIDO is to promote and accelerate industrial development in developing countries and countries with economies in transition and promote international industrial cooperation.

Major Project Outcomes

As a result of the project, more than 490 enterprises were influenced directly, leading to a reduction of CO₂ up to an extent of 13,000 MT. 375 enterprises implemented OHS measures thus leading to a direct impact on 5000 workers. 100 enterprises got access to institutional finance. More than 300 trainings, seminars and workshops were organized for various stakeholders. The integrated approach of the project ensured that there was an enhancement of relevant knowledge and skills at regional levels. Furthermore, institutional structures were strengthened while fostering market driven incentives through enabling policy frameworks. As a result of all the above, the MSMEs were able to come out of the vicious circle of profit generation at the expense of environmental and social sustainability.

Learnings from the Project for Haryana MSMEs-SWITCH-Asia Project

- ▶ **Economics of change in the short term is a key driver for the owner**
Solutions ought to be customized right up to the firm level and low investment options are usually preferred.
- ▶ **Change in Practices is a bigger factor of change than equipment and technology**
Adoption of simple operational methods presents incredible opportunities to address energy efficiency. Periodic in-house or external reporting is absolutely essential to stimulate and sustain change.
- ▶ **Once Economics is addressed, other responsibility agendas follow suit**
Once economic gains are realized, occupational health and safety automatically follows suit.
- ▶ **Seeing is believing and relying on key opinion makers**
The rate of adoption is undoubtedly slow at first, but gathers pace over time. Exposure visits and trust building play a key role.
- ▶ **Quick and low transaction cost of financing is key**
Internal or informal sources of financing are often preferred. 'Pay as you earn' systems are found to be more friendly to take up.
- ▶ **Empowering local stakeholders in key to scaling up**
It is critical to empower local stakeholders (fabricators, equipment suppliers, industry associations, production supervisors, consultants etc.) in order to scale up effectively.

8.5 Small & Medium Enterprises Programme- Bureau of Energy Efficiency

Background

Large number of MSMEs across sectors like foundries, metals, textiles, brick, ceramics, utensils, rice and other manufacturing units etc., have large potential for energy use optimization. In quantitative terms, there is not much authentic information and data available with respect to their

energy consumption and energy saving opportunities. Majority of SMEs are typically run by entrepreneurs who are leanly staffed with trained technical and managerial persons to deploy and capture energy efficiency practice to reduce manufacturing cost and increase competitive edge.

Therefore, it becomes useful to build their energy efficiency awareness by funding/subsidizing need based studies in large number units in the SMEs and giving energy conservation recommendations including technology up-gradation opportunities. It is envisaged that such interventions supported by diagnostic studies and pilot projects at cluster level focusing on energy/resource efficiency, energy conservation and technology up gradation. This would help in addressing the cluster specific problems and enhancing energy efficiency in SMEs.

The Bureau of Energy Efficiency (BEE) which is nodal agency under Ministry of Power Government of India initiated diagnostic studies in 25 clusters to prepare cluster specific energy efficiency manuals covering Specific energy consumption norms, energy efficient process and technologies, best practices, case studies, etc. These studies provided information on technology status, best operating practices, gaps in skills and knowledge, energy conservation opportunities, energy saving potential, etc. for each of the sub-sector in SMEs. BEE also undertook capacity building of local service providers and entrepreneurs/ managers of SMEs. The local service providers were trained in order to be able to provide the local services in the setting of energy efficiency projects in the clusters.

The programme prepared detailed project reports for about 425 energy efficiency projects in the 29 SME clusters. These projects were prepared in such a way that a minimum of 5 technologies are covered and about three sizes (scale) are considered.

Clusters and Sectors identified for project intervention:

The initial studies were undertaken in 35 energy intensive clusters to ascertain the gaps in technology use and to study the potential of energy efficiency interventions which can be taken up in the SMEs. The initial studies were carried out on a pan India basis and covered a large range of energy intensive industrial sectors. The identified geographical clusters and energy intensive sectors are tabulated as seen in Table 11:

Table 11: Geographical Clusters & Energy Intensive Sectors

S.No	Clusters	Sectors
1.	Firozabad	Glass
2.	Belgaum	Foundry
3.	Coimbatore	Foundry

4.	Rajkot	Foundry
5.	Alleppy	Coir
6.	Dewas	Edible Oil
7.	Mangalore	Roof Tiles
8.	Meerut & Bijnor	Khandsari
9.	Ratnagiri	Fish and Mango processing)
10.	Tirupur	Textiles
11.	Ahmedabad	Dyes Chemical and Pigments
12.	Jamnagar	Brass
13.	Morbi	Ceramics
14.	Pali Textile	Dyeing and Printing
15.	Surat	Textile Processing
16.	Solapur	Textile Spinning
17.	Warangal	Rice Processing
18.	Alwar/Sawai Madhopur	Edible Oil
19.	Bangalore	Machine Components
20.	Ludhiana Jalandhar And Batala	Foundry
21.	Bhimavaram	Ice making
22.	Bhuvaneshwar	Brassware
23.	East and West Godavari	Firebrick and Refractory
24.	Ganjam	Rice Milling
25.	Gujarat	Dairy
26.	Howrah	Galvanizing and Wire Drawing
27.	Jagadhari	Brass and Aluminium
28.	Jodhpur	Lime
29.	Jorhat	Tea
30.	Cochin	Sea Food
31.	Muzaffarnagar	Paper

32.	Orissa	Sponge Iron
33.	Vapi	Chemical and Dyes
34.	Varanasi	Brick Making
35.	Vellore	Rice Milling

Objective of BEE SME Programme

The BEE SME programme aimed at improving the energy intensity of the Indian economy by undertaking actions in selected MSME clusters. The project targeted to accelerate the adoption of EE technologies and practices in 25 chosen MSME clusters in the SME sector through knowledge sharing, capacity building and development of innovative financing mechanisms.

The main project activities undertaken are given below (Refer Figure 40)

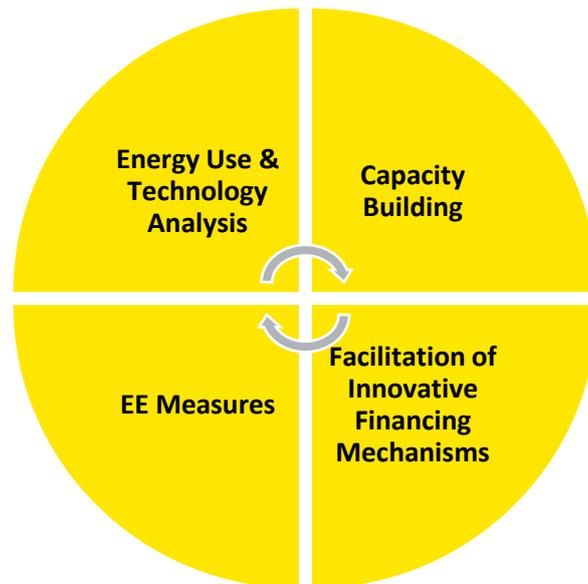


Figure 40: Major Project Activities

Energy Use and Technology Analysis

The Energy use and technology analysis was carried out to develop better information base on status of SMEs in the 35 chosen clusters, possibilities for undertaking EE measures, potential of impact, status technology and energy use and identification of possible EE measures that could be undertaken by the SMEs.

The activities under the energy use and technology analysis included

- 1.1 Situation Analysis in 35 SME clusters.

1.2 Energy Use and Technology Audit

The outcomes of these activities presented an assessment of total energy usage, preparedness of the cluster to undertake further action and a list of units where further action were recommended along with filled in data collection formats. The cluster manuals were prepared for each of the SME clusters to give an overview of the cluster in terms of name and numbers of units, contact details, production capacity, technologies in use, products manufacture, potential for energy savings, EE measures applicable, sources of these technologies/expertise and case studies on Best Practices/ Technological Innovations in the cluster.

Capacity Building

The objective of this activity was to create capacities among local services providers/technology providers in the SME clusters that would help in the uptake of the EE measures identified in Activity 1. The activities carried out under the capacity building component included the following.

1.3 Introductory Local Service Providers Workshop

1.4 Information Dissemination Workshops

A series of workshops and awareness dissemination programmes were conducted under this activity and captured stakeholder issues regarding implementation of EE measures. The activity also enrolled all the attending experts for the BEE SME Programme. A list of 15 projects were identified for each cluster for which bankable DPRs were to be prepared.

Implementation of Energy Efficiency Measures

This activity covered development of DPRs to facilitate implementation of EE measures in the identified cluster, targeted identification of the match between the projects and the specific expertise of the LSPs in order to allot the project to the LSPs which they will have to take forward in the clusters.

The sub activities carried out under this component included the following:

1.5 Preparation of Bankable Detailed Project Reports

1.6 Capacity Building of Local Services Providers

As an outcome of these activities a bank of 15 DPRs for all the clusters and a match for experts and projects in all 29 clusters was developed. A total of 425 bankable DPRs were prepared.

Facilitation of Innovative Funding Mechanism

The objective of this activity was to encourage uptake of EE measures through facilitation of innovative financing mechanisms without creating market distortion. The detailed activities carried out under this project component included the following:

1.7 Facilitation of Financing EE

1.8 Capacity Building of banks to evaluate EE projects

1.9 Concluding LSPs Workshop

These activities were aimed at formulating an arrangement between the World Bank and with SIDBI/lead banks, to mitigate risk for EE projects. Enhancement in capacity of lead bank in energy efficiency project appraisals in the clusters where Energy Efficiency projects have been identified.

The concluding LSP workshops called representatives from the industry/associations to share with each other the results of implementations that have been undertaken in the cluster. It also detailed out the projects undertaken; savings made and discussed future needs of the clusters to carve out a suggested roadmap for future BEE programme.

Summary of project outcomes:

The energy efficiency project interventions carried out in 25 out of 35 identified clusters presented the following outcomes:

- 1250 comprehensive Energy Audits.
- Total energy consumption in selected 25 clusters is estimated to be about 5.6 MTOE.
- Energy saving potential of 0.82 MTOE in 25 SMEs clusters which is 15% of the total energy consumption.
- Total energy saving potential is estimated to be Rs.1400 Cr in 25 SMEs clusters
- Total investment required to achieve the saving is estimated to be Rs. 3388 Cr in 25 SMEs clusters
- Simple payback period is estimated to 2.4 years only
- 25% subsidy (maximum up to Rs. 10 Lakh) is available from MoMSME under Technology Up gradation Programme

Learnings for Haryana MSMEs-Energy Efficiency and Sustainability

Haryana as a state has already taken numerous initiatives to provide impetus for growth of micro small and medium enterprises in the state. The Enterprise Promotion Policy 2015 of Haryana and

the Haryana State Public Procurement policy 2016 has already extended numerous benefits to MSMEs in terms of improving their access to markets, access to finance and technology.

Further improving the energy use performance of MSME of the State will not only increase the overall competitiveness of MSME but also it will improve the energy intensity and decrease the GHG emission intensity of the GSDP. The state of Haryana already holds a great potential since it hosts old industrial concentrations across the state some of which are as old as the freedom of our country and make sense for technological interventions. Some of the initiatives Haryana may consider taking, keeping in view the diverse industrial footprint the state has are as listed under:

1. Mapping of energy intensity of Industrial sectors across the state
2. Identification of energy intensive cluster/ sectors/industries
3. Carry out energy use and technology status studies on pilot basis for every cluster/sector/industry
4. Identification of best suited technologies to replace the conventional/ existing highly energy intensive technology in use.
5. Develop sector /cluster specific energy efficient technology compendium containing cost benefit analysis for proposed technologies
6. Conduct dissemination workshops for generating awareness and develop understanding of MSMEs on identified technology use through DICs, industry associations etc.
7. Develop a pool of energy auditors in the state in association with Industry associations to carry out energy use studies for MSMEs who wish to explore the scope of identified technologies in their industrial setups, the industry associations/DIC may validate the studies and forward the potential cases for approval
8. Develop innovative result based funding mechanism to partly fund energy efficient interventions. The state government may come up with such mechanisms to support uptake of energy efficient technology upgradation.
9. The beneficiary industries may be asked to submit energy returns to the Industry Department in case availed for state assistance in implementation of these technologies.
10. Government of Haryana may also explore ways to associate with bilateral/multilateral organizations to formulate a sustainability framework for the State. Under this

framework, best practices in sustainability and technology transfer can be facilitated by these organizations and a joint funding mechanism for financing these interventions can be established.

Chapter 9: Annexures



9.1 UK: Catapult Programme



INTRODUCTION

The Catapults are a nationwide-network of technology centres, created by Innovate UK, designed to harness British innovation and boost productivity.

They were created in response to a report published in 2010 by entrepreneur and technologist, Dr Herman Hauser, in which he identified a need to,

"...close the gap between universities and industry through a 'translational infrastructure' to provide a business-focused capacity and capability that bridges research and technology commercialisation."

The document addressed an issue that had dogged the country for many years: Britain's failure to capitalise fully on the commercial potential of its world-class science and research base. The UK was great at inventing but bad at commercialising.

The country's industrial successes highlighted shortcomings elsewhere. The UK had long been the world's No2 aerospace nation, with particular expertise in jet engines and satellites. Our automotive, creative, engineering and pharmacology companies were (and are) at the forefront of their sectors, globally. Britain clearly had the 'right stuff' but it was unevenly distributed and poorly understood.

The Catapults were tasked with delivering a paradigm shift in how we identify, nurture and deliver market-worthy ideas.

independent, agile and staffed by teams with broad business experience they were mandated to 'creatively destroy obstacles to success.'

Over the past four years they have done just that, creating over three thousand new collaborations between academia and industry and taking on challenges ranging from the mass production of graphene, the atom-thick 'wonder material', to shaking up the energy industry and putting the UK at the forefront of the Internet of Things.

Catapults operate facilities worth £850m, providing open access to state of the art resource and expert support beyond the means of all but the biggest companies. Some also help apprentices get 'hands on' with the latest technologies, anchoring key skills here. They are active in over 24 countries around the world, developing markets for British ingenuity and attracting inward investment from leading international companies, who increasingly see the UK as a prime research and development base for autonomous vehicles, medicines and smart cities.

Their achievements derive not from the discovery of some Secret Industrial Success Formula, but from the way they combine clarity of vision with ambition and 'real-world' commercial pragmatism.

For a start, the Catapult resource is carefully focused on areas where the UK already has significant strengths, or where the ingredients exist to grow sectors and establish multi-billion pound stakes in high-value emerging markets.



INTRODUCTION – CONTINUED

Early on, they worked hard to deliver a wide range of projects in order to forge links and establish their credibility with stakeholders. Catapults are now seen as being trustworthy, expert and neutral, able to convene effective partnerships with academia, government and businesses of all sizes, from start ups to international corporations.

Rather than foist new ideas on an unsuspecting market, they work with industry to build demand for innovation. Because it is understood that their role is to boost entire sectors, not just support selected companies, Catapults have had remarkable success in getting firms to collaborate and share information.

Generating and manipulating data to model problems and create new products is a tactic used across the network and it helps Catapults take a 'whole systems' approach to complex, cross-sectorial issues, such as cutting congestion on the motorways, bringing smart sustainable heating solutions into homes or preparing the country for the mass-uptake of electric vehicles. Modelling real environments in the virtual world also helps

prove solutions before final commitments to invest in building or machinery are made.

Catapults are increasingly collaborating with each other, drawing on the strength of their network and pooling talents to address systemic failure and share best practice across sectors. As a result, Catapults are not only strategically aligned with the Industrial Strategy, published in January 2017, they are the best delivery mechanism for it.

The plan identifies the need to spread opportunity and growth across the country, and its ten priority themes, or pillars, are a checklist for how the Catapults impact the economy: from investing in science, research and innovation to supporting businesses to grow; creating the right local infrastructure and improving procurement. It is a practical list for improving productivity.

The Catapult experience also informed the creation of the Industrial Strategy Challenge Fund, announced in 2016, which will see £1bn invested over four years in six principle technology areas including:

CATAPULTS
OPERATE
FACILITIES
WORTH 
£850M

CATAPULTS ARE SEEN AS BEING
TRUSTWORTHY, EXPERT AND NEUTRAL

CATAPULT

INTRODUCTION – CONTINUED

healthcare and medicines, manufacturing, robots for a safer world and batteries for cleaner energy.

The Industrial Strategy and Challenge Fund reflect the understanding that sustainable economic growth cannot be delivered by just a handful of sectors, or by 'picking winners, but through the creation of an enduring architecture for success, where every aspect, from how we produce electricity, to how we sell British innovation around the world, is considered and optimised.

This matters now more than ever because a new wave of technology is heading towards us that will sweep away existing norms of how we work, how we make things and even how we live. Artificial intelligence, quantum technologies, synthetic biology, digital manufacturing: these things will test the capacity of every nation to react to the sort of change that used to take generations, but which will now be experienced over the course of just a few years.

Fortunately, Britain has planned for this future and developed the tools necessary to turn 'change' into opportunity.

As the original industrial nation, we know that innovation is restless; rather than be daunted by the technological shifts ahead, the Catapults are already embracing them and experimenting with their application. The skills and facilities the Catapults have invested in are not fixed to one mode or moment but designed to evolve, just as the network overall can reconfigure according to the challenges being faced.

CATAPULTS HAVE REMARKABLE SUCCESS GETTING FIRMS TO COLLABORATE AND SHARE INFORMATION

The chapters following will detail how the Catapults came into being and how they operate; they will discuss a handful of projects from the 600 plus completed to date, and look at ongoing programmes designed to deliver long term economic and social benefits. The closing section will show how the Catapults are increasingly working together to address the most complex problems faced by the country.

The innovation story starts, however, in space.

AN INNOVATOR'S STORY

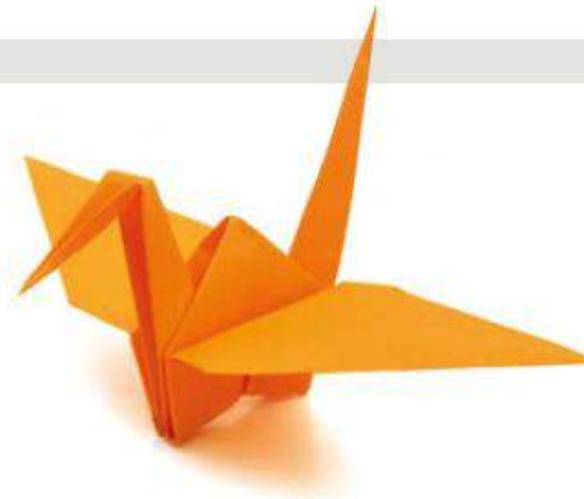
Mike Lawton is demanding. It is his drive that led him to combine the 2,000-year-old art of origami with cutting-edge materials technology, and pioneer a radical new way of designing and making antennas and booms for spacecraft.

Having startled the incumbent aerospace giants with the ingenious simplicity of his idea, Mike validated the new concept, in orbit, in a timespan the industry said was impossible: from start-up to space in just 30 months.

"Demanding is good. It's how you succeed when the odds are against you. I like being told my ambitions are impossible..." he says, smiling.

Mike is also quick to acknowledge how his impertinent start-up became a respected player in a sector dominated by industrial giants and state funded agencies. "In large part it's thanks to this place."

He's speaking about the Satellite Applications Catapult, a sleek, low-rise building on an Oxfordshire science and innovation campus that is home to a team of over a 100 people. Space engineers and data experts; technology gurus and business builders; blue-sky thinkers and angel investors, they are drawn from around the world and share a simple, if ambitious, goal: to ensure UK innovation is at the heart of a new space age.



A revolution is underway. Between 2005 and 2015, 1,480 satellites were launched. In the corresponding period to 2025, it is predicted that five times that number will go into orbit. This reflects the fact that space services and data enable almost every aspect of the modern world: timing, navigation, communication, entertainment, farming, pollution monitoring, smart cities, tele-medicine, self-driving vehicles: they all rely on information cascading from space and turned into apps and products by a fast growing crowd of creative, data-smart companies.

"As a so-called 'pre-start-up' the Catapult helped me secure my first offer of conditional investment for Oxford Space Systems: we won an Innovate UK competition. This not only provided some initial funding, the Catapult also gave us a home, tested our business

BETWEEN
2005 AND
2015,
1,480
SATELLITES
WERE
LAUNCHED.

THIS IS PREDICTED TO
INCREASE X5 BY 2025.

CATAPULT

AN INNOVATOR'S STORY – CONTINUED

model and helped me improve our pitch so we could secure our first venture capital funding. Their support gave OSS credibility and they introduced us to technology partners and international agencies that, ultimately, put our product into space.

Entrepreneurs are often so in love with their idea they lose sight of the market. That might seem an odd thing to say but quite often people aren't ready for new ideas, especially from up-starts they've never heard of.

You can easily go bust fighting conservatism and inertia. Having the brilliant new idea is only part of the jigsaw. I had many sleepless nights thinking about this, and the responsibility I bore towards the

people here, all betting their careers on this working. I kept asking myself, 'Can we really deliver this? Why would anyone buy from me?' That's the reality of innovation: constant stress!

Testing the idea, presenting it properly, having a business plan that isn't fantasy, building credibility – these things are vital. And very hard to do, which is why I am so glad we found the Catapult. They really know their sector and understand the mindset of entrepreneurs. It was a proper partnership and together we set a record for the space industry.

They know how to make ideas fly. In our case, quite literally! ■

CATAPULTS REALLY
KNOW THEIR SECTOR AND
UNDERSTAND THE MINDSET
OF ENTREPRENEURS

CATAPULT



WHAT DO CATAPULTS DO?

Specialist Technology Centres Boosting UK Innovation And Growth

Catapults..

- ◆ Bridge the gap between research and commercialisation
- ◆ Foster collaboration within and between organisations and sectors
- ◆ Stimulate demand for innovation
- ◆ Get new ideas and technologies to market quicker
- ◆ Break down barriers to success
- ◆ Help SMEs get ideas to market
- ◆ Anchor innovation and jobs in the UK

A key partner to deliver the UK's Industrial Strategy (alongside Innovate UK)..

- ◆ Investing in science, research and innovation
- ◆ Developing skills
- ◆ Upgrading infrastructure
- ◆ Improving procurement
- ◆ Delivering affordable energy and clean growth
- ◆ Driving growth across the country
- ◆ Supporting business to start and grow
- ◆ Encouraging trade and inward investment
- ◆ Cultivating world leading sectors
- ◆ Creating the right local institutions



BREAKING
DOWN
BARRIERS TO
SUCCESS

CATAPULT

WHAT DO CATAPULTS DO? – CONTINUED

Address big issues...

- Industrial inertia
- Supply chain development
- Systemic failures and complex, cross-sector challenges
- Barriers to innovation adoption
- Short-term investment cycles
- Slow growth in productivity and competitiveness
- Wider adoption of enabling technologies such as artificial intelligence, biotechnology and robotics

They are...

- Unique
- Expert
- Trusted
- Neutral
- Open access
- Independent
- Agile
- Led by industry professionals
- Data, technology and innovation/commercialisation experts

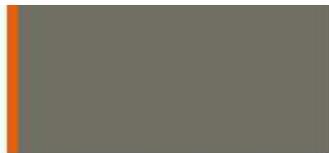
Stimulate demand by...

- De-risking innovation adaption
- Testing new ideas and technology in real-world scenarios
- Pump-priming new markets
- Building skills
- Horizontal innovation – sharing ideas across sectors
- Sharing ideas across sectors
- Bringing large and small businesses together
- Making regulation fit for purpose

Work in key sectors and industries of the future...

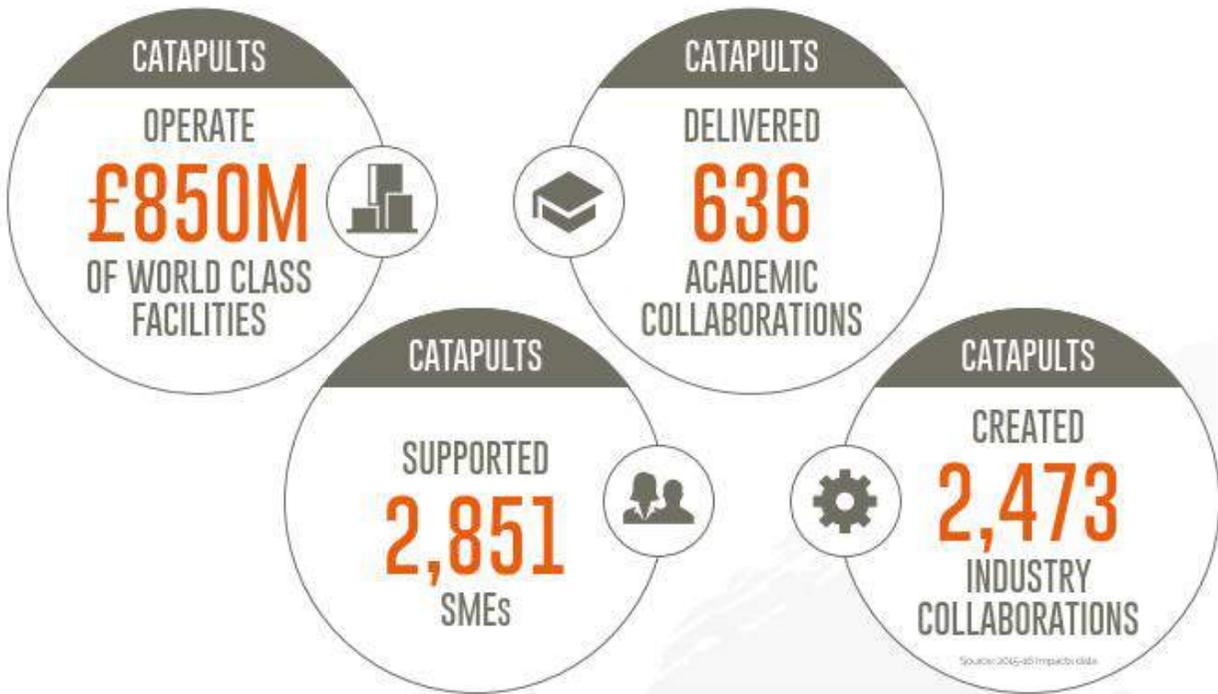
- Cell and Gene Therapy
- Compound Semiconductor Applications
- Digital
- Energy Systems
- Future Cities
- High Value Manufacturing
- Medicines Discovery
- Offshore Renewable Energy
- Satellite Applications
- Transport Systems



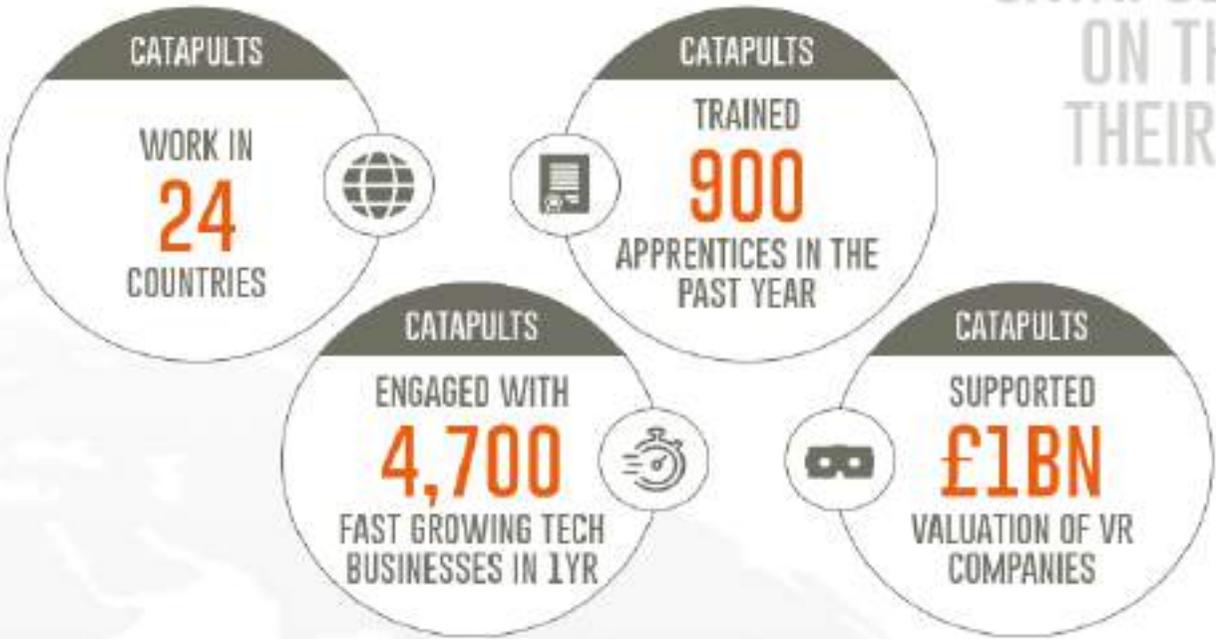


CATAPULTS DELIVER

Innovating Now To Build A Better Future For Britain



CATAPULTS DELIVER - CONTINUED



CATAPULTS FOCUS ON THE UK BUT THEIR REACH IS GLOBAL



9.2 USA: MEP Strategic Plan (2017-22)



MEP NATIONAL NETWORK STRATEGIC PLAN

MISSION:

Strengthen and empower U.S. manufacturers.

