



***New Emergency
Management in a Resilience
Era Facing Health, Climate
and Energy Challenges***

6th to 10th December 2021

IMPETUS Day – Session 11
Thursday 9th December 2021

IS YOUR SMART CITY A RESILIENT CITY?

Sandro Bologna TIEMS

Smart City Resilience

Resilience is the ability of a system, community or society to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard. Resilience cannot be achieved without significantly changing the way cities manage urban spaces, with multiple stakeholders playing a role. These include local government decision makers, city officials and departments, central and provincial governments, the private sector, civil society, non-governmental organisations, community-based organisations and academic institutions.

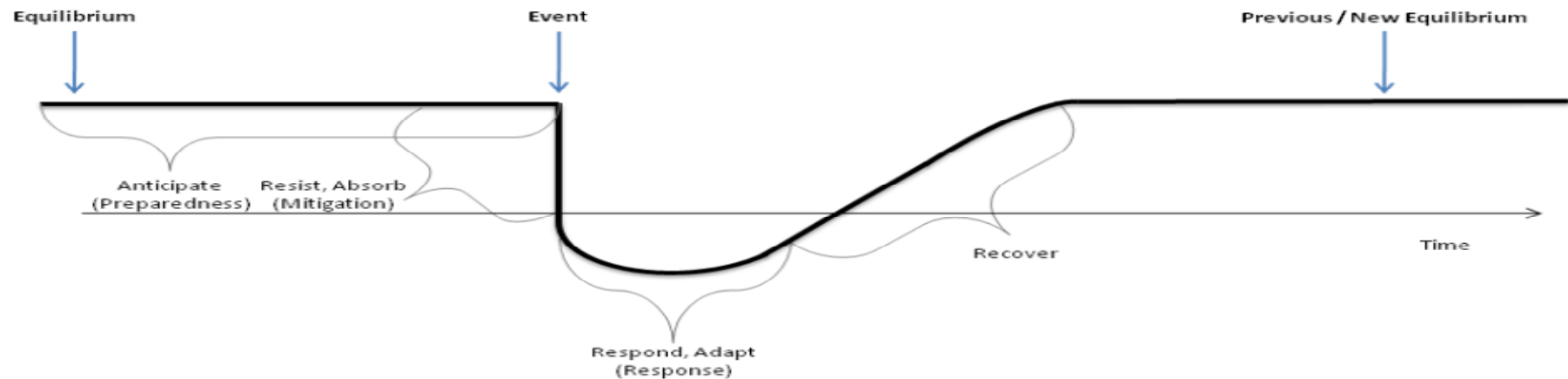
United Nations Office for Disaster Risk Reduction (UNDRR) *"Making Cities Sustainable and Resilient"*, 2019.

<https://www.undrr.org/publication/making-cities-sustainable-and-resilient-lessons-learned-disaster-resilience-scorecard>



Graphical Representation of Resilience

- A negative event occurs (i.e. a threat exploits the vulnerability of a given component)
- The system detects the occurrence of negative event
- The system reacts to the negative event and tries to recover its state



Source: ANL/DIS-12-1 Resilience: Theory and Applications



New Emergency Management in a Resilience Era Facing Health, Climate and Energy Challenges

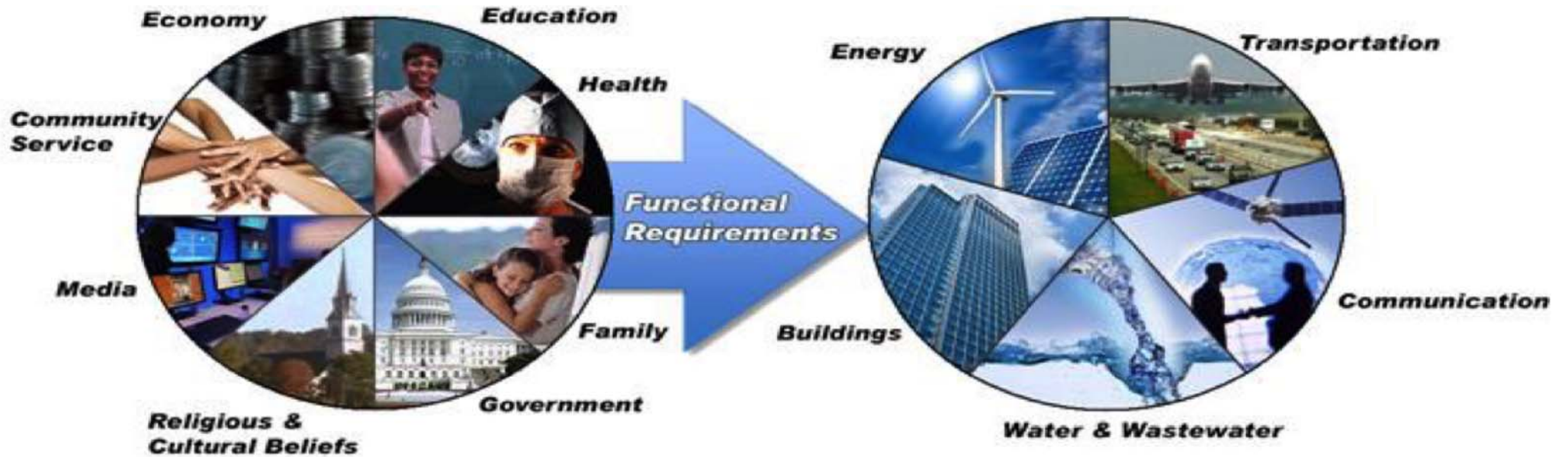


System Elements that contribute to Community Resilience

Source: "The Human Landscape – The Functional Bridge between the Physical, Economic, and Social Elements of Community Resilience" The CIP Report, George Mason University, November 2016



