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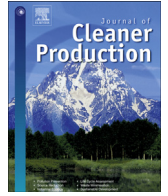
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Linking socio-technical transition studies and organisational change management: Steps towards an integrative, multi-scale heuristic

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ABSTRACT

While the role of agency is widely acknowledged in socio-technical transition research, there remains a research gap on agency in transitions and a call for studies using an actor-centred approach to transition studies. In response to this call, this paper addresses the role of actors and, particularly, organisations in transitions. It examines the role of organisational change in socio-technical sustainability transitions and, more specifically, how transition initiatives may trigger and support these changes in organisations and systems. For this purpose, the paper draws on literature from both transition studies and organisational change management (OCM) to build a multi-scale, integrative theoretical heuristic. This addresses drivers and barriers for organisational change as an integral part of transition processes, connecting the micro level of the individual, the meso level of the organisation and the macro level of the broader system in which the organisation is located. With the goal of illustrating the links between OCM and transition studies, this paper empirically examines the impact of *Region 2050*, a large, multi-organisation transition initiative in Sweden, in terms of creating change within the organisations involved. The main focus is on how the organisations acquire the new knowledge and capabilities required for improving regional planning for sustainability. The empirical study identifies leverage points at the micro-, meso- and macro-levels, which may be used in order to change strategic planning processes. Three different theoretical concepts from transition studies and OCM that could help to foster long-term planning are also identified: (1) the macro-level of institutional plurality and its connection to the meso- (organisational) level; (2) collaboration as a key success factor on the organisational level; and (3) at the micro-level, the roles of individuals as change agents and boundary spanners. Overall, the case highlights the merits of the OCM literature for transition studies and their emphasis on understanding interacting processes operating at multiple scales.

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1. Introduction

This paper addresses the role of organisational change management in transition studies; a, so far, arguably under-researched field of study. Geels and Schot (2010) characterise socio-technical transitions as involving: (1) co-evolution and multiple changes in socio-technical systems or configurations; (2) multi-actor interactions between social groups, including firms, user groups, scientific communities, policy makers, social movements and

special interest groups; (3) 'radical' change in terms of the degree of change; and (4) long-term processes over 40–50 years. This definition of socio-technical transitions highlights the role of the social dimension in general and that of multiple actors in this regard. While the role of actors and agency is widely acknowledged in transition studies, a common criticism is that the actor-centred perspective on transitions is so far under-researched (e.g. Bögel and Upham, 2018; Genus and Coles, 2008; Smith et al., 2005). Thus this paper addresses the role of actors and particularly organisations in transition. It examines the role of organisational change in socio-technical sustainability transitions and, more particularly, how transition initiatives can trigger and support these changes in organisations and systems.

The operational landscape for organisations is changing at an ever-increasing rate. Emerging technologies and social innovations, such as artificial intelligence, robotics, liquid democracy and the

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sharing economy, pose challenges not only for societies, but also for organisations. Organisations can be unprepared for internal and external coordination challenges that involve multiple stakeholders and the need for new knowledge and new capabilities (e.g. Coenen et al., 2015). Considering this and the specific challenge of long-term processes as a key characteristic of transitions, this paper seeks to identify the new knowledge and capabilities required for a change towards long-term, strategic planning and how transition initiatives can (and must) trigger organisational change to achieve this change. A case study provides an example of the value of organisational change management concepts for transition processes.

The need to shift from short-term to long-term planning is a key challenge for organisations when addressing the grand societal challenges such as climate change, obesity and energy security (Geels, 2014). *Future studies* is one such form of anticipatory knowledge of value for organisations, consisting of methods and approaches intended to help organisations deal with future uncertainties. These methods include e.g. technological forecasting, foresight, backcasting and variants thereof, e.g. participatory backcasting (Quist, 2007). Effective use of such methods requires development of relevant capacities among individuals, including long-term and systems thinking and the ability to build consensus, to work in transdisciplinary contexts and to be action-oriented and problem solving (Heiskanen and Thidell, 2016; Kordas et al., 2015). Organisations themselves need the ability to develop robust and adaptive strategies (Etzion et al., 2017; Malekpour et al., 2015), to consider longer planning horizons in everyday activities and to engage in collaborations and networks with other actors.

This study explores issues relating to the acquisition of these new capacities by organisations involved in a multi-partner transition initiative, thus serving as a case study of the role of organisational change and change management in transitions in general and transition initiatives in particular. It argues that insights from the organisational change management (OCM) literature can be usefully brought together with the idea of institutional logics discussed in transition studies (e.g. Fuenfschilling and Truffer, 2016) to help understand the coordination challenges that need to be overcome in socio-technical sustainability transitions that involve multiple organisations. This addresses a gap in transition studies regarding the use of organisational psychology (Bögel and Upham, 2018). A theoretical framework that draws on literature from both transition studies and OCM is developed, to make connections between individual, organisational and system-level processes, specifically in relation to the types of organisational change issue relevant to socio-technical change. This supports the development of a multi-scale theoretical heuristic that comprises individual-level factors and organisational-level factors identified as important for successful OCM (Long et al., 2018; Lozano, 2012), especially as regards changes on the macro level of (in)congruent logics (Fuenfschilling and Truffer, 2016; Smink et al., 2015).