VISION:

We are the go-to resource for America’s manufacturers ensuring U.S. manufacturing is resilient and leads the world in manufacturing innovation.

DRIVING FORCE:

We are driven to attain and uphold U.S. manufacturing preeminence which is essential to our nation’s long-term economic strength and to protect our national security interests.

ROLE:

The MEP National Network™ focuses its expertise and knowledge as well as that of its partners (industry, educational institutions, state governments, NIST and other federal research laboratories and agencies) on providing U.S. manufacturers with information and tools they need to improve productivity, assure consistent quality, accelerate the transfer of manufacturing technology and infuse innovation into production processes and new products.

PROGRAMMATIC STRENGTHS



Knowledgeable and experienced trusted technical experts in manufacturing and business.



Nationwide coverage with locations within 2-3 hours of every manufacturer in America.



Mission-driven public/private partnership model that includes Federal/State collaboration.



Evidence-based success in helping manufacturers cut costs, increase sales and create and retain jobs.



Market savvy experts who respond to local needs and who are uniquely connected to national expertise and resources.



Proven high customer satisfaction well above industry benchmark - 79.8 Net Promoter Score in FY16.



Federal investment that requires cost share match to ensure motivated partnerships.

STRATEGIC GOALS

REPRESENTS WHAT WE MUST ACHIEVE TO STRENGTHEN AND EMPOWER U.S. MANUFACTURERS.

✓ EMPOWER MANUFACTURERS

Assist U.S. manufacturers in embracing productivity-enhancing innovative manufacturing technologies, navigate advanced technology solutions and recruit and retain a skilled and diverse workforce.

✓ CHAMPION MANUFACTURING

Actively promote the importance of a strong manufacturing base as key to a robust U.S. economy and protection of our national security interests; create awareness of innovations in manufacturing; create enabling workforce development partnerships to build a stronger and diverse workforce pipeline; and maximize market awareness of the MEP National Network.

✓ LEVERAGE PARTNERSHIPS

Leverage national, regional, state and local partnerships to gain substantial increase in market penetration; identify mission-complementary advocates to help the MEP National Network become a recognized manufacturing resource brand; build an expanded service delivery model to support manufacturing technology advances.

✓ TRANSFORM THE NETWORK

Maximize MEP National Network knowledge and experience by operating as an integrated National Network; increase efficiency and effectiveness by employing a Learning Organization platform; and create a resilient and adaptive MEP National Network to support a resilient and adaptive U.S. manufacturing base.

EMPOWER MANUFACTURERS

Assist U.S. manufacturers in embracing productivity-enhancing innovative manufacturing technologies, navigate advanced technology solutions and recruit and retain a skilled and diverse workforce.

STRATEGIC OBJECTIVES:

- Identify, inform and deploy services relating to current and emerging manufacturing technologies relative to productivity growth.
- Act as a trusted advisor to small and medium-sized manufacturers to help them navigate emerging, and be aware of, future technology trends.
- Introduce and connect small and medium-sized manufacturers to successful strategies that helps attract and retain skilled employees, and creates an inclusive pipeline of future employees.



CHAMPION MANUFACTURING

Actively promote the importance of a strong manufacturing base as key to a robust U.S. economy and protection of national security interests; create awareness of innovations in manufacturing; create enabling workforce development partnerships to build a stronger and diverse workforce pipeline; and maximize market awareness of the MEP National Network.

STRATEGIC OBJECTIVES:

- Provide insight, at the local and national level, on the current "State of Manufacturing" by telling the stories about the people, companies and products made in the U.S. that support the economy and help protect our national security interests.
- Advance the MEP National Network as experts in manufacturing technology by utilizing key communication outlets to translate ground-breaking innovations in manufacturing.
- Enable state and regional workforce partnerships to connect, communicate and coordinate across local workforce development systems.
- Deploy the MEP National Network Brand and tie it to specific measures of success.



LEVERAGE PARTNERSHIPS

Leverage national, regional, state and local partnerships to gain substantial increase in market penetration; identify mission-complementary advocates to help the MEP National Network become a recognized manufacturing resource brand; build an expanded service delivery model to support manufacturing technology advances.

STRATEGIC OBJECTIVES:

- Leverage the major partnership with the Defense Department to attract other public (federal agencies) partnerships that bring vertical program synergies to increase market penetration, build on MEP National Network supply chain projects and entice state and other partner program investment funding.
- Create and provide on an annual basis, a value-added, state-by-state MEP National Network metric package on economic impacts, demographics served and "Public-Good" gained to encourage in-state advocacy of the MEP Center.
- Build on key technology and growth partnerships with the Manufacturing USA Institutes, NIST, other Federal Laboratories and Universities to develop a unique collaborative technology information transfer and service delivery model; grow relationships with state and city economic development principals, local Chambers, Tech Shops, Incubators, Export Assistance Centers.



Manufacturing
USA



TRANSFORM THE NETWORK

Maximize MEP National Network knowledge and experience to operate as an integrated National Network; increase efficiency and effectiveness by employing a Learning Organization platform; and create a resilient and adaptive MEP National Network to support a resilient and adaptive U.S. manufacturing base.

STRATEGIC OBJECTIVES:

- Deploy the Future is Now Framework, adopting the guiding principles into the MEP National Network which will help to migrate the MEP Program from a Program Office and System of Centers to a National Network with value-added Program Office support, allowing a broader range of complementary services and information tailored to evolving manufacturing business owners needs.
- Create and empower a Learning Organization function that will support increased NIST MEP and Center efficiency and effectiveness and help refine Center performance metrics based on information to inform performance-based diagnosis and feedback to Centers, enabling applications to Center self-assessment and Center-to-Center sharing.
- Strive for Center and NIST MEP Program Office operational excellence by establishing risk management protocols that put in place mitigating strategies for internal and external threats.



MEP NATIONAL NETWORK MEASURES OF SUCCESS

18-MONTH MEASURES OF SUCCESS:

- Piloted integrated MEP National Network approach to delivery system engaging **50%** of Centers in multi-center delivery projects.
- Increased small/rural engagements through 3rd party partnerships by **10%** and increased longer-term impactful projects with these smaller firms by **5%**.
- Attained Operational Excellence in **25%** of Centers' operations and in **50%** of NIST MEP administrative support.
- Increased awareness of the MEP National Network brand by **10%** over base brand recognition measurement a year after the Network launches the brand.

FIVE-YEAR VIVID DESCRIPTION:

As the go-to resource for U.S. manufacturers: ...

- Recognized by small and medium-sized manufacturers as a valuable and essential resource for delivering advanced technology solutions and cited by key manufacturing stakeholders (local, state, federal) as integral to growing U.S. manufacturing ecosystems.
- We have increased our market penetration as an integrated national network by **20%**.
- We deliver integrated digitalization and cybersecurity assistance to dispersed supply chains and we have embraced Industry 4.0 in our own operational excellence.

SIGNIFICANT LONG-TERM GOAL:

The MEP National Network is known and recognized by U.S. manufacturers and stakeholders as an indispensable resource whose trusted experts help them grow and embrace manufacturing technology advances. A doubling of federal and state funding in the Network along with a strategic expansion of the current members of the MEP National Network:

- **Known and recognized** by U.S. manufacturers as the go-to resource for manufacturing.
- We've **tripled** the number of manufacturers served annually.
- We've increased the MEP National Network impact numbers **four-fold**.

MEP NATIONAL NETWORK SHORT/MID-TERM PRIORITIES

1. CREATION OF INTEGRATED NATIONAL NETWORK SERVICE DELIVERY SYSTEM

- **Future is Now** - communicate pilot to National Network/implement/assess/refine
- **Delivery system infrastructure** - develop SOP/training/metrics
- **National Network coordination and communication plan** - assess status within National Network/refine/update

2. UPDATE OF NATIONAL-LEVEL PARTNERSHIPS AND PERFORMANCE EVALUATION SUPPORT SERVICES

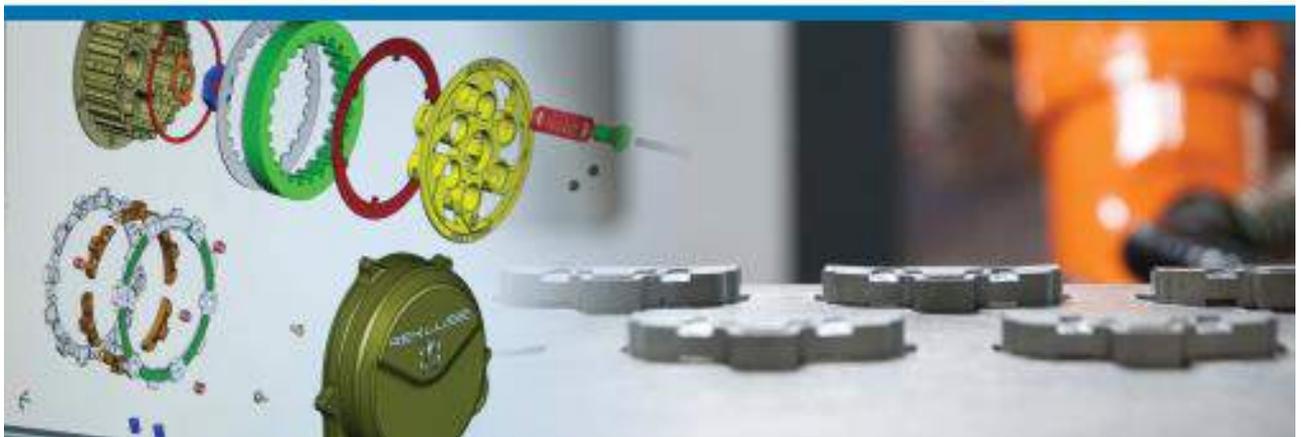
- **State relations program development** - assess current state relations strategies/ research other strategies/create new plan/pilot
- **Program evaluation and performance** - develop and implement pilot analyze/assess/refine/engage learning organization system
- **Center financial risk management development** - complete pilot/assess/refine
- **MEP National Network brand and trademark** - implement launch/assess/refine
- **MFG Day** - review strategic engagements/expand leverage of partnerships
- **MEP National Network learning organization** - assess National Network/industry needs



3.

DEFINED AREAS OF FOCUS FOR MANUFACTURING INNOVATION

- **Cybersecurity** - National Network implementation and current assessment/future trends
- **Digital manufacturing** - National Network implementation and current assessment in industry and National Network/future trends
- **Additive manufacturing** - current assessment in industry and National Network/future trends
- **Automation and robotics** - current assessment in industry and National Network/future trends
- **IoT** - future trends for small and medium-sized manufacturers in advanced manufacturing
- **National and regional service portfolio coordination**
- **National Network workforce development plan**



4. CREATION INFRASTRUCTURE FOR NATIONAL NETWORK LEARNING ORGANIZATION

- FORME system learning services and Best Practice Conference - plan and implementation
- Establish Learning Organization infrastructure - assessment of future needs/ develop National Network plan
- 2nd biennial summit - roll out of new services and systems

5. INITIAL DEVELOPMENT OF SUPPLY CHAIN, TECHNOLOGY ASSESSMENT AND INFORMATION AS A SERVICE

- Partnership support of Defense Industrial Base assessment and supply chain development- assessment/create plan/implement services/consideration of future trends
- OEM/SMM engagement in industry 4.0 supplier development- status assessment of the National Network/consideration of future needs
- FSMA - assessment of industry and National Network needs and current resources/ consideration of future trends
- Informational and performance support research services
- Manufacturing research to practice services



The MEP National Network™ is a unique public-private partnership that delivers comprehensive, proven solutions to U.S. manufacturers, fueling growth and advancing U.S. manufacturing. Focused on helping small and medium-sized manufacturers generate business results and thrive in today's technology-driven economy, the MEP National Network comprises the National Institute of Standards and Technology's Manufacturing Extension Partnership (NIST MEP), 51 MEP Centers located in all 50 states and Puerto Rico, and its 1,300 trusted advisors and experts at over 400 MEP service locations, providing any U.S. manufacturer with access to resources they need to succeed. In 2017, the MEP National Network connected with 26,313 manufacturers, leading to \$12.6 billion in sales, \$1.7 billion in cost savings, \$3.5 billion in new client investments, and helping to create and retain more than 100,000 U.S. manufacturing jobs.

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NIST
National Institute of
Standards and Technology
U.S. Department of Commerce

9.3 Overview of Industry/ other Associations

a. Tirupur Exporter Association (TEA), Tirupur, Tamil Nadu

▶ **About TEA- History and Background**

The Tirupur Exporter Association popularly known as TEA was set up in the year 1990 in Tirupur under the leadership of Dr. A Sakhtivel. At the time of its inception in 1990, the Tirupur exports were worth Rs. 290 cr. with a vision to achieve a turnover of Rs. 1000 cr. by 1995. This target was achieved in 1993 itself. As in 2016-17, Tirupur exports are worth Rs. 17,081 cr. The cluster presently exports to leading markets such as Bangladesh, Vietnam, Cambodia.

As in 2017, TEA has a total membership base of 1013 members with close to 90% of units falling in the category of micro and small units matured as medium and large units. Out of 1013 members, 140 members have limited companies, 2 have public limited companies and the remaining 871 units are partnership based. TEA is currently being headed by Mr. Raja Shanmugam as the President. The cluster overall has 8350 units across the garment making value chain.

In creating social capital, TEA collaborates with close to 30 industry related institutions and associations spanning across the textile value chain in the Tirupur Knitwear Cluster area. Some of the leading associations are Dyers Association of Tirupur, Tirupur Bleachers Association, Tirupur Dyes & Chemicals Merchants Association.

With minimal dependence on external funding sources (except for large infrastructure creation projects), the association is largely being run by local entrepreneurs and is self-financed with majority of its finances coming from membership fees (Rs. 10,000 annual membership fee and Rs. 50,000 as one time entry fee). One of the unique features of the association is the democratic functioning of the association. With focus on collective leadership, every 3 years President and office bearers are re-elected with no president getting a second term. This ensures efficiency and transparency in governance with no hegemony that can otherwise prove detrimental for association's functioning.

With minimal support from the Government upto 2000, TEA anchored the creation of urban (network) and hard (industrial) infrastructure in Tirupur, trade promotion, market outreach, promotional activities and social development of Tirupur's textile workers. More recently, in collaboration with central, state government agencies, donor agencies such as USAID as well as private players, TEA has successfully changed the cluster landscape of Tirupur.

▶ **Major Initiatives and Interventions:**

At the time of TEA's inception, in 1990, knitwear industry in Tirupur faced a lot of problems such as water scarcity, bad infrastructure facilities, banking norms, lack of labour training, lab testing facilities, technical knowhow and garment finishing facilities with limited resources. TEA strived to work on all these issues. For creating critical infrastructure, TEA tapped the local networks of the Gounder community for funding the infrastructure. The

primary source of investment came from internal retain earning so as to keep the leverage ratio as low as possible to meet the unforeseen risk of export market fluctuations in terms of exchange rate and demand fall. In this way, TEA was able to upgrade and modernize infrastructure facilities which today, has been the backbone of Tirupur cluster growth.

The major infrastructure interventions spearheaded by TEA in the Tirupur cluster have been given in the adjacent diagram.

TEA was in forefront for upgradation of municipality into corporation, laying of roads, and formation of new district with Tirupur as headquarters

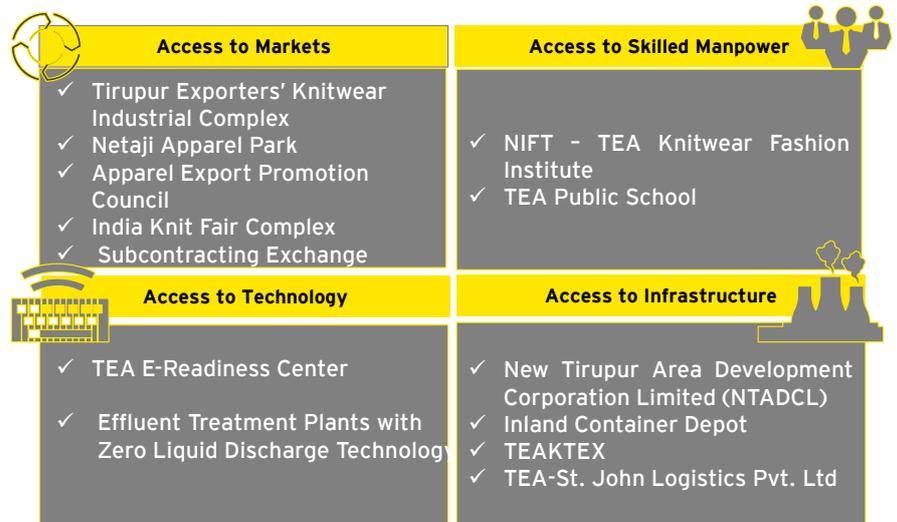


Figure 41 Functions of Tirupur Exporter Association (TEA)

► **Major Achievements:**

Through effective collaborations and network support, TEA has created sizeable social capital and provided an extensive business development ecosystem to the cluster units towards export orientation. This has laid basis for making the Knitwear cluster globally competitive. Some of the major outcomes have been:

- ▶ As in 2016-17, exports stood at Rs. 17,081 cr. up from Rs. 290 cr in 1990.
- ▶ Sizeable share of 45% contributed by Tirupur cluster in India's knitwear exports valued at 45.10 US \$ billion as in 2016-17.
- ▶ As in 2017, the total number of garment making units stood at 8350, up from 4150 in 1995.
- ▶ Progression of the cluster as "Green Tirupur" with establishment of zero liquid discharge by processing units, first of its kind in the world.
- ▶ Tirupur Knitwear Cluster eligible to be declared as "Carbon Free Cluster" with an installed green energy of 1200 MW.

► **Growth Vision of TEA:**

Under the common brand of Vibrant Tirupur, TEA has conceptualized Tirupur Vision 2020 to elevate the status of Tirupur as the Knitwear Capital of India with the ultimate objective of reaching Rs. 1000 cr worth of exports from the cluster, creation of a multi-skilled talent pool and introducing innovative competitiveness enhancing manufacturing practices. Towards this, efforts are on to establish state of the art design studio, Knitwear Research Center, Incubation Center with common infrastructure for technical textiles, a dedicated

textile park, plug and play factory infrastructure, lean manufacturing norms and good management systems.

b. Coimbatore Industrial Infrastructure Association (COINDIA), Coimbatore, Tamil Nadu

▶ **About COINDIA- History and Background**

The origin of COINDIA dates back to 1970's when large donations were made by the industrialists of Coimbatore region for purchasing land in the name of SIEMA. This was to cater to the engineering based MSMEs of Coimbatore. The donations were used to purchase land as a fixed asset in association's name. Using the land, subsequent offices of SEIMA were built (2 in no.) which served exclusive premises for the association.

In 2004, with support from the Government of Tamil Nadu support along with Rs. 2.5 cr contributed by industrialists on an already procured land parcel, COINDIA was created as a non-profit society under the TN Societies Registration Act 1975 promoted by SEIMA along with the two small Foundry Associations, Institute of Indian Foundrymen, Small Industries Testing & Research Center (SiTARC) and SIRUTHULI an NGO engaged in environment care in the Coimbatore Region.

Created as an SPV under the Industrial Infrastructure Upgradation Scheme (IIUS) 2003, COINDIA's creation was largely attributed to the large contribution from pump motor, foundry engineering industry which was close to Rs. 15.36 cr out of the total Rs. 55 crores as project cost). This was an example unparalleled in India wherein large monetary support was extended by industrialists for creating long term social capital and infrastructure advancements for an industry in particular and the region at large.

As in 2017, COINDIA has a total membership base of 230 pump and foundry manufacturers from Coimbatore. COINDIA is currently being headed by Mr. Mahendra Ramadas as the President. In addition to having a dedicated association office in the heart of city, another outstanding feature of COINDIA is its highly democratic functioning. The management committee of COINDIA is the ultimate approving body with functional sub-committees to execute project implementation under the supervision of President and Vice Presidents (office bearers). The association offers a level playing field to each of the member to be elected as the President and the nominated Vice Presidents shadow the President in every meeting in order to gain exposure and gradually get groomed for Presidentship. The association members also make a point to spend sizeable time in the association's office on a weekly basis.

Another leading and truly exceptional practice of this association has been its large focus towards introducing a culture of professional organization into the association with best managerial practices. COINDIA hired team of consultants from a globally renowned management consulting firm to streamline its business processes so as to take foundries to the next level and promote adoption of energy efficient practices at the firm level.

▶ **Major Initiatives and Interventions:**

Some of the major outcomes of interventions by COINDIA have been:

- ▶ Mobilization of Rs. 60 cr as investments benefitting more than 1200 entities of the region.
- ▶ Creation of first of its kind Common Modern Tool Room in Tamil Nadu with a dedicated Rapid Product Development Center and a rapid prototyping machine, again first of its kind in the region.
- ▶ An Industrial School creating to the exclusive needs of socially backward/ BPL individuals.
- ▶ Facilitation of relocation of foundry units (as a government mediator on the behalf of COSMAFAN) outside the city limits in about 180 acres of foundry parks (3 locations) with creation of common facilities.
- ▶ Foundry process improvement training/ skill set improvements through implementation support to Tamil Nadu Government's Skill Development Program with special focus on women skill development.
- ▶ Modernization of Small Industries Testing and Research Center (SiTARC) (NABL accredited and approved testing of scales and weights by legal metrology, GoI) for pump motor and foundry industrial applications.

▶ **Major Achievements:**

Quantifiable achievements⁴⁶:

- ▶ 1548 persons trained on skill upgradation.
- ▶ 542 persons trained on engineering software (process and performance improvement).
- ▶ 4666 units assisted on testing and calibration.
- ▶ 1166 units assisted in product die & mould, machining, component manufacturing.
- ▶ 13048 tons tonnage handled in the Raw material bank.

▶ **Growth Vision of COINDIA:**

COINDIA has set a vision for itself to strengthen the trade competitiveness of the pumps and motor industry and within 10 years emerge as a competition to China in this space. Towards this, the association plans to import the best hi-tech pumps from across the globe for global benchmarking. The association also plans to scale up energy efficiency adoption by the units.

c. The Southern India Engineering Manufacturers' Association (SIEMA), Coimbatore

▶ **About SIEMA- History and Background**

By early 1930's, pump manufacturing industry in Coimbatore gained traction with the first motor of India being produced in Coimbatore in 1937 with subsequent production of monoblocks, domestic pumps. Later the pump and motor units in Coimbatore started

⁴⁶ COINDIA Success Story Report (as in 2010)

diversifying into manufacturing of Industrial Pumps to meet the growing demand in many parts of our Country. To its credit, nearly 45% of the India's requirement of pumpsets is being met by Coimbatore units with a burgeoning export base in the past 25 years.

With growing industrial significance of pump and motor manufacturing in the region, need for an institutional platform/association was felt which led to the formation of the Southern India Engineering Manufacturers' Association (SIEMA) was founded up in the year 1952. The sole aim of SIEMA was to represent and protect the interests of Micro, Small, Medium and Large Scale Engineering Industries of Coimbatore region.

Since its inception, SIEMA focussed on bringing together the big industrialists of the region who could contribute money for purchasing fixed assets mainly land. With high value land parcels already brought and registered in its name, SIEMA was able to take lead in tapping government funding under major Govt schemes such as the Industrial Infrastructure Upgradation Scheme (IIUS) which led to the formation of COINDIA (promoted by SIEMA) in 2004.

In 1970's, SIEMA purchased huge land parcels from donations made by the promoter industrialists of Coimbatore region and this land was used to build offices of SIEMA (2 in no.) which served exclusive premises for the association. With timely procurement of land under its name using the substantial margin money by its member, SIEMA took lead in the creation of common tangible assets and infrastructure in and around Coimbatore region.

As in 2017, COINDIA has a total membership base of 400 industrialists from Coimbatore and is currently being headed by Mr. KK Rajan as the President. The association is not receiving any direct funding from the government and is largely self-financed, being run by local entrepreneurs with majority of its finances coming from membership fees (Rs. 1050-4500 as the annual membership fee). In addition to having a dedicated association offices in the heart of city, the leadership and administrative functioning of SIEMA is highly democratic in nature and progressive in its operations. As in case of COINDIA, the management committee of SIEMA is the ultimate approving body with in-house functional technical committees consisting of industrialist members and external subject experts. These are in the area of energy efficiency, marketing, taxation, law & regulation etc. The leadership and office bearers are rotated every 2 years, with each of the members getting an equal opportunity to be elected as the President. In addition to this, 2 Vice Presidents shadow the President in every meeting in order to gain exposure and gradually get groomed for Presidentship.

The association members are mandated to meet twice-thrice a week in the association's office which ensures community and effectiveness of joint dialogue and collaborations.

► ***Growth Vision of SIEMA:***

SIEMA has set a vision to elevate the scale and scope of pump and motor manufacturing in the Coimbatore region through adoption of state of the art pump technology. For this, in addition to a research expenditure corpus of approx. Rs. 9 cr, SIEMA is strengthening its in-house R&D capability (joint collaboration between SiTARC and

SIEMA) and roping in technical expertise for introducing “Smart Pumps”, a one-of its kind pump technology in the world.

