

MISC : Mapping Innovations on the Sustainability Curve

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This paper proposes an innovative methodological framework for unravelling lock-ins and facilitating transition. The framework basically consists in a systems maps (a leverage proposed by Donella Meadows) reflecting the structure and parameters of the 'curve of sustainability' (described by Ulanowicz et al). It allows to explore missing links and leverage points in a transdisciplinary and participatory context, and results in a systems map revealing an 'ecosystem' of needed and/or possible transition initiatives at different levels (from grassroots to EU politics).

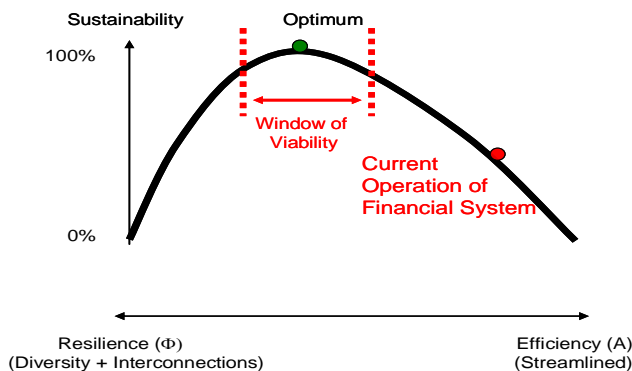


Figure 1. Curve of sustainability: optimum of sustainability within window of viability between resilience and efficiency
Source: Goerner et al (2009)

This framework has been tested over a period of three years (2012-2014) in various contexts ('test cases'), on several themes (ranging from alleviating poverty to R&I politics) and with stakeholders representing the quadruple helix, viz. academic, political, economic and civil society actors (Dijkgraaf 2012). The cases have demonstrated the value of MISC for involving seemingly opposed stakeholders in a common search for alternatives with a view to a shared systemic goal. They have also shown the capacity of MISC to create a shared platform for unravelling lock-ins and claiming political measures. It has been used with groups of 20 to 80 participants, but also in individual meetings. It includes the following steps.

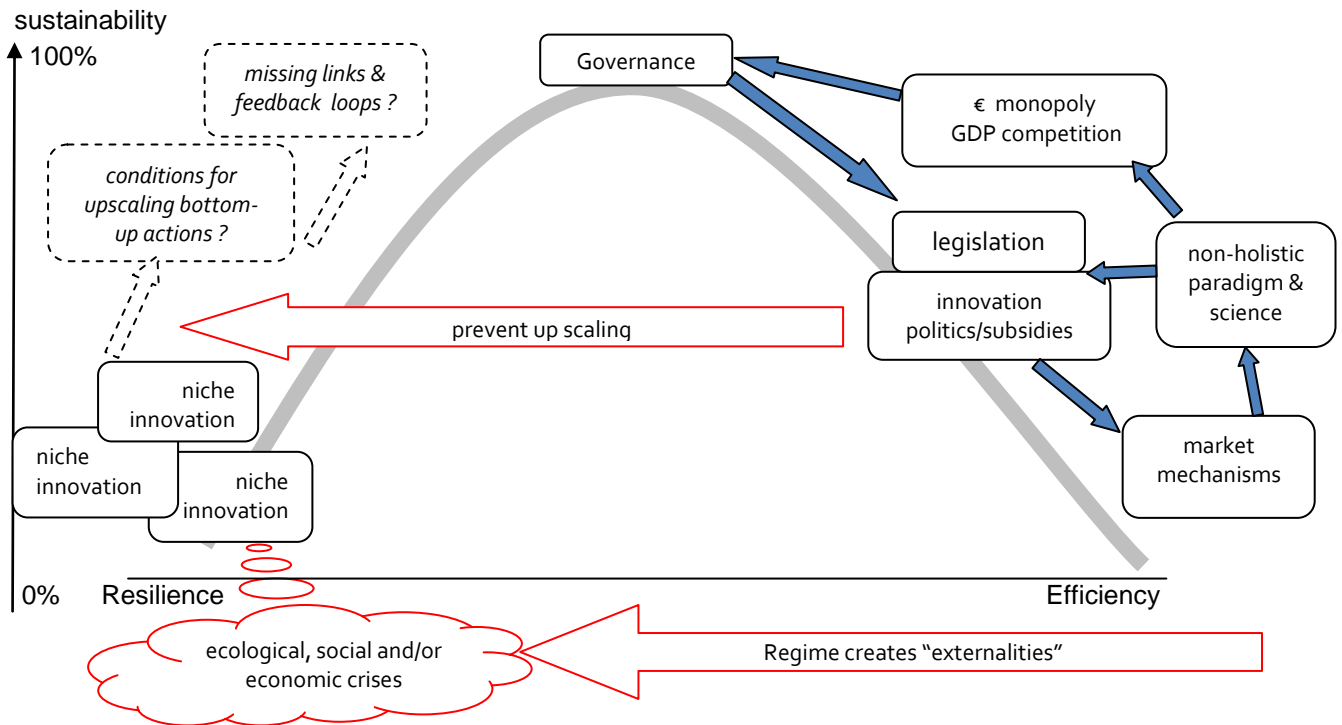
1. After explaining to participants the meaning of 'efficiency' and 'resilience' for the sustainability of systems, MISC starts out by defining a sustainable systemic goal (e.g. The goal of fishery as a system can be "Providing consumers worldwide with quality fish now and in the future"). Then it makes visible in the systems map the 'externalities' of current regimes; it does this in the form of a red arrow (indicating 'fever') and/or cloud (showing increased entropy) beneath the 0% point on the curve's vertical axis (e.g. "Fishing industry causes depletion of marine populations").