To illustrate the merits of connecting the organisational change literature with the socio-technical transition concepts of system change, the Swedish transition initiative *Region 2050* is used as a case study. *Region 2050* aims at improving strategic planning in Swedish regions by building upon approaches for strategic planning from future studies, e.g. backcasting, technological foresight and scenario planning. These approaches are new to the regional authorities concerned, which are motivated by the need to strengthen capacities for developing and implementing long-term regional development plans (*regional utvecklingsstrategi*, RUS) in the regions. Some of the types of change involved, particularly regarding organisational strategic planning, drivers and barriers to change, are documented, with particular emphasis on connections between micro-, meso- and macro-level processes.

The remainder of the paper is organised as follows: section 2

introduces the institutional logics and OCM literature, in order to identify approaches relevant to the problems of introducing future studies into collaborative organisational practice and supporting organisations in dealing with these challenges. Based on this literature review, section 2 also presents a theoretical framework with which to explore the challenges and any mismatches, and to identify strategies for overcoming these. Section 3 describes the empirical case used to illustrate the framework (*Region 2050*) and the methods used for data collection and analysis. Section 4 describes the application of the integrative, multi-scale heuristic to the case and Section 5 discusses the findings in light of the research goal to link OCM and transition studies. It also discusses the implications for the future design of transition initiatives. Section 6 presents the main conclusions.

2. Theory and practice of organisational change in transition experiments

To identify links between OCM and transition studies, this section examines the impact of transition initiatives on creating change within organisations. This includes initiatives that aim at developing and educating change agents, with the key assumption being that such training, e.g. on visioning or design thinking, will help the participants to implement changes within their organisations. The training can have impacts beyond changes in incumbent organisations and can be considered an important part of transition management, as: “the ultimate goal of transition management should be to influence and empower civil society in such a way that people themselves shape sustainability in their own environments, and in doing so contribute to the desired transitions to sustainability” (Loorbach, 2007, 284). However, recent studies show that the aim of these workshops is often not achieved, i.e. there are no long-term changes towards sustainable forms of development. Among the barriers identified are factors such as a lack of knowledge on how to implement change (Schauppenlehner-Kloyber and Penker, 2015), inefficient group processes (Rushmer et al., 2014), issues with selection of representatives and their involvement (Pereverza and Kordas, 2017) and mismatches of institutional logics (Arena et al., 2018; de Leeuw and Gössling, 2016; Stål, 2015).

Strategic planning raises more specific challenges for transition initiatives. The practice of strategic planning, based on approaches and methods from future studies, is something of a niche activity. Previous studies suggest that it reflects a new logic of planning that is likely to differ from the extant approaches of most organisations, particularly in terms of time horizons and management hierarchies (Birkmann et al., 2014; Hughes, 2013). A transition initiative aimed at building capacity for this new type of strategic planning needs to go beyond development of new methods and extend to bringing together and empowering practitioners, so that they are able to implement the new strategic planning practice. These processes in turn need to take account of institutional logics and related organisational structures and barriers to organisational change. In sub-section 2.1, insights from the institutional logics and OCM literature are combined to examine how barriers can be overcome and to illustrate the connections between OCM and transition studies.

2.1. Institutional logics

As Fuenfschilling and Truffer (2014) observe (see also Smink et al., 2015), the ‘regime’ concept used in the sustainability transition literature to represent the status quo risks obscuring institutional tensions and contradictions. However, institutional tensions are an important aspect of transition dynamics. Accordingly, Fuenfschilling and Truffer (2014) draw on institutional theory to help

characterise system structure and to reflect the inherent tensions. They characterise a socio-technical regime as “highly institutionalised regulative, normative and cognitive structures, e.g. norms, standards, values, cultural expectations or regulations, which have evolved in accordance with certain technologies” (Fuenfschilling and Truffer 2016, 298, drawing on Scott (2001)). Understanding socio-technical change from this perspective thus requires a good understanding of institutional change and of the key role that institutional logics play in this regard. These logics are defined as “socially constructed, historical patterns of practices, beliefs, values and rules” (Hassink et al., 2018, 194). It is these practices and beliefs that guide thinking and acting by relevant actors.

As mentioned, differences in institutional logics can pose difficulties for organisational and individual actors seeking to effect change collaboratively. For example, Smink et al. (2015) provide a case study of cooperation between biomethane producers and the operators of gas networks in which the two organisation types follow different institutional logics: the biomethane sector is characterised by an entrepreneurial logic, while the gas network operators are characterised by hierarchy logics. Smink et al. (2015) claim that this mismatch of institutional logics is the main obstacle to change.

Two concepts from institutional analysis, *institutional plurality* and individuals as *boundary spanners*, may be of help in this regard. *Institutional plurality* refers to the level of coherence of logics within a particular context. Depending on the level of coherence, “there is more or less room for alternative rationalities and actions” (Fuenfschilling and Truffer, 2016, p. 300). Low levels of coherence accordingly result in better opportunities for implementing change processes. The concept of *boundary spanners* refers either to organisations (or “intermediaries”, see Kivimaa, 2014) or to individuals who act as a bridge between fields with different institutional logics. A successful boundary spanner is a leader and entrepreneur who deploys effective relational and interpersonal competencies to develop mutual understanding, trust and respect” (Hassink et al., 2018, 188). The characteristics of boundary spanners suggested by Smink et al. (2015) include exposure to multiple or even contradictory logics as a prerequisite (Greenwood and Suddaby, 2006), ‘specific and dedicated actors’ (Klerx et al., 2010); good networking skills, effective interpersonal competencies and an ability to create trust (Williams, 2002).