Going forward, SIEMA plans to become pioneers in introducing latest technologies in solar pump manufacturing.

d. I am SME of India, Faridabad, Haryana

▶ **About I am SME of India- Background**

Integrated Association of Micro Small & Medium Enterprises of India, popularly known as IamSMEofIndia is located in Faridabad, Haryana. It has been incorporated under the Section 25 of the Indian Companies Act, 1956 as a Not-For-Profit Company, in 2009. The Company has its operations, pan-India. With its parent chapter in Faridabad, Haryana, the company is having state specific chapters in Manesar and Gurgaon (Haryana), Ludhiana (Panjab), Indore (Madhya Pradesh), Ahmedabad (Gujarat) and Hosur (Karnataka). The company is fast expanding its international operations with I am SME of Bangladesh and I am SME of Zimbabwe 47 in the pipeline. As one of the fastest emerging industry associations in India, I am SME of India is India’s first and only “Gold” category rated national level association accredited by NABET (Quality Council of India-2015).

The key premise of I am SMEs of India’s strategy is to facilitate economies of scale in terms of deployment of available resources for effective implementation. The company has dedicated cells for specific activities such as energy efficiency cell, start-up cell, women entrepreneur cell, each headed by a sector expert with entrepreneurs as members.

With minimal government support, the company is being run by entrepreneurs and is completely self-financed with majority of its finances coming from membership fees (Rs. 10,000 annual membership fee). As on date, the company has 3000 members (direct) and close to 20,000 indirect members both individual entrepreneurs and associations. The total financial corpus of the company as on date stands at Rs. 3 Crores. The company also has an assured money/fee refund policy in place in case the services provided by the company are not satisfactory.

▶ **Major Initiatives and Interventions:**

Some of the major outcomes of I am SME of India’s unique initiatives have been:

- ▶ Dedicated Credit Facilitation Centre providing an open line-of-credit for fixed assets including plant & machinery, generators, computers, office equipment, HSIIDC Ind. plots & sheds, capital equipment and other approved list of assets.

⁴⁷ Meeting Inputs

- ▶ In collaboration with SIDBI, the cell has introduced special Collateral-free Equipment Finance scheme for the Members sanctioning pre-approved limits in the range of Rs. 10 lacs to 75 lacs. So far, close to 100 units have been assisted with collateral free finance with zero NPAs been registered.
- ▶ Collateral-free special finance scheme for the members for solar rooftops, aggregating raw material demand from MSEs towards lower raw material costs (average 30%). As on date, close to 100 individual MSEs have made solar installations with an average offtake of 2.8 lakh per unit.
- ▶ Creation of Special Payment Recovery Cell for MSMEs with a recovery of pending claims worth Rs. 200 crore.
- ▶ Interventions in 20 lean manufacturing clusters across India covering an approximate total of 200 manufacturing enterprises. More recently, the company is also playing an active role in SPV formation and hard infrastructure creation in the garments cluster in Faridabad under the Haryana Mini Clusters Scheme.
- ▶ Accelerator support and SME handholding to micro and small business to leapfrog into mature businesses within a time span of 2 years through the **GEMS to ORNAMENTS** program. Under the program, 25 entrepreneurs are handheld annually. *Over the last six years, close to 150 GEMS units* have been transformed into ORNAMENTS.
- ▶ Weekly training programs in specialized areas such as cyber security, taxation, accounting, energy efficiency, shop floor operations. **In 2016-17 alone, 98 such training programs were help in Faridabad alone.**
- ▶ Add-on services being provided are:
 - ▶ 70% and 95% reduction in the cost of motor and fire insurance respectively for company member.
 - ▶ Discounted diesel upto 75 paise per liter through tie up with Bharat Petroleum Limited.
 - ▶ Subsidised travel fairs for members through tie ups with a sister company-weflybest.com.
 - ▶ “You are Safe” safety services at residences and shop floors of members which has resulted in avoidance of 152 mishaps.

▶ ***Growth Vision of I am SME of India:***

I am SME of India has set a vision to upscale its operations and expand its operation both in scale (coverage in terms of number of enterprises) and scope (depth in nature of services). The organization also wants to deepen its activities through vendor development and trade facilitation in niche sectors like gems & jewelry as well as widen its operations in new territories by increasing its membership base across new territories both in India and globally. The proposed creation of lamSMEofBangladesh and lamSMEofZimbabwe⁴⁸ is a step in the direction of expanding the outreach of the association.

⁴⁸ Meeting Inputs

9.4 Industrial Policy Instruments Matrix: Colombia

		Industrial Energy Efficiency Industrial Policy Instruments/Mechanisms	
		Directed at Producer/Manufacturer	Directed at Consumer
		Market-based Interventions/Decentralized Provision	Public Inputs/Direct Provision
Policy Domain/Market Failure Being Addressed	Product	<p>→ Energy efficiency labels & seal of excellence for industrial appliances and equipment and energy-related products</p> <p>→ Elaborating and proposing industry-wide schemes of voluntary agreements for energy-intensive industries</p> <p>→ Promoting private initiative and the development of energy service companies (ESCO)</p>	<p>→ Creating conditions for public-private partnerships and competitive tenders favourable to energy efficiency</p> <p>→ Establishment of an appropriate legislative framework:</p> <ul style="list-style-type: none"> • Introducing minimum energy performance standards for installations, buildings, machinery and equipment by establishing protocols and system optimization, labelling systems, control and decommissioning • Establishing intensity indicators – goals for IEE for public-private partnerships • Mandatory energy management systems and energy audits <p>→ Development of energy strategies and policies such as Sectoral Mitigation Action Plans (SMAPs), e.g.:</p> <ul style="list-style-type: none"> • Institutional strengthening through the creation of an agreement or framework for energy efficiency to support EE projects and initiatives. • Issuing EE technical regulations • Creating an EE fund to support projects in small and medium enterprises <p>→ Development of Nationally Appropriate Mitigation Actions (NAMAs) for EE in industry, e.g.:</p> <ul style="list-style-type: none"> • Implement and operate pilot projects in the industrial sector, including best operative energy practices (BOPs), process and technology reconversion, innovation and adaptation projects • Knowledge management for the replication of the technology transfer pilot projects' impact in the industrial sector • Monitoring, learning, adaptive feedback and evaluation <p>→ Establishment of a National Energy Efficiency Agency to develop new procedures for the implementation, review and assessment of energy efficiency projects</p>

		Market-based Interventions/Decentralized Provision	Public Inputs/Direct Provision	Directed at Consumer
Policy Domain/Market Failure Being Addressed	Capital	<p>→ Financial support for IEE measures and energy audits</p> <p>→ Financial support for material & non-material investments for the modernization and modification of the industrial sector based on the energy audit recommendations in the form of:</p> <ul style="list-style-type: none"> • Energy Efficiency Investment Lending • systems of guarantees for SMEs • Tax exemptions or deductions • Reduced import duties for the import of renewable energy and energy efficiency equipment materials • Concessional rates – promotion of existing credit lines and creation of new lines • Free energy audits for SMEs • Sustainable partial guarantee fund <p>→ Use of performance contracts to create conditions for the development of the energy services market in the form of Energy Service Companies (ESCOs)</p>	<p>→ Project funding and loans, other means of financial support from the GEF, Inter-American Development Bank, UN agencies and other international bodies</p> <p>→ Energy efficiency projects are eligible for government financial support through a special grant covering 5 per cent to 20 per cent of project costs.</p> <p>→ Setting of fines to be applied in case of non-compliance with the mandatory elements of laws. Funds generated by means of these fines are transferred to EE projects.</p> <p>→ Technical assistance to local financial institutions</p>	

		Market-based Interventions/Decentralized Provision	Public Inputs/Direct Provision	Directed at Consumer
Policy Domain/Market Failure Being Addressed	Labour	<ul style="list-style-type: none"> → Established to raise awareness, train and disseminate energy management systems (EnMS), focused on developing technical capacities. → Creating the role of energy managers in industries to monitor energy consumption → Training of decision-makers at all levels to identify and implement energy efficiency measures → Promotion of ISO 50001 standards through the organization of trainings for employees of industrial enterprises 	<ul style="list-style-type: none"> → Cooperation of industrial enterprises with the National Energy Efficiency Agency on knowledge transfer in IEE with specific focus on capacity-building for SMEs → National certification of energy managers and auditors on energy management systems → Training project for the staff of industrial enterprises and funding agencies to promote energy efficient commercial services and technical assistance to support the completion of energy efficiency investment projects → Promoting the development of education for employees of industrial enterprises and consultancy services in the energy industry for the efficient implementation of national energy efficiency goals 	<ul style="list-style-type: none"> → Embed educational programmes on energy efficiency and conservation in the national education system → Dissemination and awareness raising on energy efficiency and conservation for the public

9.5 Industrial Policy Instruments Matrix: Tunisia

Industrial Energy Efficiency Industrial Policy Instruments/Mechanisms			
Directed at Producer/ Manufacturer			
	Market-based Interventions/ Decentralized Provision	Public Inputs/Direct Provision	Directed at Consumer
Policy Domain/ Market Failure Being Addressed	<p><i>Programme for the Rational and Efficient Use of Energy</i></p> <ul style="list-style-type: none"> → Energy efficiency labels on equipment → Creation of seal of excellence in energy in accordance with Colombia's energy efficiency regulations → Creation of database of measures in energy efficiency implemented by enterprises for improved information sharing → International knowledge exchange and national knowledge networks. Knowledge sharing via business conferences and market studies 	<p><i>Low Carbon Development Strategy (CLCDS)</i></p> <ul style="list-style-type: none"> → Development of Sectoral Mitigation Action Plans (SMAPs) – SMAP Industry for the Ministry of Commerce, Industry and Tourism → Development of Nationally Appropriate Mitigation Actions (NAMAs) for EE in industry, <ul style="list-style-type: none"> • Example of NAMA: the goals of the NAMA Technology Transfer in the Industrial Sector of the Cundinamarca-Bogotá Region: <ul style="list-style-type: none"> ○ Implement and operate pilot projects in the industry, including best operative energy practices (BOPs), process and technology reconversion, innovation and adaptation projects ○ Knowledge management for the replication of the technology transfer pilot projects' impact in the industry ○ Monitoring, learning, adaptive feedback and evaluation → Electricity SMAP – EE component: <ul style="list-style-type: none"> • Institutional strengthening through the creation of an agreement or framework for energy efficiency to support EE projects and initiatives in Colombia. • Issue EE technical regulations • Creation of an EE fund to support projects involving small and medium-sized enterprises • Development of national EE programme for air conditioning <p><i>PROURE, CLCDS</i></p> <ul style="list-style-type: none"> → Setting levels of efficiency and systems performance by establishing protocols and system optimization, labelling systems, control and decommissioning → Intensity indicators – goals for IEE for public-private partnerships 	<p><i>National Development Plan (PND) 2014-2018</i></p> <ul style="list-style-type: none"> → Promotion of information policies – awareness-raising on EE goods.
Product			

		Market-based Interventions/ Decentralized Provision	Public Inputs/Direct Provision	Directed at Consumer
Policy Domain/Market Failure Being Addressed	Capital	<p><i>NPD, CLCDS, PROURE</i></p> <p>→ Financing at concessional rates – promotion of existing credit lines and creation of new lines for expansion and purchases of new equipment</p> <p>→ Specific funding schemes for SMEs – systems of guarantees</p> <p><i>Tax exemptions for the import of renewable energy and energy efficiency equipment materials</i></p> <p>→ Extension of the 1995 tax exemption law and an amendment to the list of raw materials and products that are subject to reduced import duties and exempt from VAT</p> <p>→ Tax deductions for the purchase of efficient equipment based on the energy audit recommendations</p> <p><i>Law No. 223 of 1995</i></p> <p>→ Established a mechanism to provide fiscal incentives, including elimination of VAT and income tax reductions for equipment and tools for environmental monitoring and control.</p>	<p><i>Project funding and loans, other means of financial support from GEF, Inter-American Development Bank, UN agencies and other international bodies</i></p> <p><i>SMAPs and NAMAs</i></p> <p>→ Accelerated amortization for efficient equipment</p> <p>→ Free energy audits for SMEs – identification of energy savings opportunities and lists of measures</p>	

		Market-based Interventions/ Decentralized Provision	Public Inputs/Direct Provision	Directed at Consumer
Policy Domain/Market Failure Being Addressed	Labour		<p><i>National programme 'Comprehensive Energy Management System' (CEMS) 2010-2013</i></p> <p>→ Established to raise awareness, train and disseminate Energy Management Systems (EnMS), focused on developing technical capacities.</p>	
	Technology	<p><i>PROURE</i></p> <p>→ Implementation of ISO 50001 Standard</p> <p>→ Implementation of energy savings goals within the framework of EnMS and monitoring schemes</p>	<p><i>National Development Plan (PND) 2014-2018</i></p> <p>→ The energy savings estimated by the draft version of the ND Plan would be achieved as a result of the implementation of measures focused on the following technologies:</p> <ul style="list-style-type: none"> • efficiency improvements of gas and solid fuel-fired boilers • replacement of steam-based heating technologies by direct heat application • mandatory use of electric motors compliant with minimum efficiency standards. <p><i>PND, CLCDS, PROURE</i></p> <p>→ Mandatory use of latest technologies and equipment</p>	

9.6 Industrial Policy Instruments Matrix: Vietnam

		Industrial Energy Efficiency Industrial Policy Instruments/mechanisms		
		Directed at Producer/Manufacturer		Directed at Consumers
		Market-based Interventions/Decentralized Provision	Public Inputs/Direct Provision	
Policy Domain/Market Failure Being Addressed	Product	<p><i>Energy Efficiency: Renewable Energy Provisions (Law 2004/72)</i></p> <p>→ Mandatory energy labelling of products – controlled by the National Agency of Energy Conservation (ANME)</p> <p><i>Cooperation of industrial enterprises with the National Agency of Energy Conservation (ANME) on knowledge transfer in the IEE</i></p> <p>→ Specific focus on capacity-building for SMEs</p>	<p>→ Support of the energy service companies (ESCO) promotion via the project of the World Bank (P078131) in the cooperation with the government of Tunisia</p> <p><i>Establishment of ANME (2004)</i></p> <p>→ Development of new procedures for the implementation of energy efficiency projects.</p> <p>→ Review and assessment, ANME is entitled to monitor the efficiency of support mechanisms and the use of government aid</p>	<p>Raising public awareness about the importance of EE measures in industry by ANME</p>

		Market-based Interventions/Decentralized Provision	Public Inputs/Direct Provision	Directed at Consumers
Policy Domain/Market Failure Being Addressed	Capital	<p><i>Tax exemptions for the import of renewable energy and energy efficiency equipment and materials (Law 94/127)</i> → Exempts certain raw materials and products necessary to achieve energy efficiency from VAT and some import duties.</p> <p><i>Tax exemptions for the import of renewable energy and energy efficiency equipment and materials (Law 2009/7)</i> → Extension of the 1995 tax exemption law and an amendment to the list of raw materials and products that are subject to reduced import duties and exempt from VAT</p>	<p><i>Law 2009/7 on Energy Efficiency: Renewable Energy Provisions</i> → Set of fines to be applied in case of non-compliance with the mandatory elements of laws 2004-72 and 2009-7. The funds generated through these fines are transferred to the Energy Efficiency Fund (FNME) for investments in projects.</p> <p><i>Establishment of Energy Efficiency Fund (FNME) in 2005, managed by ANME.</i> Financial support for IEE measures by FNME: → Energy audit: 70 per cent of the costs with a maximum of TND 30,000. → Non-material investments: 70 per cent with a maximum of TND 70,000. → Material investments: 20 per cent – the upper limit is determined by annual energy consumption: TND 100,000 for enterprises that consume less than 4 ktoe; TND 200,000 for those that consume between 4 ktoe to 7 ktoe; and TND 250,000 for those that consume more than 7 ktoe.</p> <p><i>Loans and financial guarantees, other means of financial support from the World Bank, IBRD and UN agencies</i> → Support for energy efficiency projects implemented by enterprises → Support for the development of ESCOs → Sustainable partial guarantee fund → Technical assistance to local financial institutions</p>	

		Market-based Interventions/Decentralized Provision	Public Inputs/Direct Provision	Directed at Consumers
Policy Domain/Market Failure Being Addressed	Labour		<i>Energy Efficiency: Renewable Energy Provisions (Law 2004/72)</i> → ANME is responsible for the promotion of training on IEE	
	Technology		<i>Energy Efficiency: Renewable Energy Provisions (Law 2004/72)</i> → ANME is responsible for the promotion of research on IEE	

9.7 Industrial Policy Instruments Matrix: Moldova

		Industrial Energy Efficiency Industrial Policy Instruments/Mechanisms		
		Directed at Producer/Manufacturer		Directed at Consumer
		Market-based Interventions/Decentralized Provision	Public Inputs/Direct Provision	
Policy Domain/Market Failure Being Addressed	Product	<p><i>Law on Energy Saving and Efficiency (No. 50/2010/QH12)</i></p> <p>→ Introducing mandatory energy labels for industrial appliances and equipment</p>	<p><i>National Energy Efficiency Programme (VNEEP)</i></p> <p>→ Conducting energy audits in large enterprises and power plants</p> <p>→ Conducting energy audits in SMEs and commercial buildings</p> <p>→ Introducing energy management systems in designated enterprises</p> <p><i>VNEEP Environmental and Social Management Framework (jointly with World Bank and IBRD)</i></p> <p>→ Technical Assistance and Capacity Building for Improving Energy Efficiency</p> <p><i>Pilot Commercial Energy Efficiency Programme</i></p> <p>→ Marketing to promote energy efficiency measures</p>	<p><i>National Target Programme on Efficient Use and Saving Energy (EUSE), Decision 79/2006/QD-TTG</i></p> <p>and</p> <p><i>VNEEP Phases 1, 2</i></p> <p>→ Awareness raising of energy efficiency for the general public and employees of industrial enterprises</p> <p>→ Developing and popularizing high efficiency and energy saving products</p>

Policy Domain/Market Failure Being Addressed		Market-based Interventions/Decentralized Provision	Public Inputs/Direct Provision	Directed at Consumer
		Capital	<p><i>Decree 21/2011/ND-CP on the Law on Economic and Efficient Use of Energy and Measures for its Implementation</i></p> <p>→ Establishment of the national target programme on the economic and efficient use of energy. Energy efficiency projects are eligible for financial support from National Target Programmes</p> <p><i>VNEEP Environmental and Social Management Framework (jointly with the World Bank and IBRD)</i></p> <p>→ Energy Efficiency Investment Lending (jointly with IBRD, participating financial institutions, industrial enterprises)</p>	<p><i>VNEEP Environmental and Social Management Framework</i></p> <p>→ Advisory services of IFC to Vietinbank on IEE financing and working with the World Bank on the identification of suitable support capacity mechanisms</p> <p><i>Pilot Commercial Energy Efficiency Programme</i></p> <p>→ Energy audit and efficiency investment grants to enable individual businesses to invest in EE and overcome barriers when adopting energy efficient business services</p> <p><i>Loans and other means of financial support from the IBRD, World Bank, ADB and other international bodies</i></p>
Labour		<p><i>VNEEP</i></p> <p>→ Certification of energy managers and auditors on energy management systems</p> <p>→ Dissemination and awareness raising on energy efficiency and conservation</p> <p>→ Embed educational programmes on energy efficiency and conservation in the national education system</p> <p><i>Pilot Commercial Energy Efficiency Programme</i></p> <p>→ Training project for the staff of industrial enterprises and funding agencies to promote energy efficient commercial services and technical assistance to support the completion of energy efficiency investment projects</p>	<p><i>Decree 21/2011/ND-CP on the Law on Economical and Efficient Use of Energy and Measures for its Implementation</i></p> <p>→ Promote the development of education for the employees of industrial enterprises and consultancy services in the energy industry for the efficient implementation of national energy efficiency goals</p>	

Policy Domain/Market Failure Being Addressed	Technology	Market-based Interventions/Decentralized Provision	Public Inputs/Direct Provision	Directed at Consumer
			<p><i>Law on Energy Saving and Efficiency (No. 50/2010/QH12)</i></p> <p>Required introduction of</p> <ul style="list-style-type: none"> → Mandatory energy labels for appliances and equipment → Mandatory sectoral energy efficiency standards for appliances, equipment, technology and products → Energy efficiency requirements in building codes and construction practices <p><i>VNEEP</i></p> <ul style="list-style-type: none"> → Establishing mandatory energy labels and mandatory efficiency standards for appliances, equipment, technology and products → Providing technical assistance to manufacturers, assembly factories, importers, retailers of high-performance products and to testing laboratories of energy performance in the country → Developing energy management standards and models for energy using facilities → Support for businesses in the application of standards, technical norms, improving performance for better energy efficiency and conservation 	

9.8 Industrial Policy Instruments Overall Matrix

		Industrial Energy Efficiency Policy Instruments/Mechanisms		
		Directed at Producer/Manufacturer	Directed at Consumer	
		Market-based Interventions/Decentralized Provision	Public Inputs/Direct Provision	
Policy Domain/Market Failure Being Addressed	Product	<p><i>National Energy Efficiency Programme (NEEP) 2011-2020</i></p> <ul style="list-style-type: none"> → Creating conditions for the development of energy service companies (ESCOs) by providing economic incentives (performance contracts) → Creating conditions for public-private partnership, including the establishment of an appropriate legislative framework → Elaborating and proposing voluntary agreements for energy-intensive industries <p><i>Law on Energy Efficiency (2010)</i></p> <ul style="list-style-type: none"> → Promoting private initiatives and the development of energy service companies (ESCO) that are to contribute to the optimization of energy systems operation and use, based on energy performance contracts <p><i>Law on labelling of energy-related products (2014)</i></p> <ul style="list-style-type: none"> → mandatory labeling of energy-related products 	<p><i>National Energy Efficiency Programme (NEEP) 2011-2020</i></p> <ul style="list-style-type: none"> → Providing 100 per cent metering of natural gas consumption by 2020 → Continued installation of heat metering devices and heat metering in 100 per cent of buildings in Moldova by 2016 <p><i>National Energy Efficiency Action Plan</i></p> <ul style="list-style-type: none"> → Modernization and modification of the industrial sector <p><i>Law on Energy Efficiency (2010)</i></p> <ul style="list-style-type: none"> → Promoting energy efficiency by supporting energy efficiency improvement programmes. These programmes promote the implementation of advanced energy and fuel-based technologies in energy generation, distribution, transportation and consumption by introducing energy efficiency standards for installations, buildings, machinery and equipment, and by controlling compliance with these standards <p><i>The Association Agreement between the European Union and Moldova (2014)</i></p> <ul style="list-style-type: none"> → The EU agreed to cooperate and help Moldova in the development of energy strategies and policies 	<p><i>Law on Energy Efficiency (2010)</i></p> <ul style="list-style-type: none"> → Awareness-raising and involvement of civil society in decision-making processes and implementation of energy efficiency improvement measures

Policy Domain/Market Failure Being Addressed	Capital	Market-based Interventions/Decentralized Provision	Public Inputs/Direct Provision	Directed at Consumer
		<p><i>National Energy Efficiency Programme (NEEP) 2011-2020</i> → Creating conditions for the development of energy service companies (ESCOs) by providing economic incentives (performance contracts)</p> <p><i>National Energy Efficiency Action Plan 2013-2015</i> → Developing an energy services market for the national economy's industrial sector (supported by the GEF project)</p> <p><i>Funding from EBRD</i> → Financial support for projects on modernization and modification in the industrial sector</p>	<p><i>National Energy Efficiency Action Plan 2013-2015</i> → Funding tools for energy efficiency projects within the industrial sector by setting a dedicated credit line. → Special grant component from government funds - 5 per cent to 20 per cent of project costs. → Credits are provided for investments into energy saving technologies or for the employment of renewable energy sources.</p> <p><i>Funding via Energy Efficiency Fund (EEF)</i> → Providing 10 per cent from the state budget of the amount contributed to EEF by donors → Requirements for projects funded through EEF:</p> <ul style="list-style-type: none"> • own contribution by the project beneficiary should be at least 20 per cent of the total costs • the payback period for energy efficiency projects should be 7 years 	

Policy Domain/Market Failure Being Addressed	Labour	Market-based Interventions/Decentralized Provision	Public Inputs/Direct Provision	Directed at Consumer
		<p><i>Law on Energy Efficiency (2010)</i></p> <ul style="list-style-type: none"> → Supporting cooperation between energy producers, transporters, distributors, suppliers and consumers to ensure correlation of their interests and to realize the state's policy energy efficiency goals → Cooperation with other countries to promote advanced technologies, implementation of scientific innovation and advanced experience in the field of energy consumption 	<p><i>National Energy Efficiency Programme (NEEP) 2011-2020</i></p> <ul style="list-style-type: none"> → Training of energy managers to monitor energy consumption in the public sector <p><i>Law on Energy Efficiency (2010)</i></p> <ul style="list-style-type: none"> → Training of decision-makers at all levels to identify and implement energy efficiency measures → Information on support for energy efficiency activities, including public dissemination of information on initialization, realization, costs and benefits of projects that significantly reduce energy intensity and environmental impact <p><i>UNIDO project 'Reducing Greenhouse Gas Emissions through Improved Energy Efficiency in the Industrial Sector in Moldova'</i></p> <ul style="list-style-type: none"> → Promotion of the ISO 50001 standard through the organization of trainings for employees of industrial enterprises 	

Policy Domain/Market Failure Being Addressed	Technology	Market-based Interventions/Decentralized Provision	Public Inputs/Direct Provision	Directed at Consumer
		<p><i>National Energy Efficiency Programme (NEEP) 2011-2020</i></p> <ul style="list-style-type: none"> → Setting energy and environmental performance requirements for energy-related products used by consumers → Introduction of energy management systems (EnMS) and best available technologies and practices in industry 	<p><i>Association Agreement between the European Union and Moldova (2014)</i></p> <p>EU agreed to cooperate with Moldova in:</p> <ul style="list-style-type: none"> → Promotion of energy efficiency and energy savings, on energy performance of buildings, and the development and support of renewable energies in an economic and environmentally sound manner → Reduction of GHG emissions, including energy efficiency and renewable energy projects → Scientific and technical cooperation and exchange of information for the development and improvement of technologies in energy production, transportation, supply and end use, with particular attention on energy-efficient and environmentally friendly technologies <p><i>National Energy Efficiency Programme (NEEP) 2011-2020</i></p> <ul style="list-style-type: none"> → Promotion of electricity production in cogeneration mode as being more efficient than the separate generation of electricity and heat. The annual overall efficiency of new CHPs should be no less than 80 per cent and electric efficiency should be 45 per cent to 50 per cent → Launch in 2012 of individual and buildings' boilers inspection 	

9.9 Indicative Action Plan of Champion Services Sector Scheme of Gol

Indicative Action Plans	
I. TOURISM AND HOSPITALITY	
The note below is divided into different sections. <u>Section A</u> examines India's current position across various parameters. <u>Section B</u> makes a case for justification for inclusion of this sector under Champion Services Sectors. This is done through analysis of strengths, trade and growth opportunities, impediments and global environment & challenges. <u>Section C</u> proposes a detailed Action Plan along with possible milestones in order to achieve the proposed vision.	
A. TOURISM IN INDIA – CURRENT POSITION	
PARAMETER	INDIA'S POSITION IN THE WORLD
Share of India in International Tourist Arrivals	0.68%
India's rank in World Tourist Arrivals	40 th
Share of India in International Tourism Receipts (US\$ terms)	1.71%
India's rank in World Tourism Receipts	14 th
No. of foreign tourists arrival	8.03mn (2014)
PARAMETER	
Share of India in International Tourist Arrivals	2.88%
India's rank in International Tourist Arrivals	11 th
Share of India in International Tourism Receipts (US\$ terms)	5.03%
India's rank in International Tourism Receipts	7 th
B. JUSTIFICATION FOR INCLUSION THIS SECTOR UNDER CHAMPION SECTORS IN SERVICES	

STRENGTHS	
1. Significance of the sector to Indian Economy-	
i.	The tourism sector is one of India's largest services sectors, and has proved to be a key contributor to India's economic development and employment generation ² . The sector comprises travel, tourist attractions, travel agents and tour operators. It is also one of the top generators of foreign exchange.
ii.	Moreover, its performance impacts other sectors such as hospitality, food and beverage, retail and recreational services. These factors make tourism a pivotal sector for India's growth.

