INTERNATIONAL COMMUNITY OF PRACTICE FOR SUSTAINABLE URBAN DEVELOPMENT

CONNECTIVE CITIES

Scenario theory and practice

Connective Cities Virtual Global Exchange on Crisis Management & COVID-19 resilience building

Partner von Connective Cities

Deutscher Städtetag

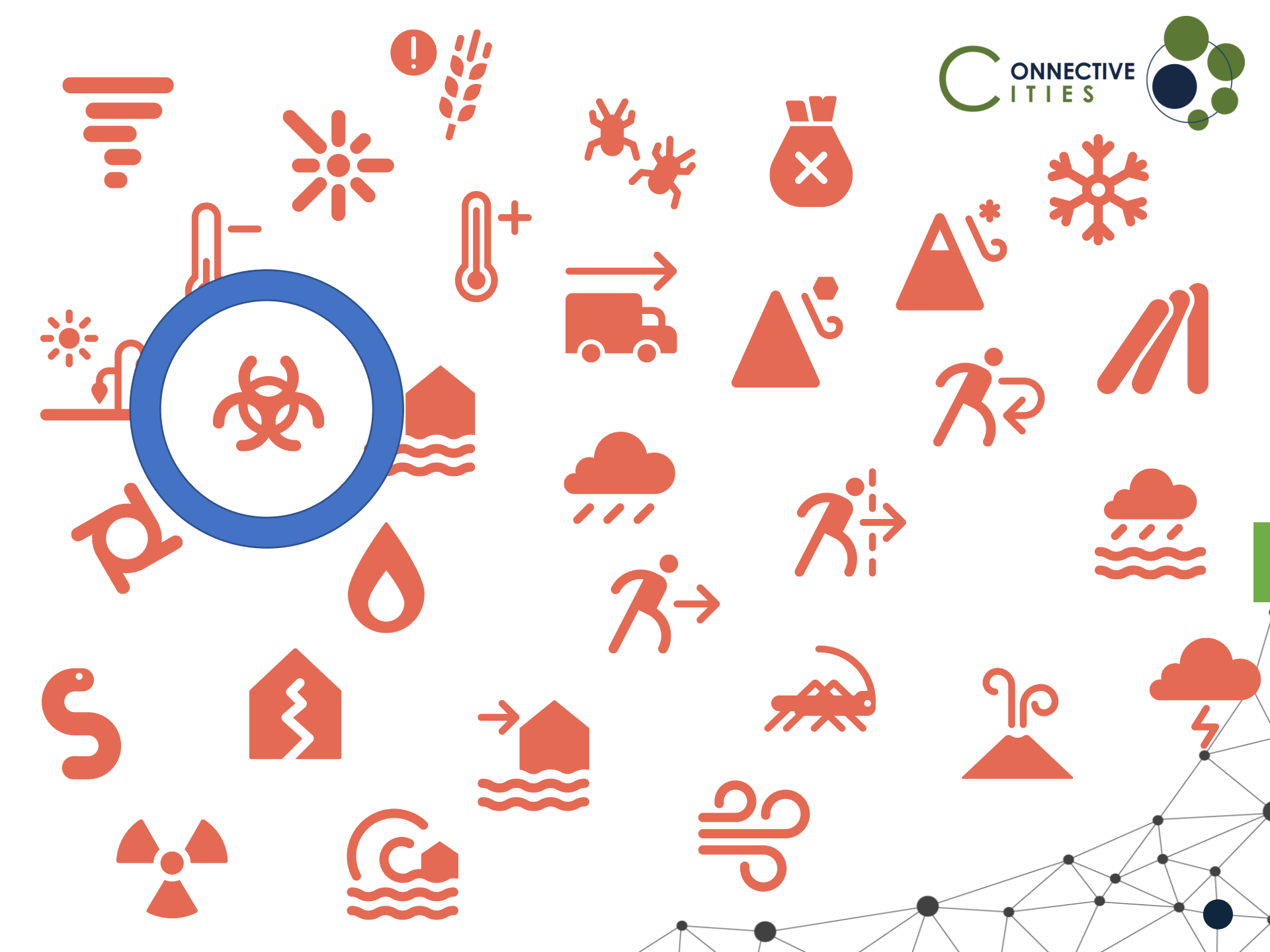
ENGAGEMENT GLOBAL
Service für Entwicklungsinitiativen

