

MIMs evolution roundtable

Ways to share quality information for sustainable choices

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Functionality first, technology neutral → prevent vendor lock-in

Provide a shared base for interaction to maximize functional benefits

Minimal Interoperability Mechanisms (MIMs)



Documentation:
mims.oascities.org



More urbanization → inverted pendulums / plate spinning everywhere → solutions lead to new problems

- Aging infrastructure → Traffic congestion
- Space → homes, offices and public spaces
- Environment → Water and energy use
- Safety & Security → Upholding “common sense”
- Ageing population → Care

We need Digital Twins of Cities
 (“Engine of Stability”) to test
 scenarios virtually that would be
 way too costly to test in real life

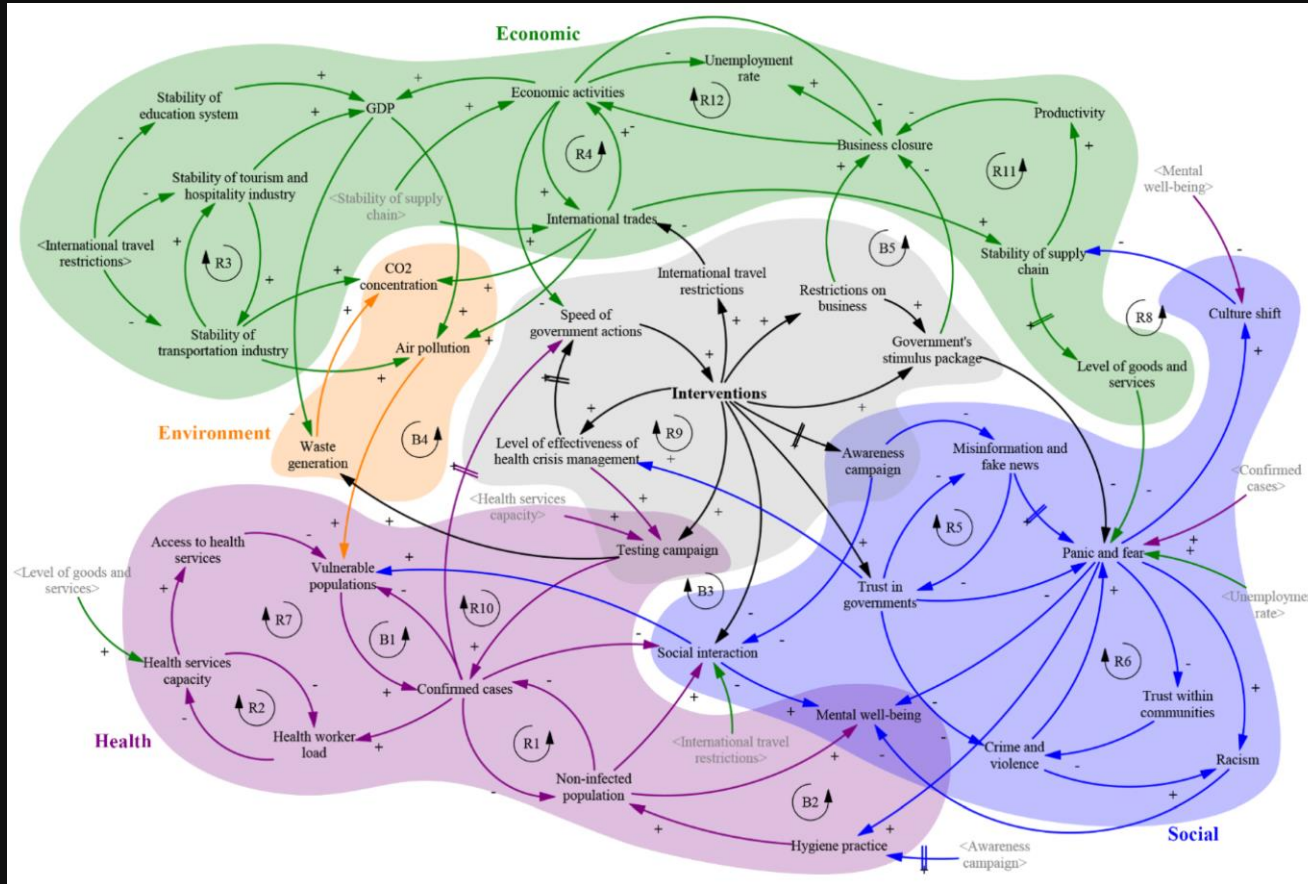


RESOURCES



OASC MIM10: RESOURCE IMPACT ASSESMENT

Example: Causal Loop Diagram for COVID-19 Pandemic

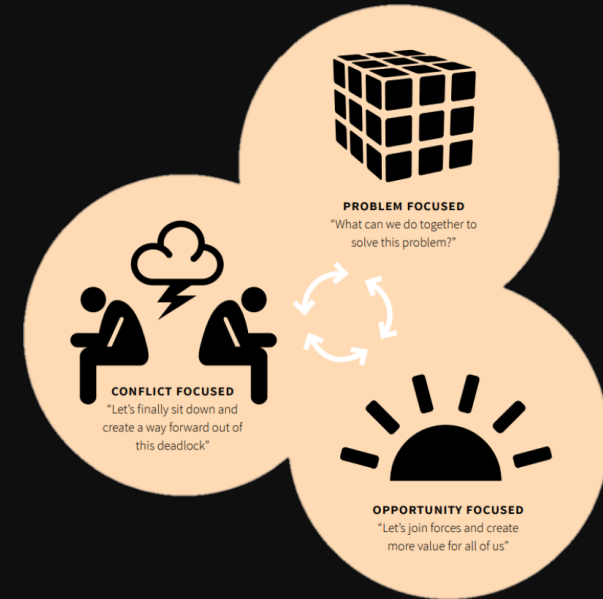


Multi-Stakeholder Partnerships

MSP Guide (.org)