¹ India's tourism sector (including hospitality) was valued at USD122.1 billion in 2013 and is expected to grow at a CAGR of 16.7 per cent to reach USD461.9 billion by 2022. [Source: Tourism and hospitality sector report, IBEF, August 2014]

² Its contribution to the global GDP was USD125.2 billion in 2014, over double the global average of USD58.3 billion. The total contribution to India's GDP was approximately USD 125.2 billion (6.7 percent) in 2014. By 2025, tourism's contribution is pegged at USD 259 billion, or approximately 7.6 percent of India's GDP

³ It directly supported 8.4 million jobs in India in 2013 and indirectly supported 22.3 million jobs. By 2024, total contribution to employment is expected to grow to 43.8 million.

⁴ The tourism and hospitality sector generated FDI inflows of INR 73.5 billion in 2016, and a cumulative inflow of INR 544.48 billion during Jan 2000 to Dec 2016

- iii. Foreign exchange earned through tourism has steadily increased and the rise has been substantially faster than tourist arrivals.
- iv. Tourism is a sector that earns substantial foreign exchange for our economy, generates employment (**approximately 90 job creations per Rs. 10 lakh of investment**) and is not directly affected by the increasing protectionism across the world for our skilled professionals (which is hampering our foreign exchange earning potential).

Advantage India

- 1. India offers geographical diversity, attractive beaches, 30 World Heritage Sites & 25 bio-geographic zones.
- 2. India has a diverse portfolio of niche tourism products – cruises, adventure, medical, wellness, sports, MICE, eco-tourism, film rural & religious tourism.
- 3. Indian tourism sector offers **cost effective yet quality travel and lodging options**. India's price competitiveness index is 5.59 and is closer to the best score of 6.62 achieved by Iran, and only lags a handful of countries in price competitiveness (Malaysia 5.76, Tunisia 5.61, Gambia 5.9, Yemen 5.91, Indonesia 6.11 and Egypt 6.19). Switzerland is the least price competitive, and hence costliest, with a score of 2.57. Amongst the BRICS countries too, India scores higher on cost competitiveness (Brazil 4.51, Russia 4.99, China 5.1 and South Africa 4.99)¹.

GLOBAL ENVIRONMENT & CHALLENGES

Competition to India

- 1. India not only faces stiff competition from countries in other continents, but also from other Asian countries – top destinations in the region² attract foreign tourists several times higher than what India does. These countries display some common characteristics that have enabled them to become the preferred destination for international travelers. These include sound infrastructure/amenities, excellent connectivity, variety of tourist destinations, cleanliness and upkeep of tourist sites, skill development and marketing and promotional campaigns.

Comparison with Other Countries

- 1. The share of USA in international tourism is the maximum at 14.5% followed by China at 9.26%. Only 2 Asian countries feature in the top 10 countries of the world in international tourism receipts viz. **China and Thailand (share 3.62%)**. India, in contrast, has a share of only 1.62%. While China has 50 World Heritage Sites, Thailand has only 5, and India has 30 such sites.
- 2. The number of foreign tourist visiting Thailand rose by nearly 9 percent to 32.6 million in 2016, bringing in 1.64 trillion baht (\$45.9 billion) worth of business, up nearly 13 percent from 2015. In India, the FTAs are just 8.03 mn with rate of growth of 4.5% (2016).
- 3. **Almost a third of Thailand's total international arrivals in 2016 came from China**, with 8.87 million Chinese visitors, making for an increase of 11.8 percent from 2015. In contrast **China does not figure in the top 10 source countries for FTAs in India**.

¹ The Travel & Tourism Competitiveness Index Ranking 2015, World Economic Forum, May 2015
² FTAs in 2014 (million) China 55.6, Thailand 24.8, Malaysia 27.4, Hong Kong 27.8, Macau 34.3, Korea 14.1, Singapore 11.5, Japan 23.4, Indonesia 9.4 and Taiwan 9.5 (Source: KPMG report: "The Indian Services Sector: Poised for global ascendancy – April 2014")

TRADE & GROWTH OPPORTUNITIES

1. Global market size-

- i. The direct contribution of Travel & Tourism to GDP in 2015 was USD2,228.8bn (3.0% of GDP). The direct contribution of Travel & Tourism to GDP is expected to grow by 4.2% pa to USD3,469.1bn (3.4% of GDP) by 2026⁵.

2. Trade in services-

- i. International tourism accounts for roughly 30 percent of global trade in services. For many developing countries, it constitutes the single largest foreign exchange earnings⁶.

IMPEDIMENTS

1. Challenges and Constraints-

- i. Infrastructure (Road Rail, Air & Water), Skill Development and general safety of tourist are huge constraint. A location specific and focused Action Plan is required to overcome these constraints.

Justification for inclusion of this Sector: In view of the strength that India has, there is a need to leverage these for achieving higher export growth. The gaps between India's share and those of other countries, for example in Asia, importance of this sector in world and India's GDP offer opportunities. Further, the success of other countries in attracting Foreign Tourist Arrivals (FTAs) is a threat that India cannot ignore. To realise India's potential in tourism and achieve the proposed vision, concerted efforts are required.

C. ACTION PLAN – TOURISM

Anchor Ministry / Department	Ministry of Tourism
Supported by	Ministries of Culture, Civil Aviation, Development of North Eastern Region, External Affairs, Home Affairs, Labor and Employment, Micro, Small and Medium Enterprises, Road Transport and Highways, Railways, Shipping, Skill Development and Entrepreneurship and Department of Commerce; State governments

- 1. To achieve the vision for the year 2022 of attracting 21 million FTAs, yearly target for Foreign Tourist Arrivals may be as under:

Year	Foreign Tourist Arrivals (in mn)
2016	6.03
2017	8.43
2018	11.06
2019	12.99

⁵ World Travel and Tourism Council report
<https://www.wttc.org/2016/01/28/2016-report/>
⁶ International Trade Centre (ITC) - <http://www.itc-trace.org/36/sectors/04/040401/>

2020	15.24
2021	17.89
2022	21.00

Actions to be taken

Destination Management Organization (DMO):

1. Destination Management Organization is the coordinated management of all the elements that make up a destination (attractions, access, marketing, human resources, image and pricing). It takes a strategic approach to link-up very separate entities for the better management of the destination.* (World Tourism Organization)
2. Therefore, DMO not only has a leading role in promoting and marketing tourism destination but, more importantly, steer destination development.

Proposal:

1. A coordinated management within a strategic and coherent framework is intended to produce effects both at local level (in terms of increasing incoming tourist inflows and yields, spreading the benefits of tourism development, reducing environmental impacts and ensuring environmental sustainability in target areas) and to the whole economy at large.
2. Developing DMOs in major tourist attractions should be linked to state assistance and assistance under rural development schemes.

Creation of Special Tourism Zones (STZs):

Budget 2017-18:

1. As announced in the Budget 2017-18, 5 STZs are to be developed through Special Purpose Vehicles (SPV). Such SPVs would fill in a big vacuum of an agency responsible for overall development of the zone including activities like acquiring land, development of infrastructure and other facilities and private sector participation in the STZ.

Proposal:

1. Possible options for such STZs can be with focus on (i) Himalayas (ii) Island tourism, (iii) Meeting, Incentives, Convention & Events (MICE) zone, (iv) Buddhist Tourism & (v) A North-East World Eco tourism zone.
2. These STZs may be given extended 10-year tax holiday to mega tourism zones of a minimum 25 hectares, promoting tourism as the principal economic activity.
3. Skilling for tourism and hospitality sector to be localized for 5 special tourist zones.
4. In 2015, Tamil Nadu, Maharashtra, Uttar Pradesh, Delhi, West Bengal, Rajasthan had higher share of foreign tourist arrival in the country compared to other states. STZs may be planned in these states on priority to attract more tourists to these states.

Beach Development Board:

1. India has the advantage of 7516 kms of coastline. A Beach Development Board may be constituted by the respective State Governments who can then develop these areas in a planned manner and offer facilities to attract tourists.

Taxation Policy (to be taken up by the Ministry of Finance):

1. Rationalization of Taxes on the whole would provide a better fiscal operating environment for the Sector to thrive. Taxes levied on Tourism Industry should be unified, rationalized and made globally competitive.
2. Industry has repeatedly raised concerns on GST rate slabs for hotels and similar accommodation with the rate of above rupees 7,500 which has been classified as luxury and put under a newly created bracket of 28% for services. For consumption in restaurants in a property which is classified as a five star and above, GST rate has been pegged at 28%. This will make India uncompetitive while quoting rates in the global market and shall impact inbound tourist traffic as also the domestic tourism. MICE organizers may shift to cheaper locations in South/ South East Asia. Globally, the GST/VAT rates for hotels and tourism related facilities are in the range of 6-% only. Extremely high tax rates make India uncompetitive vis-à-vis its other neighbors.
3. In fact, where the payment is made in foreign exchange, there should be zero ratings GST. This will boost exports.
4. Any spending in foreign exchange by the tourists involve payment of service tax. These include expenditure on hotels, transportation etc. These need to be reimbursed to the service providers (tour operators) who can then pass on this benefit in the form of a more price competitive package.
5. Some other tax related issues:
 - i. There is a need to streamline the passenger/road tax structure at various check points to promote and ensure seamless travel by tour operators.
 - ii. Replace various road transport related taxes/levies (road tax, goods tax, passenger tax, etc.) by a single composite tax;
 - iii. Transport check gates may be replaced with integrated check gates combining check posts of sales tax, forest etc. into one;
 - iv. Need for development of an Integrated Tourism Circuit for various States with an integrated taxation regime;

Domestic Travel through Railways:

1. Rail transport in India is a monopoly – There is a need to connect all world heritage sites and ASI sites with rail network.
2. On all important railway stations on tourist routes, a world class lounge may be provided on a payment basis.
3. On certain specified routes and time period, the tourism sector requires additional coaches of international standards on specified trains for foreign tourists. The reservation and booking system may be redesigned to suit their travelling pattern.
4. Provision of bulk booking by tour operators for such specialized coaches may be introduced.

5. To decongest railway platforms, entry should be restricted to passengers only. Others may be allowed at a higher platform fee as done at airports.
6. Seamless travel between the tourist destinations and across different modes of transport may be formulated.

Infrastructural Support:

1. Basic infrastructure such as transport linkages, garbage and solid waste management, tourist facilities such as toilets, day care centres, site information, manuals, guides, recreational facilities etc. are in need of an upgrade at least in the UNESCO nominated cultural and natural World Heritage Sites in India.
2. Need to improve the condition of lounges/waiting rooms at **Railway Stations**. If possible, at important stations of tourist circuits there may be premium waiting rooms for foreign tourists with some extra payment.
3. Need to enhance investments in tourism infrastructure. This may also involve provision of way side amenities, tourist information bureaus and websites for providing requisite tourist information. Efforts towards enhancement of overall transport infrastructure in the form of good quality roads, rail network, airports, helipads, availability of tourist vehicles etc. may also be strengthened in order to improve the overall infrastructure.

Development of Hotels:

1. The existing provisions pertaining to Harmonized Master List of Infrastructure Sub – Sectors for the hotel industry may be extended to moderately priced hotels and budget hotels in order to improve capacity.
2. The present scheme, which covers investment of more than Rs. 200 crores, has a sunset clause i.e. will be effective till 2017. It is proposed that the scheme may be extended to 20 years for the 5 STZ's so identified.
3. The investment limit may start at Rs 25 cr and above, to cover small budget hotels as well with no restriction on their location.
4. Number of permission/clearances required by hotels and restaurants should be reduced and in fact, be streamlined by introducing single window system.
5. Hotels have long gestation periods. Therefore, it is important to have long term loans. Therefore, hotels with minimum 50 and above rooms may be treated as infrastructure projects so that they can avail longer term financial loans from banks and other financial institutions.

Cruise Tourism:

1. Currently Cargo terminals are also used for handling cruise Tourism. There is a need to have separate cruise terminals, e.g. Mumbai.
2. A consultant for preparing action plan and detailed road map for the development of cruise tourism in India has been appointed jointly by Ministry of Shipping and Ministry of Tourism.

Human Resources Issues:

1. Skilling for tourism and hospitality sector to be localized for 5 Special Tourist Zones.
2. Catch-Them-Young: Students may be provided training and may assist the regular staff in the hospitality and tourism sector. This experience may be counted with them when they enroll in regular courses.

3. There is substantial population of educated and retired personnel who can serve the sector in various capacities. The demand and supply of such personnel may be mapped.
4. Infrastructural setup of existing institutions may be used for training.
5. Language training to the guides may be imparted in languages of focus countries, e.g., English, Mandarin, French etc.
6. Training of local youth for work as Hotel staff may be encouraged.

International Promotions & Marketing: (Ministry of Tourism and Culture):

1. The Government and States have to focus on international marketing campaigns and tourist facilitation services to enhance inbound tourism.
2. Adequate budgetary support may be made available for promotion and marketing, compared with competing tourist destinations.
3. Inbound tourism to be promoted in conjunction with medical tourism; Newer tourism concepts, which include cruise tourism, adventure tourism, agriculture tourism or rural tourism, are emerging in India and these require support to develop and flourish. Hence, greater marketing push for these different products is required.

Presently bulk of such promotion happens to international tourism offices under MoT. However, our mission and trade offices receive many queries on the same. MEA may be roped in for tourism promotion in an institutional manner.

Improvement in World Rankings:

1. In order to attract investments and improve India's ranking, Government of India has been working in a focused manner to improve ease of doing business. Similarly, on a mission basis we need to improve our rankings for our tourist attractiveness.

Subsidies

1. It may be noted that subsidies are not explicitly prohibited for services exports under GATS. Therefore, we may use the available window to promote this sector...

Visa related issues:

1. Wide publicity to be given for visa reforms done recently
2. Website has some operational issues e.g. when a form is not filled properly, it is rejected instead of showing the errors which can be corrected and re-submitted.
3. Infrastructure for availing e-TV may be improved for quicker processing and lesser rejections due to system errors.

Safety of Tourist Issue:

1. Projection of India's image as a safe and secure tourist destination;
2. Health concerns for tourists visiting India also needs to be mitigated.

3. Authentication and registration of service providers to be made mandatory

Standards:

1. There is need to create and enforce horizontal standards across critical vertical segments like accommodation, food, safety and transport.
2. The licensing/ rewards of such establishments would be done subject to the fulfilment of these laid down standards.
3. Once such model guidelines are framed, Ministry of Urban Development may link funding for developing the cities/towns of major tourist destination to these destinations being adhered to.

Medical Tourism Board

1. Medical Tourism Board meetings to be conducted regularly
2. Department of Commerce to be made a member of Medical Tourism Board.
3. State Medical Tourism Boards should also be constituted in Delhi, UP, Assam, West Bengal, Karnataka, Haryana, Maharashtra, Punjab, Tamil Nadu and Kerala. Regional coordination to be introduced to bring on synergies.

Country Focus: Target Markets / Verticals:

1. World over China is the biggest country for outbound tourism. However, it does not figure in top ten source countries for India. Many countries have focused approach to attract Chinese tourists. A specific programme should be framed and implemented which needs to be tapped with fully defined targets backed by resources, campaigns and well monitored qualified sub-targets.
2. Film tourism is powerful and growing segment which needs to be developed.
3. Other such focus areas like Buddhist tourism, beach tourism etc. need a comprehensive action plan.

Inter-Ministerial Coordination

1. There is an urgent need for an institutional mechanism to coordinate activities of various stakeholder ministries to develop and take forward the action plan for boost in inbound tourism. Such ministries include Ministry of Tourism, Department of Commerce, Ministry of Home Affairs, Ministry of External Affairs, Ministry of Civil Aviation, Ministry of Railways, Ministry of Road Transport and Highways, Ministry of Shipping, Ministry of Information & Broadcasting, Ministry of Culture, Ministry of Skill Development and Entrepreneurship.
2. A two tiered approach may be followed – one at Joint Secretary level for interaction with the ministry and one at Secretary level in the Ministry of Tourism.

II. MEDICAL VALUE TRAVEL / HEALTHCARE

The note below is divided into different sections. **Section A** examines India's current position across various parameters. **Section B** makes a case for justification for inclusion of this sector under Champion Services Sectors. This is done through analysis of strengths, trade and Growth opportunities, impediments and global environment & challenges. **Section C** proposes a detail Action Plan along with possible milestones in order to achieve the proposed vision.

A. MVT/ HEALTHCARE IN INDIA- CURRENT POSITION

PARAMETER	INDIA'S CURRENT POSITION IN THE WORLD (2012)
Size of the sector	\$ 3 billion
Healthcare Market turnover	\$110 billion ¹
Number of International Patients coming into India	0.5 million
Global Ranking in MVT destinations	3 rd (see footnote 2)
PARAMETER	INDIA'S CURRENT POSITION IN ASM (2015)
Rank in Medical Tourism	3 rd (see footnote 3)

B. JUSTIFICATION FOR INCLUSION THIS SECTOR UNDER CHAMPION SECTORS IN SERVICES

STRENGTHS

1. Significance of the sector to Indian Economy-

- i. Healthcare has become one of India's largest sectors - both in terms of revenue and employment. Availability of highly talented human resource, coupled with technological advancement, enables India to provide cross border services, such as **tele-medicine, tele-surgery and tele-diagnosis**; along with process outsourcing services such as medical transcription, back office support, coding and billing, etc. Furthermore, India has developed a strong presence in providing advanced healthcare services, e.g. organ transplants and cardiovascular procedures, with a high success rate. Moreover, less/no waiting time in hospitals for admission and treatment makes the country an attractive destination for medical tourism.
- ii. The sector in India comprises **three major sub-sectors** - **healthcare delivery hospitals, clinics and other emerging models; medical devices** (medical equipment and consumables), and, **medical insurance**. It is forecast to reach

¹ Deloitte GS 2017 Report

² Top 5 MVT destinations globally as per ranking are - Thailand, Singapore, India, Malaysia, Taiwan & Mexico (as per FICD-IMS report).

³ Rankings are based on Clinical outcomes, cost effectiveness, tourist friendliness, alternate medicine, accreditations and regulatory regime (FICD-IMS report)

USD160 billion in 2017, accounting for about 4.2 per cent of GDP and is poised to grow to USD280 billion by 2020¹⁰.

- iii. Demand for AYUSH is increasing and the mainstreaming of AYUSH is the strategic objective of Health System development under the National Health Mission and National Health Policy 2017. Ayurveda and Yoga facilities in particular in the country are the main attractions for the domestic as well as foreign tourists.

2. Current statistics

- i. India's medical value travel was pegged at 3 billion USD in 2015 growing at a CAGR of 15%¹¹.
- ii. SAARC countries such as Bangladesh, Afghanistan, and Maldives are the major sources of medical value travel followed by African countries such as Nigeria, South Africa and Kenya. Proximity, cultural connect and connectivity are key reasons for inflow of patients from these regions. Few new sources of medical value travel too have emerged in the recent years such as Russia, CIS countries, Myanmar etc. India is a preferred destination for high growth MVT sources such as Africa and Asian countries in its neighborhood such as Bangladesh, Afghanistan, and Maldives etc. Bangladesh, with much higher share of MVT patients, seems to be the outlier largely due to the proximity as well as inadequate availability of domestic healthcare infrastructure. India can leverage its civilizational connections with Middle East and SAARC countries to deepen relationships and leverage this advantage through wider MVT offerings.

3. Advantage India in Health Care

- i. India is traditionally known for cardiac and orthopedic treatments, but of late India is gaining traction in oncology and transplants and other high end treatments as well.
- ii. There is presence of world-class hospitals and skilled medical professionals in India.
- iii. India is cost-competitive in healthcare- Treatment for major surgeries in India costs approximately 10% of the cost in most of the developed countries.

GLOBAL ENVIRONMENT & CHALLENGES

1. Competition to India

- i. In case of medical value travel, parameters of cost effectiveness, number of medical tourists, healthcare infrastructure, an amenable legal framework, etc. have been considered. Thailand and Singapore are giving high competition to India owing to their advanced medical specialties, attractive pricing and government support. Singapore is the most developed country with less expensive surgery, and Thailand is a haven for inexpensive plastic surgery.
- ii. In case of telemedicine, Thailand, Singapore, Malaysia, Vietnam, Indonesia and the Philippines are currently focusing on strengthening their local telemedicine network to meet the domestic needs. They might serve to be potential competition for India in the coming years, owing to their substantial government support, infrastructure availability and technology advancements.

TRADE & OPPORTUNITIES

¹⁰ "The India Service Sector: Poised for global ascendance", KPMG Report, April 2018

¹¹ Based on interactions with the industry experts and IMS analysis

1. Global Market Size

- i. The global healthcare market had a turnover of \$7 trillion in 2015, while India had a healthcare turnover of \$110 billion. Despite being a relatively small healthcare market, India has been able to position itself as an important MVT destination

2. Potential for Global Expansion

- i. Currently patients from East Africa, Middle East, neighboring countries come to India
- ii. India's cost advantage will significantly open doors for the developed countries including US, Europe, South East Asia, Japan, Middle East, Africa

3. Other opportunities

- i. Increasing penetration of health insurance
- ii. Use of technology for healthcare delivery in remote corners
- iii. Increased demand for healthcare services from developed countries due to rising cost of healthcare
- iv. Increasing collaboration with other countries to establish healthcare facilities.

IMPEDIMENTS

1. Challenges and Constraints-

- i. Some of the major challenges faced by the healthcare sector in India is the shortage of infrastructure and skilled labour force, non-portability of insurance entitlements, etc.
- ii. Limited NABH accredited hospitals.
- iii. Lack of planned post-operative infrastructure around medical establishments.
- iv. Limited /non-availability of accredited medical facilitators.
- v. Non-availability of authorized language interpreters.
- vi. Absence of formal linkages with the sponsoring countries and their insurance companies.

Justification for inclusion of this Sector:

In view of the strengths that India has, there is a need to build up on these. The gaps between India's share and those of other countries offer opportunities. Further, the success of other countries in attracting medical value travelers is a threat that India cannot ignore. To realize India's potential in this sector and achieve the proposed vision, a concerted attempt is required, under the Champion Sectors.

C. ACTION PLAN FOR MEDICAL VALUE TRAVEL

Anchor Ministry / Department	Ministry of Tourism
Supported by	Ministries of AYUSH, Health and Family Welfare, External Affairs, Home Affairs, Skill Development and Entrepreneurship and Department of Commerce;

	State governments, Ministry of Development of NER, Ministry of Civil Aviation
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Health and Medical Sector¹²: Today, India ranks among the top 14 medical destinations in the world by volume of patients. However, the potential is much higher. India's primary comparative advantage is because of quality and affordability of medical treatment in India and the growing popularity of traditional wellness therapies like yoga, ayurveda and naturopathy.

However, to harness the potential, some critical areas that need to be addressed are:

- (i) Facilitative visa regime;
- (ii) Improvement in India's healthcare infrastructure and accreditation of our hospitals and medical professionals on world class standards (such as the Joint Commission International (JCI) of the US and the Trent in the UK) in a time bound manner;
- (iii) Negotiating health insurance portability issues with participating countries;
- (iv) Improving internet connectivity and security framework / privacy of patient files, by strengthening laws and regulations;
- (v) Increasing competition from existing and new medical tourist destinations.

These and other issues are discussed below:

Action Plan/Milestones

1. Reducing delays in grant of Medical Visa and procedures thereof

- i. Indian missions to be strengthened in countries within high potential regions like **Africa** and **Middle East** and analysis for delay in issuance of medical visa due to inadequate staffing may be done for increasing resources.
- ii. For medical value travellers create separate facilities for **visa clearance** and replying to medical queries at the embassies and develop Standard Operating Procedure (SOP)
- iii. Travelers from identified Western countries can get a 3 months **Medical Visa on arrival**.
- iv. With a letter from the medical centre, the patient may obtain **visa extension** for up to 6 months.
- v. **Cost** of medical visa should not be more than USD 50 to be competitive vis-à-vis other MVT destinations.
- vi. Foreign Regional Registration Office helpdesk to be created to grant clearance in hospitals.

2. 'Brand India' initiatives to propagate a 'Patient-Centric and Tourist-Friendly' India

- i. Conduct **road shows** in focus countries to create awareness and build on India's brand as medical value destination
- ii. Similar to Incredible India, develop a **digital campaign** promoting MVT in India thereby developing 'patient-centric' attitude among local population

¹²In GATS parlance, this sector is very critical for improving India's export of Health services through Mode 2 - that is foreign patients coming to India for medical treatment.

- iii. Tying up with travel/tour operator¹³
 - iv. Create a 'India Heals' Year¹⁴
 - v. To brand India as a destination for Medical Value Travel, Wellness and for generic drugs and Pharma.
3. **Creation of Enclaves for targeting foreign patients.**
- i. **Enclaves of hospitals** (similar to SEZ) may be created consisting of various specialities. Import of equipment and other consumables may be allowed at concessional duties in such enclaves. Foreign super specialists may be allowed to practice in these hospitals.
 - ii. In order to attract foreign patients and for incentivizing hospitals to treat foreign patients, **expatriate super-specialists may be allowed** to visit and perform procedures at hospitals if the hospital caters to at least 50% foreign patients.
4. **Improving air travel connectivity.**
- i. Direct air connectivity may be established with African and Middle Eastern countries. Possibility of enhancing Code Sharing could also be explored and at least 2 new destinations could be added every year during the Plan.
5. **Funding of Healthcare sector.**
- i. Access to capital has been one of the biggest hurdle to the growth of the Indian healthcare sector. The healthcare sector needs huge funding and the **Public Private Partnership (PPP)** is the best solution as the private sector can support the government in building capacities to improve services delivery.
 - ii. **Innovative modes** of funding such as pension funds, investment through Public Private Partnership (PPP) and long term debt could be used.
6. **Facilitating information and arrangement for transport, accommodations and local travel at the Airports.**
- i. Ministry of Tourism may create a **Helpdesk and Private Hospital etc. at the Airport** for coordinating with the Hotel and Tour Operator. The current system is highly deficient.
 - ii. **Healthcare infrastructure:** Improvement in India's healthcare infrastructure and accreditation of our hospitals and medical professionals on world class standards (such as the JCI of the US and the Trent in the UK) in a time bound manner
7. **Registration of Facilitators towards providing value-added services**
- i. Government may set up a committee to **create norms for registration of Facilitators** in India and make their registration mandatory.
 - ii. List of Registered Facilitators to be made available on medical tourism websites.