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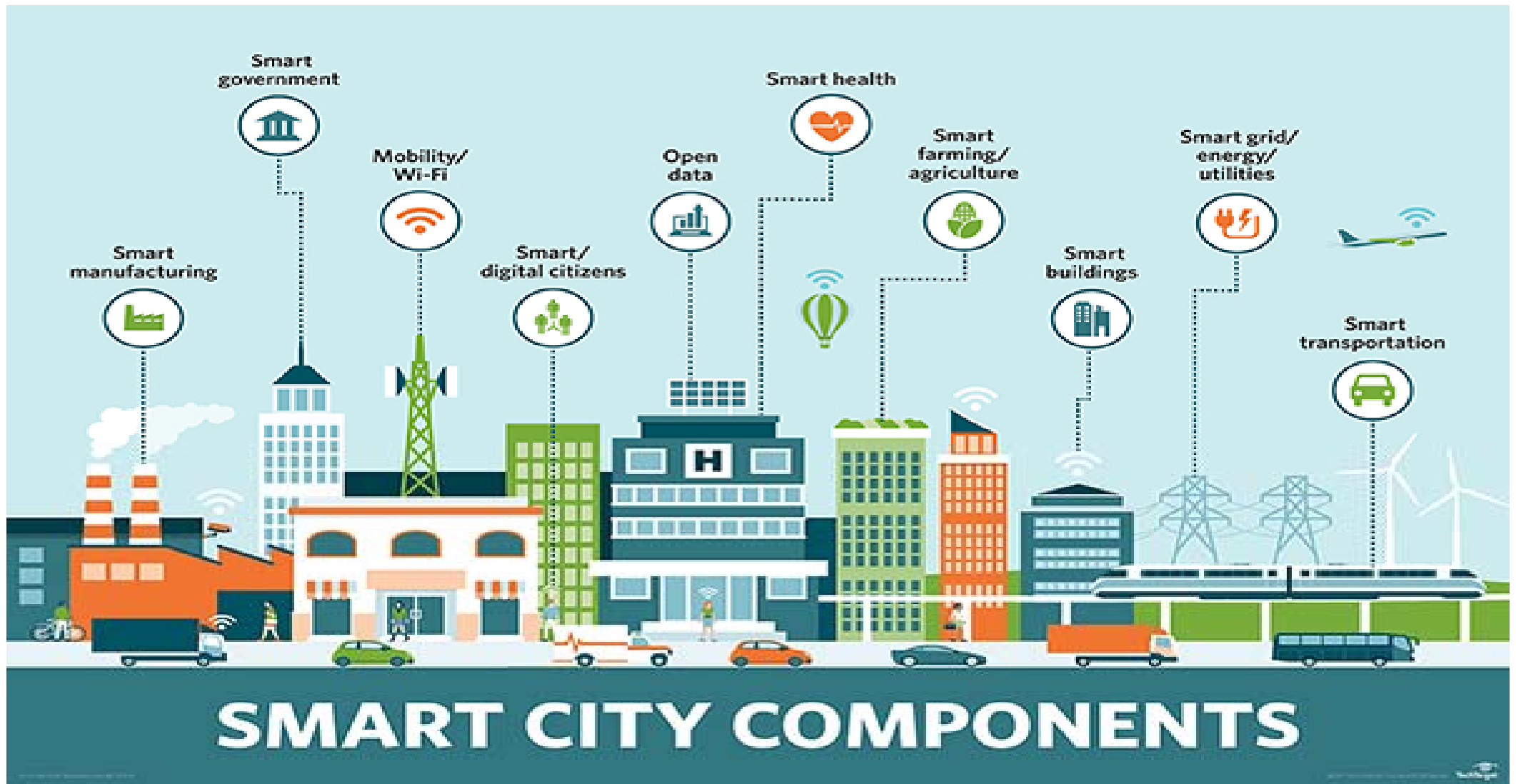


Community Functions supported by Community Infrastructures

(source NIST SP1190)