mit ihrer SERVICESTELLE KOMMUNEN IN DER EINEN WELT

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Im Auftrag des

Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung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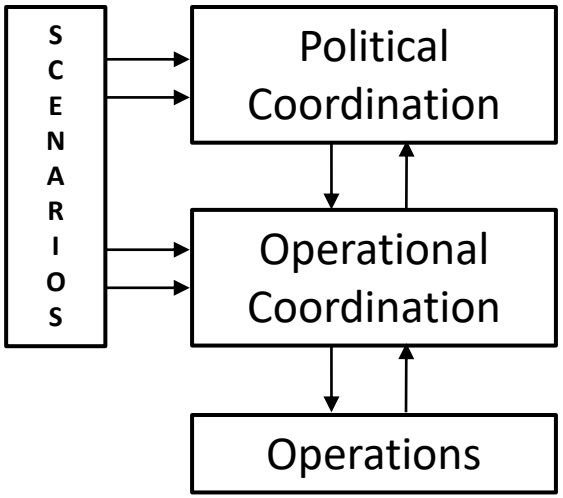
What is a scenario?

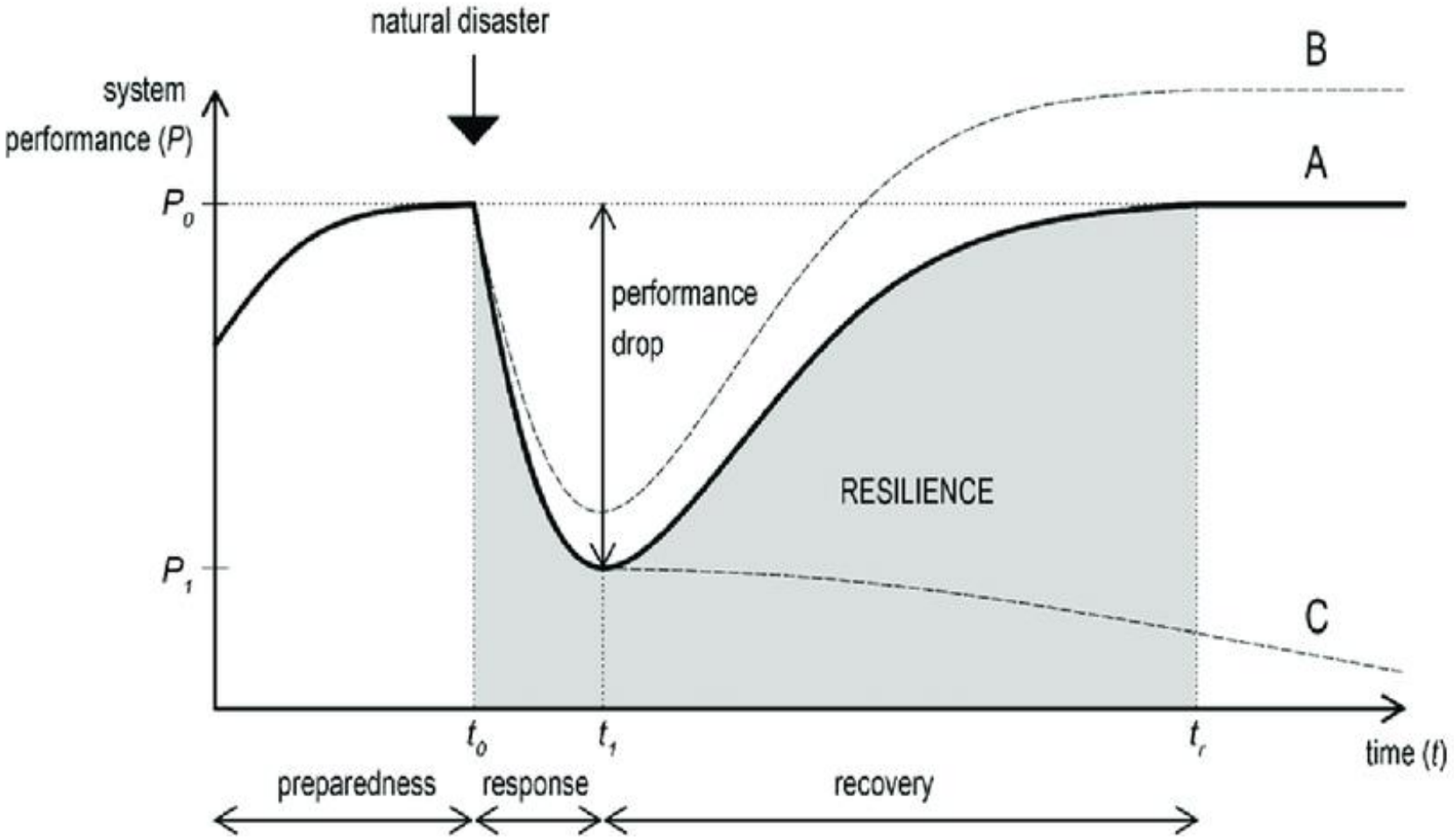
- Sequence of cascading events
- Timeline
- Future orientated
- Never one (myriad)