Overall, the roles of (mis)matching institutional logics and boundary spanners require: (a) some form of practical response to support collaboration between organisations with differing logics; (b) a way of understanding and analysing the processes and issues involved; and (c) when working within a socio-technical sustainability transitions framing, a way of connecting these different levels of phenomena without ontological misalignments. Sub-section 2.2 deals with (a), the types of ‘success factors’ relevant for organisational changes, while (b) and (c) are addressed in section 3.

2.2. Organisational change management for sustainability

Organisational change management concerns the factors that shape and influence processes of change within organisations, while OCM for sustainability (e.g. Lozano, 2008; Lozano, 2014) specifically focuses on organisational changes towards sustainable development. It recognises the frequent need for co-ordinated change in technology, management systems and organisational cultures. It also recognises the importance of alignment between individual, group and organisation levels when seeking to implement changes (Lozano, 2008). Thus “Long-lasting CS (corporate sustainability) changes require, in addition to changes in mental modes, incremental changes in the organisational structure, operations, management, the development of sustainability visions for

the future and proposals how to achieve this” (Lozano, 2012).

Success factors for organisational change relating specifically to sustainability include: organisational culture/organisational values, leadership competencies, economic benefits, fears or aspirations, external influences, awareness and ability to diagnose, existence of visible crisis and alignment with existing budgets (Long et al., 2018). Similar to the assumptions mentioned above, some of these factors relate to the individual-micro level, e.g. leadership competencies, while others relate to the organisational-meso level, e.g. economic benefits. Concerning the meso level, OCM for sustainability literature, in contrast to the general OCM literature, recognises the importance of collaborations for organisational change and of establishing strategic teams or coalitions to achieve common goals (Long et al., 2018; Hamner et al., 2008).

Finally, an important individual role often addressed in the OCM literature is that of the *change agent*. In the context of transition initiatives aimed at capacity building, an important aspect of process design is the multiplier effect. Thus, it has been suggested that the multiplier effect in relation to sustainable development knowledge and skills can be achieved by “identifying and encouraging some of the individuals involved in small projects to share their experiences and knowledge” and by “educating educators to educate other educators” (Lozano, 2006, 795).

2.3. An integrative framework for analysing organisational change in transition initiatives

With the need to facilitate alignment of institutional logics and also being mindful of OCM processes, we developed a conceptual heuristic (Fig. 1) that draws on the above literature to make connections between individual, organisational and system-level processes specifically in relation to the types of organisational change issue relevant to socio-technical change. The integrative, multi-scale heuristic is structured according to three levels:

- (i) Macro-level factors that relate to (and also extend beyond) the ‘regime’ level of socio-technical thinking (Geels, 2002), here particularly the institutionalised logics that frame organisational activity¹.
- (ii) Meso-level factors that focus on the organisational level. These include:
 - (a) factors that focus on the design and nature of transition initiatives (e.g. objectives of a participatory process, origin of the project team, selection of participants, degree of participation, methods and tools used to implement participatory processes as part of transition management, e.g. scaffolding techniques, design thinking, participatory backcasting (Hassenforder et al., 2015; Upham et al., 2014).
 - (b) factors internal to the organisation that influence the possibilities for organisational change on the level of the participating organisations.
- (iii) Micro-level factors, here defined as relating to the social psychology of individual participants, including representatives of organisations and members of the transition initiative project team.

The empirical case of *Region 2050* illustrates all three levels of factors relevant to achieving the aim of a transition initiative specifically intended to implement new future studies methods in Swedish regional organisations. The analysis of the factors is based

¹ This level is conceived as comprising the Geels (2002) regime and landscape levels, i.e. everything external to organisations.

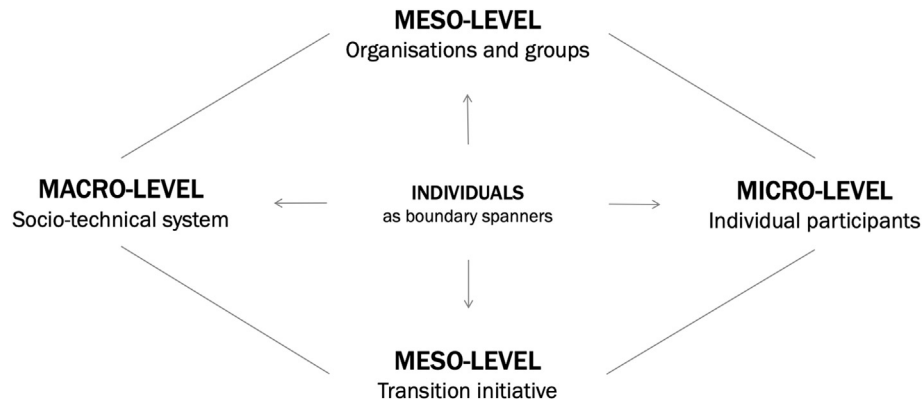


Fig. 1. An integrative, multi-scale heuristic which links micro- (individuals), meso- (organisations) and macro- (system) level factors to analyse organisational change processes in transition initiatives.