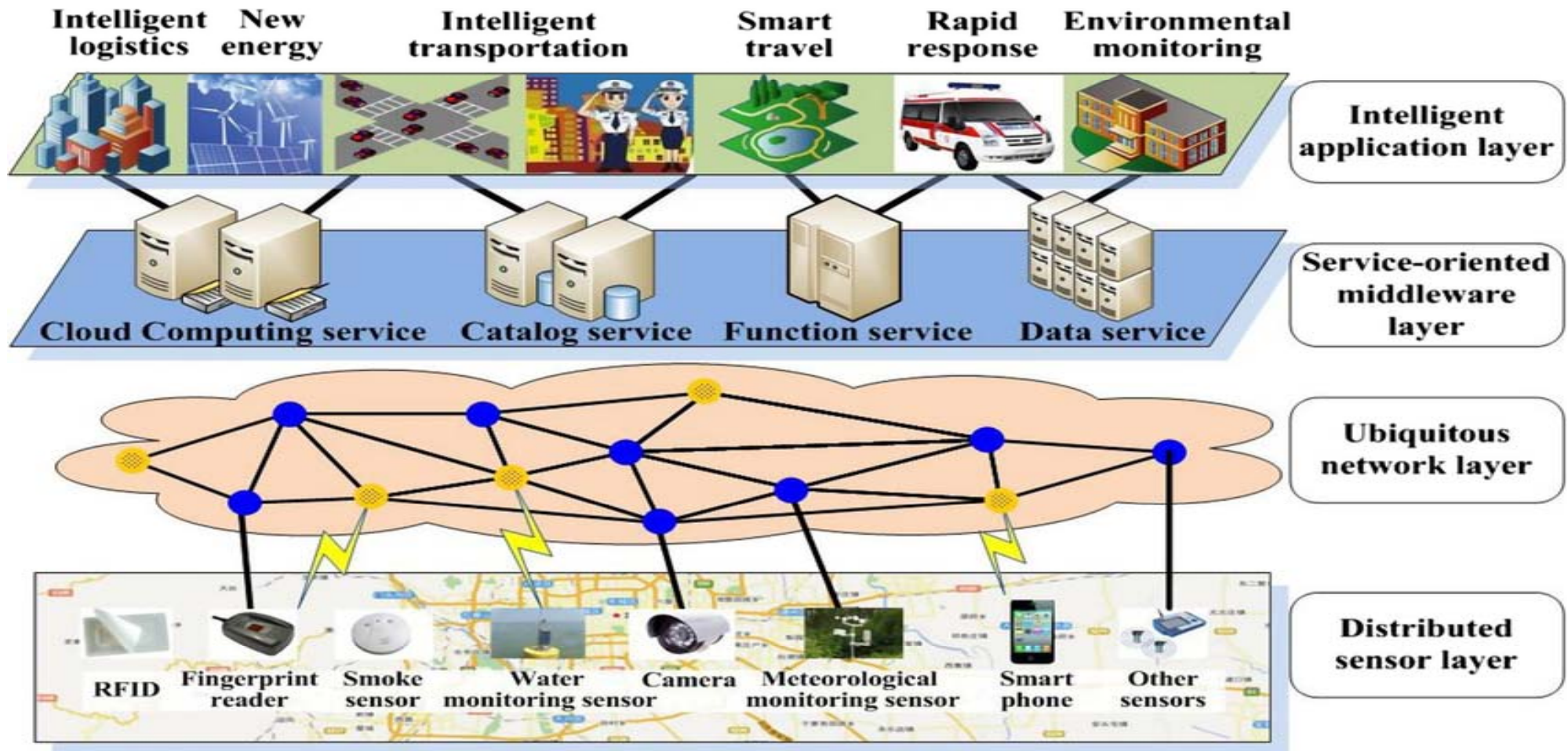


New Emergency Management in a Resilience Era Facing Health, Climate and Energy Challenges



(Source: WEB)

New Emergency Management in a Resilience Era Facing Health, Climate and Energy Challenges



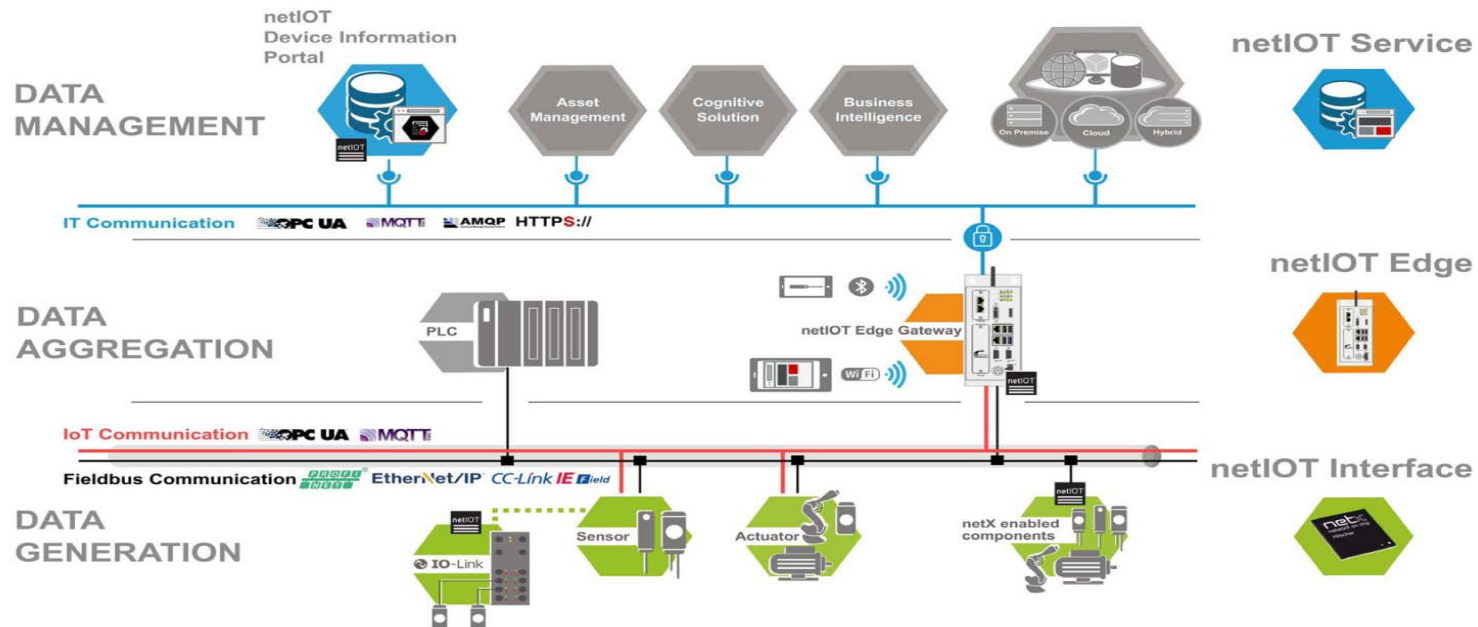
Smart City Layers – How difficult will be to manage a Smart City