- Definition: “A Multi-Stakeholder Partnership is a process of interactive learning, empowerment and participatory governance that enables stakeholders with interconnected problems and ambitions, but often differing interests, to be collectively innovative and resilient when faced with the emerging risks, crises and opportunities of a complex and changing environment.”
- Characteristics of an MSP:
 - Shared and defined ‘problem situation’ or opportunity
 - All the key stakeholders are engaged in the partnership
 - Works across different sectors and scales
 - Follows an agreed but dynamic process and timeframe
 - Involves stakeholders in establishing their expectations for a good partnership
 - Works with power differences and conflicts
 - Fosters stakeholder learning
 - Balances bottom-up and top-down approaches
 - Makes transformative and institutional change possible



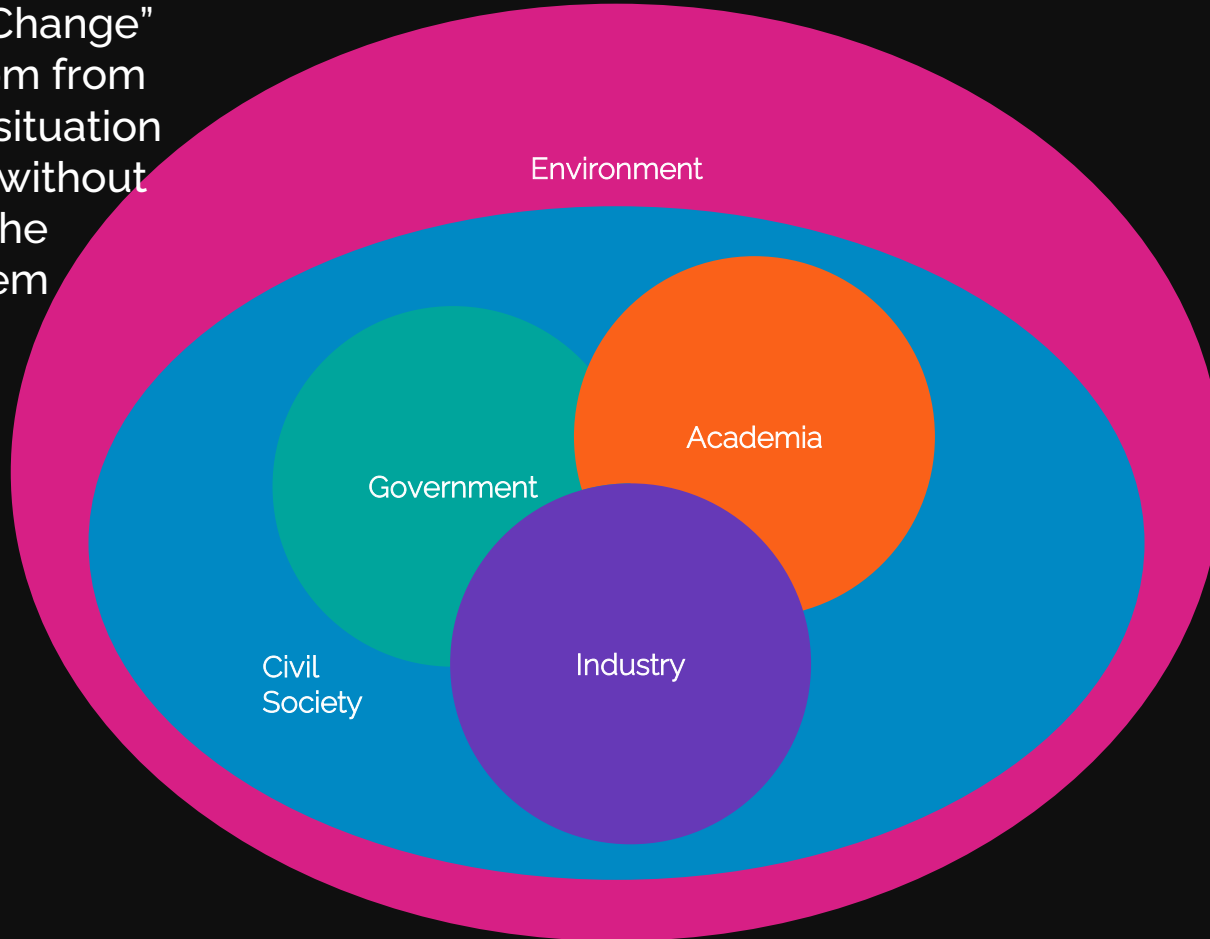
Quintuple Innovation Helix framework

INDICATORS



OASC MIM8: ECOSYSTEM INDICATOR MANAGEMENT

“Engine of Change”
to move from from
one stable situation
to the next without
disturbing the
whole system