¹³ Apollo Hospitals' tie-up with Emirates allows international patients and their attendants from 39 countries across the Middle East and Africa to travel to the group's flagship hospitals in Chennai, Hyderabad, New Delhi, Kolkata, Ahmedabad, and Bangalore on specially devised fares for roundtrip flights on the Emirates. Thomas Cook also has teamed up with Seven Hills Hospital in Mumbai to offer medical tourism packages. Goa's Manipal Hospital also tie-up with travel agents and tour operators. Doctor2India Healthcare Pvt. Ltd., the first registered medical tourism company in north India, has partnerships with hospitals like Nee, Fortis, Ivy, etc. Coordinators are appointed by the firm to attract international patients. (Source: FICCI IPRMG Report "Medical Value Travel in India" 2014)

¹⁴ Singapore created "Singapore Medicaer" in 2003, a Government-industry partnership comprising the country's Ministry of Health, Tourism Board and other stakeholders to promote medical tourism (Source: FICCI IPRMG Report "Medical Value Travel in India" 2014)

- ii. **An incentive scheme for adoption of NABH accreditation** may be initiated by Ministry of AYUSH for encouragement of adoption of standards by wellness centers and hospitals.
12. **Dental Tourism**
- i. A coordinated nationwide strategy to encourage this branch of MVT. At present most of the initiatives are at an individual level. Most of the establishments are small dental clinics which have 1-2 dental chairs. This needs scaling up.
 - ii. Unlike in case of hospitals, there are **no standards prescribed for dental clinics by NABH**. There is an immediate need for the same to be developed, adopted and publicized.
 - iii. It is learnt that in Kerala, some innovative dentists offer the dental services at various locations. So various sittings to do a dental procedure is planned across different locales in Kerala. This gives a very good value proposition to the patient.
13. **Strengthening of Institutional Structure**
- i. **Regular meetings of the National Medical and Wellness Tourism Board**
The board needs to meet more frequently and provide guidance and solutions to the issues facing this sector. There is also an urgent need for a market specific strategy for enhancing the inflow of MVT.
 - ii. **State Medical and Wellness Tourism Boards**
Since health is a state subject, it is essential to have state governments on board. There is a need for states to constitute State Medical and Wellness Tourism Boards and align themselves with the overall guidance and mandate of such a board at the national level. This will ensure a coordinated strategy at both the federal and sub – federal structure.
 - iii. **Medical Value Travel policy**
It is evident that most of the countries, whether USA, Turkey, Japan or smaller ones like Jordan, Croatia, Costa Rica, Malaysia are extremely organized in promoting themselves for medical travel and are further organizing themselves in regions. However, in contrast, India is fragmented in its approach where individual hospitals have been promoting themselves as the hospital destinations. The medical value travel stakeholders in India need to consolidate their efforts and strategize on how to leverage the available opportunities. **Governments at both the central and state governments need to provide a detailed MVT policy and provide incentives to the stakeholders for encouraging the same.**
14. **Government alliances such as MoUs to increase the number of medical value travelers (MEA, DOC)**
- i. **Government alliances such as MoUs to increase the number of medical tourists** - Entering into formal engagements/partnerships with other governments could enable exchange of not just innovative ideas, leading industry practices, skilled manpower, (doctors, nurses, etc.) and technology, but also robust medical tourism. With a **formal government arrangement** in place, people will likely be more aware and secure about traveling to India to receive quality medical treatments at lower prices
 - ii. **MEA/MoHFW can help set up medical tourism hubs in different countries** and facilitate the promotion and propagation of India as a medical tourism destination. These hubs could help spearhead focused initiatives based on the epidemiological need of the population to drive medical tourism in the country. These hubs could also serve as information exchange centers for the people

residing in the guest country (Source: FICCI KPMG Report "Medical Value Travel in India" 2014)

15. **Amendment of Acts regulating Health related professional services (dental, medical and nursing)**
 - i. **Amending Indian Citizenship requirement in the Dentists Act, 1948 and the Medical Council of India Act, 1956:** Provisions of the Dentists Act, 1948 and the Medical Council of India Act, 1956 require that only citizens of India having the prescribed qualification as per the Act can register and practice these professions in India. Foreign nationals with requisite qualification can apply for temporary license for limited purposes such as teaching, training or research. The Indian citizenship provisions in the Dentists Act and Medical Council of India Act are an obstacle in concluding **Mutual Recognition Agreements (MRAs) in these professions** as MRAs can only be concluded on the basis of reciprocity. In other words, unless we are prepared to give access to foreign professionals in India, our professionals will also not be able to get access in those foreign countries. This is one of the most important reasons why we have not been able to conclude MRAs with our FTA partners like Japan, Korea, Singapore, etc. and other developed countries. Though MRAs are for reciprocal access, given the wage differentials and demographic profile of India and our FTA partners, it is expected that Indian professionals are more likely to benefit from these MRAs.
 - ii. MRAs in dental services assume greater significance in view of surplus of dentists in India – there are more than 3 lakh dentists in India. Equally important is conclusion of MRAs for nursing services to improve commercially meaningful market access for our trained nurses in developed countries.
16. **Data privacy**
 - i. To improve **security framework / privacy of patient files**, to ensure and prevention of its misuse.
17. **To Address Health Insurance Portability Issues**
 - i. In an era of mobility, an increasing number of people are moving across countries for a variety of reasons: holidays, study, retirement and for work. This raises a number of important questions regarding the **portability of social security entitlements across countries, including health-care benefits**. For the most common types of international mobility and the most important directions of movements, arrangements have therefore been made to ensure at least some portability of health-care benefits and health-cost cover.
18. **Use of tele-medicine**
 - i. Need to expand tele medicine network internationally on the lines as done in Africa & SAARC countries. Such telemedicine facilities offer services through mode 1 & often leads to patients coming to India to get their treatment.
19. **Developing Infrastructure through Mode 3**
 - i. India's healthcare players have developed capabilities to establish and operate hospitals and clinics abroad. Establishment of satellite healthcare facilities by huge hospital chains, especially in high potential medical value travel countries can help India gain a leading position in medical value travel. **However, the presence of Indian hospitals abroad is limited and steps need to be taken in this direction in order to facilitate the export of services through this mode i.e. Mode 3.**
20. **Other Miscellaneous**

- I. Sending medical professionals from India to Africa/SAARC/CIS for capacity building purpose under Mode 4
- II. Rendering Accreditation services by NABH to countries like Seychelles, Maldives and other focus countries
- III. Credit line may be initiated through EXIM bank focusing on countries which could be used for JVs in these focus countries on the lines done for Cambodia, Laos PDR, Myanmar and Vietnam (CLMV) countries
- IV. Key sources of outbound medical tourism are developed regions such as USA and UK and emerging regions like Russia, China and Latin America.

21. Enhancing supply of healthcare professionals

- i. Setting up of a medical college and Hospital in an SEZ¹⁰ (Special Education Zones) . Some countries are aggressive in promoting education service almost as a business. Education services may not have as great a potential in terms of employment or earnings as, say, tourism services but the invisible benefits are substantial. Goodwill apart, the foreign students returning to their countries will help generate and foster trade and business ties. We may propose of establishment of Medical colleges in such zones.
 - ii. **How will it benefit India?**
 - If the renowned universities run a branch-campus in India, the country will become an attractive location for Asian students
 - This will also help in regulating the brain drain concept as thousands of Indian students go aboard each year
 - iii. An SEZ institution, whether medical or engineering institution should not be required to seek any approvals for its courses; it would need to be allowed to charge any fees, follow its own admission criteria and award its own degrees, and so on. Such institutions should also be given the freedom to affiliate themselves to any foreign institutions. However, if a SEZ institution wants recognition of its degrees and diplomas in our country, it would be required to meet the standards and conditions of affiliation and recognition.
 - iv. The advantages of encouraging such SEZs are many. Such a policy will encourage the setting up of world-class educational institutions in the country and our students will also get opportunity to benefit from such facilities. SEZ institutions would be able to attract and nurture better talent as they would be in a position to pay more compensation for their faculty. Thus, there will be a general improvement in the quality of teaching personnel; research will get a boost. Hospitals that would be permitted to be set up along with medical colleges would be able to provide the best of medical care at much lower cost than in the rich countries. Once the reputation spreads, India can become the preferred destination for top class Medicare, including dental treatment.
 - v. The potential of Medicare service runs into billions of dollars and over the years, India, given the professional skills of its medical personnel, can become the preferred destination for medical treatment. Such a development will create significant employment opportunities in the country.

¹⁰Special Economic Zone is a geographical area which is specially designed for duty free transactions. SEZs are considered to be foreign territories designed to bring foreign investment in countries

III. ACCOUNTING AND FINANCE SERVICES

The note below is divided into different sections. **Section A** examines India's current position across various parameters. **Section B** makes a case for justification for inclusion of this sector under Champion Services Sectors. This is done through analysis of strengths, trade and growth opportunities, impediments and global environment & challenges. **Section C** proposes a detail Action Plan along with possible milestones in order to achieve the proposed vision.

A. ACCOUNTING AND FINANCE SERVICES IN INDIA – CURRENT POSITION

PARAMETER	INDIA'S POSITION IN THE WORLD
Finance and accounts Business Process Management (F & A BPM) Exports	USD 5.72 bn (0.003 % of global market size of USD 1803 bn)
Total number of F & A Professional members	29 Lakh (estimated)

B. JUSTIFICATION FOR INCLUSION THIS SECTOR UNDER CHAMPION SECTORS IN SERVICES

STRENGTHS

1. Significance of the sector

- i. In the last few decades, rapid industrialization has been witnessed around the globe, encompassing several business sectors. The global demand for specialized professional services, such as accounting and auditing, has increased significantly because of increased international trade activities, and regularly changing global accounting and auditing standards.
- ii. In order to maintain one's reputation and avoid potential litigation risks, the demand for expertise in international accounting and auditing standards, strong quality control and professional personnel has increased. Owing to the substantial base of low-cost talent pool and technology-driven outsourcing capabilities, emerging economies such as China and India, are expected to cater to the growing global demand of accounting and auditing services, contributing significantly to the sector in the near future.

2. Current Statistics

- i. Finance & Accountancy (F&A), with a 22% share of USD 26 billion exports in FY 2017 is the second largest component of Business Process Management exports from India.
- ii. India's accounting and auditing sector revenue increased by 15 to 17 per cent during the period 2013–14. This growth was on account of increasing Foreign Direct Investment (FDI) and growing business activities in the country.
- iii. Growth in demand for auditing and accounting services in India is also attributed to the cross-border merger and acquisition activities, which witnessed an increase of 73.1 per cent in 2015. This is expected to increase the demand for transfer pricing services.¹²
- iv. FDI intensity, as a share of GDP grew, from 1.3 per cent in 2012 to 1.7 per cent in 2014, thus increasing the demand for these services in the country.

3. Benefits associated with outsourcing of work with KPO

<http://www.pwcdtk.in/images/pdf/The-India-services-sector-Posed-for-global-accountancy.pdf>

- i. Steady stream of MBAs, CAs, and CFAs who have technical skills are suited in the work of financial KPOs.
- ii. Cost effective – Mostly the work associated with KPO are done at a much lower price in comparison to the cost which the organization would have incurred if it was supposed to do that same work within the organization.
- iii. Work conducted by KPO are mostly technical and as such there are a lot of professionals attached to the work.
- iv. Organization also gets the benefit of time zone, since sometimes KPO work in different time zones, as such the organization can utilize the advantage of 24 hrs working.

4. Supply Side Opportunities

- i. The Institute of Chartered Accountants of India (ICAI) currently has 234,000 members, along with 830,000 students enrolled in the Chartered Accountancy course. This will ensure continuous supply of qualified manpower capable of fulfilling the requirements of the audit and accounting sector.
- ii. In addition to the core accounting domain, chartered accountants in India are also trained in niche segments, such as valuation, forensic accounting, derivatives, forex and treasury management and enterprise risk management. This empowers them to be adept at handling complex business situations.

GLOBAL ENVIRONMENT AND CHALLENGES

1. Global market size-

- i. The accounting and auditing market comprises of services pertaining to evaluation of the reliability and credibility of financial information. It also includes the systems and processes responsible for recording and summarizing the same information.
- ii. The global audit market (USD 1803 billion) is dominated by a few major audit firms. The combined global revenue of these firms in 2014, having an overall market share of 66 per cent, grew by 5.8per cent, touching USD120 billion, as compared to the combined revenues of USD113.7 billion in 2013¹⁷.

2. Competition to India

- i. Indian accounting and auditing firms are small in size, which limits their growth internationally. Developed economies, such as the U.S., the U.K., France, the Netherlands and Gulf nations, are home to several auditing firms having a global reach. Large firms take advantage of the economies of scale, and focus on expanding industry-specific knowledge and technical expertise. They compete aggressively in terms of industry expertise, reputation, quality and cost. Considering this scenario, Indian accounting and auditing firms could work on these strategies to cope with future challenges and build up their expertise fast enough to exploit global opportunities¹⁸.

TRADE & GROWTH OPPORTUNITIES

1. Trade in services and India's share-

- i. India's accounting and auditing sector revenue increased by 15 to 17 per cent during the period 2013–14. This growth was on account of increasing Foreign Direct Investment (FDI) and growing business activities in the country¹⁹.

¹⁷ "The Indian Service Sector: Poised for global ascendance", IFMO Report, April 2015.

¹⁸ "The Indian Service Sector: Poised for global ascendance", IFMO Report, April 2015.

¹⁹ "The Indian Service Sector: Poised for global ascendance", IFMO Report, April 2015.

- ii. The new regulations including implementation of the Companies Act 2013 and convergence of the Indian Accounting Standards (Ind AS) with the International Financial Reporting Standards (IFRS) have positively impacted the performance of the industry.

2. Opportunities:

- i. **Management Consultancy and other Services** - Further, pursuant to Section 2(2) (iv) of the Chartered Accountant Act, 1949, the Council has passed a resolution permitting a Chartered Accountant in practice to render entire range of 'Management Consultancy and other Services'. Therefore, as per the empowerment in place, Chartered Accountant has been allowed to undertake a vast category of services which have potential for rendering services in overseas market.
- ii. **Opportunities arising from the use of IFRS/Ind AS**
 - a. **Harmonization with global standards to enhance the quality movement drive** - With the decision to converge with IFRS (the converged Standards are known as Indian Accounting Standards (Ind AS), India has kept pace with this global accounting revolution encompassing 149 countries, having largely converged with IFRS with only a few carve-outs, overcoming a range of challenges.
 - b. **Domestic demand from companies adopting Ind AS** - With Ind AS implementation, the need for IFRS / Ind AS trained workforce will rise steeply across large, mid-level and small-level companies. These standards are far more complex and require significant level of judgement as compared to the erstwhile standards and hence will fuel a great demand for such talent.
 - c. **International opportunities from jurisdictions using IFRS** - with the adoption of IFRS in 119 countries, and partial use in 14 other countries, in all covering over 60% of the world's GDP, and with Indian workforce being skilled in the use of IFRS, there is a great opportunity for F&A outsourcing from all of these jurisdictions to India. For instance, the talent pool can easily enable the Fortune 500 companies using IFRS to set up their F&A shared service centres in India or outsource their F&A function to Indian BPM providers.
 - d. **Global opportunities for Indian accountants** - Apart from India, with over 100 countries using IFRS standards, the skills of an IFRS trained Indian accountant become relevant in each of the countries, and could provide global employment opportunities for these accountants.

IMPEDIMENTS

3. Challenges

- i. Restrictions on international payments create an obstacle to export services
- ii. Barriers to the transfer of technology and information systems prevent IT systems calibration
- iii. The regulatory bodies need to develop a strategy to counter challenges faced from new emerging technologies viz. Artificial Intelligence, Robotics Process Automation (RPA), Robotics, Social Mobility Analysis and Cloud Services, IOT etc.

4. Justification for inclusion of this Sector

- i. The sector has created wide-ranging opportunities for foreign as well as domestic players. Strong growth of the Indian economy has resulted in more business deals, not only in local markets but also internationally. This has led to the rise in demand for accounting and auditing services in India. Growth in demand is also attributed to the cross-border merger and acquisition activities, which witnessed an increase of 73.1 per cent in 2015. Another important aspect that is in favour of India is that English

is one of the most commonly spoken languages and is accepted internationally. A large share of the Indian population communicates in English and hence Indian auditing firms could cater to the high demands from the Western world to help ensure their presence globally.

- ii. There is a need to build up on these strengths further. To realize India's potential and achieve the proposed vision, a concerted plan of action is required under the Champion Sectors.

C. ACTION PLAN – ACCOUNTING AND FINANCE

Anchor Ministry / Department	Ministry of Corporate Affairs
Supported by	Ministry of Commerce and Industry, Ministry of Finance, Ministry of Skill Development and Entrepreneurship, ICAI

Regulatory Framework

1. The regulatory framework governing the profession of accountancy and audit (non-statutory) in the country needs to address important challenges, with the foremost being the need to put in place guidelines for setting up commercial presence by foreign firms in a transparent manner to get best in class knowledge transfer and global practices.

Allowing Foreign Affiliates

1. There is large scale surrogate presence/ back door entry of foreign firms which results in difficulties in monitoring their activities. By allowing entry in the non-audit services and in management consulting, the regulations have provided indirect means for the foreign accountancy firms to operate in the audit segment, but without the legal basis for regulating them. Rather, a better option would be to allow foreign affiliate firms to operate in a transparent manner and to bring them and their partner firms under the ambit of the regulator's disciplinary mechanisms.

Other domestic regulatory reforms

1. Other domestic regulatory reforms that need to be considered should enable Branding which include:
 - i. to allow Indian firms to use logo, issue brochures, have websites, directory listings;
 - ii. legally permit Indian firms to have affiliation with international networks and foreign accountancy firms;
 - iii. to encourage formation of multidisciplinary firms, etc. **FDI Relaxation**
2. Relaxation in allowing FDI in accounting and auditing services is expected to provide greater exposure to the Indian firms and boost their potential to export services.

Easing of the restriction

1. Easing of the restriction of '20 companies per auditor in a year' rule for an audit firm that might allow auditors to provide services to more than 20 clients in a year. Reforms in this regulation shall boost MSMEs in the accounting and auditing sector, as they get a major portion of their work from unlisted companies.
2. As per the comments of Ministry of Corporate Affairs, the Ministry has already vide Notification G.S.R. 464(E) dated 05/06/2015 exempted one person companies, dormant companies, small companies and private companies having paid-up share

capital less than one hundred crore rupees from Statutory Audit ceiling limit of 20 companies. Hence, further ease of restriction would not be desirable.

MRAs

1. Mutual Recognition of qualifications may be entered into with the countries where India sees potential for rendering services. It is important to partner with global accounting bodies like AICPA (USA), ICAEW (UK), IASB etc. for this.
2. ICAI should endeavor to have arrangements of Mutual Recognition of Qualification with other countries so that India's qualified professional are acceptable in these countries.

Foreign language

1. Foreign language may be made a part of curriculum in order to equip professionals in the Accountancy & Finance sector for exporting services.

Supply side

1. A professional training programme for students, who qualify level – 1 of Chartered Accountancy may be initiated in order to create a cadre of qualified professionals with enhanced employability, where expertise of a chartered accountant may not be required. They could have specialized modules in different verticals like revenue accounting, forensic accounting, cost accounting, management accounting etc.
2. The curriculum followed in the Indian universities (commerce colleges) may be modified in accordance with the expectation of the industries, for developing base level knowledge in global accounting like US GAAP, IFRS with summer internship.
3. Preparing the sector for electronic enablement and preparing to face the challenge of Artificial Intelligence.

Standards

1. Ind AS should be totally converged to IFRS/US GAAP in order to make Indian accountants ready for competing in the global market.
2. As per the comments received from Ministry of Commerce Affairs, a considered decision, in consultation with all stakeholders, was taken that Ind AS, while converging to the maximum extent feasible (and which means substantive convergence) to IFRS, necessary carve outs will need to be maintained till the necessity of Indian economic and regulatory landscape requires these. Further, a decision no converge with IFRS has already been taken, it would not be appropriate to converge with US GAAP.

Training/ Skills

1. Training courses at graduate level and higher levels with specialization in various streams of the Accountancy services need to be devised to development specialist professionals. These courses may also be made available in various centres across the country for a nation-wide reach.

2. Ministry of Corporate Affairs (MoCA) may consider having certification programmes for people who do not want practical training under CA regulation and this could be a certificate in accounting basics. Those who register under CA regulation and depending on the milestone they complete in terms of practical training and the exams passed, could be given different types of certification. For example, those who complete half of the practical training and have passed intermediate exams could be awarded certificate of experience accounting professional, those who have passed intermediate exam and complete three years practical training may be awarded Accounting Technician.
3. Use of digital technologies and e-learning and MOOCs (Massive Open Online Courses) should be embedded in various training programmes conducted by ICAI.
4. Ministry of Corporate Affairs states, many of the requirements would not fall within the mandate of the Ministry, for which it would be appropriate that the implementing mechanism is further elaborated in the note.

Geographical reach

1. In terms of the geographical spread, prime importance can be accorded to the trade relationship with countries such as Mauritius, Singapore, United Kingdom, Japan and U.S.A etc. Further, our interests can also be there in all countries where there exists a large segment of English speaking population and more particularly the Indian origin population.
2. Appropriate action plan may be drawn for institutions like Institute of Cost Accountants and ICSI have not been considered, though they provide critical contributions to the financial/corporate sector. In this regard, it may be noted that all these Institutes were established by Special Acts of Parliament, as statutory professional bodies. Graduates from Institute of Cost Accountants specialized in Cost and Management Accountancy apart from other areas such as financial accounting/ forensic accounting, corporate governance, etc. In view thereof, these institutes may also be considered for the purpose of action plans for promotion of auditing/ accounting/ corporate governance services.

IV. AUDIO-VISUAL SERVICES

The note below is divided into different sections. **Section A** examines India's current position across various parameters. **Section B** makes a case for justification for inclusion of this sector under Champion Services Sectors. This is done through analysis of strengths, trade and growth opportunities, impediments and global environment & challenges. **Section C** proposes a detail Action Plan along with possible milestones in order to achieve the proposed vision.

A. AUDIO-VISUAL SERVICES IN INDIA – CURRENT POSITION

PARAMETER	INDIA'S POSITION
Employment in M&E industry(2016)	0.6 million
Growth of M&E sector (2014)- CAGR	11.7
World Position of Indian M&E industry	14th
No. of digital screens in India	2000 ²⁹
Film industry in India	USD 2 billion
Global revenue from Indian films (2016)	6%

B. JUSTIFICATION FOR INCLUSION THIS SECTOR UNDER CHAMPION SECTORS IN SERVICES

STRENGTHS

1. Significance of the sector

- i. Technological changes have given consumers worldwide access to a multitude of entertainment and information services. Technological progress, especially digitalization, reduced the government's ability to restrict the entry of foreign content into domestic market. With increasing interactivity and internationalization of production and delivery offered by internet-based broadcasting services, various countries are modifying their regulatory set up and opening up their markets for foreign players.
- ii. Audio -visual services are also closely related to other services sector such as tourism, software and recreational, cultural and sporting services. Disneyland and Universal Studios in the US are important tourist destinations. The increasing use of computer-generated production and special effect technologies have boosted the growth of entertainment software producing industries.

GLOBAL ENVIRONMENT AND CHALLENGES

1. Competition to India

- i. India not only faces stiff competition from countries in other continents, but also from other Asian countries. For example, in **animation services** and **post-**

²⁹China has about 40,000 and USA has about 36,000 screens

production & VFX services, India faces competition from United states, Philippines, Japan, Malaysia, Thailand and China. In **Gaming services**, it competes with Philippines, Malaysia and China, and in **Films and Television contents**, United States and China are its biggest competitors²¹.

TRADE & GROWTH OPPORTUNITIES

1. **Trade in services and India's share-**
 - i. The Media and Entertainment (M&E) industry is one of the most dynamic industries in India and fourteenth largest in the world, contributing about 1.7 per cent to the GDP²²
 - ii. The major sectors within the industry include television, print, films, radio, music, live events, gaming, Out-of-Home (OOH) advertising, and animation and Visual Effects(VFX).
 - iii. The Indian film industry is the largest in the world in terms of number of films produced in more than 20 languages, and 2nd highest footfall in the world. Its market size was estimated to be \$20.5 billion in 2016 and is expected to grow at a CAGR of 13.9 per cent during 2014-19²³
 - iv. The sector provided full-time employment to 461,900 personnel in 2013, contributing close to 9.3 per cent of the total employment in the country. This number is expected to increase to 748,800 by 2017, growing at a CAGR of 12.8per cent²⁴
2. **Potential for global expansion-**
 - i. Potential for global expansion of Indian M&E industry with the US, UK and China.
 - ii. India to enter into co-production treaty with the US to promote co-production of films.
 - iii. FDI policy liberalized in the information and broadcasting sector. Roadshows can be conducted in US and UK to promote investment in Indian M&E sector.
 - iv. Expansion of footprint in terms of distributions of channels by Indian broadcasters in overseas countries.
 - v. Expansion of territories for distribution of Indian films²⁵.

IMPEDIMENTS

1. **Challenges**
 - i. The M&E industry holds immense employment generation opportunities across creative, technical and business fronts. The stable growth of the industry has given a boost to the demand for skilled workforce. However, the availability of limited skill development institutions remains a key challenge. A collaborative industry-academia-government effort is required to find, develop, retain and grow the talent to allow India to create its own mark globally.
 - ii. Piracy has been a major deterrent to the growth of the M&E industry, especially to the music, films and television segments, gravely plaguing the revenue model of the entire industry, as illegitimate downloads of movies and music, and unlawful trade of CDs and DVDs take a big chunk out of the total earnings
 - iii. Stringent regulatory norms for the M&E sector needs to be revisited in consultation with the stakeholders across the value chain. Though the mandatory cable TV digitization has enabled stakeholders to plug the revenue leakage and gain a better visibility over their operations, however, there is still room for more. For instance,

²¹IFPMO in India's analysis based on discussions with partners and industry leaders, 2016

²²GDP at Factor Cost at 2004-05 Constant/Current prices by Industry of Origin

²³Whooping for the stars - Indian Media & entertainment report 2015, IFPMO-FCO France, March, 2015

²⁴Skills gap study for the media & entertainment sector, Media & Entertainment Skills Council, February, 2014

²⁵Deloitte report for Q2, 2017

a single window clearance to domestic production houses looking forward to shoot in India, incentives to promote film production, and market-based pricing for TV channels, etc. are some of the measures that can be looked into²⁸.