(Source: WEB)



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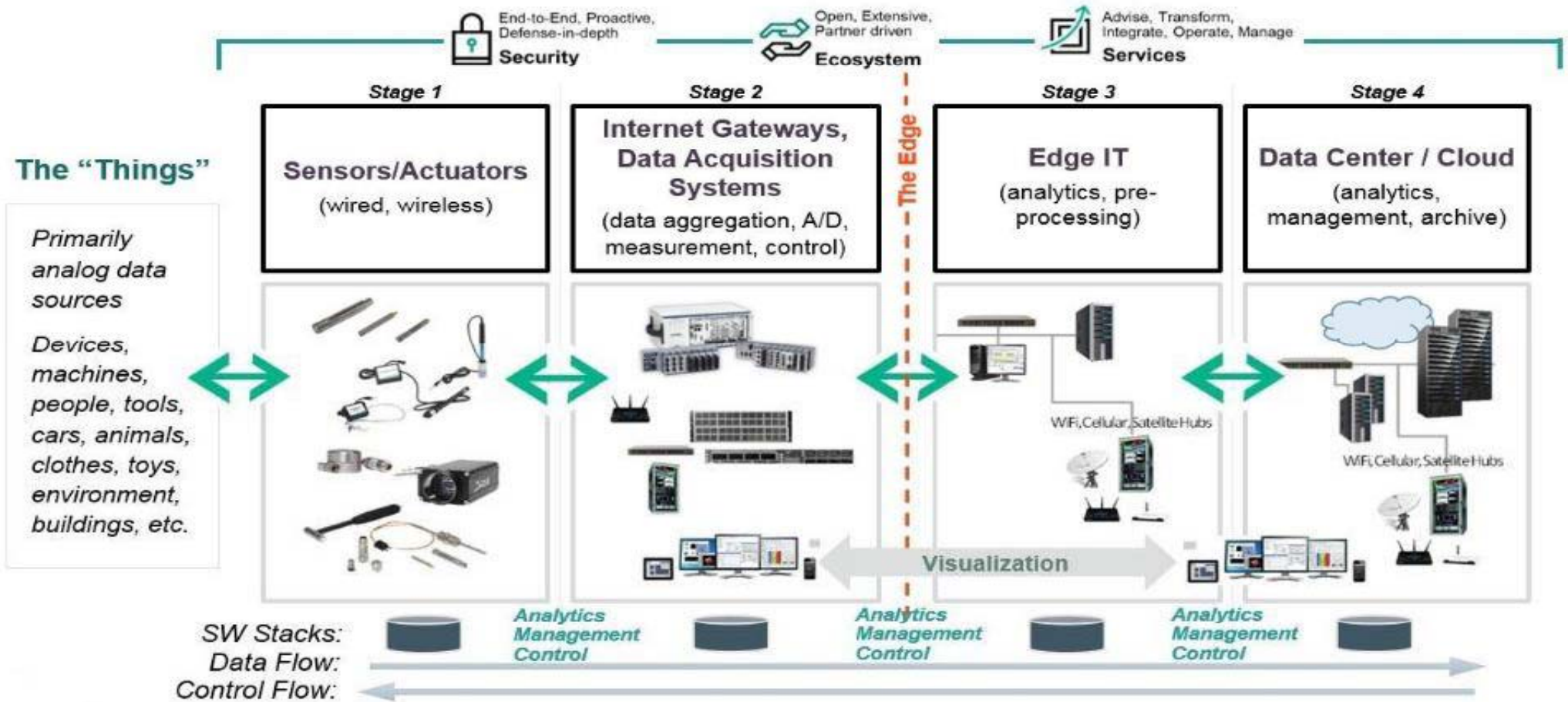
WHAT IS IoT?



Elements of IoT

(Source - Make Way for IIoT: Solving Automation's Unique Challenge – Advancing Automation eBook, Vol. XVIII, July 2019, pag.39)

New Emergency Management in a Resilience Era Facing Health, Climate and Energy Challenges



Four stages from field data acquisition to Big Data storage and analytics
 (Source: Review of IoT Data Analytics using Big Data, Fog Computing and Data Mining)

<https://www.ijcsmc.com/docs/papers/July2017/V6I7201710.pdf>

New Emergency Management in a Resilience Era Facing Health, Climate and Energy Challenges



Modern video surveillance sector, especially IoT, is at great risk of cybercrime cyber attacks



New Emergency Management in a Resilience Era Facing Health, Climate and Energy Challenges