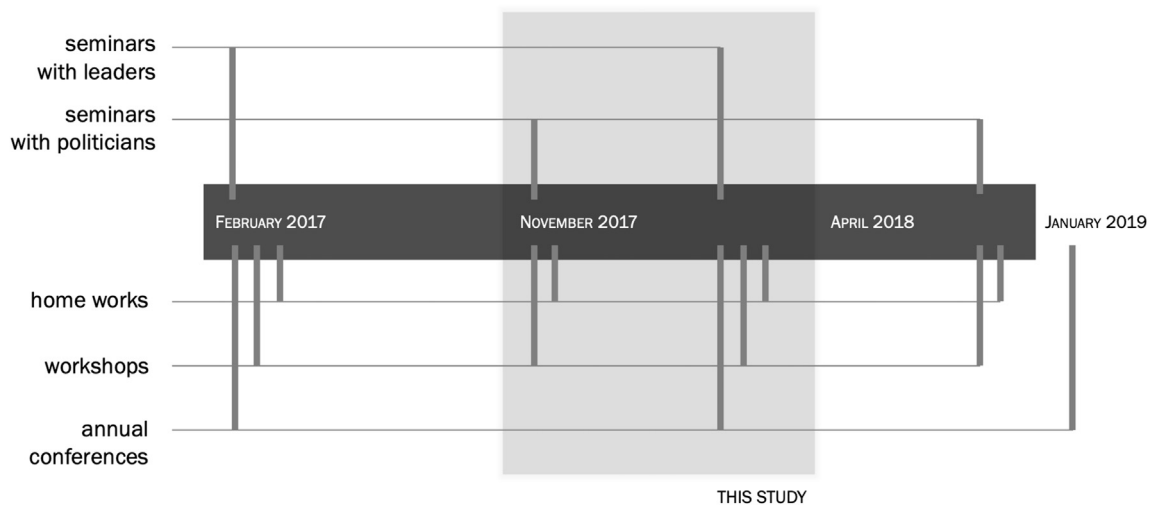


Fig. 2. The process design of the transition initiative *Region 2050* (based on *Region, 2050* project documentation²) and the related timeframe of data collection (shaded area) for the present empirical study.

on the concepts referred to above, with special reference to the application of OCM concepts. The aim is to illustrate the value of OCM for the design of transition initiatives and, conversely, the value of socio-technical sustainability transition thinking for OCM.

3. Method

Region 2050 is a Swedish transition initiative that aims at developing strategic planning, namely the use of future studies-based methods and approaches to strengthen capabilities for strategic planning, in the regional authorities in Sweden. We treat these authorities as forms of organisation that are hitherto under-researched in transition studies. To date, few studies have examined how sustainability in relation to future studies can be integrated in public sector management (Plawitzki et al., 2015). Accordingly, we examine to what extent participation within *Region 2050* has led to changes within the regional organisations, particularly their strategic planning processes, and drivers and barriers to change. Particular emphasis is placed on connections between micro-, meso- and macro-level processes.

3.1. Regional development planning in Sweden and the transition initiative *Region 2050*

Ongoing reforms in Sweden are intended to add new functions

to the regional authorities and aligning the planning processes between the regions. There are even ambitious plans to reduce the number of regional authorities in Sweden from 21 to 7, but this has not (yet) happened. Such reforms and the expectation of major changes in regional governance were part of the context in which *Region 2050* was initiated. Another part was the expectation of legislative change relating to regional development strategy (RUS). The regions publish their development strategy every four years and the time horizons for these strategies currently vary, to include even short-term plans, but in future a longer-term planning time horizon will be required.

Motivated by the need to strengthen capacities for developing and implementing long-term regional development plans, the regions decided on a new transition initiative aimed at implementing future studies-based approaches in regional planning. The body asked to implement this transition initiative was Reglab, which includes 21 Swedish regions and three national authorities. The idea for *Region 2050* was initially suggested by two Swedish regions and then decided on in a democratic vote by Reglab members. Likewise, the design of *Region 2050* was co-created by the representatives of the Swedish regions (Fig. 2).

Region 2050 is intended to run for three years (2017–2019). It is

² Available at <http://www.Reglab.se/projekt/region-2050/>.

not limited to a particular thematic area, but rather tries to cover all topics relevant for regional authorities, including transportation, healthcare, economic development, tourism and others. It aims at screening various trends in future studies and initiating discussions about the social consequences of e.g. innovative technologies such as autonomous cars, artificial intelligence (AI) and advances in healthcare. The programme has held four workshops with representatives from the 21 different regions. Between the workshops, regions are expected to “do their homework”, i.e. try out the methods and approaches presented in *Region 2050* with colleagues in their home organisations. At an annual conference, interim results are disseminated to a larger number of regional representatives from different sectors, departments and positions in the regions and also other interested actors. Seminars with politicians, designed to align new learning among the regional planners and politicians, are planned, but have not yet been held at the time of writing.

The period analysed here (November 2017 to May 2018) is in the middle of *Region 2050*'s implementation period. Fig. 2 shows the overall process design of *Region 2050* and the timeframe of data collection within this study in relation to *Region 2050* activities.

3.2. Data collection and analysis

Case study data collection and analysis is based on the triangulation of methods, including:

- (1) Semi-structured interviews with participants from *Region 2050* (different regions) and members of the *Region 2050* project team.
- (2) Observation protocols from the second *Region 2050* workshop in November 2017 and from the annual conference in March 2018.

3.2.1. Semi-structured interviews

Eight in-depth interviews were conducted with representatives of regional authorities and members of the *Region 2050* project team. Selection of interview partners took into account the need to include regions with different characteristics, e.g. regarding geography and economy. Most individual interviewees perform multiple roles and thus we chose participants with multiple roles and/or expert knowledge about cross-sectoral issues. All but one interviewee had participated in one or several activities within *Region 2050*. A full list of interviewee affiliations is presented in Table 1.