2. Justification for inclusion of this Sector

In view of the strengths that India has and in order to realize India's potential in this sector and achieve the proposed vision, a concerted attempt is required, under the Champion Sectors.

C. ACTION PLAN - AUDIO VISUAL SERVICES	
Anchor Ministry / Department	Ministry of Information and Broadcasting
Supported by	Ministry of Communications, Ministry of Electronics and Information Technology, Ministry of Commerce and Industry; State Governments

Indian government to recognize the opportunities of export of films and promoting locations for film making to make the country a hub for this industry.

Tax Incentives for Film Shooting

1. There are various challenges faced by the country in branding its shooting destinations to the overseas film makers despite being so cost effective. Some of the points are as under
 - i. High Cost in India
 - ii. Security issues in Border states
 - iii. Line production charges are on the higher end
 - iv. Location charges are on the higher end
 - v. Expensive security and policy charges
 - vi. Jurisdiction issues
 - vii. Multiple authority permissions
 - viii. Coordination between authorities
 - ix. Tax incentives.
2. Most countries in Europe & elsewhere have increased their rebates in order to attract more filmmaking. Filmmaking has become a better opportunity for many nations in promoting their tourist centers and the attractive incentives provided by them have increased.
3. Tourism departments can announce more incentives to filmmakers who include famous tourism destinations of our country as their shooting locations since it would attract more tourists.

Film Festivals

1. Realignment of film festivals and partnership.
2. Dubbing and subtitling in major languages of select films in CIS, LAC, Arabic and East Asia (Korea, China and Japan)

Insurance

1. Government may analyze the possibility of introducing insurance in Film industry to expedite the process of film financing through banks.

Screen Density

1. One of the major areas coming in the way of the growth is lack of digitization of screens in India. Today while India has about 2000 digital screens, China has about 43,000

²⁸ "The Indian Service Sector: Pretext for global imbalances", IFMS Report, April 2016

and USA has about 38,000 screens. The digital screens have changed the dynamics of the film distribution cost and revenue generation as through satellite streaming one can reach out to as many screens as desired in the first week release of the film itself. Even though about a decade ago India & China were at same level but in the past three years China has added 23,000 screens whereas in India the progress is tardy. A clear policy needs to be framed for conversion and addition of digital screen.

2. Approval of state government and local governments are biggest impediments.
3. The entire success of the film industry depends on content incubation, marketing & distribution network and theatre foot falls. Since most of the action lies within the State Government in terms of regulatory approvals for conversion of single-screen to multi-screen or double-screen and the range of entertainment tax also varies from 0% to 50%, industry finds it very difficult to formulate a long-term investment in the sector. In 2016 November, China brought a new Legislation namely 'Film Promotion Law' to bring transparency, uniformity and predictability in the film industry. It has helped the Chinese industry in a big way commercially even though national broad objectives of China remain undiluted. China – the multiplex tycoon, where 14 screens are raised each day, India closes down 39 screens a day.
4. Government may encourage the private investments in multiplexes through special schemes as it would increase the screen density and will help in creating additional revenue for films.
5. Most movies which are shot in high quality format get degraded to lower quality so that the world can see it in theatres. When a movie can't be displayed in its complete potential, the film dies there.
6. Creating single window and time bound clearance at the local government level for musical/entertainment events. Effort should be to move towards transparent and penalty based approvals rather than granting permissions.

Supply Side

1. Concerns: The world's biggest producer of movies distribute less than 10 percent of its movies abroad theatrically. The maximum number of countries where these movies are getting released are not more than 3 or 4, while there is a market for our films in 40 territories.
2. Government may establish more Film institutes in every state and employ passionate faculties with practical knowledge and film making experience to improve the quality of our future filmmakers. A policy to promote private institutes of world class will bring talent and technology.
3. Government may formulate creative solutions via forming a council who would be able to provide guidance to film makers on 'Identifying overseas market', 'How to market abroad' etc.
4. Government may initiate seminars, workshops, training camps for our young filmmakers to introduce them to the latest technological evolutions around the world.
5. The Government may encourage local filmmakers who wish to adopt latest technology in their film utilizing imported foreign equipment by providing adequate duty exemptions etc.

Goods & Services Tax

1. The current GST rate for cinema tickets is 28%, on par with gambling. Local bodies can further tax cinemas, increasing the burden on ticket buyers. On the other hand, the set-top box subscription at home will be taxed at 18%. So for some reason, charges are more if one watches a movie in a theatre than on TV. This arbitrage needs to be corrected.
2. Establishment of Film Funds which can provide financing/co-producing films will enhance attractiveness of India.

Most of the countries offer tax rebates for filming in their countries. These rebates are at the federal, sub-federal/local government levels. India needs to look into this aspect for encouraging and attracting film crews to shoot in India.

3. Explore virgin markets like Africa, Latin America and Central Asia (Kazakhstan, Kyrgyzstan etc.). These markets do not have much of production linkages for films with India. This needs to be explored.

Other Suggestions:

1. Countries like Philippines have publicized through a two-page flyer on how they are cost competitive as compared to other popular ASEAN destinations even without offering any rebates. In India, excluding Telangana so far rebates are not given for shooting but we have the cost and scenic advantages over our peers. Moreover, skilled technicians are available in entertainment Industry in India with over 32 quality international standards set. An exercise to bring these cost advantages could be undertaken. This would add to inbound tours for shooting and getting filmmakers from across the globe to India. Thus, to keep abreast with the trend internationally, it is important for the government to consider introducing fiscal incentives for international film makers to shoot their films in our country, as a means of facilitating cross-cultural promotion and giving boost to our tourism, hospitality and also film industry.
2. India can think of studios to be built like the "Universal studios", not only to showcase our strengths but also to boost our tourism.
3. introduction of Single Window Clearance mechanism for quicker processing of permits plays a crucial role in welcoming filmmakers to India. The single window clearance mechanism for promotion and facilitation of film production would ensure the removal of all possible hurdles. Several countries such as New York, Sri Lanka, The Maldives, Fiji, New Zealand, Australia & Czech Republic offer a one-stop shop for film crews to obtain all approvals to shoot movies anywhere in their country.
4. Central and State government may think about fund support / incentives policy about film production in India for international filmmakers. As of now India has signed co-production deals with several countries including Brazil, China, France, Germany, Italy and Canada and plans to sign similar pacts with potential market like Portugal, Russia and South Africa
5. Single tax structure pan India for Entertainment Industry is the need of the hour.
6. National centres of excellence for VFX, Gaming etc. to be put up in more States.
7. More treaties to be signed with countries to facilitate co production during Bilateral negotiations, and India should encourage co-production not just across films, but also TV and digital media.

V. LEGAL SERVICES

The note below is divided into different sections. Section A examines India's current position across various parameters. Section B makes a case for justification for inclusion of this sector under Champion Services Sectors. This is done through analysis of strengths, trade and growth opportunities, impediments and global environment & challenges. Section C proposes a detailed Action Plan along with possible milestones in order to achieve the proposed vision.

A. LEGAL SERVICES- CURRENT POSITION¹⁷

PARAMETER	POSITION
Global market for legal services (2014)	USD 616.4 billion
Median total legal spending worldwide (2013)	USD 29.7 million
Value of the legal sector in India (2012-13)	USD 6.11 billion (1%)
Indian Legal service sector in terms of number of lawyers (2010-11)	2 nd largest in the world

B. JUSTIFICATION FOR INCLUSION THIS SECTOR UNDER CHAMPION SECTORS IN SERVICES

STRENGTHS

1. Significance of the sector to Indian Economy-

- i. Proper implementation of laws and regulations requires a well-functioning legal service sector. With increasing globalization and constant policy reforms in India, more and more companies are willing to setup their business in India which creates a demand for domestic legal services. Increased level of globalization and international trade has helped the Indian legal services sector to expand as there is more requirement of documentation, legal advice on setting up and structuring the business. The sector is one of the most restricted sectors both in India as well as globally.
- ii. Owing to the expertise of professionals in domains such as arbitration, competition law, environmental law, international trade law, outbound foreign direct investment and restructuring and insolvency, Indian legal firms have performed well.

2. Current Statistics

- i. The Indian legal services market expanded during 2007-12, at a growth rate of 16 per cent, to reach a value of USD6.8 billion in 2012. The market is expected to grow at a CAGR of 14.9 per cent between 2015 and 2018, and could witness regulatory changes simultaneously, due to the central government's intention of liberalizing the sector.

3. Indian export growth drivers

- i. India has one of the largest pool of lawyers globally
- ii. Indian lawyers have acquired expertise in emerging legal disciplines like mergers and acquisitions, infrastructure financing, public private partnership, etc.
- iii. The Indian legal system has a high degree of compatibility, with that of the U.S. and the U.K.
- iv. Presence of a skilled and English-speaking workforce

¹⁷ "A Balancing Act: Cost Benefit Analysis of reforming India's Legal Services Market", Nathan Associates, May 2010

GLOBAL ENVIRONMENT & CHALLENGES

1. Comparison with Other Countries:

- i. **United Kingdom:** Exports originating from the U.K. amounted to USD 6.4 billion (GBP4 billion) in 2012, with vital contributions from law firms, barristers, lawyers and legal entities. More than 1,000 barristers contributed GBP90 million in exports, whereas GBP23 million worth of exports were generated by lawyers.
- ii. **United States of America:** Legal services exports from the U.S. reached USD7.5 billion in 2011, registering a uniform growth of 4 per cent from 2007 to 2011. The top five markets constituted more than 50 per cent of the share of the exports, with the U.K. and Japan having 16 and 14 per cent share, respectively.
- iii. **China:** Chinese firms have started exporting legal services, as some of the prominent international law firms enter China. Other factors contributing towards rising exports are liberal trade policies, alliances with Hong Kong firms and strategic planning by Chinese firms. Also, the One Belt One Road (OBOR) policy followed by China, with countries aligned to the silk route, has facilitated formation of key alliances with countries.

2. International experience:

- i. Several important Asian countries such as China, Singapore, Indonesia and Malaysia, have all initiated reforms, in various degrees, and are gradually liberalizing their legal services sectors. On the other hand, developed countries like Japan, the U.S. and the U.K. already have relatively open legal services sector, but subject to specific domestic regulations.
- ii. Singapore, which today is a hub for South-East Asia, including Indian legal activities, too adopted a calibrated approach to legal services liberalization. It is only pertinent that India also ushers in at least basic reforms similar to what was initiated by Singapore almost 15 years' back.

TRADE & GROWTH OPPORTUNITIES

1. Hub for commercial arbitration

- i. The central government is striving to make India a hub for international commercial hub for commercial arbitration, as it has made both the Arbitration and Conciliation (Amendment) Bill 2015 and the Commercial Courts, Commercial Division and Commercial Appellate Division of High Courts Bill 2015 into Acts. We may follow examples of Singapore, Hong Kong and London while finalizing basic structure and technical infrastructure for such arbitration centers. However, until institutional arbitration is promoted at an arm's length from the formal legal structure, it may not succeed.

2. Foreign interests

- i. The foreign law firms based out of Australia and the U.K., have expressed their interest to enter the Indian market, especially for advisory, arbitration and mediation services

3. Liberalization

- i. The Indian Government is considering to open up the legal services sector to foreign firms, in consultation with the Bar Council of India (BCI). However, it is long overdue and should be done in phases:
 - 1) Domestic reforms in Advocates' services
 - 2) Promoting law firms of bigger size
 - 3) Foreign law examinations be introduced
 - 4) Indian courts should not be opened for litigious services and hence, opinion/advice be allowed
- 4. Commercial courts**
- i. The Law Commission of India has proposed to establish specialized commercial courts to reduce the time taken to resolve litigations.
 - ii. To ensure its success, regular training and suitable transfer policy is a must.
- 5. Demand for Indian export**
- i. Indian legal firms can tap developed markets such as the U.S. and the U.K. as well as developing markets like France, Singapore, etc.
 - ii. France and Singapore are expected to emerge as significant legal markets, which can be leveraged by Indian firms.
 - iii. Some countries in Africa are expected to become important export hubs, as they have developed their laws based on Indian statutes. This mode has considerable potential, as the global LPO industry has entered into a high growth phase and Indian professionals are in demand due to their proficiency in English, similarity between Indian and other countries' legal systems and relatively lower labor costs.
5. Demand from foreign firms is anticipated to increase on account of liberalization of Indian legal services, which is expected to take place in a phased manner. Also, the economy is poised to grow, which could result in an increased amount of FDI, flowing into India.

IMPEDIMENTS

1. Challenges faced by Indian Legal professionals:

- i. Law firms are prohibited from indulging in any form of advertising in India, which restricts them from building their brand
- ii. Indian lawyers are required to surrender their practice certificate to the State Bar Council, if they wish to enter into an employment contract with a foreign law firm
- iii. The Legal Process Outsourcing (LPO) industry in India is expected to face hurdles, as the U.S. government is planning to decrease the work being outsourced to other countries and increase job opportunities for the U.S. citizens

Justification for inclusion of this Sector: In view of the Strengths that India has and to realize India's potential and achieve the proposed vision, a concerted attempt is required under the Champion Sectors.

C. ACTION PLAN – LEGAL SERVICES

Anchor Ministry / Department	Ministry of Law and Justice
Supported by	Ministry of Social Justice and Empowerment, Ministry of Commerce and Industry, Ministry of Home Affairs

The Department of Commerce circulated a revised Note for the Committee of Secretaries (CoS) on 'Roadmap for Legal Services Reforms in India' on 8th October 2015 after extensive stakeholder consultations. The first such Note for the CoS was circulated in the year 2011.

In the revised CoS proposal, the DoC had proposed a phased roadmap for opening up of the Indian legal services sector comprising of:

- i. Domestic regulatory reforms to create level playing field between Indian and foreign law firms;
- ii. Phased liberalization of the sector with representational or litigious practice solely reserved for Indian advocates;
- iii. Time-bound framework to make India a hub for International Arbitration and Mediation services through an institutional framework.

However, the matter was subsequently transferred to the Department of Legal Affairs on the advice of the Cabinet Secretariat (vide their Letter No. 081/2/9/2011-Cab.III dated 09.11.2015) for necessary action.

The relevant extracts of the revised COS Note are placed below:

Relevant extracts of the Note for the COS on 'Roadmap for Legal Services Reforms in India' dated October 2015

Issues for consideration of the COS

Overview of the Roadmap proposed by the Department of Commerce

The Department of Commerce has proposed a phased sequential approach for entry of foreign lawyers and foreign law firms. The roadmap comprises of three broad Stages - Stage-I includes Domestic Regulatory Reforms, as discussed above (in para 5); Stage-II provides for partial liberalization of the sector including opening up of international arbitration and mediation services and advisory and non-litigious services in foreign law or international law or third country law. Stage-II should be implemented immediately after completion of Stage-I; Stage-III proposes to open only certain advisory or non-litigious Services in Indian Law (Host Country Law). Stage-III could be permitted after a review and an agreed period of implementation of Stage-II.

Representational or litigious practice of any law including that of Indian law has not been proposed to be opened to foreign competition.

The roadmap clearly provides for the regulatory oversight by the regulator, that is, the Bar Council of India (BCI) / Department of Legal Affairs.

The roadmap does not delve into such details as the scope of practice and activities to be permitted by the foreign lawyer / legal consultant, qualifications of the foreign lawyer, title to be used, disciplinary rules, number of years of prior practice etc., as these regulations have to be specified by the BCI.

The roadmap also specifies that access to foreign lawyers will be subject to the principle of reciprocity, which is also provided for in the Advocates Act. The modus operandi of ensuring reciprocal access for Indian lawyers and law firms in the home country of the foreign lawyer/law firm who is being granted access to the Indian market has to be worked out between the BCI and the concerned foreign regulator through agreements such as the mutual recognition agreement (MRA).

The Revised Roadmap:

A revised roadmap is being proposed in the light of the certain recent developments as discussed in para 3.2 above and based on comments received from stakeholders (para 9 of the COS note).

Stage - I: Domestic Regulatory Reforms

It is proposed that the following reforms need to be initiated, requiring both executive and legislative approvals, in order to facilitate the growth of the domestic legal profession and to create a level playing field between Indian and foreign law firms/lawyers:

- i. To operationalize the LLP format for advocates - This may require amendment to the BCI Rules and / or the Advocates Act. The Department of Legal Affairs needs to clarify.
- ii. To permit market development tools as mentioned in para 5.3 above. The Bar Council of India rules need to be accordingly amended.
- iii. To permit Multidisciplinary practicing (MDP) firms, especially in areas of foreign and international law. This may require amendment to the BCI Rules and / or the Advocates Act.

- iv. To clarify the scope of activities that can be undertaken by foreign lawyers / legal consultants and Indian nationals who are not enrolled as advocates.

Stage-II: Partial Liberalization of the Sector

International Arbitration and Mediation Services and only Advisory or Non-Litigious Services in Home Country Law of the Foreign Lawyer & Foreign Legal Consultants (FLC - Non-practicing Lawyer) Third Country Law and International Law may be allowed immediately after implementation of domestic regulatory reforms mentioned above. This could be done under the following conditions:

Conditions for Access to Foreign Lawyers / FLCs (Non-lawyers):

The following conditions can be imposed:

- i. A foreign lawyer who wishes to practice in India must be registered with the BCI.
- ii. The foreign lawyer must have practiced for 'x' number of years in the jurisdiction where he /she is qualified as a lawyer and must be in good standing of the legal profession in that jurisdiction.
- iii. Foreign lawyers intending to practice in India should be required to produce evidence that they or their parent firms have sufficient funds to establish themselves in practice, and to meet any normal liabilities they might incur.
- iv. Detailed rules (regarding qualifications, scope of practice and activities, title to be used, rules of engagement, disciplinary rules, etc.) should be made to regulate the provision of services by the FLCs (who are non-lawyers).
- v. Regulations / rules will have to be made regarding the types of legal entities that may be permitted.
- vi. Reciprocity should be required of the foreign lawyer's/FLCs home state with regard to freedom of Indians (both lawyers and legal consultants) to practice law there.
- vii. Foreign lawyers / FLCs practicing in India should be subject to regulation by the Bar Council of India; there should be provision for co-ordination and consultation with the home state regulatory body; and the home state regulatory body should recognize and enforce penalties imposed by the Bar Council of India on foreign lawyers from its jurisdiction.
- viii. This opening can exclude some sensitive categories of law for foreign lawyers. For FLCs, the scope of practice and activities should be clearly defined. In other words, for foreign lawyers, there may be a negative list of activities; whereas for FLCs, there should be a positive list of activities defined.

Stage – III: To Open Advisory or Non-Litigious Services in Indian Law (Host Country Law)

- i. This could be done after a review and an agreed period of implementation of Stage-II outlined above and joint review of Stage-II by all stakeholders.
- ii. The experience of opening up of the Advisory Services in Home Country Law of the foreign lawyer/FLC, Third Country Law and International Law (Stage - II) can provide valuable insights into the other types of legal entities to be permitted at this stage, etc.
- iii. Any practice of Indian law by a foreign lawyer/FLC should require a pre-qualification examination in various aspects of Indian law by the BCI and will be subject to the principle of reciprocity.
- iv. Further, certain types of legal work under Indian Law should be reserved for Indian advocates.

v. Detailed rules on engagement of FLCs should be specified as mentioned in stage – II. *It is important to note that representational or litigious practice of any law including that of Indian law has not been proposed to be opened to foreign competition. This is clearly reserved for Indian advocates.*

To make India a hub for International Arbitration and Mediation Services

The revised roadmap proposes opening up of international arbitration and mediation services as part of Stage-II, immediately after ushering in of necessary domestic regulatory reforms. In this regard, the Department of Legal Affairs needs to clarify whether any amendments are required either in the Advocates Act or in the BCI Rules, in the light of the earlier Court rulings, to ensure meaningful participation of foreign arbitrators in international commercial arbitration in India.

India also needs to develop an institutional framework for commercial arbitration as against 'ad-hoc' arbitration prevalent in India. Institutional arbitration has come up very well in cities like London, Paris, Singapore, Dubai, Kuala Lumpur, etc. with government assistance. Apart from facilitating inexpensive and speedy justice, institutional arbitration can be a huge source of revenue for India. The need is to have good centres of excellence. This can be achieved with support and initiative of the Government.

VI. Information Technology/ Information Technology enabled Services (IT/ITeS)

The note below is divided into different sections. **Section A** examines India's current position across various parameters. **Section B** makes a case for justification for inclusion of this sector under Champion Services Sectors. This is done through analysis of strengths, trade and growth opportunities, impediments and global environment & challenges. **Section C** proposes a detailed Action Plan along with possible milestones in order to achieve the proposed vision.

A. IT/ITes IN INDIA – CURRENT POSITION

PARAMETER	INDIA'S POSITION (2016) ¹⁰
Total revenue of the IT industry (2017)	USD 154 billion
Indian IT exports	USD 117 billion
Contribution to GDP	7.7%
Share of IT sector in services exports	49%
Employment	3.9 million (approx.)

B. JUSTIFICATION FOR INCLUSION THIS SECTOR UNDER CHAMPION SECTORS IN SERVICES

STRENGTHS

1. Significance of the sector to Indian Economy-

- i. The Indian information technology industry has progressed over the years, from being a provider of cost effective technology talent for global enterprises to being a strategic partner helping businesses in technology enabled business transformation.
- ii. The Global Delivery Model approach, pioneered by the Indian IT services industry wherein complex technology projects are broken down into sub systems and modules that are delivered by a mix of consultants working onsite, closer to customer, and in near-shore/offshore locations became one of the most impactful business model innovations in the past few decades and set the benchmark for the knowledge industry value chain across the world. Organizations across industries such as Aerospace, Automotive, Energy, Pharma, Bio tech, Semiconductors, etc. leveraged this phenomenon and established global research and development (R&D) and product development networks to access local talent and market opportunities, thereby building a network of global knowledge value chain through a mix of in-house centers and partnership.
- iii. Coming to technology services exports, India enjoys a cost advantage over other nations. According to NASSCOM, Tier-I cities in India, such as Bengaluru, are 8–10 times more cost-efficient than other low-cost destinations. A few initiatives taken within the industry are the adoption of the hourglass model for employees instead of the traditional pyramid model, handling of multiple clients by a single project manager and moderate wage inflation etc.

Advantage India

¹⁰The IT-BPM Sector in India "STRATEGIC REVIEW 2017; NASSCOM 2017

1. Labour arbitrage driven by strengthening of the U.S. Dollar against the Indian Rupee
2. Supportive state and national government policies
3. Substantial talent pool of skilled IT professionals. A large number of these skilled professionals are young and English-speaking
4. Launch of the Start-Up India, Stand-Up India initiative with reforms and incentives for start-up entrepreneurs, ease of registration and winding up of such businesses and plans to set-up startup incubators and hubs in multiple academic institutions across states in India
5. Prevalence of an entrepreneurship culture in India leading to emergence of a new set of service providers

GLOBAL ENVIRONMENT & CHALLENGES

Competition to India

1. Indian vendors face competition from both large global service providers as well as niche firms and startups in frontier technologies. Latin America and Eastern European countries traditionally competed with India for near-shore and offshore delivery infrastructure, and most large vendors from India have established delivery presence in these locations to cater to the near shore market. In the current environment countries like Philippines, Vietnam, Malaysia, and Indonesia are also emerging as potential destination for delivering cost effective IT/BPO services.

Comparison with Other Countries

1. China has slowly cemented its position as one of the emerging IT markets worldwide, giving tough competition to the existing services markets like India, the U.S. and the U.K. In 2015, China's spending on information and communications technology was projected to cross USD465 billion²⁵, achieving a growth rate as high as 11per cent. Expansion of the Chinese technology market is expected to account for 43 per cent of the tech-sector growth worldwide.
2. Japan is the second largest country in terms of IT spend (over USD125 billion)²⁶. According to the Japan Electronics and Information Technology Industries Association(JEITA), in 2013 Japanese electronics and IT companies manufactured 35 per cent²⁷ of their products in Japan.

TRADE & GROWTH OPPORTUNITIES

1. **Global market size-**
 - a. The worldwide IT services market is expected to reach \$938 billion in 2017 and the global IT spending is expected to reach \$3.5 trillion.
 - b. It is forecasted that there will be 26 billion internet connected devices and over 4 billion internet users by 2020
2. **Trade in services-**
 - o Indian IT, a 154 billion USD industry, is an outsourcing powerhouse which commands with 55% share. With total industry spending at USD 154 billion including USD 116 billion in exports, the industry contributes at 7.7% to the country's GDP and accounts for over 49% of service exports.
 - o It also employs over 3.9 million people²⁸.

IMPEDIMENTS

²⁵ <http://bitc.blogspot.in/2015/12/02/in-2015-tech-industry-shrinks-accrivate-and-china-rules-itc-growth/>

²⁶ 2015 IFA Semiconductors and Semiconductor Manufacturing Equipment Top Markets Report

²⁷ IFA Semiconductors and Semiconductor Manufacturing Equipment Top Markets Report

²⁸ The IT-BPM Sector in India *STRATEGIC REVIEW 2017, NASSCOM 2017

1. Challenges and Constraints-

- i. Cyber security and quality management are few key areas of concern in today's information age. To overcome such concerns in today's global IT scenario, an increasing number of IT companies in India have gradually started to emphasize on quality to adopt global standards such as ISO 9001 (for Quality Management) and ISO 27000 (for Information Security). Today, centers based in India account for the largest number of quality certifications achieved by any single country.¹¹
- ii. India aims to transform itself into a truly developed and empowered society by 2020. However, to achieve this growth, the sector has to continue to re-invent itself and strive for that extra mile, through new business models, global delivery, partnerships and transformation. A collaborative effort from all stakeholders will be needed to ensure future growth of India's IT/ITes sector.

Justification for inclusion of this Sector: In view of the strengths that India has, there is a need to leverage these for achieving higher export growth. To realize India's potential and achieve the proposed vision, a concerted attempt is required under the Champion Sectors.