SMART CITY ETHICS





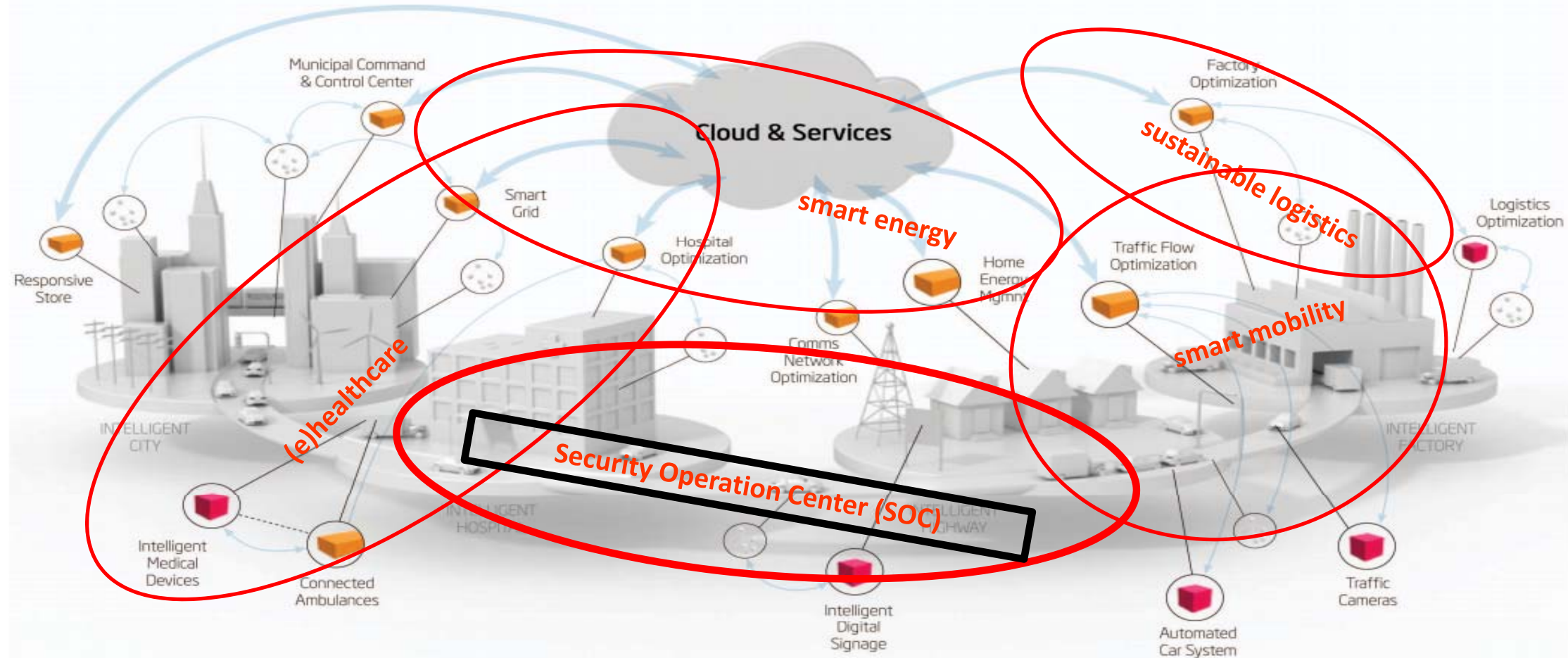
Biometric Recognition and Behavioural Detection

Assessing the ethical aspects of biometric recognition and behavioural detection techniques with a focus on their current and future use in public spaces

Policy Department for Citizens' Rights and Constitutional Affairs
Directorate-General for Internal Policies
PE 696.968 - August 2021