Interviews were undertaken in spring 2018, all but one in person (one by Skype) and all on condition of anonymity. For the interviews, a semi-structured format, consistent with the need to obtain rich and in-depth data, was chosen. Participants were first asked about the background of their region. They were then asked

about their first contact with *Region 2050* and their initial expectations, actual experiences related to the *Region 2050* and the subsequent process of developing RUS documents. The final set of questions concerned current expectations regarding the next step of *Region 2050* and suggestions for improvement of similar participatory processes. The full interview protocol is presented in Appendix 1. While the overall interview structure was the same for all interviews, the questions were varied somewhat for different participants, depending on their role and background. Interviews were recorded and transcribed.

3.2.2. Observation protocols

Observation protocols from two events with different formats in *Region 2050* were also developed and applied, with two observers for each event. The events were the second workshop within the *Region 2050* process, which took place in November 2017, and Reglab's annual conference (*Årskonferensen*) in March 2018. The workshop focused on the development of future scenarios and included an element of backcasting, trend analysis and scenario planning. The conference was dedicated to presentation of the interim results of *Region 2050* and future visions developed by the regions. The conference was attended by the participants of the workshop in November together with a broad range of different actors, including top-level regional governance and representatives of various networks and organisations working at the regional level in Sweden.

3.2.3. Data analysis

With the goal of showing links between OCM and transitions studies, the impact of a transition initiative on creating change within organisations and relevant barriers and drivers for the change processes was examined. The purpose of the empirical study was to illustrate the link between OCM and transition studies and, following from this, to show the value of an integrative, multi-scale heuristic comprised of factors that include the micro level of the individual, the meso level of the organisation and the macro level, as well as the interconnection between the factors on all three levels, in order to identify relevant barriers and drivers for creating organisational change.

In analysis of the semi-structured interview material and the observation protocols, qualitative content analysis (Kuckartz, 2014) was employed, using MAXQDA software. The interviews and observation studies were coded with both: (1) separate codes for each of the three levels (micro, meso, macro); and (2) codes for text passages that related to the relation between the levels, e.g. macro-meso. For example, at the macro-meso level this included the influence of system-level institutional logics (macro level) on planning practices in the regions (meso level). At the meso-micro level, it included the influence of organisational structures, e.g. functional management (meso level) on the possibilities of individuals to

Table 1

List of interviews conducted in the study, including information on the interviewees' affiliations and date and mode of interviews.

#	Interviewees	Date	Mode
1	Representative of a region (Central Sweden); coordinator of a network of five Swedish regions	21.02.18	In person
2	Representative of a region (Central Sweden); experienced strategist on both municipal and regional level	23.02.18	In person
3	Representative of a region (Northern Sweden); regional director	14.03.18	In person
4	Representative of a region (Northern Sweden); development planner; member of the planning group set up by Reglab for Region 2050	15.03.18	In person
5	Representative of a region (Central Sweden); coordinator of the regional strategy development	15.03.18	In person
6	Member of the Project team; consultant for several regions, specialising in participatory processes and storytelling	23.03.18	In person
7	Project team leader Region 2050, coordinator Reglab	18.04.18	In person
8	Representative of a region (Southern Sweden); coordinator of the regional strategy development; member of the project team; member of the planning group set up by Reglab for Region 2050	24.04.18	By Skype

adapt new planning tools (micro level). Sub-codes for all levels were derived based on the theoretical framework (deductive coding) and refining codes, with new codes added during the process (inductive coding) in an iterative process (Kuckartz, 2014). A broad range of concepts from transition studies and OCM could have been applied (see the long list of success factors discussed in OCM, e.g. in Lozano, 2015), but we focused on the concepts that were most relevant for the case study. Thus the results do not provide a complete overview of relevant OCM factors, but rather illustrate the value of OCM for socio-technical transition thinking (and vice versa). The resulting set of the codes applied in this study, using MAXQDA software, is presented in Appendix 2.

The results presented below are based on the thematic coding described above, with selected quotations used to illustrate the value of the theoretical framework. This is intended to highlight the importance of the interconnections between the micro, meso and macro levels in transition processes to a greater extent than is commonly found in the literature. Some quotations were lightly edited for clarity, for example by correcting constructions or deleting fillers.

4. Results

In this section, the barriers to transitions in strategic regional planning and approaches to overcome these barriers are outlined according to the three levels introduced in the theoretical framework. To re-state, on the macro level is the wider system, shaped by the logic of the social market economy of Sweden. The meso level is the level of individual organisations and their cultures. At the micro level are the individuals within the organisations and processes directly relating to these individuals.

The logic of *Region 2050* and, in more general terms, of all transition initiatives emphasises the importance of, and need for, innovation and change. It also emphasises a need for collaboration across different interests. This potentially creates a mismatch between different types of logics, which poses an obstacle to the intended goal of organisational-level and related system-level change. Three different theoretical concepts from transition studies and OCM can help to deal with the mismatches of organisational and institutional logics. These are: (1) the macro level of institutional plurality and its connection to the meso (organisational) level; (2) collaboration as a key success factor on the organisational level; and (3) at the micro level, the roles of individuals as change agents and boundary spanners. In explaining these below, we illustrate the connections between OCM and transition studies and show how the integrative heuristic proposed in Fig. 2 can be applied to this specific transition initiative, namely co-ordination of different organisations in collaborative strategic planning.