2. Then it makes visible 'resilient' niche alternatives (e.g. Marine Stewardship Council, Biomimicry based or *blue economy* fishing technology, Vegetarian movement, fishing grounds governed as 'commons' ...). These niches still lack impact on the systemic goal and therefore are situated on the lower left of the sustainability curve (they are resilient, but for lack of 'efficiency' cannot yet increase the sustainability of the system. Their overhead requires too much energy).

3. The next step is to explore with participants the mechanisms that keep the regime locked in (represented by loops of blue arrows) and that prevent niches from scaling up (e.g. the scarcity of fish makes it expensive and therefore interesting for the fishing industry to catch; innovation funds are given to technologies with market value but not to 'social innovations' such as MSC; current fish quota do not allow for biomimicry fishery to be introduced in the EU; consumers are not aware of the urgency of buying only MSC-labeled fish; EU market politics use only €-monetary parameters for evaluating the 'health' of the fishing industry; a feedback loop based on ecological indicators is lacking; EU political structures are based on non-holistic paradigm, European Commissariats 'Ecology' and 'Social inclusion' act separately from and have no impact on 'Market' and 'Competition', etc).

4. Discussing the map that emerges through the previous steps helps participants to understand that current 'environmental policies' (e.g. fishing quota) mainly serve to 'keep the fever down' but do not address the systemic causes of the problem. It makes visible that 'scaling up niches' can never consist in 'dropping the quota', since regime industry still uses 'throughput' technology and not 'circular' technology. It shows that specific and complementary eco-monetary instruments (legislation, community currencies, commons...) for niche innovations to scale up are needed.

Figure 2. Basic outline / example of a MISC-map



The map doesn't have to be complete in order to be useful for the discussion; in fact it is very difficult if not impossible to visualize every stock and flow that influences a system's behaviour. The main objective, however, is that participants understand the systems dynamics leading to lock-ins, and get a grasp of what transitions are needed (and/or possible) to restore the balance between resilience and efficiency and to reach the 'window of viability'. It is however necessary to make sure four strands of transition (circular, sharing, eco-monetary and paradigmatic; see below) are brought into the picture. Also, for using MISC one doesn't have to be an expert in a certain field (e.g. housing, fishing, poverty...), for the methodology focuses on system dynamics and lets the participants themselves (coming from regimes, niches and politics) bring in their knowledge and expertise of the domain or theme under investigation. MISC is therefore also very useful as a methodological support for transdisciplinary research and innovation.

Specific Theme 4: Social economy and transition to sustainable development

Our former research has shown that transition requires the interlocking of 4 types of innovation:

- sharing (changing the relationships among actors in the socioeconomic system)
- circular (changing the use of natural and technical resources)
- eco-monetary (changing the economic 'infrastructure' – financial, legal, business models...)
- paradigmatic (changing the structure of knowledge from specialized to holistic/systemic).

Since the *eco-monetary strand* of transition is usually the least developed or not even recognised (causing circular and sharing initiatives or smart technologies to remain locked-in in a 'growth' scenario, e.g. 'Green growth' or 'Inclusive growth'), I propose to present the MISC-methodology under Theme 4. It contributes to a more 'just/justified economics', which in this context means that economic growth should no longer be seen

as an aim in itself, pursued by both the economic and political system (a means-end reversal reducing people and planet to 'means' employed for private profit and GDP-growth), but that the economy needs to be redesigned in such a way that it serves as a *means* (allocating scarce resources effectively) to a *systemic goal* (e.g. "Contribute to the well-being of all, including future generations and other species"). The term 'social economy' therefore is to be understood in a much more radical sense than its current use. Also, the loss of 'employment' is one of the biggest 'perceived risks' of transition, and therefore it is relevant to consider 'the economy' as the main '*specific theme*'. However, MISC can also be applied to other themes (mobility, housing...), since they too are cast in economic regimes that need changing.

Note: MISC also addresses cross-sectoral themes, mainly 'Public authorities in the transition', 'Transition and non-governmental actors' and 'Transdisciplinary research'.

