

Government of India

Ministry of Electronics and information Technology

National Informatics Centre, Himachal Pradesh, Shimla

Technical Presentations by NIC HP Officials: 03-Feb-2024

As part of an ongoing series of 10-minute technical talks presented by NIC officials of their choice on a regular basis, the recent technical session held on 03-Feb-2024.

State Informatics Officer, Himachal Pradesh instructed all the officers to organize cyber security workshops as soon as possible. He also stressed on ways to be conscious about cyber security and also instructed to get security audit work done of all the websites at least annually.

The details of the presenters, along with their topics and ratings, were as follows:

S.No.	Name	Designation	Topic	Rating (5.0)
1.	Sh.Sanjeev Kumar	Scientist-C	Deepfake Technologies	4.7
2.	Sh. Balwan Singh	Scientist-D	Progressive Web Application	4.1
3.	Sh. Akhilesh Bharati	Scientist-E	Digital Trust	4.7
4.	Sh. Akshay Mehta	Scientist-E	Edge Computing	4.4

Deepfake Technologies

A deepfake refers to a manipulated video or audio clip generated using advanced artificial intelligence techniques, particularly deep learning algorithms. These techniques can alter a person's appearance, voice, or both to make them appear to say or do things they never did. Deepfakes have raised significant concerns due to their potential to deceive and manipulate viewers, undermine trust in media, and be used for malicious purposes such as spreading misinformation, blackmail, or defamation. As deepfake technology continues to evolve, it becomes increasingly important to develop robust detection methods and promote media literacy to help mitigate their harmful effects on society.

Deepfake technology does have certain advantages. Deepfake technology can be used in the entertainment industry to create more realistic special effects, enhance performances, and even resurrect deceased actors for roles. Deepfake technology can be utilized in educational settings to create realistic simulations for training purposes. For instance, it can be used to simulate medical procedures for training medical professionals.



Sh. Sanjeev Kumar, DIO Solan showing the demonstration of Deepfake Technologies

Deepfake technology can be used to restore and enhance historical footage, photographs, and audio recordings. This can help preserve cultural heritage and make historical content more engaging and accessible to younger generations.

Progressive Web Application

A Progressive Web Application (PWA) is a type of web application that utilizes modern web capabilities to provide a user experience similar to that of native mobile apps. PWAs are built using standard web technologies such as HTML, CSS, and JavaScript, but they offer additional features like offline functionality, push notifications, and device hardware access, typically through service workers.

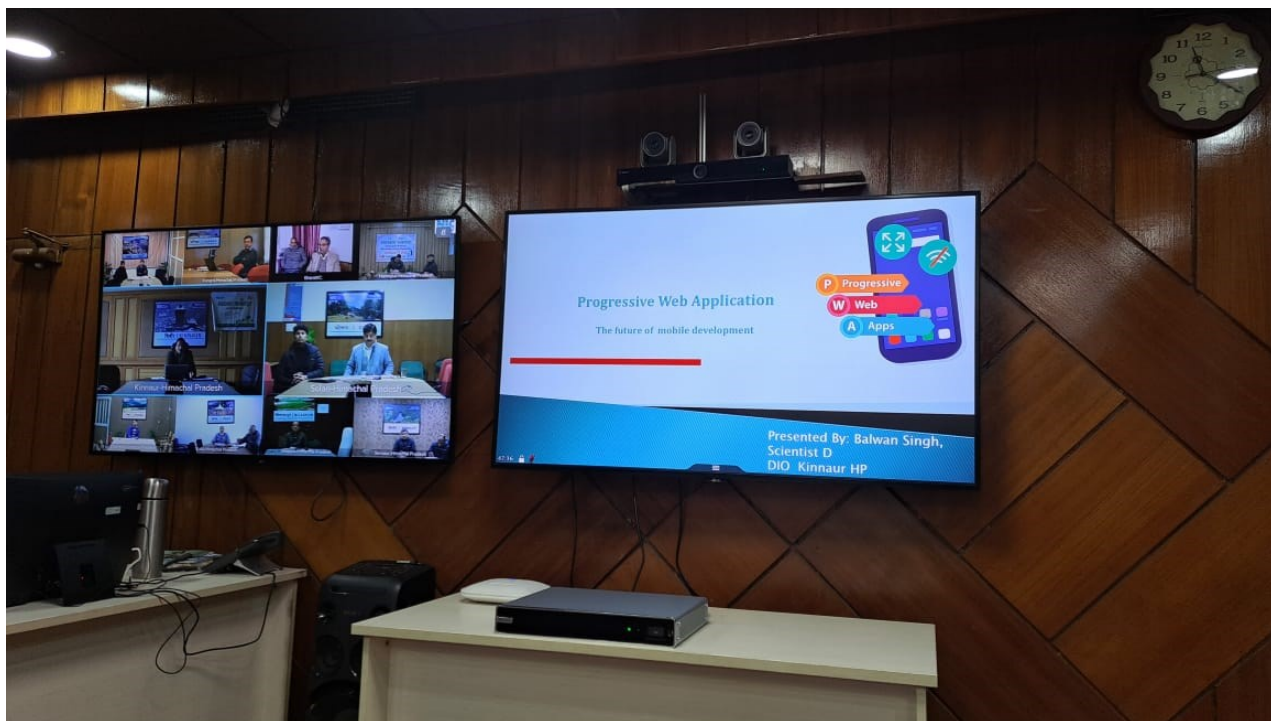
PWAs are designed to work seamlessly across various devices and screen sizes, ensuring a consistent user experience.