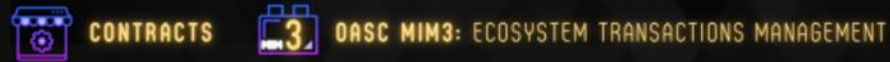


Three tracks need to converge

To fuel the flywheel of solving “wicked problems” in a sustainable manner

First of all Data processing (from measurement to publishing)

- a) Implement [MIM 1 \(Context\)](#) / [MIM 2 \(Data Models - as part of Data Spaces\)](#) / [MIM 3 \(Contracts\)](#) to improve reusability of data in the local ecosystem – necessary to raise PoCs (TRL 5) to the level of maturity for introduction “in the wild” (TRL 7)



- b) Add [MIM 6 \(Security\)](#) to become fully hardened against abuse and to become ready for scalable deployment (moving from TRL 7 to TRL 9)



- c) Optional: add [MIM 4 \(Trust\)](#) to broaden the scope of generating value
→ Doing c. before b. may sound enticing, however Security really is a necessary condition for Privacy as ENISA has already pointed out in their [DEC 2015 Privacy by design in Big Data](#) publication

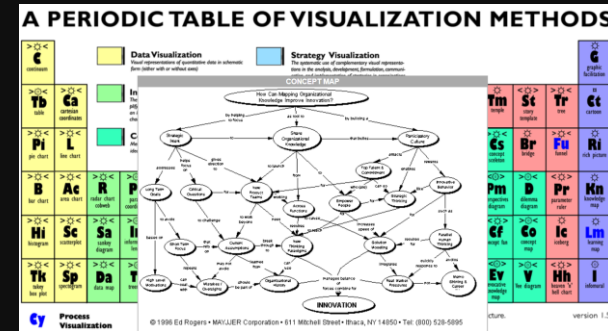


Three tracks need to converge

To fuel the flywheel of solving “wicked problems” in a sustainable manner

Next in parallel: Data visualization

- a) Missing – a MIM to visualize targeted messages / targeted actionable insights, building upon f.e. the [Periodic Table of Visualization Methods](#)



- b) Implement [MIM 7 \(Places\)](#) to provide clear visual feedback of the processed data in 3D/4D, as a key source of details behind MIM 10 and MIM 8.



PLACES



OASC MIM7: GEOSPATIAL INFORMATION MANAGEMENT

3D/4D is the preferred way of presenting information in an easy to grasp manner as >[50%-80%](#) of the human brain is dedicated to processing visual stimuli (for more scientific articles, check [ScienceDirect](#)). Providing information in full Digital Twin mode requires a lot of attention though and therefore may lead to information overload, so a balance need to be stricken between presenting information in a targeted visualization and full Digital Twin visualization to keep ([Quintuple Innovation Helix Framework](#)) stakeholders engaged in the process of getting towards action.

Three tracks need to converge

To fuel the flywheel of solving “wicked problems” in a sustainable manner

Next in parallel: Data analytics

- a) Implement [MIM 9 \(Analytics\)](#): Interoperability (reusability?) of Descriptive/Diagnostic/Predictive/Prescriptive Analytics models, as defined by [Thomas Davenport in 2006 in the Harvard Business Review](#), to gain new information and insights from data (measurements) gathered



- b) Add [MIM 5 \(Transparency\)](#) on Fair AI as a special case of Analytics at first, but potentially for ALL types of Analytics - to ensure ([Quintuple Innovation Helix Framework](#)) stakeholders can easily verify whether (the results of) Analytics are compliant with the checks and balances that have been put in place by society as a whole



Building a Smart Society environment to address “wicked problems”

Data processing Data visualization + analytics Engine of stability + change

- In place

 DATA MODELS  OASC MIM2: SHARED DATA MODELS

 CONTEXT  OASC MIM1: CONTEXT INFORMATION MANAGEMENT

 CONTRACTS  OASC MIM3: ECOSYSTEM TRANSACTIONS MANAGEMENT

- Conceptualizing

 SECURITY  OASC MIM6: SECURITY MANAGEMENT

- Work in progress

 TRUST   OASC MIM4: PERSONAL DATA MANAGEMENT

- In place

 ANALYTICS  OASC MIM9: DATA ANALYTICS MANAGEMENT

- Conceptualizing

- Work in progress

 TRANSPAR   OASC MIM5: FAIR ARTIFICIAL INTELLIGENCE

 PLACES  OASC MIM7: GEOSPATIAL INFORMATION MANAGEMENT

- In place

 RESOURCES  OASC MIM10: RESOURCE IMPACT ASSESSMENT

 INDICATORS  OASC MIM8: ECOSYSTEM INDICATOR MANAGEMENT

- Conceptualizing

- Work in progress

Thank you!

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