





Citizens and cities facing new hazards and threats

30th November to 4th December 2020

Resilience of a Smart City

Maroš Lacinák

RESILIENCE AND RESILIENT CITY

absorption

recovery

Resilient city is a city, able to absorb crisis phenomena of various kinds without restricting the functionality of city systems, or in the case of need able to adapt existing city resources, skills and infrastructure to minimalize the time, needed for restoration of said functionality and for recovery of compromised systems of Safe City concept.

adaptation

continual functionality







RESILIENCE WITHIN SAFE CITY CONCEPT

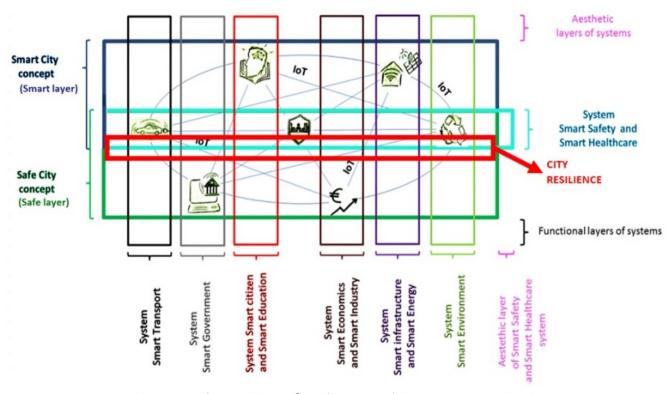


Figure 1: The position of resilience within city systematization





MEASURING OF RESILIENCE

- Direct
- Indirect

measuring loses, that can crisis phenomena cause

Vs

measuring how many systems and functions of the city can crisis phenomena disable and for how long

Figure 2: 4 drivers of resilience, according to OECD

GDP growth rate Unemployment No. of start-ups &business failures

Age & gender of:

- employed
- working population

ECONOMY

Migration age & gender
Poverty levels
Household income
Percentage of population
living 500 metres from
services

SOCIETY

GOVERNANCE

Revenues by source Number of:

- Community organisations
- Public sector officials
- Sub-national governments

ENVIRONMENT

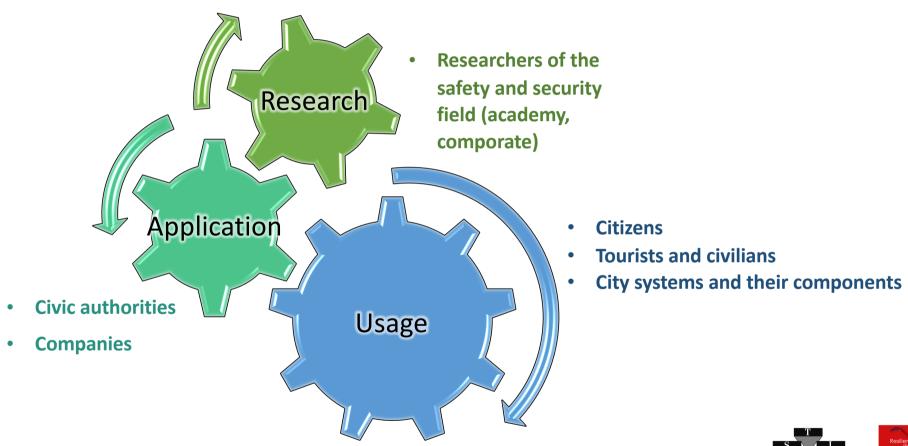
Population density Accessable green area level

- % Built up areas
- % brownfield sites
- % citizens near open space
 - % new development near transit locations





STAKEHOLDERS



Ing. Maroš Lacinák, PhD.







RESEARCH CHALLENGES

To align methods of resilience measuring with our city systematization and create compatible measuring method

To identify relevant resilience indicators for cities, based on circumstances within Slovak republic.

To identify tools of resilience within all systems of a Safe City concept.

To create methodological procedure of building and strengthening resilience of cities.





Ing. Maroš Lacinák, PhD. Resilience of a Smart City

THANK YOU FOR YOUR ATTENTION

Ing. Maroš Lacinák, PhD.

prof. Ing. Jozef Ristvej, PhD.

Ing. Michaela Jánošíková, PhD.

University of Žilina





REFERENCES

- Comfort L.K., Boin A., Demchak Ch.C., 2010: Designing Resilience Preparing for Extreme Events.
 University of Pittsburgh Press, Pittsburgh.
- Janssen M.A., Schoon M.L., Ke,W., Borner K., 2006: Scholarly Networks on Resilience, vulnerability and adaptation within the Human Dimensions of Global Environmental Change. In: Comfort L.K., 2010.
- Klein R., Nichols K., Thomalla F., 2003: Resilience to Natural Hazards: How useful is this concept? In: Comfort L.K., 2010.
- Sheffi Y., 2017: The Power of Resilience. Massachusetts Institute of Technology, Massachusetts.
- Kiss P.A. (editor), 2018: Preceedings of the Conference on National Resilience Opportunities and Challenges in a Changing Security Environment. HDF General Staff Scientific Research Centre, Budapest.
- Ristvej J., Lacinák M., Ondrejka R., 2020: On Smart City and Safe City Concepts. University of Žilina.
- OECD: Risk and Resilience. Online, last accessed 4.11.2020, available at: http://www.oecd.org/dac/conflict-fragility-resilience/risk-resilience/