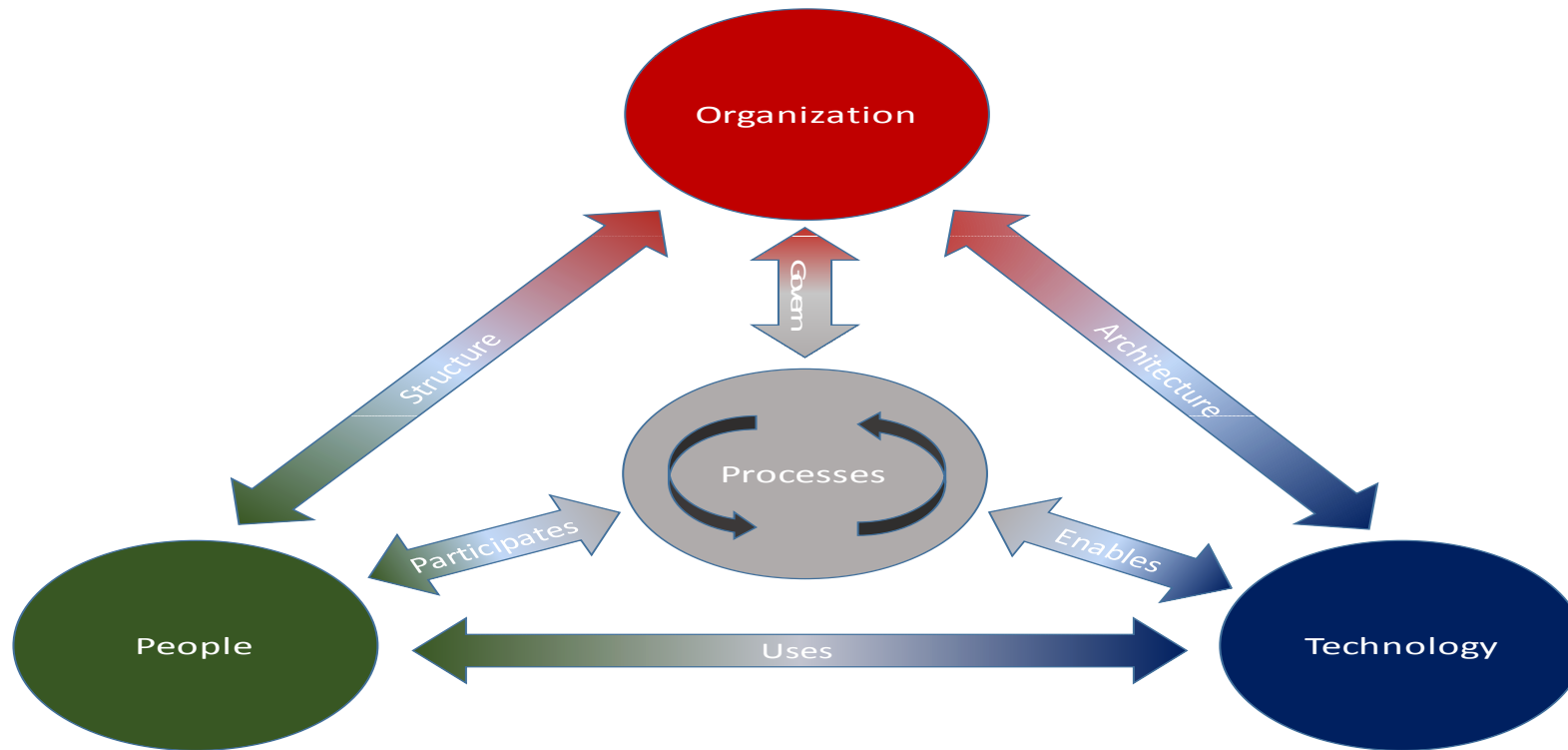


Smart cities / communities



COMMON PROBLEMS: Operations, Technology, Privacy, Ethics, Safety, (cyber) Security

A Smart City is made of people, processes, organizations and technologies
Resilience must take in consideration all these components, plus cultural background, to be complete and successful.



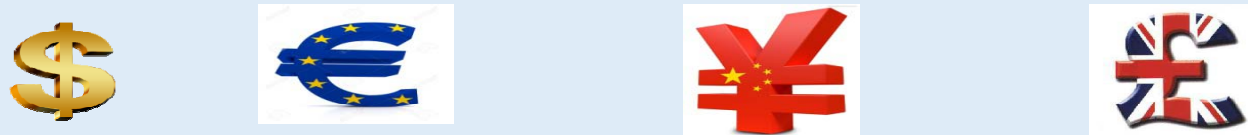
Source: Adapted from the USC Marshall School of Business
Institute for Critical Information Infrastructure Protection



Organizational Dimension (Leadership & Strategy)



Economic Dimension



Cooperative & Societal Dimension (including Health and Wellbeing)



Technical Dimension (Infrastructure & Environment)



Built Community Resilience Indicators (Ref. ARUP & UNISDR)