PWAs are built with progressive enhancement in mind, meaning they should work for all users regardless of the browser or device they are using. They can take advantage of advanced features in browsers that support them, while still providing a basic experience for older browsers.

PWAs can function even with limited or no internet connectivity, thanks to service workers that cache essential resources and enable offline access to content.

PWAs provide a user experience similar to native mobile apps, including features like push notifications, full-screen mode, and access to device hardware (with user permission).

PWAs can be discovered through search engines and shared via URLs like traditional websites. However, they can also be "installed" on a user's device, appearing on the home screen and behaving more like native apps, without the need for an app store.



Sh. Balwan Singh, DIO Kinnaur giving the Technical Talk for developing Progressive Web Applications

PWAs are served over HTTPS to ensure data integrity and security, especially when dealing with sensitive information or utilizing service workers for offline functionality.

Overall, PWAs offer a compelling alternative to traditional web and native mobile apps, providing a balance of performance, functionality, and accessibility across various devices and network conditions.

Digital Trust

Digital trust refers to the confidence and reliability that individuals and organizations have in the security, integrity, and privacy of digital interactions, transactions, and data. In the increasingly digital world, trust is essential for increasing relationships, conducting business, and sharing information online.

Several factors contribute to building digital trust, including robust cybersecurity measures, transparent data practices, user-friendly interfaces, and effective regulation and compliance frameworks. Maintaining digital trust requires constant vigilance and adaptation to evolving threats and technologies.

Digital trust is crucial for enabling the widespread adoption of digital services, e-commerce, online banking, social networking, and other digital activities. Without trust, users may hesitate to engage in digital transactions or share sensitive information, hindering the growth and innovation of the digital economy.