4.1. Mismatch of institutional logics

When *Region 2050* was initiated, an *operational logic* was dominant in strategic planning in the Swedish regions. Essentially, while keeping in mind the concept of institutional plurality, the key characteristic of this *operational logic* was its short-term time span for planning, usually between three and five years. Planning was based on analytical processes, often in combination with extrapolation, while future studies methods were often criticised for being speculative. The management of the organisation in general and of planning in particular followed Weber's idea of bureaucracy. Thus there were strong processes and routines for all workflows and clear hierarchies. The organisation was functional, with departments organised according to different areas, e.g. health and mobility.

Table 2 summarises the mismatch in institutional logics in regional planning, namely the dominant operational logic and the strategic logic deemed necessary for sustainability transitions and which *Region 2050* wants to facilitate in strategic planning in Swedish regions. Key characteristics of the two logics are summarised below.

The *strategic logic* that *Region 2050* seeks to introduce is characterised by a long time span for planning and involves the use of several methods to achieve this, such as technological forecasting and backcasting. It requires agile development and a systems-thinking approach with related cross-sectoral planning. In line with previous studies (e.g. Fuenfschilling and Truffer, 2016), the case study revealed that different institutional logics are a key barrier to transitions. For example, the following quotation illustrates how the mismatch of logics causes difficulties for implementation of the *strategic logic* with regard to the characteristics of agile development:

“(…) the public sector is slow and it cannot really respond to the development and such. But sometimes I think about what should be the role of the public sector. People tend to forget why the process are slow, it's because it's not a company. And some values of the public sector should perhaps still be concerned (...) we have all responsibility for people's money.” (14)

4.2. Organisational change as the precondition for new logics

The mismatch of institutional logics on the macro level has been discussed in several studies (Fuenfschilling and Truffer 2016; Smink et al., 2015). The findings from the case study highlight barriers on the meso and micro level too, as well as strong interrelations between the different levels. Thus the findings emphasise the need to consider the role of organisational change in socio-technical transitions. The quotation above illustrates this strong interconnection: a new logic for strategic planning implies significant changes to the organisational structure, including both (1) a change from a bureaucratic management style to agile development and (2) a change from functional management to cross-functional approaches.

Taking into account this relationship between transitions towards new logics and organisational change, the importance of the micro level also becomes more evident. To be successfully implemented, organisational change requires changes on the level of the organisation and its structure, but also on the individual level (Lozano, 2012). In a panel discussion at the annual conference of *Reglab*, a panellist stated that the change to the *strategic logic* requires a “*brain rewire*”. One of the organisers interpreted this as one of the main challenges in changing the logics of planning.

4.3. How to deal with the mismatch of logics: organisational change options

Three different theoretical concepts from transition studies and OCM helped resolve the mismatches of organisational and

Table 2
Differences between established operational logics in Swedish regions and the strategic logics proposed by *Region 2050*

	Operational logic	Strategic logic
Time span for planning	Short-term	Long-term
Art of planning	Analytics & extrapolation	Foresight & backcasting
Management	Bureaucratic processes	Agile development
Organisational structure	Silo/functional	Cross-functional

institutional logics in the context of the case study: (1) the macro level of institutional plurality and its connection to the meso level; (2) collaboration as a key success factor on the organisational level; and (3) at the micro level, the roles of individuals as change agents and boundary spanners (Fig. 3).

4.3.1. The macro level: Institutional plurality as an opportunity and a challenge

Strategic planning in the regions is characterised by high institutional plurality. First, there are differences in creating a regional development strategy (RUS). At the moment, the regions choose their own time horizon for the RUS, which currently ranges from seven to 32 years, and, while all regions update their RUS every few years, the starting point differs. Other key differences relate to geography and associated implications for regional planning. For example, in regions with large municipalities, such as the Stockholm region, lack of space is a main issue in planning and accordingly built environment planning highly influences the regional development strategy, even resulting in different regulations and mandates for the role of physical planning. This is often also accompanied by differences in planning methods, with larger regions and/or those with large cities having more staff and using more advanced techniques, such as geographic information system (GIS), while other regions need to collaborate on this.

Institutional plurality is advocated elsewhere as an option for addressing mismatches of logics (Fuenfschilling and Truffer, 2016) and our findings support this view. The high institutional plurality gives regions the opportunity to experiment with strategic logic and related changes on the organisational level. For example, one Swedish region has developed a division for innovation that enables a cross-functional structure and testing of new methods. However institutional plurality also brings challenges, especially in terms of organisational change. While OCM usually refers to changes within one organisation, Region 2050 deals with 21 different regions and hence involves considerable organisational difference, e.g. in terms of organisational culture and structure. The different starting points of RUS within the regions influenced participation in Region 2050; some regions were less interested because they were in the middle of their RUS development cycle and it was too late for them to accommodate input from future studies methods. Future research on the approaches devised by regions for adopting new methods of strategic planning and strategic logics can arguably provide valuable insights regarding the

opportunities and challenges for institutional entrepreneurship (de Leeuw and Gössling, 2016; Stål, 2015) in the public sector, on both individual and organisational level.

