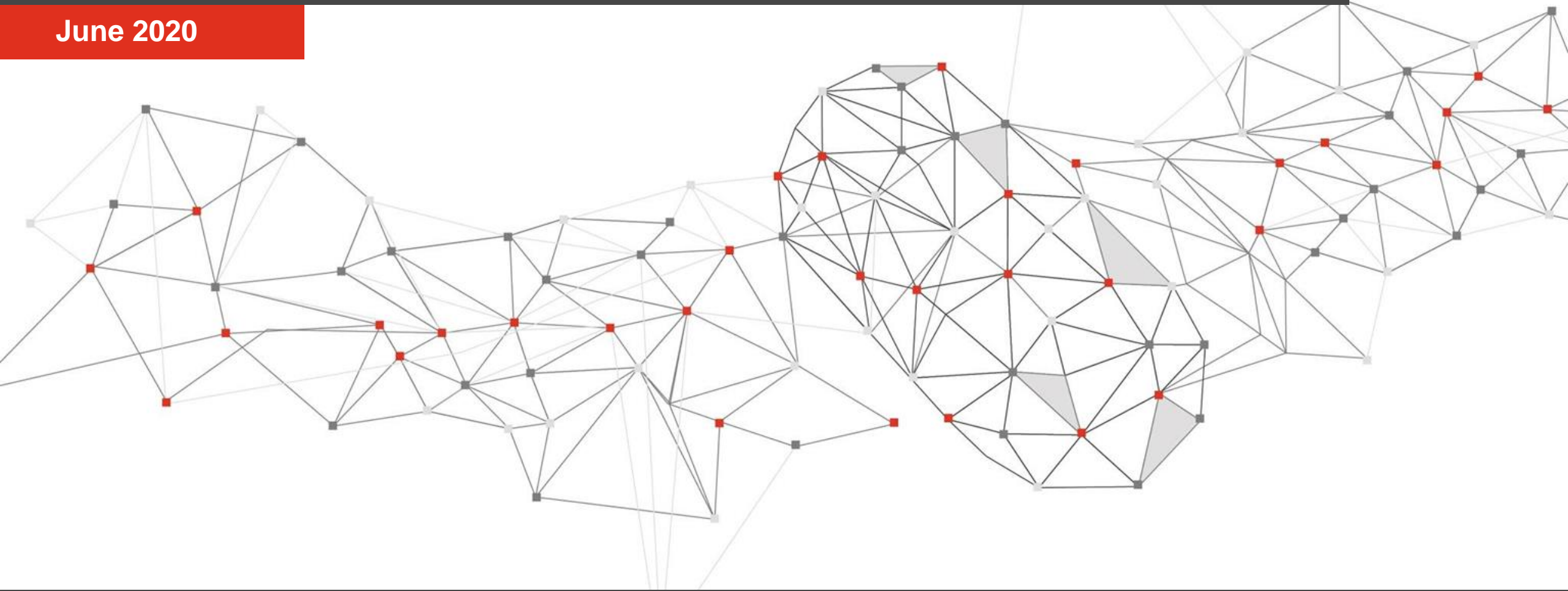


Cybersecurity in Smart Cities

June 2020



Defending our cities from cyber threats....

Smart City consists of interconnected technology for efficient citizen service delivery...

100 Smart Cities

45 Cities – ICCC Implemented

15 Cities – Planned this year

20+ Smart City have COVID-19 War room



Closed Circuit TV (CCTV) Surveillance



Smart Water Management System



Integrated Traffic Management System (ITMS)