Four aspects of MISC

A. *Theoretical framework*: MISC is inspired by three strands of literature (references below)

1. **Systems theory**: Donella Meadows (2008) describes in general terms possible **leverage points** (applicable to various systems) of which 'systemic goal' and 'systems map' are central in MISC. Also, the evaluation of the impact of 'Limits to growth' (Meadows 2011) showed technological and economic lock-ins and the need to shift to social innovation as a leverage.
2. Research into the **characteristics of sustainable systems** allowed Ulanowicz, Lietaer & Goerner (2009) to identify two parameters of sustainability (efficiency and resilience) which in turn depend on two structural characteristics (diversity and connection). This offers a heuristic for evaluating the sustainability of various systems. The link with transition is evident, as regimes score high on efficiency but low on resilience, whereas niches are resilient but lack the efficiency to have impact (Block & Paredis 2012). It explains why strong sustainability needs transdisciplinary innovation (Dedeurwaerdere 2012) and shows that it depends on a quadruple helix (Dijkgraaf 2012), since NGO's mainly stand for systemic goals, not for private profit or (academic/political) power.
3. Literature on tools and mechanisms for **scaling up niche innovations**. Orsi (2012) explores legislative frameworks needed to accelerate transition to a sharing economy. Lietaer (2013) offers an alternative for the financial lock-in keeping the regime growth-oriented. These (and similar) works offer insights and inspiration for leverages facilitating legislative and monetary break-outs.

B. Diagnosis

The **hypothesis** underlying MISC was that the sustainability curve offers an outline for a systems map allowing stakeholders from different corners of the system to reflect on what hinders or facilitates transition and to create common ground for political claims. This was **tested** by applying the MISC framework in various cases. Some examples (non exhaustive list):

1. Wijze Wetenschap : mapping the transition needed in R&I politics for great challenges (2012)
2. Public Innovation through Complementary Cocreative Actions (PICCA): action research on politics strengthening cocreative actions with people in poverty (2013-2014)
3. Bazaar Cocreatief (2013): a 'market place' for cocreative initiatives with a reflection on their underlying economic assumptions and the legal frameworks needed to upscale them.
4. Ageing populations in Europe: challenges and perspectives (European Commission – DG Inclusion - EMPL/D1 Social policy Innovation and Governance 2013); explorative discussion.
5. Emerging Feminine Values (Club of Rome International 2014) – defining values as 'drivers' in the system, and identifying drivers counterbalancing one-sided patriarchal competitive values.
6. The 'new' or 'commons economy' emerging as a response to context changes in the wake of industrial and knowledge economy and the role of community currencies therein (2013-2014).
7. The possible impact of community currencies on aims of the Covenant of Mayors (EC 2014).

The test cases **reveal** that the MISC methodology indeed functions as an eye-opener to all stakeholders involved, and facilitates dialogue between participants from all corners of the system. The data corroborating this are mainly qualitative, based on feedback from participants.

C. Explanation of these data

Participants from **regimes** are confronted with the externalities their actions (indirectly) lead to, but are also given the opportunity to map systemic mechanisms that keep them locked-in. This meta-level communication allows them to analyse their position without systemic punctuation (“who is to blame?”). It makes them less defensive and offers them an alternative, since the curve shows that efficiency is positive if it is connected in ‘shorter loops’ with (resilience stemming from) niches. It also offers them the opportunity to formulate political measures that could free them from their locked-in position (e.g. more access to subsidies for social dimensions of research...).

Participants from **niches** and civil society organisations feel strengthened because their crucial function in transition (keeping the system goal central and inventing resilient alternatives) is made visible. Also, they acquire a common language and analytical tools, increasing their efficiency. MISC allows them to argue political claims with scientific arguments (based in systems theory).

MISC not only **anticipates problems** that will arise due to a necessary transition and will cause resistance. It also **explores leverages** needed to overcome those lock-ins. The test resulted in maps showing ‘ecosystems of (small or large) transitions’, recognizing their interdependence and thus **avoiding pseudo-conflicts** on ‘which transition is more important’. By making visible that transition happens at different levels in the system (from niche resilience to meta-meta-resilience at governance level) it also avoids a false discussion between ‘bottom-up’ and ‘top-down’ (or ‘representative’) democracy, but focuses on how the meta-level (representative politics) can reinforce cocreative actions or create conditions for up scaling commons-based organisations.

D. Successful experiences

- MISC (in a preliminary form) has been mentioned as a good practice in the Erasmus Mundus course at the Sorbonne with students from all over the world (Lietaer 2014).
- Two persons from the European Commission and an entrepreneur/professor in aero spatial technology called it a real discovery and a radical break with the reports they usually receive.
- Participants (researchers and directors) from highly specialized innovation institutions (mainly Flemish, but also UN University) said it was the first time they were offered a platform where they could express the insight that their models need changing. It was also the first time they had a dialogue with niche innovators and they appreciated the richness of this encounter for (the social/societal relevance of) their work.

E. Some References

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- Researcher & Senior Researcher KU Leuven 1985 – 2004
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