Cybernetic Participatory Approach for Complex Policy Systems Design

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People-centred approach to policy systems design
Typical participatory systems mapping
Cybernetic view of participatory systems mapping

- “Science concerned with the study of systems of any nature which are capable of receiving, storing and processing information so as to use it for control.“ (A. N. Kolmogorov)
- Back to 1948, it came from a Greek word that means “the art of steering”
- Broadly speaking, it is about defining goal and taking actions to achieve that goal, based on the Feedback mechanism (feedback here means data about performance of the system)
- Cybernetic view of participatory modelling places the emphasis on how the system functions over time, that is to say by focusing on information channels, interaction of parts, and the structure of systems
- The new science of Cybernetics (called Second-Order Cybernetics) focuses on how ‘observers’ (i.e., policymakers in our case) construct models of the systems with which they interact
- When applying to participatory modelling, this could be very challenging, as the information included in the system being ‘modelled’ depends on the nature of information in the system being ‘perceived’ by participants between which there may or may not be alignment
Cybernetic view of participatory systems mapping

Wider Inclusive Economy Environment

GMCA Inclusive Economy System

Inputs (documentary analysis) → Process (participatory workshop) → Output (fuzzy cognitive map)

Group feedback (in-workshop)

Individual feedback (post-workshop)

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SIPHER’s 5X methodology

**Exposing**
problem complexity

**Exploring**
system structure

**Exploiting**
stakeholders’ knowledge

**Explaining**
system behaviour

**Expanding**
learning and application

Scope, purposes, boundaries
Elicitation and aggregation of maps
Network centrality & propagation analyses
Interpretation, appraisal, feedback
Promoted knowledge, Reconciled map
SIPHER’s 5X methodology: applications

- **Mar 2020**
  - **Greater Manchester Combined Authority**
    - 15 Policy Officers
    - 4 working groups
    - 59 system elements
    - 337 system links

- **Nov 2020**
  - **Sheffield City Local Authority**
    - 12 Policy Officers
    - 3 working groups
    - 222 system elements
    - 286 system links

- **Nov 2020**
  - **Scottish Government (Clackmannanshire Council)**
    - 33 Policy Officers
    - 5 working groups
    - 326 system elements
    - 581 system links

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SIPHER’s 5X methodology: applications

Exploring (network structure)

Exploiting (network analytics)

Individual feedback (post-workshop)

Learning, refinement, and promoting knowledge