

INNOVATION STUDIES, SOCIAL INNOVATION, AND SUSTAINABILITY TRANSITIONS RESEARCH

From mutual ignorance towards an integrative perspective?

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MOTIVATION

Major challenges need to be tackled with concerted efforts

Goal-oriented transformative change processes require:

- considering a broad range of possible goals by key stakeholders
- selection of relevant, feasible, and ambitious goals
- strong commitment of the full spectrum of relevant actors to act

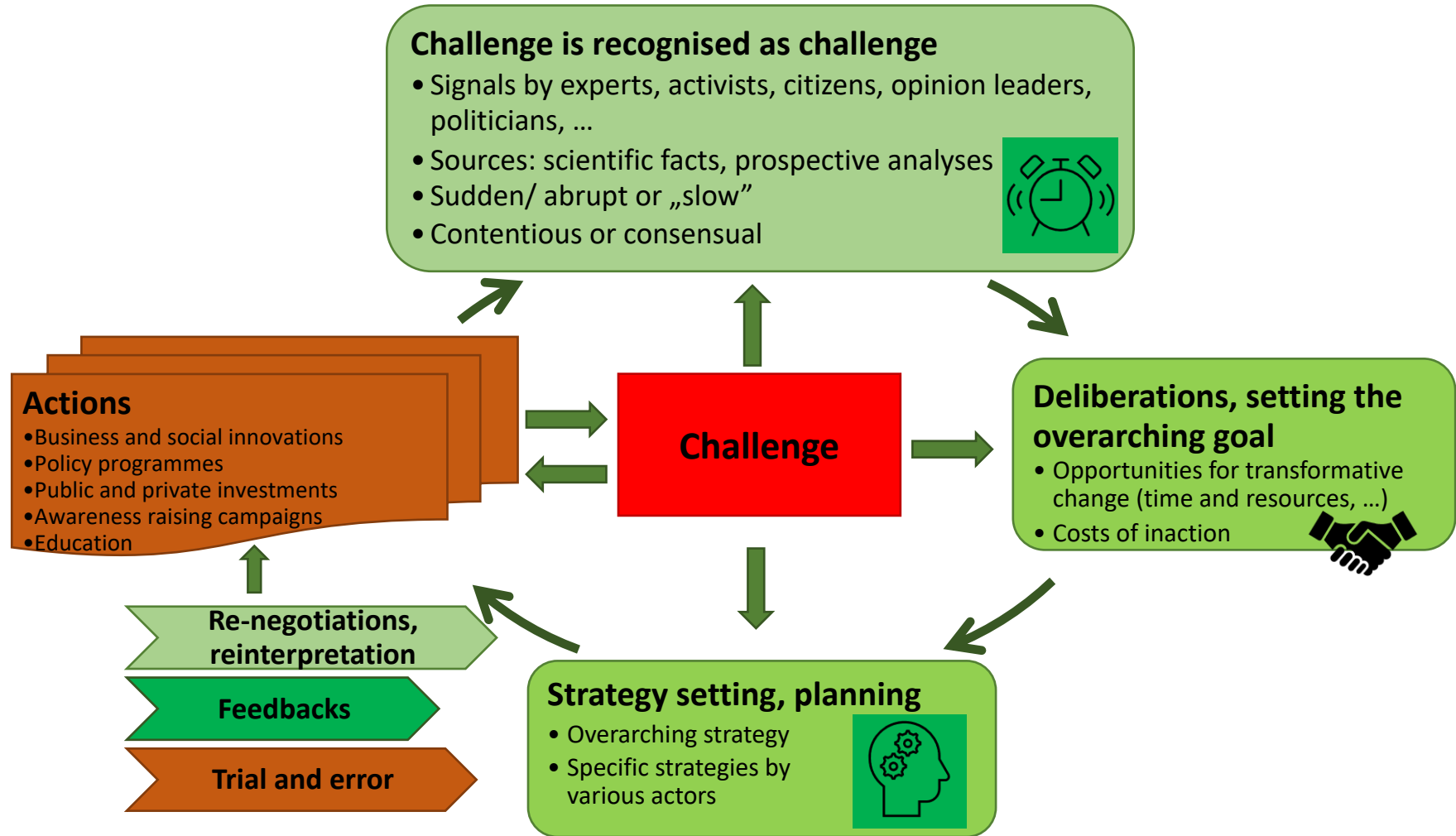
Hence, we need to widen the scope of the current, partial conceptual (IS, SI, and ST) models to consider the co-evolutionary interactions between technology, economy, and society to understand transformative changes.