C. ACTION PLAN – IT/ITes	
Anchor Ministry / Department	Ministry of Electronics and Information Technology
Supported by	Ministries of Finance, External Affairs and Department of Commerce; State governments, Ministry of Science and Technology

1. Future growth engine for India where IT will be driving the change

a. Big data / Analytics / AI¹²

i. Create Centres of Excellence (COE)¹³

These technologies have very high growth potential but at the same time, they will have to be nurtured. Towards this, the industry needs to focus on creating CoEs which can galvanize stakeholders into action by bringing them together, enable R&D, co-create, disseminate knowledge and also provide co-working space for startups.

ii. Creating an ecosystem where companies thrive and innovate

Towards this, a favorable regulatory environment needs to be created which facilitates Ease of Doing Business. Because this industry is talent-driven the focus should also be on the supply side – build academic rigor and a system which imparts the most relevant skills to render the talent world-worthy. The dynamic nature necessitates that it is a continuous process and not a one-time exercise.

iii. Encourage companies to use these technologies for solving societal problems

¹¹ http://icc.a/sector/21/Project_docs/ICC_website_content_1f.pdf

¹² AI: Artificial Intelligence

¹³ COE: Centre of Excellence

Pessimists often see the nation through a lens of challenges in so many areas – education, inclusivity, healthcare, power, traffic management etc. Huge as these challenges may seem and yet, they are all billion dollar opportunities waiting to be solved. Using now-age technologies, they can be solved for India and replicated in other markets as well.

b. Smart Cities

i. Put Smart Cities initiative on the fast track

60 projects have already been commissioned and are under various stages of progress. 40 more are still awaited to bring the number to 100, as avowed. The timeline is 2020, and to meet the deadline, the projects will have to be fast-tracked.

ii. Promote use of technology to create better governed cities

The main components are: City Governance, Ops & Maintenance, Public Infra Asset Management, Integrated Operations and Citizen Services. Obviously, this requires multiple stakeholders and an integrated approach which can be achieved through appropriate deployment of technology.

iii. Take away procedural bottlenecks to encourage FDI

iv. Encourage foreign companies' investment into this initiative

Developing Smart Cities require considerable investments. It can be done through various mechanisms – Debt Market, Equity etc. Investors will have to be adequately rewarded for putting in money – through various tax incentives and the procedures should be user friendly as well. Driven by PPP models, the support from the government will have to be clear, timely, sustained and forthcoming without any room for ambiguity. If there's going to be heavy investment in clean energy (for example) then investors would want to know the exact nature of benefits and how they can be availed.

c. Smart Manufacturing

- i. Aviation
- ii. Medical devices / affordable Health care
- iii. Automotive revolution: Connected cars, autonomous cars
- iv. Energy: battery for electric cars

The realms of manufacturing are shifting at a rapid pace. Whether we like it or not but the world is moving towards Industry 4.0 which in definition would be a threat to jobs that India intends to produce through Make in India initiative but we have been left behind during Industrial revolution and we can't afford to be out of this new revolution that is now unfolding.

India needs to build ecosystem where investments into sectors named above materialize. These verticals will rely on software skills in combination of the hardware ecosystem. And more importantly is the need to the society here where country will make lot of investments. It should be our endeavor to not spend on importing these but developing locally.

d. Cybersecurity

Ransomware was a wake-up call for India which came at a low cost. But we aren't going to be as lucky every time. As per Kaspersky, India is high on target and perhaps even in the top 10. Between 2014 – 15, the incidence of cyberattacks grew by a whopping 117% which put paid to all arguments about India being safe. The government's invigorated support for going digital means that we have to heed this threat with all earnestness.

The Cybersecurity global market is at 85 billion USD today and is expected to touch 190 billion USD by 2025. The Indian opportunity in this time frame is expected to be USD 35 billion. Seen as a threat or as an opportunity, it just cannot be passed over.

e. Agri Tech

- i. Drones for better crop management, damage assessment, etc.
- ii. Soil nutrient analysis for enrichment intervention through sensors
- iii. Driverless tractors
- iv. Latest technology to improve productivity

2. New opportunity areas

Themes that India needs to invest in today which could open new opportunity areas for Indian society than just create opportunity for Indian IT

a. **Make India Education hub.** India's much avowed promise – demographic dividend, in 10 years' time, 65% of the population will be less than 35 years of age. As on date, 12 million people are being added annually to the workforce. Indians spend more than \$10bn each year to send their kids to study outside of India – amount of money that would be more than sufficient to create world-class institutions here at home. Moreover, the quality of education can only be made uniform to such a large base, through technology.

b. **Make India affordable healthcare hub.** Medical Tourism, a term coined by the media does lend a solid perspective on what the country can achieve. Walk into any of the top-tiered private hospitals in leading metros and observe the sheer number of overseas patients who come for treatment. On the other hand, if you go even a level below, the healthcare infrastructure is woefully inadequate. How can we leverage technology to address these yawning gaps? There is no dearth of talent - each year around 14 lakhs aspirants fight to win few thousands medical seats each year but we simply do not have quality institutions here. And because of these issues we lose our best of brains to other countries. Some structural reforms need to be undertaken here.

3. Countries whom we need to penetrate and create bridges for the future wave of growth

- a. Japan Society 5.0 uses Data Analytics to create better society for all; we need promote similar measures in India by Centre and state govt.
- b. Gap and future roadmap: Where are we at the moment in India Vs leading countries e.g. Japan is Society 5.0 Vs India Society 2.0 similarly Germany is promoting industry 4.0 whereas India is at Industry 2.0 ; identify the gap and come up with roadmap
- c. China plans to use Big data for improving its Governance
- d. Israel is creating water out of thin air
- e. New age of innovation is coming out of not so traditional centres

4. Domestic initiatives that are required
- a. **What is that we need to do at home to ensure we are leading and ready to attack all these opportunities?**
 - i. Focus on domestic market which remains under-served. Huge opportunity for the SMEs to adopt new technologies.
 - ii. Talent development with a focus on digital technologies, especially.
 - iii. Cybersecurity measures have to be bolstered significantly.
 - iv. Focus on building a collaborative eco-system.
 - v. Investments in R&D and creation of IPRs.
 - vi. Creating Centers of Excellence at district and block level for applied IT education
 - b. **Making available data sources available by various govt. run institutions to companies that could make innovative solutions viz. Pollution, traffic, healthcare, education, policing, tourism hub, etc.**

The startups look at these challenges as billion dollar opportunities. Moreover, SMAC, IoT and the like can be leveraged to eke out solutions. The efficacy of these solutions would depend on the quality of input data.

- c. **Skills agenda**
 - i. **Do we have assessment of types of skills that the world would need tomorrow?**

We do have a fair assessment of the kind of skills that will be required for the future. However, sensitization may not be uniform and in some quarters it may require more efforts to get the message across.
 - ii. **Is our supply chain geared for it?**

As things stand, it would call for concerted efforts to make it happen. We have to remember that we are talking of very large volumes – headcount. All stakeholders – government, academia and industry will have to work collaboratively. A siloed approach will not serve the desired purpose.
- d. **Privacy law:** With the advent of Digital revolution India will need robust framework to guard privacy issue.
- e. **Concrete policy on data sharing / localization:** especially in case of cross border data flows
- f. **Ring-fence our existing markets and revenues by fighting protectionist sentiments.** Indian IT has created value in all the 70 countries that it has made inroads into. This is in terms of revenue, providing employment, payment of taxes and helping the industry grow. 75% of Fortune 500 companies are being served by Indian IT companies. The value needs to be articulated across multiple forums. But our major markets i.e. US and the UK have turned protectionist and taking the world with them. It is necessary that developing nations promote the idea of free trade and lead the way.

VII. Transport and Logistics Services

The note below is divided into different sections. **Section A** examines India's current position across various parameters. **Section B** makes a case for justification for inclusion of this sector under Champion Services Sectors. This is done through analysis of strengths, trade and growth opportunities, impediments and global environment & challenges. **Section C** proposes a detailed Action Plan along with possible milestones in order to achieve the proposed vision.

A. TRANSPORT AND LOGISTICS SERVICES- CURRENT POSITION

PARAMETER	INDIA'S POSITION
Indian logistics sector (in 2015)	USD 123 billion ³⁶
Spending on logistics and transportation sector as a percentage of GDP in 2016	14.4% ³⁷
Logistics Performance Index (LPI)	35
Employment	220 Lakh

B. JUSTIFICATION FOR INCLUSION THIS SECTOR UNDER CHAMPION SECTORS IN SERVICES

STRENGTHS

1. Significance of the sector to Indian Economy-

- i. The Transport sector has become an integral part for the economic development of India, and is among the high growth focus sectors in the country. India spends around 14.4% of its GDP on logistics and transportation as compared to less than 8% spent by other developing countries.³⁸
- ii. The Indian transport sector is evolving significantly, driven by the rising investments, mega infrastructure projects and favorable regulatory policies, amid an improving economy. The sector encompasses road and rail transportation, shipping, aviation and logistics services.

Advantage India

- 1. India is the fourth largest rail freight carrier in the world and the largest passenger carrier.³⁹
- 2. India is the ninth largest civil aviation market in the world. In FY2017, civil aviation sector of India witnessed a growth rate of around 20-25%.⁴⁰
- 3. The market has witnessed the consolidation of small and medium size enterprises (SMEs) to provide pan-India presence and improve overall profitability
- 4. There is an adequate labour pool available at a low cost, for basic handling and transport jobs.

GLOBAL ENVIRONMENT & CHALLENGES

³⁶Source: IMF report, "The Indian Services Sector: Poised for global ascendancy – April 2016"
³⁷Deloitte Report, India Services Sector-A Multi-Trillion Dollar Opportunity for Global Symbiotic Growth, <http://www.deloitte.com/india/assets/pdf/Deloitte-India-2017-Infrastructure.pdf>
³⁸Indian logistics market to touch USD 107 billion by 2020: Ram Krupal Yadav, May 2016 Business Standard
³⁹Deloitte Report, India Services Sector-A Multi-Trillion Dollar Opportunity for Global Symbiotic Growth;
⁴⁰ Deloitte Report, India Services Sector-A Multi-Trillion Dollar Opportunity for Global Symbiotic Growth

Competition to India

1. The United States and Europe are leaders in exporting logistics services with an established infrastructure and capabilities.
2. Dubai and Singapore have also emerged as major trans-shipment hubs with suitable capacity and infrastructure.

TRADE & GROWTH OPPORTUNITIES

1. Global market size-

- ii. The value of the global transport sectors stands at USD 2,781 bn in 2017.⁴¹
- iii. Global logistics industry was valued at USD 3.34 trillion in 2016

2. Trade in services-

- ii. India's transportation services exports in overall BOP were valued at USD 14004 million in 2015-16⁴²
- iv. The Indian logistics sector is expected to grow from USD 123 billion in 2015 to USD 160 billion by 2018.
- v. India spends around 14.4% of its GDP on logistics and transportation sector

IMPEDIMENTS

1. Challenges and Constraints-

- i. The existing Indian transport network is a natural consequence of the somewhat disjointed executive decision making process that has been characteristic of our transport planning approach over the years. The result is a far-from-optimal modal mix.
- ii. There is an enormous shortage of skilled transport professionals at all levels, and across all disciplines and all institutions.

Justification for inclusion of this Sector: In view of the strengths that India has, to realize India's potential in transport and logistics services, and achieve the proposed vision, a concerted attempt is required under the Champion Sectors.

C. ACTION PLAN – TRANSPORT AND LOGISTICS SERVICES

Anchor Ministries / Departments	Department of Commerce
Supported by	Ministry of Shipping, Ministry of Road Transport and Highways, Ministry of Railways and Ministry of Civil aviation, Ministry of Labor and Employment, Development of North Eastern Region, External Affairs Micro, Small and Medium Enterprises, and Department of Commerce; State Governments

⁴¹ Source : <http://www.evdin.com/economic-research/sector-risk/Global-Transportation-Report/Pages/default.aspx>
⁴² www.dtu.it

1. Create inter-ministerial coordination mechanism to achieve optimal multi-modal logistics arrangements: e.g. National Logistics Development Council, Malaysia; National Logistics Committee, S. Korea.
2. Develop integrated action plan based on comprehensive gap assessment and planning for seamless multi-modal logistics that minimizes economic costs (DoC working on National Integrated Action Plan)
3. Prudent policy and regulatory framework for transparent development and operation of logistics infrastructure with private sector participation.
4. Focus on both transport and allied infrastructure related to material handling, warehousing, trans-shipment etc. for integration with global value chains and exploiting opportunities for aggregation, repackaging etc.
5. Develop National Logistics Portal to provide all logistics solutions, including facilitating regulatory clearances, access, payment of service charges etc.
6. Expansion of road infrastructure and focus on last mile roads connecting all roads and port terminals, **including unused and underutilized airports**, to warehouses and distribution centres.
7. **Focus on development of air transport infrastructure and multimodal connectivity (like cold storage, packing facilities, IT infrastructure etc) at Tier-2 and Tier-3 cities for handling both passenger and goods transportation. Movement of goods for domestic consumption must be promoted by Air- today it is truck first.**
8. The development of **multimodal logistic parks** will improve the entire logistics network in India and lead to efficient operations.
9. Reducing the logistics cost from current level of 14% of GDP to 9% in a time bound manner.
10. Development of **new IT-enabled technological systems** will lead to improved operations, enable high-level tracking as well as help in removing inefficiencies. "Vahaan" and "Sarathi" may be developed as **positive influencers in the overall transportation sector.**
11. Focus introducing **green logistics** to help improve the environmental footprint. **Given the huge coastline, dedicated inland waterways should be earmarked for development that can serve a green channel as well as decongest roads.**
12. India faces increased requirements for skills with demand for warehouse managers, coastal seafarers and IT services expected to rise in future. **A key enabler may be introduction of logistics and supply chain management as part of curriculum in colleges.** CII and National Skill Development Corporation have set up a Logistics Sector Skill Council to address these issues through structured skilled program. **This needs to be taken up, while ensuring that suitable skills set are also provided for the air transportation segment workforce through a specialized program developed by NSDC so that skill gaps herein do not impede growth of the overall transportation sector.**
13. **Digitization of warehouse operations** to strengthen supply chain operations and cost of transport and logistics operations.
14. **Quick pay-off projects** that can ease the capacity constraint at the fastest should be prioritized.
15. Focus on promotion of E-commerce and logistics. **Logistics may be granted full-fledged industry status, so as to ease access to affordable financing.**
16. **Development of common user facilities for all types of cargo in selected regions/ hubs of the country, multimodal logistic parks, and dedicated freight corridors, so that cargo for air, rail, road, inland waterways and ship may be handled on a single platform/ point which may enhance cargo flows (domestic and international). This**

- may help in enhancing the outcomes from pure multi-modal logistics, especially those designed cater to specialized cargo viz. perishables/ pharma and lifesaving medicines/ high value electronic and electrical equipments are appliances/ aerospace and defense. Presently, there are diverse industry cluster zoned across the country creating supply chain challenges which increase cost of transportation
17. Focused Investment on total **capacity creation** including rolling stock, asset renewal, technology induction, information technology, identified investments in modernization, etc.
 18. A more **integrated approach** to be taken of transport as a whole and choices will need to be made on the priorities to be placed on different investments.
 19. Priority should be given to projects such as **Dedicated Freight Corridors (DFCs)** which are self-financing and critical, in order to achieve the target of 50 per cent share of railways in freight .
 20. **Consolidation, Integration & Organization of industry**
 - i. Though certain large players have gone in for consolidation by taking over smaller players, it becomes of prime importance for the industry to move from unorganized to organized.
 - ii. Initiatives by Government for continued liberalization of foreign investment will enable MNCs establish larger scale & best practice driven outsourced logistics.
 - iii. Development of robust clearing mechanisms will help the industry.
 21. **Customization & development of processes & systems**
 - i. A successful supply chain shares data between multiple parties – manufacturers, customs departments, logistics providers and retailers
 - ii. The high performers have moved well beyond using IT merely as an enabler of internal process management. Instead, they leverage their proprietary customer-facing technologies to empower their customers. Important to ongoing success will be the ability to develop more "intelligent" services, more dynamic planning and increased alignment with customers' operations and processes.
 22. **Creation of standardised training infrastructure**
 - i. Set up and operation of training infrastructure is an activity that requires a long term view and significant upfront investment making it akin to most sectors where government participation becomes necessary.
 - ii. Creation of training infrastructure with the help of PPP initiatives will help in developing external training.
 - iii. Establishment of a nodal logistics institute or a network of institutes in partnership / support with the government
 - iv. Support should be provided for good training curricula
 - v. Private entrepreneurs to set up commercial ventures and provide training.
 23. **Other Suggestions**
 - i. Tourist transport operators should be allowed to import cars and special purpose vehicles for the touristic purposes under EPCG scheme.
 - ii. All tax payments should be accepted online to avoid long delays and queues.
 - iii. Drivers training facilities are far less than what is required to meet the demand across India. Therefore, it is becoming extremely difficult to get experienced drivers for tourist vehicles. We should have driver training facilities in all tourism centres under Skill India Program.

E-COMMERCE & LOGISTICS

Indian-exporters today face challenges in reaching out to global customers, unless they represent internationally acclaimed brands. They need to invest heavily in marketing and fulfilment to reach out to overseas customers, thereby incurring a substantial additional cost leaving them with a very narrow profit margin. Thus, more often than not, they find themselves unable to tap into the global demand. Expanding into international markets continues to remain a challenge for Indian exporters, even though there is a high demand for Indian goods abroad.

E-commerce presents a unique opportunity for these exporters to directly reach customers in growing markets with minimal investment. The exporters get a chance to feature their products on marketplaces that have high traffic, expanding their reach to a large number of customers. As per the MSME Ministry, it is estimated that there are already more than two lakh Indian business-to-consumer (B2C) exporters making use of their own websites or other e-commerce platforms and social media sites to sell goods to international markets. Therefore, it is important to empower these 2 lakh and many more sellers to start selling their locally produced goods globally.

E-commerce plays a crucial role in giving a fair opportunity to new sellers owning lesser known brands to sell in international markets. In order to capture this opportunity, the government would need to enable provisions that recognize the operating model of cross-border e-commerce, simplify regulations on customs documentation in logistics (forward and reverse shipments), forex inward remittance, taxation and warehousing provisions for destination markets.

Role of Logistics

1. Key policy Issues

a. Consignment Exports and Opening / hiring of warehouses abroad

Current regulation; i. Section C.12 Consignment exports of RBI/FED/2015-16/11 FED Master Direction No. 16/2015-16 provides for consignment export wherein the correspondent / agent / consignees may deduct from sale proceeds of the goods expenses normally incurred towards receipt, storage and sale of the goods, such as landing charges, warehouse rent, handling charges, etc. and remit the net proceeds to the exporter. ii. Section C13 Opening / hiring of warehouses abroad is approved through AD Category -1 banks. AD Category -1 banks may consider the applications received from exporters and grant permission for opening / hiring warehouses abroad subject to certain conditions. Both these regulations do not consider the e-commerce export mode where exports want to hire a warehouse and post sales, the export proceeds are disbursed through the marketplace.

Impact: Close to 70% of sellers (20,000+) employ the warehouse model of B2C e-commerce exports wherein exporters/sellers do a stock transfer of their products from India to destination (foreign) marketplace warehouse and then on receiving order from customer, fulfil from that warehouse. Both the regulations detailed leave these 70% of the sellers out of their purview.

Recommendation; i. Under C12 'Consignment Exports' may provide point (vi) When goods have been exported on consignment basis for the purpose of B2C e-commerce exports in foreign marketplace, AD Category - 1 bank to verify export proceeds received by exporter through marketplace ii. Under C13 'Opening/hiring of warehouses abroad' may provide point (vii) When hiring of warehouse space at e-commerce marketplace abroad for the purpose of B2C E-commerce, AD Category 1 bank to waive off point (i) and point (ii) above.

bi Customs clearance for unsold and returned goods

Current regulation: Under Section 12 of the Custom Act, 1962 import duties of Customs are levied on all import goods, and no distinction is made whether the goods being imported had discharged duties earlier and are being re-imported after exportation for particular purposes. Similarly, even if goods are indigenously manufactured which had been exported earlier under various export incentive schemes or duty drawback claim or even without any export incentive claim, when these are re-imported they attract the customs duty chargeable on like import goods (as the duty is on the act of importation) unless an exemption notification is issued.

Implication: Unsold inventory that can no longer be stored in warehouses (as per timelines specified by RBI), or inventory that was shipped directly from a seller in India and is now being returned due to some issue do not become a part of the purchase cycle. However, due to lack of guidelines with respect to exempting unsold products from paying duties, merchants are asked to pay the same in order to get customs clearance. The power here ends up being vested in the hands of the concerned customs officer, instead of a defined guideline being followed across all ports. This has become a matter of great inconvenience to merchants who encounter a lot of process delays for clearance and often end up paying import duties without any sale being made'. Due to the cost and the extensive paperwork involved in the process, a lot of times sellers forego their inventory and suffer losses. It's a major disincentive that in the case of exports other than through the e-commerce route, customs duties are exempted on return of exported goods. The return rate of products in e-commerce is up to 16% which makes up for a substantial part of the sellers' inventory.

Impact: Unsold and returned inventory accounts for 12% of goods. 8.5% is the return rate overall (FBA at 6% and MFN at 12%). The unsold inventory is at 4%. All the goods under this bracket are currently impacted since there is no clear guideline for exemption of duties on these goods.

Recommendation: Customs may exempt unsold and returned inventory from paying import duties for clearance, since they haven't been a part of any sale at all. The goods haven't been procured by any party at any stage that make it eligible for duties.

c) Unique identification for unsold and returned goods

In some of the ports, customs authorities insist on having clear documentary evidence to prove that the returned product is the exact same one that was shipped out from India. Given that apparel, accessories, home goods, toys cannot be identified individually, it is not feasible / possible for merchants to provide a trace mechanism for each and every product. The industry structure for these commodities does not have either a pan India or a globally accepted way of uniquely identifying individual products. Only certain products like mobiles (that have a universal IMEI number) and laptops (that have a manufacturer serial number) can achieve this traceability. The rate of return for certain categories is given below (averaged over the last 6 months). This can give an approximate estimate of the volume of unsold/ returned goods that the business has to take care of.

Recommendation: Instead of undertaking physical check for every consignment, customs may move on to a trust based system whereby clearance will be based on the records

maintained by the exporters only and post clearance on-site check can be done on a random basis. At that time, exporter's records can be verified and the ecommerce company also undertake the responsibility to provide proper documentation for corroboration. Additionally, the Department can also prescribe a minimum cap up to which return of unsold goods will be permitted without any on-site check and return exceeding such limit will have to be cleared through normal procedure.

d) Recall of products due to limited duration storage policy

Current regulation: it is obligatory on the part of the exporter to realize and repatriate the full value of goods / software/ services to India within a stipulated period from the date of export, as under:

(i) It has been decided in consultation with the Government of India that the period of realization and repatriation of export proceeds shall be nine months from the date of export for all exporters including Units in SEZs, Status Holder Exporters, EOUs, Units in EHTPs, STPs & BTPs until further notice.

(ii) Goods exported to a warehouse established outside India: As soon as it is realized and in any case within fifteen months from the date of shipment of goods

Context for 15 months comes from FERA (1973):

In order to enable Indian exporters to arrange off-the-shelf sales for achieving greater penetration of overseas export markets, some Indian organizations have been permitted by Reserve Bank to establish warehouses for stocking the goods. Considering various stages in the cycle of dispatch of merchandise to an overseas warehouse for eventual sale to buyers from different parts, the prescribed period for realization of proceeds of export consignments to any Indian owned warehouse established abroad with the permission of Reserve Bank has been fixed at fifteen months from the date of shipment.(Source: RBI/FED/2015-16/11 FED Master Direction No. 16/2015-16, clause A.2 'Realization and Repatriation of proceeds of export of goods/software/services)

Implication: RBI's current export policy has a clause allowing exporters/manufacturers to store goods in a 3rd-partywarehouse in a foreign country till they are bought by the intended buyer. However, it is still imperative to mention the buyer/agent/consignee's name in the export invoice and that the remittance is realized within 15 months. This essentially implies that the maximum time period for which goods can be stored in the warehouses is 15 months, post which their return to the point from where they were shipped will be initiated. The current guidelines are applicable to B2B and B2C alike, whereas the two models are very different in their methods of operations, realization of value of goods and time taken to have the goods procured by the buyer.

Recommendation: RBI may extend the duration for storage of goods in warehouses under B2C exports to 24-30months. The current guidelines are applicable to B2B and B2C alike, whereas the two models are very different in their method of operations, realization of value of goods and time taken to have the goods procured by the buyer. B2B exports usually work under pre-negotiated terms and conditions, and the value of the goods being delivered in bulk usually gets realized within the time frame defined by RBI. B2C on the other hand, works in a

very dynamic environment, and the realization of the value of products can never be pre-empted. Thus, a policy differentiation is necessary.

a) Provision for liquidation of unsold inventory

Current regulation: Sections C23, C24 and C25 of: RBI/FED/2015-16/11 FED Master Direction No. 16/2015-16 do not have any provisions for liquidations resulting due to unsold inventory in a marketplace.

Implication: Close to 5-12% of the inventory that sellers export through the B2C e-commerce route end up in non-sellable category. Close to 70% of the sellers on global selling prefer the consignment exports model due to higher sales, lower costs on shipment and best-in-class customer experience. Thus, a lot of their inventory faces the risk of liquidation based on the market conditions.

Recommendation: RBI/FED/2015-16/11 FED Master Direction No. 16/2015-16, clause C.17 'Reduction in invoice value in other cases provides a reduction of 25% of invoice value which can be extended to 40% for liquidation (add point e. liquidation of unsold inventory for e-commerce exports and point ii. For the purpose of adjusting liquidation of exported products through B2C e-commerce exports that have not been sold for a period of 6 months or later) to cater to the liquidation requirement of B2C Ecommerce exports.

VIII HIGHER EDUCATION

The note below is divided into different sections. *Section A* examines India's current position across various parameters. *Section B* makes a case for justification for inclusion of this sector under Make in India initiative. This is done through analysis of strengths, trade and growth opportunities, impediments and global environment & challenges. *Section C* proposes a detailed Action Plan along with possible milestones in order to achieve the proposed vision.

A. HIGHER EDUCATION IN INDIA – CURRENT POSITION

1.

PARAMETER	INDIA'S POSITION IN THE WORLD
Percentage of International Students to Total Enrolment	0.12% ⁴³
Share of India in International Higher Education Receipts (US\$ terms)	USD 0.2 bn ⁴⁴ (to be confirmed)
No. of International Students coming to India	42,293

B. JUSTIFICATION FOR INCLUSION THIS SECTOR UNDER MAKE IN INDIA

2. Significance of the sector to Indian Economy-

- o India has been an attractive destination for foreign students, primarily from South and Southeast Asia, West Asia and Africa. The better quality of education in the English language, and lower cost compared to other developing and developed countries are key drivers for the growth in the inflow of foreign students into India.

GLOBAL ENVIRONMENT & CHALLENGES

Comparison with Other Countries:The percentage of international students to total enrolment is highest in Australia at 21.2 % followed by UK at 19%. India, in contrast only stands at 0.12%. Compared to the higher education system in the rest of world, India has lesser percentage of international students. China, with almost similar enrolment capacity, has close to 1 %.

- o USA earns approximately USD 28 bn through international students who bring in financial resources in the form of tuition fees, boarding and lodging expenses, etc. while India earns USD 0.2 bn only.⁴⁵

TRADE & GROWTH OPPORTUNITIES

3. Trade in services-

⁴³ Compared with Australia(21.2%), United Kingdom (19%), France(12.1%), Germany(10.4%), USA(3.7%), Canada(11.4%) and China(1 %) [Source: Project Atlas (2013); and University Grants Commission (2012); AISH 2014]

⁴⁴ Compared with USA(\$ 28 bn approx.), Australia(19.1 Aus. Dollars) and Canada(0.5 bn Canadian Dollars.) [www.ike.org/projectatlas]

⁴⁵ www.ike.org/projectatlas

be taken up by the Ministry of Human Resources Development, Department of Higher Education⁶⁹.