First motivation scenarios: getting ahead of an emergency

Phases of a crisis:

1. Chaos
   - Information gathering
   - Uncoordinated actions
2. Intervention
   - Coordinated actions
   - Start scenario building
3. Stabilisation
   - First response to ‘normal processes’
   - Back to business for not affected
4. Recovery
   - Building back better
   - Attention for the invisible




natural disaster
system
performance (P)
P_0
P_1
B
A
C
performance
drop
RESILIENCE
t_0
t_1
t_r
time (t)
preparedness
response
recovery

Second motivation scenarios: prevent, mitigate and be prepared

Provide information to the phases of a Disaster Risk Reduction.

Part of a risk assessment

Create points of intervention (lines of defence)

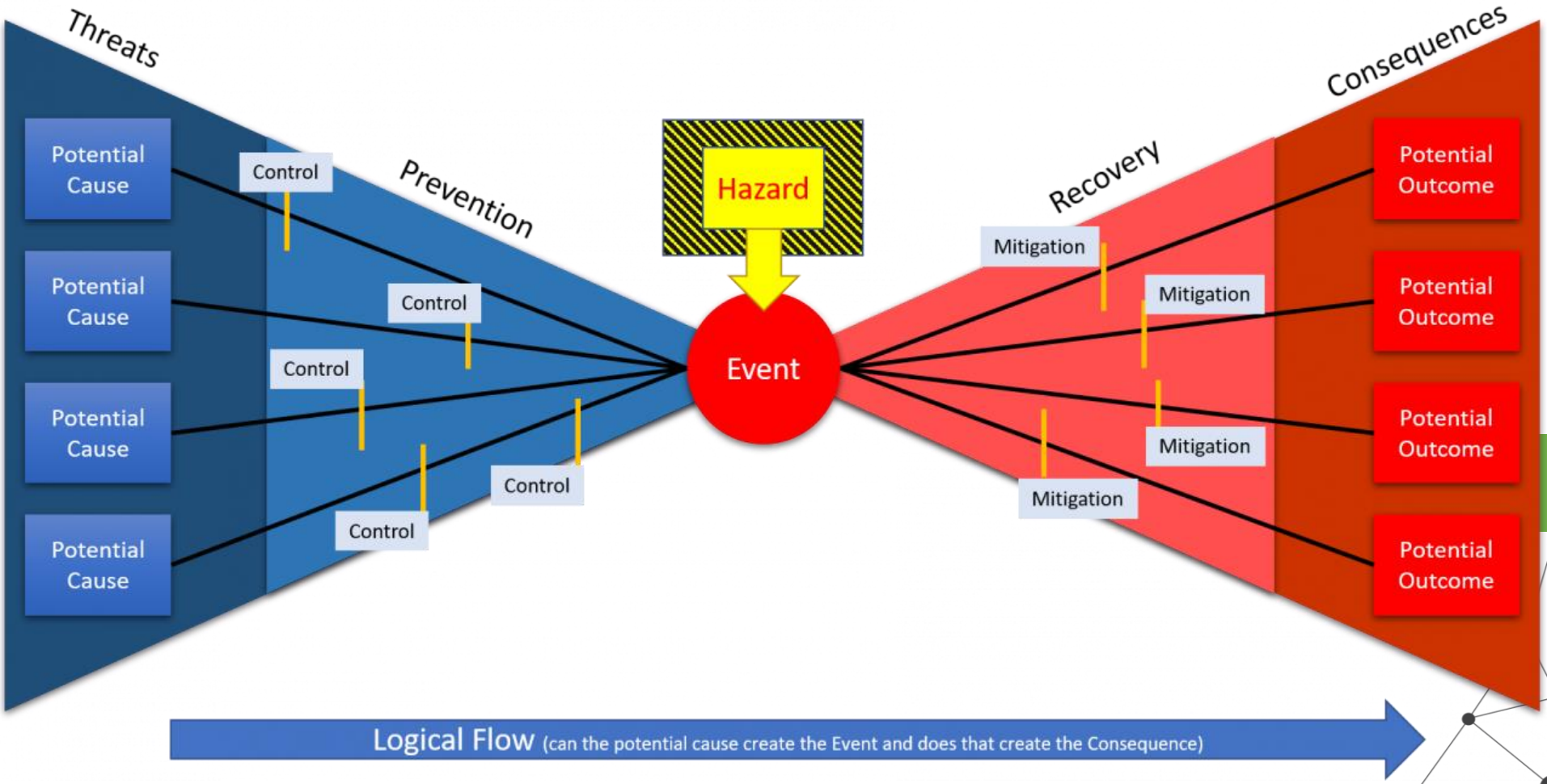
Scenario building
Risk assessment

Deterministic or scenario analysis: A deterministic or scenario analysis is the process of analysing the impacts or losses from a single event (scenario). This method characterizes possible event realizations in terms of size and location of events, but does not fully quantify the frequency of occurrence of these events or assess their impacts in a probabilistic manner.

Possible impacts

Human impact (health and safety)	• fatalities • severely injured or ill people • permanently displaced people • people with lack of basic necessities
Economic impact	• fatalities • severely injured or ill people • permanently displaced people • people with lack of basic necessities
Environmental impact	• disruption of ecosystems • environmental pollution • loss of ecological value
Social and political impact	• public outrage and anxiety/social-psychological impact • disruption of daily life • disruption of the education system • encroachment of the territory • infringement of the international position • violation of the democratic system • impact on public order and safety • loss of social cohesion
Impact on cultural heritage	• loss of cultural heritage and values

Bowtie Scenario



Identification of scenarios:

- historical data,
- literature and modelling,
- expert knowledge (using Delphi or other brainstorm/ creative development tool) and
- backward reasoning based on critical infrastructures list.

In this step it is essential not to hold back on possible scenarios for which less or no data are available or for which the uncertainty is very high. If these scenarios will pass the filters in the next steps, they will be subjected to further analysis to collect the data and provide a more factual basis. If no data whatsoever can be generated it has to be considered to drop the scenario.

A first impression of the consequences is made. Consequences can be the impact criteria, but might also include consequences, for example, for critical infrastructure, triggering other disaster types.