GOAL-ORIENTED TRANSFORMATIVE CHANGE: A DEFINITION

A closely interrelated set of *radical changes* at the level of *an entire socio-economic system*, with changes simultaneously affecting its underlying technologies, business models, cognitive frames, institutions, business and social networks, as well as business and social practices, *initiated* by a set of – possibly various types of – actors to achieve *a major overarching goal*.

These radical systemic changes are complemented by radical innovations “below” the system level, as well as millions of incremental changes at all levels.

Whether the intended overall goal has been accomplished is not part of the definition.



OVERVIEW

Analytical approach and methods

Evolution of the IS, SI, and ST research (in the longer version)

Key features of innovation in the IS, SI, and ST strands

- principal purpose of innovation
- objects, types, and levels of change
- sources and types of knowledge (co-)produced, utilised, and diffused
- defining and measuring success and impacts

Diffusion and transformation dynamics

An integrative perspective to analyse transformative change

Conclusions

ANALYTICAL APPROACH AND METHODS



THREE RESEARCH QUESTIONS

What are the similarities, differences, and complementarities in the conceptual underpinnings of the three strands of innovation research: IS, SI, and ST?

What conceptual building blocks of transformation are used?

What building blocks of an integrative analytical framework can be derived from these three strands to study transformative change processes?

∑ Our main objective: offer conceptual contributions

OUR APPROACH

A focussed literature review

(neither a bibliometric analysis, nor a comprehensive review paper)

- review papers and conceptual papers (vs. case studies)

We have identified

- key features of innovation processes to characterise the IS, SI, and ST strands
- conceptual foundations and the relevant main observations of these three strands of literature

KEY FEATURES OF INNOVATION:
BASIC SIMILARITIES AND SUBSTANTIAL DIFFERENCES
IN THE IS, SI, AND ST STRANDS



THE PRINCIPAL PURPOSE OF INNOVATION AND TYPICAL MAIN ACTORS

	Purpose	Actors
Business innovations	Improving firm's performance	Firms (with co-operation partners)
Social innovations	Tackling societal problems or create new societal opportunities	Many different types of actors
ST innovations	Serve sustainability transitions	Many different types of actors
Hybrid innovations	Tackling societal problems, using business forms and methods	Firms (with co-operation partners)

THE PRINCIPAL PURPOSE OF INNOVATION: OBSERVATIONS

Purpose of innovation vs. its nature or object
(what is being changed by the innovation process)

Business vs. social innovation
instead of technological vs. social innovation

Social innovations are novel initiatives or novel combinations of known solutions, aimed at tackling a societal problem or creating new societal opportunities, applied in practice. (Havas and Molnár 2020)

OBJECTS, TYPES, AND LEVELS OF CHANGE

	Objects	Types and levels
Business innovations	Goods, processes, organisation, business (mgmt.) methods, business models	Goods and other 'single items': incremental, radical Technological system Techno-economic paradigm
Social innovations	Social practices, institutions, networks (structures), cognitive frames	No clear-cut, widely used taxonomy (often 'subsumed' in SI definitions); Micro, meso, macro
ST innovations	All elements of a system	MLP: niche, regime, and socio-technical landscape
Hybrid innovations	Goods, processes, organisation, business (mgmt.) methods, business models	Goods and other 'single items': incremental, radical

SOURCES AND TYPES OF KNOWLEDGE (CO-)PRODUCED, UTILISED, AND DIFFUSED

	Sources	Types
Business innovations	R&D activities (firms themselves and their various partners) Learning by DUI	Codified and tacit S&T and practical
Social innovations	Scarcely analysed Mainly learning by DUI Also SSH research	Mainly tacit Mainly practical, SSH
ST innovations	R&D activities Learning by DUI	Codified and tacit S&T and practical
Hybrid innovations	R&D activities (firms themselves and their various partners) Learning by DUI	Codified and tacit S&T and practical