Community Key Infrastructures

- Electricity
- Telco
- Rail
- Gas
- Water
- Airports
-

Community Key Functions

- Hospitals
- Public Offices
- Financial Services
- Law Services
-

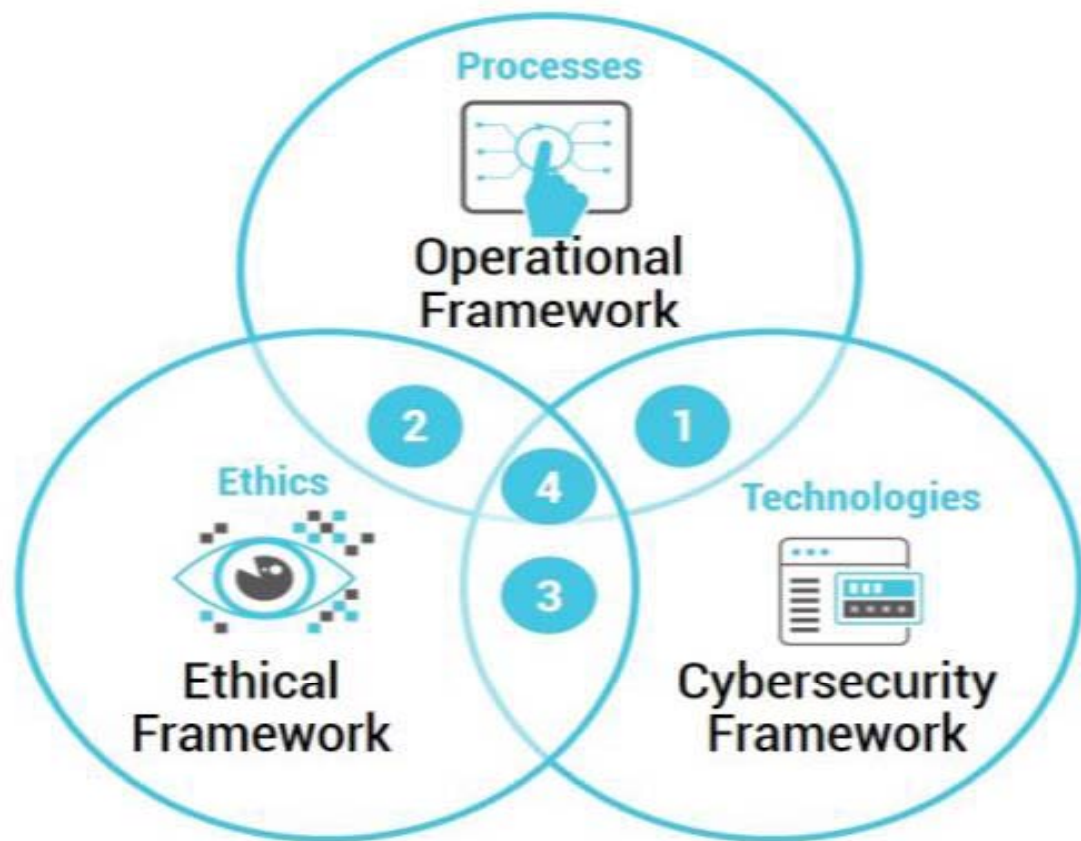
Community Key Organization's Capacities

- Effective Leadership
- Integrated Development Planning
-

Built Community Environment including dependencies (Ref. NIST SP1190 Vol. I & II)



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- 1 AI-based threat detection, analysis and intervention
- +
- 2 Privacy-preserving technical and legal framework
- +
- 3 Ethical & explainable AI including security awareness
- ||
- 4 Decision-making support tools combining AI + human-in-the-loop

Issues addressed by the IMPETUS Project



This project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 883286.

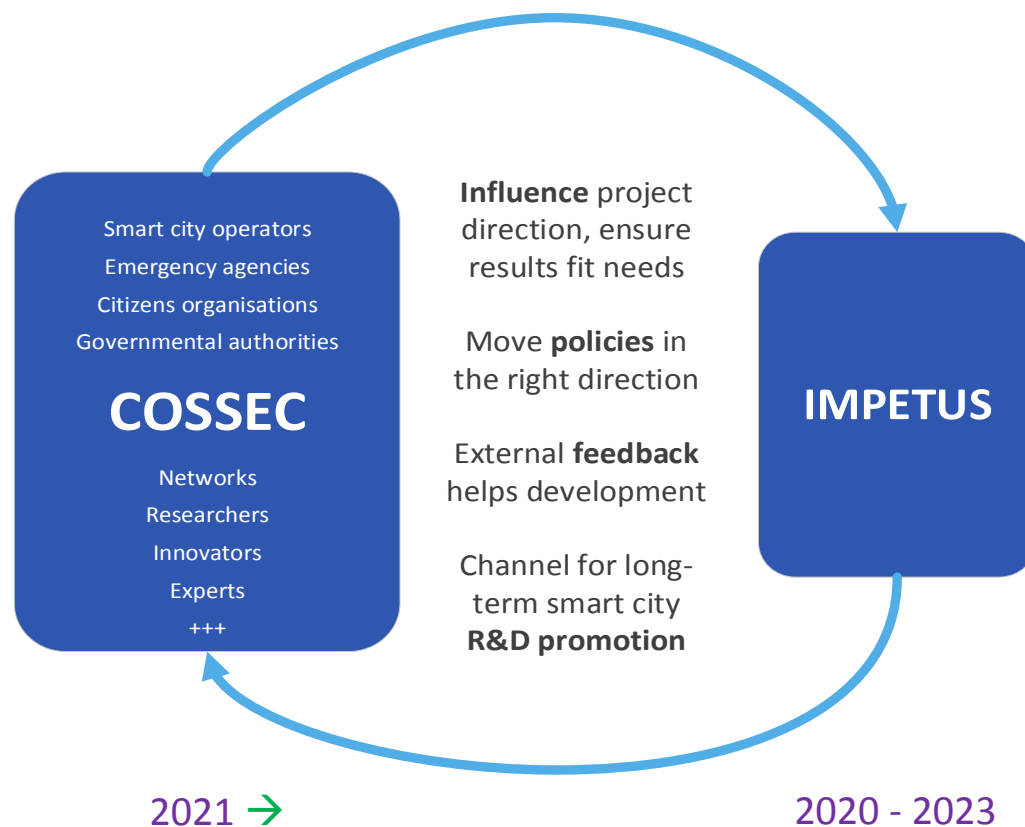


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What is COSSEC

COSSEC stands for “**Community of Safe and Secure Cities**”. It is a group of individuals representing organisations or projects that have an interest in or might be affected by the work being done by the IMPETUS project. The first steps in establishing the community were made even before the project started, and one of the tasks in the project is to develop and foster COSSEC. We foresee that COSSEC will continue after the end of the IMPETUS project itself, as a forum for organizations interested in using IMPETUS results, or with a wider interest in the topics addressed by the project.

The idea of COSSEC is to extend involvement in the project to stakeholders beyond the project consortium. COSSEC members will **influence IMPETUS activities** so that solutions emerging from the project will meet local needs in other cities and/or meet other concerns or requirements they might have. Some COSSEC members will be early adopters of project results.