4.3.2. The organisational level: collaborative attitudes as a success factor

While the OCM literature usually does not refer to collaborative attitudes as a success factor, specific studies on organisational change towards sustainable business models identify internal and external collaboration as a key factor for successful transitions (Long et al., 2018). In line with these studies, the case study of Region 2050 also revealed collaboration to be a key concept for transitions towards new logics of strategic regional planning. This included collaboration within the process of Region 2050 and also within the regions as a way of implementing new logics.

With regard to collaboration within the process of Region 2050, it should be noted that Swedish culture in general highly values collaboration and participation. This influences the work of the Swedish regions, which is characterised by good relationships and intense exchanges among different regions and between the regions and the Region 2050 organiser, Reglab. The case study results indicated that this long-standing collaboration has been the main factor in the relative success of Region 2050 to date in terms of achieving its objectives. Long-term experience made the organisers aware of mismatches of logic at the beginning of the process and the trust that they had built over the years allowed them to work through these mismatches together with participants. One of the organisers commented:

“(...) this group [Region 2050], they have had a really high tolerance for, or awareness that this is a journey. We’re doing a journey together and we are all learning.”

Collaboration and participation are also approaches that participants use to try to implement the new input in their regional organisations. Using a bottom-up approach, they start with small seminars or work groups with colleagues and some offer larger seminars later. These seminars are described as a starting point for organisational change:

“Some of these things are really big regional seminars with politicians but most of them are small things, which in my theory or ideology is how change happens. It starts with small things.”

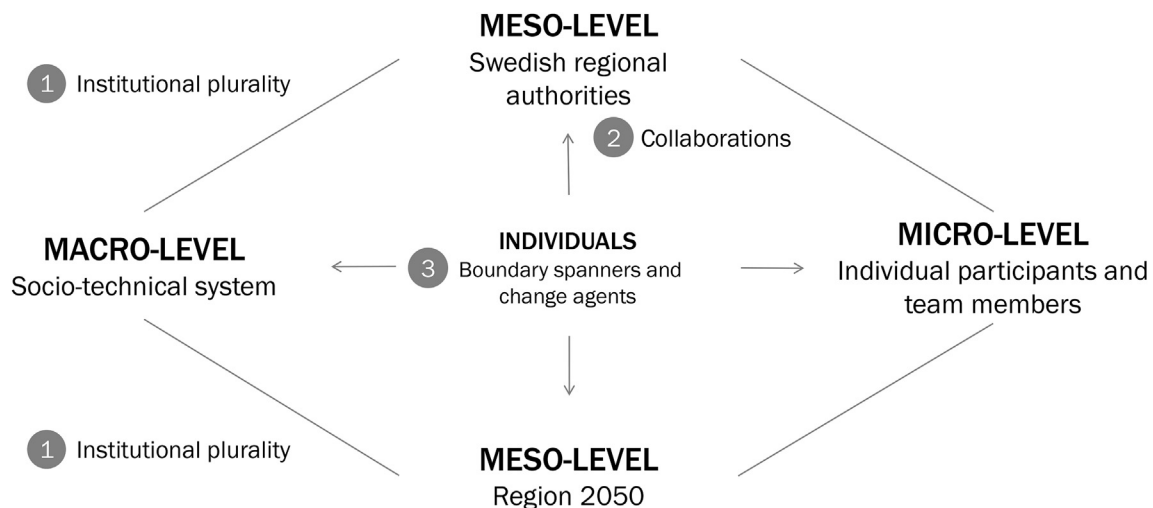


Fig. 3. The integrative, multi-scale theoretical heuristic as applied to the case study of Region 2050; relevant (and related factors) influencing change are identified on all three levels (micro, meso, macro).

A contrasting, or complementary, approach to bottom-up implementation would be to implement organisational changes top-down, e.g. with the state developing new organisational structures. The initial programme planned to offer seminars for politicians (see Fig. 2), but the lack of top-down emphasis to date has posed a challenge to collaboration in terms of lack of participants who are both relevant and powerful. Politicians, who would have the power to initiate top-down changes, do not wish to participate in *Region 2050* and the planned seminars have so far been cancelled. While contextual factors are one reason for this, e.g. lack of time and upcoming elections in autumn 2018, another reason relates to the issue of power itself. According to the interviewees, some potential participants were not involved in the programme planning and, when they learned about it, they misunderstood the goals of *Region 2050* and saw it as a threat to regional sovereignty. One of the interviewees assumed that they thought that:

“This group is going to make decisions for the Swedish regions. That is our job.”

4.3.3. The role of individuals for organisational change: educating change agents and boundary spanners

The bottom-up, participatory approach to organisational change allocates a key role to individuals. Indeed, the concept of participants as change agents is a main design principle in *Region 2050*, with one of the organisers describing participants as “ambassadors”. The learning process is designed according to this approach and is given particular attention by the organisers. The educational goals identified in the empirical study were twofold: (1) attitude change with regard to logics and (2) knowledge of methods used in future studies (e.g. backcasting, forecasting), in order to implement strategic planning that follows the logic of future studies. The goal of attitude change is particularly difficult for participants, who must learn to accept and deal with the high level of uncertainty that characterises future studies. The insecurity is increased if participants have reason to doubt the legitimacy of the information to which they are exposed. Triggers for this include: (1) where participants lack theoretical background to the new approaches and/or have difficulties following academic models; and (2) if the approaches are not in line with their personal attitudes towards strategic planning, e.g. if they feel technological innovations are given more space than societal issues.