Mode 1

Promotion of Mode 1 exports - Distance education, e-education or virtual education:

India has a huge opportunity in cross border supply of education services. Recent global development has been the advent of the Massive Open Online Courses (MOOCs). Many platforms involving top-universities around the world are now engaged in MOOCs. IGNOU is already a recognized distance education provider to around 35 countries in the world including to the gulf region and south Asian countries. Many professional bodies in India are also offering courses through the distance education mode (such as the ICAI, the ICSI, etc.).

1. Regulatory bottlenecks; Recognition of online degrees; appropriate evaluation techniques for online courses, etc.

- o Given the advancement in ICT, on-line and distance Education mode should be an important focus area for the government. Just like the IGNOU, other reputed Indian universities, including engineering, technical and management institutes should be aggressively targeting this opportunity of on-line courses / tele-education. This has the potential of being a huge foreign exchange earner for India. However, recognition of degrees awarded through e-education is a major issue of concern and this issue needs to be addressed bilaterally with countries which we see as our major markets. The Distance Education Council⁷⁰ has an important role to play in this regard. The experience of the IGNOU in getting its courses recognized across several countries will have valuable insights to offer. For instance, unlike open universities in the UK and US, the evaluation techniques adopted for online/correspondence courses offered by Indian institutes are not equivalent to the ones applied to regular full time courses⁶⁸.

(Action – D/o HE with stakeholders such as IGNOU, UGC, DEC, DEB, ICAI, ICSI, Experts)

2. Infrastructural initiatives:

- o Improvement in Digital Infrastructural initiatives such as high quality internet connectivity in line with global standards, increased role of video conferencing tools

Mode 2 (Consumption abroad) refers to situations where a service consumer moves into another Member's territory to obtain a service (e.g. a tourist using hotel or restaurant services abroad, a ship or aircraft undergoing repair or maintenance services abroad).

Mode 3 (Commercial presence) is the supply of a service through the commercial presence of the foreign supplier in the territory of another WTO member. In this case a service supplier of one member establishes a territorial presence in another member's territory to provide a service in the form of a Joint Venture/Subsidiary/ representative/Branch Office and starts supplying services. (e.g. the establishment of branch offices or agencies to deliver such services as banking, legal advice or communications).

Mode 4 (Presence of Natural Persons) involves the temporary movement of foreign nationals to another country to provide services there. An Annex to the GATS makes it clear, however, that the agreement shall not apply to measures affecting natural persons seeking access to the employment market of a member, nor shall it apply to measures regarding citizenship, residence or employment on a permanent basis. The members still have a right to regulate the entry and stay of the persons concerned, for instance by requiring visas. (Examples include independent service suppliers viz., Doctors, Engineers, Business visitors, Intra-corporate transferees).

⁶⁸ It is understood that Committees have been set up to look into the working of University Grants Commission (Ugc/Governor Committees) and All India Council for Technical Education (AITC/ Govt Committee) and to review and restructure regulatory bodies to meet the contemporary needs of educational institutions and the industry.

These committees could also look into norms related to export of educational services from India.

⁷⁰ The Distance Education Council (DEC) is an apex body for the Open and Distance Learning (ODL) system in the country. It is empowered under Section 28 of the IGNOU Act to act as an apex body for the ODL system. It is responsible for promotion, coordination and maintenance of standards of the ODL system. The Vice-Chancellor of IGNOU is the ex-officio Chairperson of DEC. In June 2013, University Grants Commission has taken over DEC, by establishing Distance Education Board which will govern the distance education programs in India. The UGC has constituted a Committee to examine the pending proposals of programme-wise recognition to the institutions.

⁶⁹ Report on Higher Education Services in the Context of Trade within the GATS Framework – Analysis of Strengths, Potential and Challenges by Shri Ram Agarwal

like Skype, computer multi-conferencing, staff training, etc. are important. **(Action: D/oHE with stakeholders such as DEITY; Interested Educational Institutions)**

Mode 2

1. **Estimated market size of Indian students studying abroad is between USD 15 - 20 billion. Thus, there is a huge opportunity for foreign universities to set up campuses in India.**

Need for allowing foreign universities to set up campuses in India:

- o The passing of a regulatory legislation would be a necessary step towards creating a regulatory framework for foreign educational institutions to operate in India. Presently, there is no central legislation for regulation of entry and operation of campuses of foreign educational institutions in the country.
 - o However, the University Grants Commission (UGC)⁵¹ has notified the UGC (Promotion and Maintenance of Standards of Academic Collaboration between Indian and Foreign Educational Institutions) Regulations, 2016. These regulations spell out the modalities regarding the eligibility criteria and conditions for the collaboration of a foreign educational institution with an Indian educational institution. Further, the All India Council for Technical Education (AICTE) has also issued regulations⁵² for collaboration and partnerships between Indian and Foreign Universities/Institutions in the field of technical education, research and training.
 - o These regulations, however, have not had much of an impact on taking forward these collaborations. Further, not allowing repatriation of profits, deters foreign universities.
 - o The regulations need to be reviewed further and in the first stage top 100 universities should be given flexibility to set their own standards. UGC/AICTE regulations should be voluntary for them.
 - o There also needs to be more role clarity for bodies like the UGC, the AICTE and the NAAC, etc. w.r.t. regulation of foreign institutions.
2. **Making India a hub for international students⁵³ – to encourage foreign students to pursue higher education in India; remove procedural hurdles⁵⁴:**
 - o Under the present governmental policy, dictated in part by the apex court, educational institutions were permitted to admit a limited percentage of foreign students to educational programmes in technical and professional fields. An attempt has been made to rethink on this through the designated

⁵¹ As per the regulations, Indian Universities and Colleges having the highest grade of accreditation/should accreditation, and conforming to other eligibility conditions as laid down in the Regulations, can apply online to the UGC for starting learning arrangements with reputed Foreign Educational Institutions (FEIs) having the prescribed quality. The Regulations provide for time-bound processing of the online applications received by UGC. Other details of the Regulations are available at www.ugc.ac.in/ / www.ugc.ac.in.

⁵² As per AICTE regulations, no Foreign University / Institution shall establish / operate its educational activity in India leading to award of Degree, Diploma, Post Graduate Diploma and Post Diploma Level and Doctoral level programs without the specific prior permission / approval of the Council and the proposal from the Foreign Universities / Institutions shall be considered provided that they themselves establish operation in India or through collaborative arrangements with either an Indian Institution created through Society / Trust / a company established under Section 25 of Companies Act 1956, or the relevant Act in India. Franchising in any form is not allowed. Also, accreditation by the authorized agency in parent Country with acceptable grades where grading is available, shall be the pre-requisite condition for any Foreign University / Institution to start its operation for imparting technical education in India.

⁵³ The MEA also has an important role to play especially in promoting India's exports of higher education services through mode 2. The MEA, recognising the importance of soft power diplomacy, implements a number of educational and cultural related schemes in a number of foreign countries. The most important is the [India Technical and Professional Cooperation \(ITEL\) programme](http://www.mea.gov.in/india-technical-and-professional-cooperation-through-mode-2) run by MEA, which involves the spin of South-South Cooperation for mutual benefit. Besides the India-ITEL programme, India also runs 2004 Through ITEL Co-operation with Special Interest with Institute of Education (IIE) of Canada, India shares its developmental experience from independence onwards with 150 countries in Asia, East and Central Europe including Russia, Central Asia, Africa, Latin America and the Pacific.

⁵⁴ Inputs drawn from 'Education and Skill Development Paper' by Dr. Kavita Sharma – based on recommendations of standing committee of UGC on Promotion of India higher education abroad (NHEAU) which gave its report in January 2004. Subsequently, the Committee for the Promotion of Indian Education Abroad (CONE) gave its recommendations.

World Class Institutions. However, the guidelines for the same are being lined up.

- o **Transparency / Documentation** - Given that even the best of Indian educational institutes are not very high in international ranking, the government or the regulator could mandate that all educational institutes, especially those admitting foreign students should compulsorily publish certain basic information on their website - these could relate to fees; the number of sanctioned seats course-wise; the number of seats filled during the last five years; the pass percentage and average score course-wise; admission procedure; faculty information; etc.
- o The National Institutional Ranking framework (NIRF) by MoHRD outlines a methodology to rank institutions across the country. However, it is understood that these were voluntary for first two years. These need to be made mandatory for all institutions- public and private. Universities should be encouraged to use international ranking parameters.
- o It is understood that the D/o HE is proposing to create a 'Know your College Portal' which will have information about the courses available, faculty and infrastructure in various colleges. **(Action - D/o HE to update, UGC, AICTE, Interested Educational Institutions).**
- o A nodal agency²⁰ to coordinate the efforts and activities of Indian universities as they attempt to internationalize their education. This would mean establishing a consortium of select universities and institutions of higher learning, keeping in view standards, infrastructure and performance; act as a clearing house for information on courses offered, availability of seats, the fee charged, the financial assistance available, and possibility of on-campus housing accommodation and so on. The consortium could also help Indian universities/institutions of higher learning in obtaining approvals of the various central government ministries for different international education cooperation programmes. It could also represent Indian universities/institutions at international fairs on higher education and organize similar fairs in India. **(Action: D/o HE, Planning Commission, AIU, NUEPA).**
- o Framework for 'study in India programme' for foreign students to be developed. In addition to 'twinning' arrangements with foreign universities and setting up of campuses of foreign universities, creation of special education zones (to be developed as 'Education Hubs') primarily for foreign students through consortia of foreign / Indian universities could be considered. Such institutions could offer a global curriculum, and encourage inclusion of courses on Indian culture and society, Indian medicine and yogic sciences that are increasingly popular. Such institutions in large numbers could be established in

²⁰ Can or is the AIU already fulfilling this role - The Association of Indian Universities (AIU) is mainly concerned with the recognition of Degrees/Diplomas awarded by the accredited Universities in India and abroad for the purpose of admission to higher courses in Indian Universities. The AIU is also an implementing agency for the agreements signed under the Cultural Exchange Programmes executed between India and other countries in the field of education, insofar as it relates to the recognition of foreign qualifications (except for medicine and allied courses).

The AIU's standardized process for granting equivalence status to foreign degrees for students looking to pursue their higher studies in India is currently based on three basic criteria namely, duration (number of years) of the programme, the accreditation status of the institution and the eligibility criteria applied for admission to the institution.

Another important body is the National University of Educational Planning and Administration (NUEPA), established by the Ministry of Human Resource Development, Government of India. It is a premier organization dealing with capacity building and research in planning and management of education not only in India but also in South Asia. In recognition of the pioneering work done by the organization in the field of educational planning and administration, the Government of India have empowered it to award its own degrees by way of conferring it the status of Deemed to be University in August, 2006. Like any Central University, NUEPA is fully sustained by the Government of India.

It may be noted that the 11th Five year plans setting up of a professional national agency and an 'India International Education Centre' at New Delhi to undertake internationalisation activities in Higher Education.

'Education hubs', where high quality instruction based on global benchmark be provided targeted outside the regulatory remit of the UGC / AICTE (but accredited preferably by international accrediting agencies). Eventually, it should be possible create a 'Educated in India' brand. **(Action: D/oHE in consultation with D/o AYUSH, D/o Commerce – SEZ Division, Stakeholder Universities).**

- o **A 'study in India portal'** as a one-stop information point for the various higher education /specialized courses offered in India could be conceived. In the context of getting a better sense of the institutional landscape of higher education in the country, the Twelfth Plan also makes a mention of creating a higher education database management system which will be very useful for policy making and effective planning. **(Action: D/o HE).**
- o **Creation of 'Brand India' in Higher Education in some Asian, African and Arab Countries:**
India has the ability to provide low cost higher education as compared to other developed and developing countries. This has made it an increasingly sought after destination for students from Asia, African and Arab countries¹⁶. **(Action: D/o HE in consultation with the MEA (Indian Missions in target countries), D/o Commerce, Accredited Institutions, SEPC, Chambers of Commerce, etc.).**
- o **Visa related issues:**
Hurdles related to visa faced by foreign students who want to pursue higher education in India. The D/oHE may like to take up this issue with the MEA (especially Indian Missions in Asian, Middle-East and African countries from where a large number of foreign students are already coming to India). The Indian Missions in these countries can play a facilitating role. **(Action: D/oHE may follow up with the MEA, MHA, especially for PRC countries).**
- o **Participation in global promotional events, etc.**
To support the growth of services exports, DOC, CII and SEPC shall be partnering for the first-ever 'Global Exhibition in Services' (GES) in New-Delhi, India in April 2015. Stakeholders in the Higher Education sector need to actively participate in the GES. **(Action: DOC, CII and SEPC; Interested Educational Institutions like IIT, Delhi, MAHE, SRM University, ISB Hyderabad, Jindal Global Business School, Shiv Nadar University, etc. – D/o HE to coordinate).**

Note: The actionable points for improvement in the quality of Indian higher education imparted through Indian universities and institutions are not specifically covered. Some well known facts such as shortage of well trained faculty, poor infrastructure, outdated and irrelevant curricula, limited use of ICT, poor standards of research, etc. have been well document in the 12th Plan. Their role in also attracting foreign students (thereby increasing India's mode 2 exports), is, however, well recognized.

Mode 3:

1. The HRD Ministry together with related agencies such as the AIU, the NUEPA, etc. should pursue with Banks so that they lend more freely to reputed educational institutes that want to set up campuses or open institutes abroad. This should especially be the case for those Indian educational institutes which have obtained

¹⁶ Such as (Bhutan, Sri Lanka, Bangladesh, Afghanistan, Indonesia, Vietnam, Cambodia and Laos, Central Asia, West Asia and Africa)

international accreditation. Even institutes accredited by Indian accreditation bodies such as the NBA or the NAAC could be promoted to set up campuses abroad. (Action: D/o HE in consultation with the D/o FS, AIU, NUEPA)

2. Due to regulatory constraints in developed countries, the initial focus could be on countries in Asia (South Asia, Central Asia, Middle East), Africa and CIS countries. (D/o HE to prepare a roadmap in consultation with interested Educational Institutions like the MAHE, BITS Pilani, SRM University, ISB Hyderabad, Jindal Global Business School, Shiv Nadar University etc.)

Mode 4:

1. **Mutual recognition agreements and equivalence of degrees and professional qualifications**

Mutual recognition and equivalence of degrees and professional qualifications is an important issue w.r.t. mobility of professionals, faculty, researchers, etc. The recent signing of the Washington Accord²⁷ is one example where India has successfully elevated its accreditation criteria to global standards, allowing engineering degrees accorded by Tier-1 institutions to be recognized in all signatory countries. India becoming a permanent member of the Washington Accord should set examples for other professional bodies in India to follow.

MRAs should also be taken up as part of FTA negotiations. However, so far, the D/o Commerce has not been able to conclude MRAs under any FTA. This is primarily due want of necessary domestic regulatory reforms²⁸.

(Action: DoC, Professional Councils – AICTE, NBA, CDC, IMCP²⁹, CEAI³⁰, ICAI, CoA, MCI, DCI, INC, BCI, etc. – D/o HE to regularly monitor progress)

2. **Faculty collaboration between Indian and Foreign educational institutes**

MoHRD has launched the Global Initiative of Academic Networks (GIAN) in Higher Education aimed at tapping the talent pool of scientists and entrepreneurs, internationally to encourage their engagement with the institutes of Higher Education in India so as to augment the country's existing academic resources, accelerate the pace of quality reform, and elevate India's scientific and technological capacity to global excellence.

Cross cutting issues – These will help to boost exports across all four modes of supply:

Accreditation

1. The Higher Education Department needs to finalise the ranking and accreditation framework in India. According to the 12th Plan Document, a new accreditation law that provides for accreditation by independent non-profit agencies registered with a

²⁷ The Washington Accord is an agreement between the national accrediting bodies of 21 countries where the undergraduate degrees conferred by accredited institutes in the field of engineering are mutually recognized by all signatories. India became a permanent member in 2014 after the National Board of Accreditation (NBA) revised its accreditation criteria for Tier-1 institutes as required to become the signatory of the Washington Accord. The NBA developed nine broad criteria, the most critical among which were moving to an outcome based method of program evaluation and encouraging significant and high quality faculty contributions as well as high research orientation. The membership of Washington Accord is an international recognition of the quality of undergraduate engineering education offered by Indian institutes. It encourages and facilitates the mobility of engineering graduates and professionals at an international level.

- For concluding MRA in medical, dental and nursing, amendments required in Medical Council of India Act, 1956, the Dentists Act, 1948 and the Indian Nursing Council Act, 1947, to remove Indian citizenship criteria.
- For MRA in legal services, amendment in the Advocates Act, 1961 and BCI Rules is required to allow foreign lawyers to practice in advisory/free-Biprofit legal services. This is being taken up separately by the DoC with the D/o LA in the context of legal Services Reforms in India.
- Concluding MRAs will become much easier once the framework for ranking and accreditation is implemented in India and further elevated to global standards.

²⁸ IMCI – Institute of Management Consultants of India

²⁹ CEAI – Consulting Engineers Association of India

national accreditation authority is currently under consideration. As of now, India has two government accreditation bodies, the NBA⁶¹ and the NAAC⁶². However, the leading Indian Educational Institutions should be encouraged to go for international accreditation. Some elite institutions like IIMs in India have sought international accreditation by bodies such as AACSB⁶³ or AMBA⁶⁴ in order to improve their standing on a global scale. There is a requirement to strengthen our own accrediting bodies such as NBA and NAAC by revising their assessment criteria and aligning them with global systems. The recent signing of the Washington Accord is one example of a situation where India has successfully elevated its accreditation criteria to global standards, allowing engineering degrees accorded by Tier-1 institutions to be recognized in all signatory countries. **(Action: D/o HE in consultation with the Planning Commission, NAAC, NBA, Quality Council of India)**

Ranking

2. Rankings too play a major quality assurance role by transparently providing information to the public. Rankings by the Times Higher Education Rankings, Quacquarelli Symonds (QS) or the Academic Ranking of World Universities (ARWU) by Shanghai Jiao Tong University are a yardstick to measure a country's institutional standing. It measures how close or how far is an institution from being a "world class" university.
3. India has launched the NIRF. But the working of the same needs to be firmed up. **(Action: D/oHE)**

⁶¹National Board of Accreditation (NBA), an autonomous body with effect from 7th January 2010, initially established by the AICTE.
⁶²National Assessment and Accreditation Council (NAAC), which is an independent institution set up by the University Grants Commission (UGC).
⁶³Association to Advance Collegiate Schools of Business (AACSB) Accreditation is known, worldwide, as the longest standing, most recognized form of specialized/professional accreditation an institution.
⁶⁴The Association of MBAs (AMBA) has accredited MBAs, DBAs, and MBBs programs at 239 graduate business schools in 57 countries and territories (as of September 2014).

DK. COMMUNICATION SERVICES

A. COMMUNICATION SERVICES IN INDIA – CURRENT POSITION

PARAMETER	PRESENT STATUS
Size of Telecommunications market	2 nd largest
Number of internet users	3 rd highest
Subscriber Base	1.05 bn
Broadband Connectivity	33%

B. JUSTIFICATION FOR INCLUSION OF THIS SECTOR UNDER MAKE IN INDIA

Communication and data flow is the oil for future. The goal of Digital India can be achieved only by enhancing access to IT education and access to internet in the rural areas. In future, growth of all sectors including traditional sectors like agriculture will be driven using IT and Communication platform. The pace of broadband penetration needs to be accelerated further.

GLOBAL ENVIRONMENT & CHALLENGES

All developed countries are moving towards complete digitization of their societies and economies. The issue of cybersecurity, data privacy and security of critical public infrastructure has become important than ever before. Therefore, high quality cybersecurity infrastructure, cybersecurity professionals, cybersecurity protocol and technical standards are required to be put in place to secure our future growth.

TRADE & GROWTH OPPORTUNITIES

The global demand of digital market offers huge opportunities for India provided professionals with relevant educational qualifications and soft skills are prepared to cater to this demand. A reasonable target may be set by MEITY in terms of market share as well as supply of professionals

IMPEDIMENTS

- i. Delay in development of broadband infrastructure. The revised mission mode targets are required to be set to achieve full connectivity.
- ii. The spectrum availability in Indian metro cities is about 1/10th of the same in cities in the developed countries. This situation need to be remedied.
- iii. The public Wi-Fi penetration in India is much below the global availability of one Wi-Fi hotspot for every 150 citizens. India would require additional 8 million hotspots to reach that level.
- iv. Rural connectivity remains poor as currently as over 55,000 villages remain deprived of mobile connectivity.
- v. The policy framework of taxation, FDI, privacy etc. needs to be evolved in a comprehensive manner.
- vi. Digital literacy is another major challenge to be worked out.

C. ACTION PLAN – COMMUNICATION SERVICES

Anchor Ministry / Department	MEITY and Ministry of Telecommunications
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- i. Digital infrastructure, digital literacy, digital security and digital policy framework covering data flow, localization of server, etc. are critical for India's success in its flagship journey towards Digital India. These issues need to be addressed comprehensively within a time frame. Example of China in its success in E-Commerce, Cybersecurity and that of Japan in its programme Digital Society 5.0 could be good reference point.

X. CONSTRUCTION AND RELATED ENGINEERING SERVICES

A. CONSTRUCTION AND RELATED ENGINEERING SERVICES IN INDIA – CURRENT POSITION

- i. Despite contributing about 8% to the GDP, the Construction sector in India has seen one of the lowest growths in total factor productivity since 1980. This needs to be addressed through application of modern technology and taking skilled jobs to the higher end of the construction chain.
- ii. Indian engineers have considerably low employability as per various reports. This also needs to be addressed by introducing professional practice examination and licensing system. The continuous professional evaluation every 5 years would make the professionals relevant adding to the vibrancy of the sector.
 - a. **Separation of Functions of Engineers and Architects-** As of now, when each profession is moving towards specialization, in India, overlapping between engineering and architectural services is doing substantial harm to the growth of the sector. A clear definition and role of engineers and architects under respective Acts is urgently required. We have to accept this fact that condition of all Indian towns and cities is far from being satisfactory, in fact, below par. Urban centers are more or less unplanned, unpleasant looking clusters of buildings missing in fundamentals of urban planning and aesthetics. One of the reasons for this situation is that town planning and architectural education has not received the attention it otherwise deserves. In United States with one-fourth the population of India, number of registered architects is around 2.50 Lakh. By that standard, India should have roughly about 10 Lakh architects, whereas, the number of registered architects in India is about 63 thousand. Since the role of architects is not clearly defined in the Architects Act, majority of their functions are carried out by engineers which has resulted into poor planning and aesthetics of construction leading to poor air, water, light management and energy conservation. By clearly defining the role and speeding up supply of architects, the situation can be redeemed. A clear action plan is required in this regard.
- iii. **Need for Reforms in Municipality Acts in the states-** Architectural services are not seeded into the fabric of Indian cities and towns, the resultant visual urban chaos is evident. Majority of municipality regulations permit architecture to be practiced by other professions who are not qualified architects. This needs to be reversed and building plans etc. need to be made by qualified professionals and their approval should be made more transparent.
- iv. **Urban Services-** Water supply to sewerage management in the urban area needs major reform. The other urban services like schooling, health services, dental services, sports facilities etc. need to be linked with taxes paid by the citizens. A system of recognizing and honoring honest taxpayer for urban services needs to be made integral part of the urban governance.
- v. The policy of **land provisioning for public infrastructure** need to be re visited in the context of such policy in Thailand, Malaysia etc. so that availability of public services is at affordable price and cost of land is not loaded upfront in the cost of the project.

- vi. Similarly, for the urban poor, **linking low middle class housing with premium residential facilities** as matter of policy would ensure supply of various urban services to the residents as well as create jobs for those who currently live in the slums.

B. ACTION PLAN – CONSTRUCTION AND RELATED ENGINEERING SERVICES

- i. In the context of reforms, both for the profession of engineers as well as architects, professional bodies need to be separated and an independent regulator consisting of all stakeholders needs to be set up in a time bound manner.
- ii. For both the professions, professional practice examination needs to be introduced on a nation-wide basis before practice license is granted
- iii. To incorporate continuous changes that happen in the technology atleast at a regular interval of five years, regular review examination needs to be undertaken so that profession and professionals are globally competitive and are able to provide services of high order
- iv. Municipal laws need to be reformed to provide for specific services for town-planners, landscape architects and architects for well-defined roles.

XI ENVIRONMENTAL SERVICES

- i. This is relatively a new area in India and needs to be mainstreamed right into higher education to the university and professional education. Water management, energy management and waste management experts are hardly available. Unless at the local government level supply of these professionals is ensured through the education system managing these services will continue to remain a challenge. For example, in UK and US, energy managers are posted in all large establishments, both private and public to ensure energy conservation through regular audits and improvements. The carbon credits so earned can be traded by such institutions even on the stock exchange. In all major cities where Smart City programme is being undertaken, these concepts should be made an integral part by enacting suitable laws and regulations. The Ministry of Housing and Urban Development may draw up an action plan for its implementation.
- ii. **Export Opportunities for India-** The environmental support services segment constitutes a relatively small share in the global environmental services industry, and is declining in developed countries. In the developing countries, however, the demand for these services is on the rise as witnessed within India. Thus India has opportunities in this segment in some developing countries in South Asia, Africa and the Middle East, where environmental support services are increasingly in demand.
- iii. **Regulatory Landscape-** A change in regulatory approach is required to encourage innovation instead of following the conventional method of pollution control and waste control. This could also be suitably built into urban taxation policies.
- iv. **Accreditation of Environment Professionals:** a scheme for national accreditation of Environment Impact Assessment (EIA) do exist with aim to enhance of EIA quality and report. Similarly, a scheme for accreditation of environment professionals can be designed for the purpose of environment compliance monitoring. This would bridge the manpower gap and would also facilitate more robust compliance monitoring. Given the scale of national requirement of such professionals, it is suggested that quality control may be vested with a national level agency and accreditation process can be designed through authorized agencies, State pollution control boards can be one of the options.
- v. **Skilling on environment service:** The environment pollution control utilities like Sewage Treatment Plant, Effluent Treatment Plant and waste management/disposal facilities like incinerators required the operators of such plants to have certain minimum skill sets. There is a need to provide an emphasis on skilling of operators of such plants under Skill India Mission.

XII FINANCIAL SERVICES

- i. Accounting and Finance professionals are globally in demand. Indian chartered accountants enjoy a good professional reputation. However, they are generally able to access other global markets automatically as the professional body does not have Mutual Recognition Agreements with other countries. Like in the case of legal and engineering sectors, separation of professional body and creating an independent regulator has become inevitable to avoid conflict of interest and role clarity.

- i. The education system also need to cater for Tier 2 and Tier 3 level account professionals to assist businesses and chartered accountants. With the implementation of GST, huge demand for such services has been created and these services can be provided by professionals who need not be chartered accountants.
- ii. The commerce related courses at the university level are outdated and they are not in line with the emerging global trends. In fact, now specialized modules of various financial products and services are being taught in foreign universities. Student who qualify these short term courses get immediate jobs in financial companies, banking institutions, rating organizations, etc. For example, Philippine universities offer a variety of such courses accredited by various foreign institutions and after passing these courses, students get good placements in US, UK and other countries.
- iv. Fintech is the new driver of growth in the financial sector. Supportive policies and enabling regulatory framework is needed to support these initiatives.

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ED 0515

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