Telemedicine



E-Governance



Smart Poles

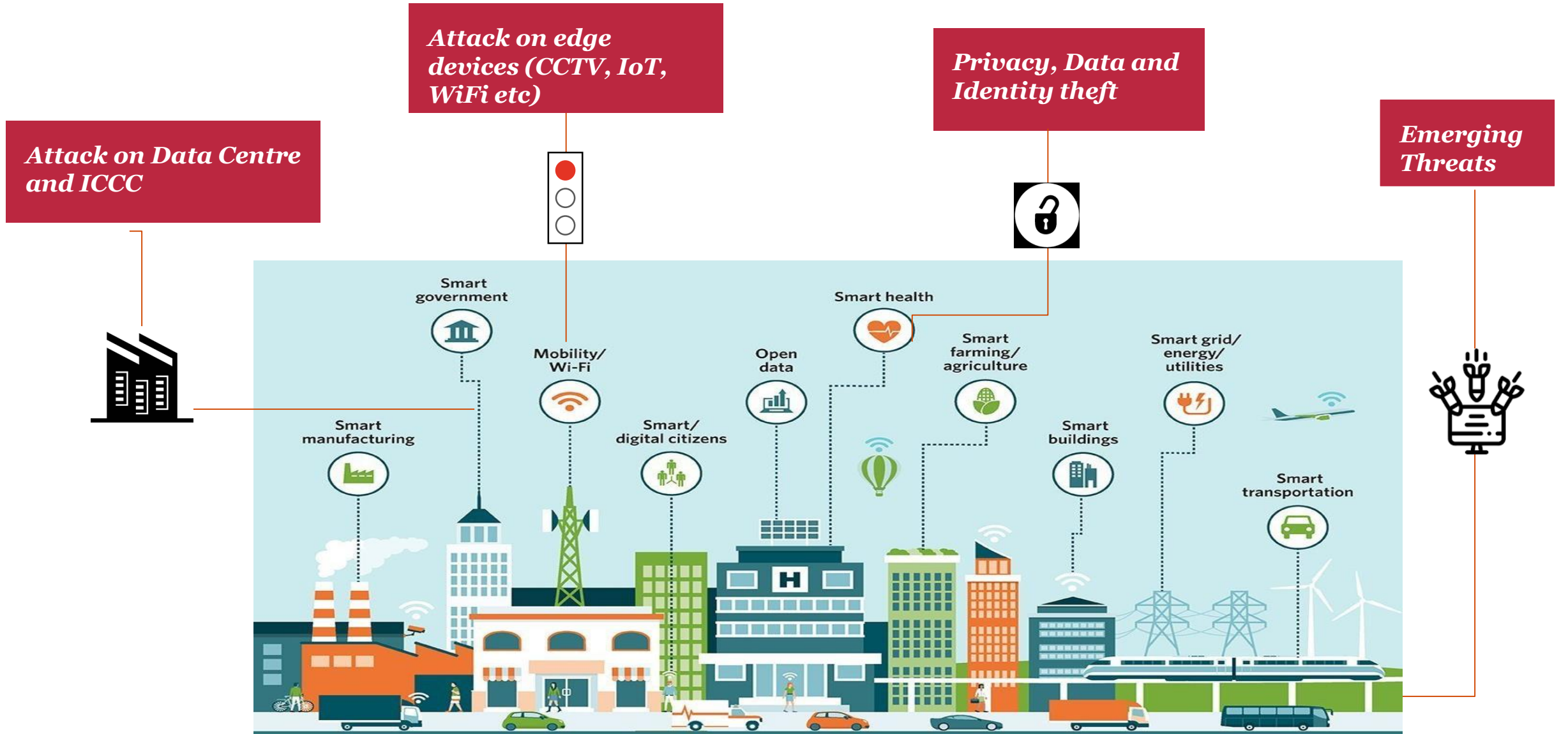


Geographical Information System (GIS)



Smart Infrastructure

Cybersecurity threat landscape has enhanced for smart cities



Cybersecurity risks specific to Indian Smart Cities

Some of the Cybersecurity risks specific to Indian Smart Cities



Command and control centre can be hacked through public Wifi installed by Smart Cities



CCTV applications can be compromised and live feeds can be viewed over internet



Website services can be shut down from internet making the services unavailable to citizens



Smart City systems are vulnerable to ransomware attacks (Wannacry and Petya)



Server hosting critical applications can be compromised and shut down from internet

Some of the possible impact on the Smart Cities services (1/2)

City Surveillance

- Weak surveillance zones can be identified and used for **malicious anti-social** purposes
- Video recordings can be **tampered/deleted**, hampering police investigation

Smart Poles

- Attackers may **connect to Wi-Fi** and **send anti-social emails**
- **Anti-political messages** can be displayed in public places through digital billboards

Smart Water Management

- Wrong data related to water management can lead to **water shortage, unidentified wastage of potable water**, and unavailability of water quality control metrics

Smart Waste Management

- Smart sewage system can be breached to open/ close smart valves and **release untreated sewage**
- A **denial of service attack** can be performed to interrupt waste collection

Some of the possible impact on the Smart Cities services (2/2)

Telemedicine

- Citizens' **personal/ health-related information** can be compromised
- Citizens' health details can be compromised with **legal and regulatory implications**

Public Address Services

- Anti-social, anti-political message spread as announcement
- Incorrect mass message broad-casted creating panic and havoc

E-Governance

- Citizen personal data, including **financial and health data**, can be compromised
- E-governance **services can be shut down**, denying services to citizens

Intelligent Traffic Management System

- Miscreants can **monitor the live location** of buses and other parameters to plan an attack
- Traffic signals can be manipulated to **create a traffic jam** in the city

Possible reasons for cyber security risk exposure



Cyber Security Capacity and Capability



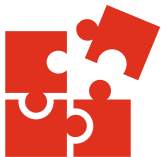
Emerging technology and threat landscape



Collaboration among stakeholders



Budget allocation for cyber security



Regular security reviews and assessments



Adequate security monitoring to monitor and respond to security incidents

Some of the frameworks and standards for reference...



IT Security Frameworks and standards

Ministry of Housing and Urban Affairs (MoHUA) Guidelines

National Cyber Security Policy, 2013

National Critical Information Infrastructure Protection Centre (NCIIPC)

IT Act, 2000 & Amendment, 2008, Aadhaar Act

CERT-IN Guidelines

Personal Data Protection Bill

Steps to enhance cyber security maturity in a smart city...

	Initiatives	Responsibility
1	Define Cyber Security Governance Structure with clear ownership	
2	Formulate Cyber Security Policy and Frameworks	 
3	Training and Awareness programs to build cyber security capability within the system	
4	Implementation of right technology and controls to prevent and detect cyber attacks	 
5	Overseeing Implementation and Operations of security technologies and controls	 
6	Continuous Monitoring to detect and respond to cyber attacks	 
7	Regular Assessment and Assurance mechanism to detect vulnerabilities and strengthen security posture	  



CEO/Commissioner



Project Management
Consultant



System Integrator

Thank you....