3rd edition of the Asia-Europe Sustainable Connectivity Scientific Conference (AESCON3)

Disaster Preparedness and Prevention

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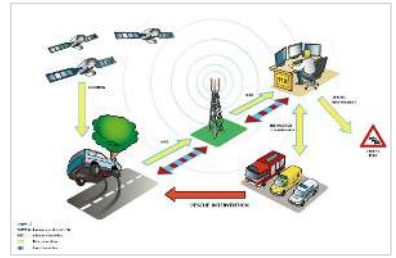
Disaster: Natural and Man-Made

Role of Digital Technology & Standards



- ✓Digital technologies & Standards have a valuable role to play in Disaster preparedness, prevention and delivering effective and timely humanitarian aid.
- ✓Digital technologies & Standards offer an important tool for informing the public and helping relevant public authorities in their efforts to reduce the impact of disasters.
- ✓Implementation of Interoperable Standards lift barriers to the uptake of digital technologies
  - Standards are meant to clarify commonly accepted definitions, provide methods for measuring and testing

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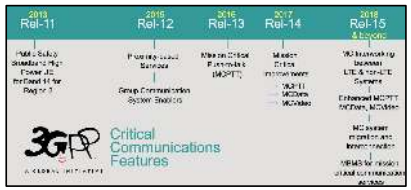
Europe 1(2)

- **European Public Warning System (EU-ALERT) using cell broadcast service to alert the public**
  - PWS required for all EU members states per Directive 2018/1972.
- **Overview of Emergency Communications Network Resilience and Preparedness**
  - Maximize the level of preparedness and resilience of emergency communication services based on identified risks for involved technologies: ETSI TR 102 445 was published in April 2023

3rd Generation Partnership Project (3GPP): BB

- 3GPP SA WG6 is a dedicated group for Critical Communications (e.g., Mission Critical Push To Talk and Mission Critical Video, Public Protection & Disaster Relief (PPDR).
- It has produced standards for **eCall**, an in-vehicle emergency call (112) service
- EU-Alert based on 3GPP TS 22.268 and 3GPP TS 23.041
  - ETSI TS 102 900: European Public Warning System (EU-ALERT) using the Cell Broadcast Service



ETSI TC - TETRA and Critical Communications Evolution (TCCE): NB

- ETSI TC has produced TErrestrial Trunked RAdio (TETRA), a digital trunked mobile radio standard developed to meet the needs of traditional Professional Mobile Radio (PMR) user organizations such as: Public Safety , Transportation , Utilities , Government , Military , PAMR , Commercial & Industry , Oil & Gas

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Europe 2(2)

ETSI TC for Emergency Communications (EMTEL)

- responsible for European requirements concerning emergency communication services, covering typically
  - ✓ the four scenarios in case of an emergency e.g., communication of citizens with authorities, from authorities to citizens, between authorities and amongst citizens.
  - ✓ also deals with topics like location (e.g., Advanced Mobile Location), Next Generation 112 (NG112) opening emergency services communications to data, video and text, communications involving IoT devices in emergency situations and alerting.
- Core elements for network independent access to emergency services (TS 103 479 new version published in March 2023)
- Transporting Handset Location to Public Safety Answering Points (PSAPs) for Emergency Calls (TS 103 625 new version was published in March 2023)
  - Commission Delegated Regulation (EU)2019/320 with regard to the application of the essential requirements referred to in Article 3(3)(g) of Directive 2014/53/EU to ensure caller location in emergency communications from mobile devices
- Pan European Mobile Emergency Application (PEMEA) - PEMEA server-side architecture to solve problem and make possible that data and communications arrive to the most appropriate PSAP wherever the call is made.: **TS 103 945** publication expected in December 2023
- Total Conversation Access (video, Real-Time Text and audio) to Emergency Services, specification and user guide: **TS 101 470** and **TR 103 201** new versions expected publication by the end of 2023
- Interoperability testing of core elements for network independent access to emergency services: **TR 103 480** expected publication in August 2023
- All standards published by ETSI TC EMTEL are available **here>>**

India 1(2)

- Telecom regulator (TRAI) had in 2018 recommended setting up a pan-India integrated Broadband PPDR (BB-PPDR) communication network (to be called “National BB-PPDR Network”) based on 3GPP PS-LTE technology to handle communications at the time of natural disasters.
- In March 2019, Telecom Engineering Centre (TEC) has also released a study report on PPDR Communication System: This paper gives a brief overview of PPDR communications and system requirements for effective PPDR communications.
  - DoT/MHA is working on allocating dedicated spectrum for emergency services rollout for Mission Critical Application -PPDR: B5 (850MHz)
- February 2019, India launched a PAN India service of single emergency helpline number 112 for police (100), fire emergency (101), Ambulance (102) and women (1091)
  - Emergency number 112 is launched under the Emergency Response Support System (ERSS) and has been designed by the Centre for Development of Advanced Computing(CDAC).
- Currently ERSS does not support emergency calls related to Disasters
  - National Disaster Management Authority (NDMA) of India is working to roll out emergency number 112 during any Natural Disaster.
  - NDMA is also working to roll out a common alert protocol that will use all communication mediums like SMS, mobile apps, radio and television in an automated manner to send out early warning messages to people in the danger zone.

India 2(2)

- The Centre for Development of Advanced Computing (C-DAC) has developed a portable terrestrial trunked radio (TETRA) base station to be deployed in disaster sites for effective communication between rescue team members: NB
  - TETRA is a European standard for professional mobile radio and transceiver systems used for emergency services, including the police, the Fire and Rescue Services, railway and other transport services.
  - C-DAC TETRA network (CTN) portfolio comprises 25 products, including base stations, mobile terminals, network manager, dispatcher units, voice logger, radio location tracker and gateways to interconnect with other communication systems.

- India is a member of Coalition of Disaster Resilience Infrastructure (CDRI)
  - CDRI is a partnership of national governments, UN agencies and programmes, multilateral development banks and financing mechanisms, the private sector, and knowledge institutions that aims to promote the resilience of new and existing infrastructure systems to climate and disaster risks in support of sustainable development.

Conclusion

- To raise the level of preparedness for possible future disaster:
  - it is necessary to choose a common approach to the use of digital technologies and standards.
- By leveraging technology, data, and collaborative efforts, both regions can improve
  - their ability to anticipate, respond to, and recover from disasters, thereby safeguarding lives, infrastructure, and economies.
- EU-Asia digital and data connectivity cooperation has the
  - potential to significantly enhance disaster preparedness and resilience.

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