DEFINING AND MEASURING SUCCESS

	Definition	Measurement
Business innovations	Improved firm performance Short- vs. long-term	Micro: financial indicators Macro: composite indicators, scoreboards Contested issue
Social innovations	Alleviation of a social problem	Demanding task First attempts to devise methods
ST innovations	Transition to (more) sustainable socio-technical or even socio-economic systems	Case-specific indicators Processes? Short- vs medium-term effects
Hybrid innovations	Alleviation of a social problem in a financially viable way	Demanding task Not discussed

DEFINING AND MEASURING SUCCESS: OBSERVATIONS

Success vs. impacts

Destructive creation by business innovations

The 'dark' side social innovation vs. positive impacts
postulated in most definitions

example: microcredit industry

ST

- path dependence (dominant designs, inert infrastructures, routines)
- institutional contradictions
- evolution of innovations, trial and error ('immature prototypes')
- transition 'phases'

KEY FEATURES OF DIFFUSION PROCESSES AND TRANSFORMATION DYNAMICS



Diffusion of innovation	
Business innovations	Understood and measured differently in various economics paradigms: S curves vs. adoption, adaptation and other innovations during the diffusion process
Social innovations	Many different types of SIs => Demanding task Analysing SI diffusion is in its infancy 'Scaling up'? Context does matter!
ST innovations	Understood as being paralleled by complementary behavioural, organisational and, institutional changes
Hybrid innovations	Not analysed yet

TRANSFORMATION DYNAMICS IN INNOVATION STUDIES

Business innovation leading to transformation

Social acceptance of new technologies

Evolutionary and complex self-reinforcing dynamics

The emergence of new technical systems and techno-economic paradigms

TRANSFORMATION DYNAMICS IN SOCIAL INNOVATION STUDIES

Transformation via change of social practices

Translocal diffusion of SI: adaptation and learning processes

Change of power relation: empowerment and disempowerment

Institutional change

TRANSFORMATION DYNAMICS IN SUSTAINABILITY TRANSITION STUDIES

Transitions from a multi-level perspective

Cumulative causation in technological innovation systems

Embedding in wider contexts of deep transitions

AN INTEGRATIVE PERSPECTIVE TO ANALYSE
GOAL-ORIENTED TRANSFORMATIVE CHANGE



PARTIAL CONCEPTUAL MODELS

Co-evolutionary or complexity-based conceptual models

IS: *technology–economy* interactions,
co-evolution of technologies and institutions

SI: agency, social-political structures, and institutions;
institutions, social networks, and actors' cognitive frames

ST: *technology–society* interactions; the interplay between niche
developments and regime changes

Widen the scope of these partial conceptual models: consider the co-evolutionary or complex interactions between **technology, economy, and society** in goal-oriented transformative change processes

FOUR BUILDING BLOCKS FOR A NEW, INTEGRATIVE FRAMEWORK

Rationales, overarching goal, and specific objectives of change

Objects, types, and levels of change

Processes and mechanisms of change

A set of criteria to assess change

Complementary elements or ‘lenses’ that together serve as a
‘focussing device’ (Lundvall 2007; Robinson et al. 2021), through which
analysts can explore and explicate change processes

(not a ‘process model’ or a unitary ‘normative’ theory of transformative change)

RATIONALE, OVERARCHING GOAL, AND SPECIFIC OBJECTIVES OF CHANGE

GOTCP can only start when major actors recognise the need for change and can agree on an overarching goal

⇒ GOTCP is to be understood as knowledge creation and purpose production, or sense-making processes that guide transformation

The initial impulse for change differs for different actors

- businesses: competition
- SI actors: perceived societal needs or possibilities to create new societal opportunities
- ST: sustainability concerns of entrepreneurial individuals, regulations, demand, ...

Initiatives: internal and/or external

consumers, beneficiaries of SI, NGOs, policy-makers ...