Critical infrastructure and services

Sector	Service
1 Drinking water	1.1 provision of drinking water
2 Food	2.1 provision and security of provision of food
3 Health	3.1 emergency care and other hospital care 3.2 medicines (serums and vaccinations, nuclear medicine)
4 Energy	4.1 electricity 4.2 natural gas 4.3 oil
5 Telecommunication/IT	5.1 landlines for telecommunication provisions 5.2 mobile telecommunication provisions 5.3 radio communication and navigation 5.4 broadcasting services 5.5 internet access
6 Financial	6.1 payment services / payment structure 6.2 governmental financial transfers
7 Public Order and Security	7.1 maintaining public order (police) 7.2 maintaining public safety and security
8 Legal system	8.1 dispensation of justice and detention 8.2 law enforcement
9 Public administration	9.1 provision of information from the government 9.2 decision-making in public administration
10 Transport	10.1 main roads 10.2 main sailing routes 10.3 railway system
11 Chemical and nuclear industry	11.1 transport, storage and production/processing of chemical and nuclear substances

Exercise 1: COVID-19

Create 5 possible scenarios in which the COVID-19 crisis will develop.

- Two groups
- Make presentation

Possibilities:

- Imagine the jotta-variant (break-through vaccination)
- Imagine other ‘perfect storms’ (economical crisis, rising energy prices together with COVID-19 responses)

Exercise 2: intervention modelling

Based on scenarios first exercises, what actions/interventions to be taken

- Same two groups
- Look at the consequences and come with mitigative actions
- Make presentation

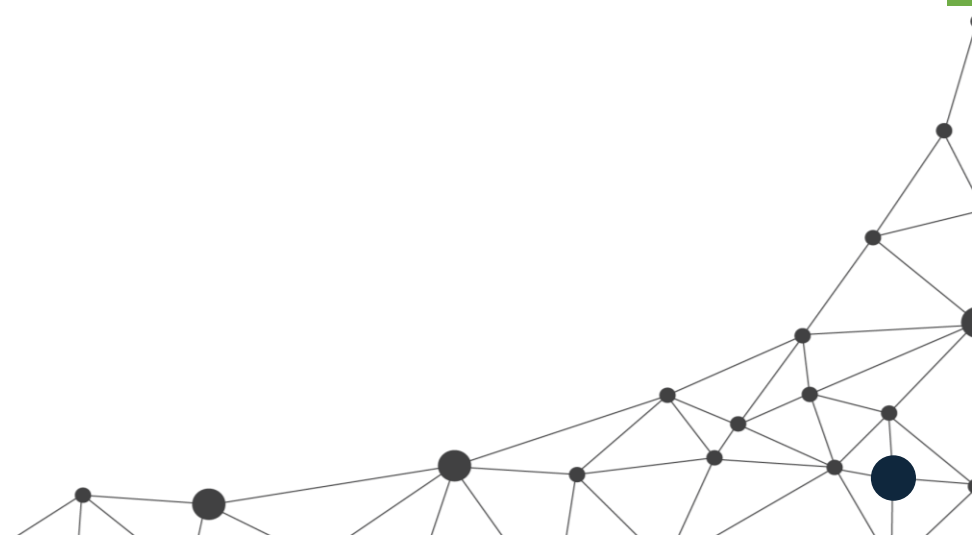
Possibilities:

- Intervention to make online education stronger
- Intervention on economical activity

Exercise 3: Other Challenges

Create 5 possible scenarios of another challenge.

- Two groups
- Find a one or two common challenges
- Develop scenarios
- Model interventions
- Make presentation



Homework

Do the same exercises, but then with the focus on your own city/ community.

Advices:

- Involve colleagues
- Look at the full spectrum of consequences
- At least one scenario should be about a disruption of a service of your own organisation.
- Put it in a presentation
- Deadline Wednesday 6 October end of day.

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Get connected on ***www.connective-cities.net***

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