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COSSEC Stakeholders Community



COSSEC Stakeholders Community Mapping



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COSSEC expectation from IMPETUS DoA (Description of Activities)

Number of members: > 40 members
Diversity of members: > 10 cities
Diversity of members: > 5 citizen groups
Diversity of members: > 10 EU countries
Number of Workshops: = 2
Number of Webinars: = 2

COSSEC Status November 15, 2021

Number of members: 26 (for details see COSSEC Platform <https://pr4gdm.giftmaru.com/>)
Diversity of members: 6 cities (for details see COSSEC Platform <https://pr4gdm.giftmaru.com/>)
Diversity of members: 1 citizen group (for details see COSSEC Platform <https://pr4gdm.giftmaru.com/>)
Diversity of members: 11 EU countries (for details see COSSEC Platform <https://pr4gdm.giftmaru.com/>)
Number of Workshops: 0 (limited by COVID-19)
Number of Webinars: 2 (for details see COSSEC Platform <https://pr4gdm.giftmaru.com/>)





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1st COSSEC Webinar 04.05.2021

USE OF ADVANCED IT FOR THE PROTECTION OF PUBLIC SPACES
Virtual Meeting, May 04, 2021, 4 p.m. to 6 p.m. CET

4 p.m Presentations of Projects and Initiatives (chaired by COSSEC Sandro Bologna)

IMPETUS - Intelligent Management of Processes, Ethics and Technology for Urban Safety (H2020)

Joe Gorman (SINTEF), Matthieu Branlat (SINTEF)

SURE - Smart Urban Security and Event Resilience (UIA Initiative)

Autero Anniina (Tampere), Säpyskä Minna (Tampere)

Snap4City - Firenze Smart City Control Room (International)

Paolo Nesi (University of Florence)

Open & Agile Smart Cities (OASC International)

Davor Meersman, Ricardo Pinho, Gert De Tant (OASC International)

5 p.m. Plenary discussion around the most challenging topics (chaired by IMPETUS Matthieu Branlat)

Security technology application for the protection of public spaces

with contributions from IMPETUS: Joaquin Luzon (Insiktintelligence) and Joe Levy (Cinedit)

Operational impact of security technology application for the protection of public spaces

with contributions from IMPETUS: Lars Ole Grottenberg (OSLO Kommune)

6 p.m. End of the virtual meeting

To get copies of the presentations go to <https://pr4gdm.giftmaru.com/>
Section: Activities/Events/Virtual Meeting May 4th, 2021



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2nd COSSEC Webinar at 16.06.2021

**Ethical and Legal Issues with the use of Smart Cities Technologies for Public Protection
Virtual Meeting, June 16, 2021, 2 p.m. to 4 p.m. CET**

2 p.m Introduction to the Virtual Meeting Sandro Bologna (COSSEC Chair)

Survey on use of Smart Technologies in Detecting Security Threats in Public Spaces - Ethical Issues (ISP IMPETUS Partner - Croatia)

Ethical Issues, personal data protection and possible misuses of personal data: a European perspective
(COSSEC Member Luigi Carrozzi - Expert of personal data protection - Italy)

Ethical Issues of perceived fairness in Machine Learning (ML) (COSSEC Member Deepak Khazanchi -University of Nebraska at Omaha, USA)

Open Discussion about some controversial claims (Chaired by Krunoslav Katic – ISP IMPETUS Partner)

4 p.m. End of the virtual meeting

To get copies of the presentations go to <https://pr4gdm.giftmaru.com/>
Section: Activities/Events/Virtual Meeting June 16th, 2021



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PADOVA Application Pilot, 1 – 3 Dec., 2021

COSSEC Participants

Sandro Bologna (TIEMS) – COSSEC Chair

Alex Townsend-Drake (CTPN) – COSSEC Member

Fabio Perossini (H2020 FASTER) – COSSEC Member

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This project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 883286.

COSSEC Platform available for the COSSEC Members



The screenshot shows a web browser window displaying the COSSEC website. The browser's address bar shows the URL `pr4gdm.giftmaru.com`. The website header includes a navigation menu with the following items: About COSSEC, COSSEC Members, News, Activities, Documents, and Product. The main content area features a large yellow banner with a diagram illustrating the relationship between COSSEC and IMPETUS. The diagram shows a central blue circle labeled 'IMPETUS' connected to a yellow circle labeled 'COSSEC' by a circular arrow. The COSSEC circle lists its members: Smart City Operators, Emergency Agencies, Citizens Organizations, and Governmental Authorities. The IMPETUS circle lists its functions: Influence project direction, ensure results fit needs; Move Policies in the right direction; External Feedback helps development; and Channel for long-term Smart City R&D Promotion. To the right of the diagram is the COSSEC logo and the text 'Community of Safe and Secure Cities'. The banner also includes a timeline with '2021' and '2020 - 2022'. At the bottom of the page, there is a copyright notice: 'Copyright ©2015 Global DRR Technology. All Rights Reserved.' The Windows taskbar at the bottom shows the system tray with the date '10/11/2021' and time '17:53'.



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Invitation to join COSSEC

Projects and initiatives to improve the security of public spaces and community resilience are invited to apply for joining COSSEC

If you want to learn more about COSSEC, please contact:

Sandro Bologna, TIEMS, s.bologna@infrastrutturecritiche.it

or visit

the dedicated COSSEC Platform at <https://pr4gdm.giftmaru.com/>





Presented by: *Sandro Bologna*
Email: *s.bologna@infrastrutturecritiche.it*