However, in many ways *Region 2050* also offers participants support in reaching educational goals. For example, participants referred to the design of workshops as containing inspirational talks and group discussions and claimed that these, as well as the homework, helped them in their learning. The same holds true for the material provided on the website (e.g. presentations of speakers, guidelines for implementing steps of backcasting and technological foresight) and the advice provided by Reglab upon request, including contact information for external consultants. The attempts by participants to implement new approaches and methods in their organisations indicate that the design of the concept of educating change agents within *Region 2050* is working well.

Regarding learning and achieving educational goals, organisational boundary spanners can be viewed as a specific form of change agent, with the key difference being the progress in learning. The boundary spanner has an in-depth knowledge of multiple organisational logics, has reflected on their similarities and differences and has developed their own approaches regarding how to bridge these logics. An example is Interviewee 7, who works as a regional planner but also for a year as an organiser of *Region*

2050. Another organiser described her specific role as a boundary spanner in the process thus:

“She was a good help for me because I am not a regional developer and when some of the regions said ‘We don’t understand it, how should we use these methods’ she kept saying ‘What! They could use it anyhow, they could use it like this, they could use it like this. I could use it in the beginning of the process or at the end of the process.’”

5. Discussion and implications

The present study identified a mismatch of logics as a key issue for the *Region 2050* project when seeking to introduce new methods into the strategic planning process in Swedish regions. The study identified close relationships between macro-level institutional logics and the organisational level, e.g. the influence of functional planning on organisational structure. This implies that a change of logics in planning is inseparably linked to organisational change, which emphasises the merits of connecting transition studies with the literature on OCM.

Beyond its theoretical contribution, namely showing the link between OCM and transition studies, findings from the case study also reveal practical implications for the further design of this and other transition initiatives aiming at changes, particularly in, but not limited to, regional planning. The findings show that support provided by the transition initiative could help overcome the mismatch of logics; interviewees referred in particular to the materials provided on the website (e.g. summaries of presentations at workshops; suggestions for how to implement the new techniques in home organisations), coaching sessions and the possibility to ask questions during and after the workshops. To improve support for the transition initiative, participants suggested coaching sessions in everyday work, further learning and deepening knowledge on new methods, and familiarisation with underlying theories behind these methods and others. Concerning the overarching design question, the findings show that a combination of a bottom-up approach, based on change agents and boundary spanners, and a top-down approach, including here e.g. politicians, is most promising for supporting organisational change. So far, only the bottom-up approach has been used in *Region 2050*, owing to structural factors, e.g. lack of time, and questions of power, according to the case study. As part of the transdisciplinary approach in this paper, the implications have discussed in detail with participants from the case and considered to be very useful.

The integrative, multi-scale heuristic developed here and the empirical findings also have implications for evaluation of outcomes of transition initiatives. To date, it is uncommon and indeed methodologically challenging to determine the extent to which the participatory processes advocated by transition management actually succeed in furthering sustainability (Rushmer et al., 2014). It is also uncommon even to evaluate these processes in terms of their ability to achieve the intermediate goal of social inclusivity and the existing evidence is not always reassuring (Hendriks, 2008). While the general approach used in this paper, especially the separation of micro-, meso- and macro-level factors, could guide further research, it is far from a complete evaluation scheme. Moreover, given the focus on the theoretical development and particularly the illustration of level connections, it was beyond the scope of the paper.

In more general terms and following the key research goal of this paper, the findings can be seen as an illustration of a multi-level theoretical heuristic that connects OCM and transition studies to account for the embeddedness of micro-, meso- and macro-level factors. This paper adds to the literature by taking the first steps

towards a theoretical heuristic that conceptualises organisational change as part of transitions, taking into account micro- and meso-level factors that are often neglected.

6. Conclusions

There is a strong emphasis on organisational realignment in transition studies, but this is currently not supported by strong theorization on organisational change in that literature. In response to this, an integrative, multi-scale heuristic was developed in this paper. It illustrates connections between micro (individuals as change agents), meso (OCM) and macro processes (transitions), using the particular case of *Region 2050*, which aims at changing regional planning in public organisations in Sweden. The case study revealed leverage points at all three levels in order to change strategic planning processes. Three different theoretical concepts from transitions studies and organisational change management that could help to foster long-term planning were identified. These were: (1) the benefits at macro level of institutional plurality and its connection to the meso level; (2) collaborative attitudes and collaboration as a key success factor on the meso (organisational) level; and (3) at the micro level, the roles of individuals as change agents and boundary spanners. Practical recommendations for fulfilling the aims of transition management were derived from these findings, e.g. on the design of interactive workshops that aim at educating change agents for organisational change, the design of processes (e.g. supporting collaborations between the organisations involved) and the choice of participants (e.g. participants with knowledge from different fields that could act as boundary spanners).

This illustrative example of a transition initiative aiming at changes in strategic planning in organisations highlights the merits of OCM literature in this regard, but also reveals that concepts from the OCM research field require adaptation for the specific context of transition studies. For example, transition initiatives usually involve several different collaborating organisations, whereas OCM usually seeks to develop a tailored approach for each organisation. The factors identified on the three levels illustrate the linkages between OCM and transitions based on the particular case of strategic planning in Swedish regions. Further research that links OCM and transition studies, and thus takes into account the embeddedness of organisational change in systems, can use our integrative, multi-scale heuristic for analysing the connections between micro-, macro- and meso-level processes. Researchers have only just begun to examine these connections and further work is clearly needed to strengthen the theoretical connections between the disciplines and perspectives involved.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jclepro.2019.05.286>.

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