Objectives of 'individual' innovations

Types and sources of knowledge

OBJECTS, TYPES, AND LEVELS OF CHANGE

Objects of change: goods, processes, social and business methods and practices, organisational arrangements

Type of change: incremental and radical innovations

Level of change:

- a single good (product, service)
- social and business methods and practices in niches
- a technological system (or a “regime”)
- an entire socio-economic system, with its underlying technologies, business models, cognitive frames, institutions, business and social networks

PROCESSES AND MECHANISMS OF CHANGE

Business innovations

- market mechanisms: pressure on the actors
- non-market mechanisms: knowledge creation, diffusion of knowledge
- competition & co-operation: productive tension
- the introduction of radical business innovations is a social process

Social innovations: tensions

- among the major players at the local level, especially when the SI initiative is not firmly embedded into the local social networks and/or strongly challenges the cognitive frames of influential local actors
- between centrally set policy goals and tools vs. local needs
- among actors at different governance levels
- between micro- and macro-level institutions (rules of the game).
- diverse views on possible solutions (what to do) and their implementation (how to do)
- SI processes are driven by societal incentives for social innovators, not by competition

PROCESSES AND MECHANISMS OF CHANGE (2)

Sustainability transitions

- entrepreneurship of inspired individuals
- protective societal incentives
- interactive learning in early phases of niche development
- resource-based considerations
- market competition, along with collaboration
- regulatory and other demand-side forces, market mechanisms: pressure on the actors

Integrative perspective: all these different ingredients are needed

CRITERIA TO ASSESS CHANGE

Business innovations, business logic: productivity, efficiency, profits and shareholder value, more recently CSR considerations

Social innovations, societal logic

- justice and equity
- contribution to tackle environmental challenges

Sustainability transition, environmental logic: originally sustainability, more recently just transition

Most change processes have major social impacts, either intended or unintended ones

The set of criteria to assess change is likely to be modified to some extent by the actors during the transformation process (e.g., due to changes in the context, emergence of new technological opportunities, tensions during the implementation, noticing unintended impacts)

CONCLUSIONS



THREE STRANDS OF LITERATURE: AN ASSESSMENT

These three strands so far have evolved in rather loose, sporadic interactions with each other

Possibilities for mutual learning have been seized to a rather limited extent only

IS needs to

- put more emphasis on considering a widening range of actors and their respective cognitive frames as major drivers shaping innovation processes
- strengthen the normative dimension

THREE STRANDS OF LITERATURE: AN ASSESSMENT (2)

SI research

- a diverse strand, a research field in its 'infancy'
- conceptually less sophisticated than IS and ST
- tends to downplay the role of S&T and top-down institutional changes as major drivers of social change, innovation, and transformation
- measurement remains a largely unresolved task

THREE STRANDS OF LITERATURE: AN ASSESSMENT (3)

ST research

- underrates the multitude of societal and business objectives and the transformative role of generic and disruptive technologies
- emphasis on the bottom-up learning processes, neglect of the influence of top-down impulses
- greater variety of transformation strategies and pathways to be considered

Rectifying deficiencies & mutual learning: a foundation of a deeper and more germane understanding of goal-oriented transformation processes

NORMATIVE IMPLICATIONS

A new, integrative approach ⇒

- i) better understand normative issues
- ii) identify further meaningful, desirable ambitions other than sustainability

Develop transparent, more appropriate – and cost-efficient – methods for organising normative dialogues, better serving societal needs

Identify inevitable tensions among countries and social groups with different experience, worldviews, values, and ambitions

Arrive shared visions and specific objectives

Take joint, effective actions

TENTATIVE GOVERNANCE, POLICY, AND OTHER PRACTICAL IMPLICATIONS

Orchestrate policy objectives and tools across policy domains, guided by the overarching goal of transformative change

Create space and mechanisms for policy experiments

Establish fora for normative dialogues among various types of innovators, policy-makers, and other stakeholders

Develop the missing, but required capacities for transformative changes

Underpin more effective strategies and activities for various types of actors

DIRECTIONS FOR FUTURE RESEARCH

Analyse models of innovation developed/ favoured in IS, SI, and ST

Devise a model of goal-oriented transformative change

Modules of a new theory would need to consider

- the interactions among the actors in their various activities
- the interactions between the actors and the context
- the institutions guiding and framing interactions among the actors, as well as between the actors and the context
- knowledge (the available pool and the need to create new knowledge)
- the objects, types, and levels of change

Compare the policy rationales distilled from the various models of innovation developed by, or used in, IS, SI, and ST

Derive policy implications from the new model

THANK YOU!

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