Sh. Akhilesh Bharti, DIO Mandi giving presentation on DevOps

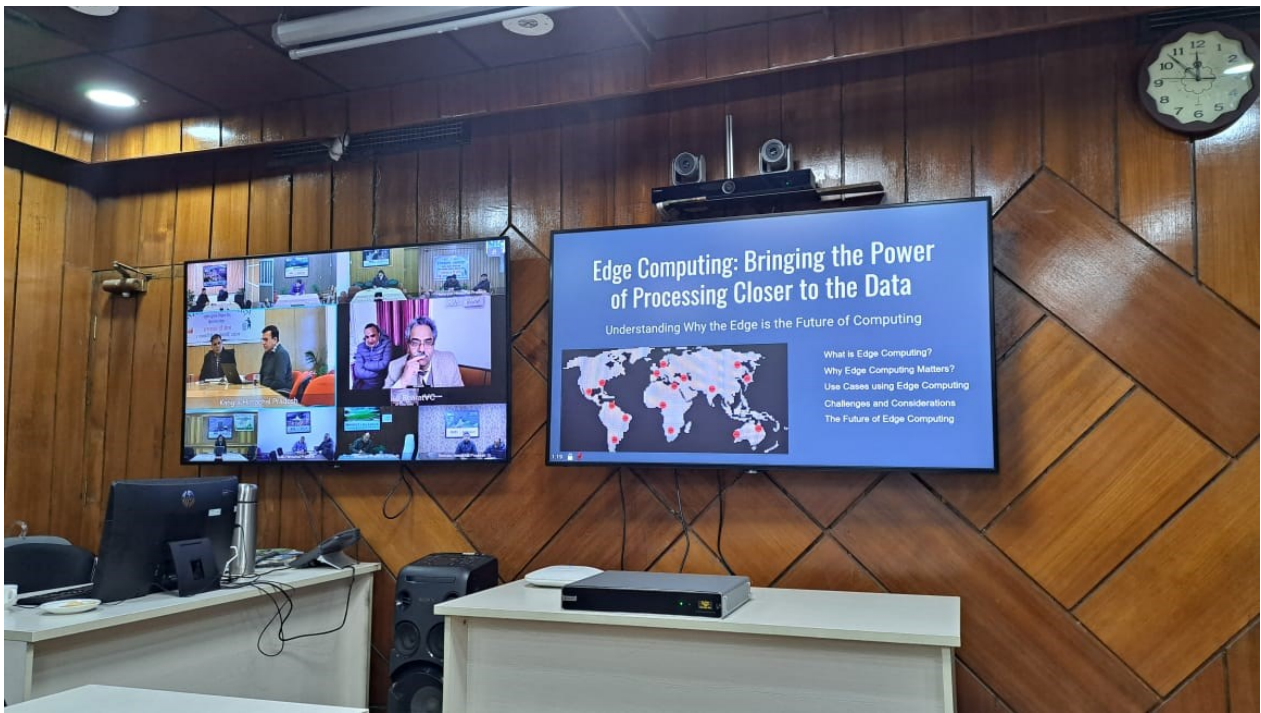
Building and preserving digital trust is a shared responsibility among technology companies, governments, regulators, and individual users. By prioritizing security, privacy, and transparency, stakeholders can help create a safer and more trustworthy digital environment for all.

Edge Computing

Edge computing is a computing where data processing and storage are performed closer to the data source or "edge" of the network, rather than relying solely on centralized data centers or cloud services. This approach brings computation and data storage closer to where it's needed, reducing latency, improving bandwidth efficiency, and enhancing overall performance.

In edge computing, devices at the network's periphery, such as sensors, IoT devices, smartphones, and local servers, handle data processing tasks locally before transmitting only relevant information to centralized data centers or the cloud. By distributing computing resources closer to where data is generated and consumed, edge computing enables faster response times and more efficient use of network bandwidth, making it ideal for applications that require real-time processing, such as autonomous vehicles, industrial automation, remote monitoring, and augmented reality.

Edge computing offers several benefits, including reduced latency, improved data privacy and security, increased reliability, and scalability. It can also help alleviate the burden on centralized cloud infrastructure by offloading processing tasks to edge devices, thereby reducing network congestion and costs.



Sh. AhsKay Mehta, ADIO Kangra on the benefits of Edge Computing

As the proliferation of IoT devices and the demand for real-time data analytics continue to grow, edge computing is becoming increasingly important in enabling efficient and responsive digital ecosystems. It complements cloud computing by extending computing capabilities closer to the data source, offering a distributed approach to data processing that enhances performance and scalability in a variety of applications and industries.

Quiz Competition on Mobile App

A quiz competition was also organized based on the technical presentations delivered by NIC Officials. A total of 31 officials participated in the quiz competition which was held on the Hindi Bodh Mobile App developed by NIC HP. 15 multiple-choice questions based on the technical content delivered by the officers were asked in the quiz competition.

The latest enhancement in the mobile application introduced the capability to challenge a question where the users can express their doubts or seek further clarification by challenging the validity or accuracy of a question.

This time 1 question was challenged by the participant through the Mobile app. The Hindi Bodh app admin accepted their challenge and the outcome of the quiz competition was promptly and dynamically updated online immediately.

The result of the quiz competition was as follows:

Position	Participant Name	Designation	Place of Posting
1 st	Sh. Prithvi Raj	Scientist-C	NIC HP State Centre
2 nd	Sh. Ajay Singh Chahal	SIO-Cum-Scientist-G	NIC HP State Centre
3 rd	Sh. Sandeep Kumar	Scientist-E	NIC HP Vidhan Sabha

State Informatics Officer, Himachal Pradesh asked all the officers of National Informatics Centre, Himachal Pradesh, Shimla to share their suggestions on all the activities and also to update this series of regularly running technical sessions. He talked about sharing suggestions.



NIC HP officials attending the technical session

As decided that the following NIC officials will present a technical talk on the topic of their choice during the upcoming meeting scheduled for coming Saturday, 17-Feb-2024.

S.No.	Participant Name	Designation	Place of Posting
1.	Sh. Pankaj Gupta	Scientist-F	NIC Distt Centre Shimla
2.	Sh. Vinod Kumar Garg	Scientist-F	NIC Distt Centre Hamirpur
3.	Sh. Mukesh Kumar	Scientist-C	NIC HP State Centre
4.	Sh. Sanjay Gupta	Scientist-E	NIC Distt Centre Kullu

The following officials were present in the technical talk on 03-02-2024:

NIC HP State Centre		
1	Sh. Ajay Singh Chahal	SIO-Cum-Scientist-G
2	Sh. Sanjay Kumar	Scientist-F
3	Sh. Vijay Kumar Gupta	Scientist-F
4	Sh. Vimal Kumar Sharma	Scientist-F

5	Sh. Sandeep Kumar	Scientist-E
6	Sh. Daljeet Singh Rana	Scientist-E
7	Sh. Sanjay Thakur	Scientist-E
8	Sh. Ashish Sharma	Scientist-D
9	Sh. Mangal Singh	Scientist-D
10	Sh. Sarvjeet Kumar	Scientist-C
11	Smt. Vandana Devi	Scientist-C
12	Sh. Mukesh Kumar	Scientist-C
13	Sh. Prithvi Raj	Scientist-C
14	Sh. Jitender Sharma	Scientific Officer -SB
15	Smt. Pooja Mann	Scientific/Technical Assistant-A
District Centre Bilaspur		
16	Sh. Rakesh Kumar	Scientist-D
District Centre Chamba		
17	Sh. Ravi Krishan Meena	Scientific/Technical Assistant-B
District Centre Hamirpur		
18	Sh. Vinod Kumar Garg	Scientist-F
19	Sh. Anurag Gupta	Scientist-E
District Centre Kangra		
20	Sh. Bhupinder Pathak	Scientist-F
21	Sh. Akshay Mehta	Scientist-E
District Centre Kinnaur		
22	Sh. Balwan Singh	Scientist-D
District Centre Kullu		
23	Sh. Brijender Kumar Dogra	Scientist-E
24	Sanjay Gupta	Scientist-E
District Centre Lahual & Spiti		
25	Jagdeep	Scientific/Technical Assistant-A
District Centre Mandi		
26	Akhilesh Bharati	Scientist-E

27	Ashwani Kumar	Scientist-E
District Centre Shimla		
28	Sh. Pankaj Gupta	Scientist-F
District Centre Sirmour		
29	Sh. Vijay Kumar	Scientist-E
30	Sh. Mohan Rakesh Aggarwal	Scientist-D
District Centre Solan		
31	Sh. Sanjeev Kumar	Scientist-C
32	Sh. Swetansh Shatak	Scientific/Technical Assistant-B
District Centre Una		
33	Sh. Sanjeev Kumar	Scientist-E
34	Sh. Bhupinder Singh	Scientist-D