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THE IMPACT OF ACTOR-RELATIONAL DYNAMICS ON INTEGRATED PLANNING PRACTICE

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Abstract

Integrated planning processes involve an increasing number of actors and aim to create synergy between multiple knowledges in communicative settings. Planning research has acknowledged that the actor-relational aspects of planning processes are not yet adequately understood, and that methods to reveal the often-invisible dynamics and their possible effects over time require development. This research aims at developing a methodological contribution for revealing the socio-communicative complexities of integrated planning processes, by focusing on the aspects of knowledge co-creation and process memory development. Actor-relational dynamics are explored through social network analysis and qualitative methods, using longitudinal data from a four-year strategic spatial planning process in the Finnish context. The findings indicate that a range of actor-relational dynamics affect the level of sectoral and scalar integration over time, and that social complexities have an essential role in enabling knowledge co-creation and process memory development. Unveiling actor-relational dynamics is a promising research direction, requiring new methods for bridging research and practice, and re-centring the need for understanding planning practice on the actor-relational level.

Keywords

Planning practice, organisational learning, strategic spatial planning, integrated planning, process memory

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1. Introduction

The growing complexity of cities is a widely discussed theme (Batty, 2005; de Roo and Silva, 2010; Portugali, 2012; Boonstra, 2015; Sengupta et al., 2016). The nonlinear complexities of urban development are claimed to be incomprehensible to any one individual due to the often-invisible interrelations between various subsystems (Innes and Booher, 2010). In order to support the understanding of nonlinear urban complexities, more actors are entering planning processes to share and integrate their expertise. Thus, responding to the growing complexities and the need for more holistic planning practices, the concept of *integrated planning* has been discussed (Stead and Meijers, 2009; Holden, 2012; Yigitcanlar and Teriman, 2015; Bertolini, 2017; Kaiser, Gaasch and Weith, 2017; Ferreira, 2018). Here, integration may be understood as a hierarchy from cooperation (functional relationships to avoiding duplicating work) to coordination (adjusting functions not to leave gaps) and integration (joining efforts to create a policy owned by multiple actors) (Stead and Meijers, 2009), which all have different actor-relational network structures (Curtis and James, 2004). Even though the exact definition of integration is not fixed, sectoral and scalar aspects of integration are typically included in all the proposed frameworks (Healey, 2006; Vigar, 2009; te Brömmelstroet and Bertolini, 2010; Holden, 2012), occasionally complemented with the notion of organisational integration (Kidd, 2007).

A key premise of this research is that an important feature of integrated planning is the fostering of communicative practices over time, which enable the crossing of thematic and scalar boundaries and the creation of systemic and holistic planning solutions. Knowledge co-creation through communicative practices is specifically important for integrated planning, in which multiple perspectives should be adjusted with each other (Waddell, 2011; Holden, 2012). In practice, the increasing number of actors entering integrative processes could simultaneously increase the experienced complexities from within the processes themselves. These experienced complexities increase due to an increasing range of values, views and ideologies which may contradict institutional policies and frameworks. Thus, complexity is not only a feature of the urban environment, but is also an essential property of the collaborative integration processes themselves – influencing knowledge co-creation and process memory. A multidimensional understanding of knowledge co-creation and process memory development is essential, as they lay the foundation for collaboration and learning in planning processes.

Understanding communicative knowledge co-creation practices and process memory in integrated planning processes requires a deeper appreciation of the actor-relational level. This is because the social interactions at the relational level produce properties that are not present in isolated individuals (Eräranta, 2020). In addition, analysing planning process dynamics is critical for understanding these collaborative and value-laden processes, as there is a relation between process and substance (Innes and Booher, 2015). This procedural focus supports the temporal understanding of the integrative social dynamics at the actor level (Pettigrew, 1997; Langley, 1999). Contrastingly, although planning research has acknowledged that the actor-relational aspects of planning processes are not yet adequately understood (Boelens and Coppens, 2015; Boelens, 2010), methods for revealing their often-invisible dynamics and their effects over time are still missing. This lack of established methods for systematic longitudinal analysis is explained by challenges in acquiring applicable data, and missing conceptualisations. Consequently, methodological contributions are needed to understand the nonlinear and emergent nature of the actual social realities, and their implications for knowledge co-creation and process memory development in integrated planning processes.

With the above in mind, the aim of this research is to refine methodological contributions for understanding knowledge co-creation and process memory development in these collaborative processes over time. To illustrate the actual relational dynamics, the research presents an example of the actual social dynamics over a four-year statutory strategic spatial planning process in the Helsinki Capital Region, Finland. Social network analysis is used for identifying the networked dynamics over time (Dempwolf and Lyles, 2012; Eräranta and Mladenović, 2021), in combination with document analysis, interviews and focus group discussion with Finnish planners. The hypothesis is that this methodological combination can help in exploring the experienced and memorable reasons and implications of the networked structures, and in understanding the applicability and relevance of the findings for planning practice. This research aim is elaborated through answering the following questions:

- Q1: How did the social network structures unfold during the process timeline, when measured using Social Network Analysis (SNA) betweenness centrality?
- Q2: Why did the dynamic patterns of social interaction emerge over time?
- Q3: What were the implications from social interaction for knowledge co-creation and process memory development?
- Q4: What is the relevance of the findings for planning practice?

The Helsinki Capital Region case serves as a relevant example for exploring the social dynamics that emerge due to the collaborative nature of planning processes. In general, the Finnish planning system is mostly regulated by the Land Use and Building Act (132/1999), which is currently being re-evaluated. Planning processes are implemented in the context of a Nordic democracy, where planning is a central element of the urban development system (Puustinen et al., 2017). In particular, planning municipalities hold a planning monopoly, even though the processes involve various private and public actors (Mäntysalo et al., 2011). In the next section, process memory development and dynamics of networked knowledge co-creation are discussed in the context of learning in planning organisations. Thereafter, the utilised data and methods are presented, followed by the findings concerning the networked structures, and their possible reasons and impacts. Finally, the answers to the research questions are discussed.

2. Process Memory and Dynamics of Networked Knowledge Co-creation

The ability to learn from different perspectives is essential for knowledge co-creation in the context of integrated planning processes. Therefore, the significance of knowledge and learning in public administration and planning organisations has been broadly discussed (Rydin, 2007; Campbell, 2012; Tennøy et al., 2016). Knowledge influences the learning capacity of organisations (Argote, 2013), and learning is not possible without memory (Lehner and Maier, 2000). Therefore, knowledge, learning and memory are interdependent parts of organisational processes (Spender, 1996). Planning processes are an example of knowledge-intensive settings, in which a variety of specialised, partly overlapping and even contradictory knowledges is applied. Knowledge is an essential resource to be developed through the networks of various actors, which may partly reside outside of planning organisations (Reagans and McEvily, 2003; Rydin, 2007; Phelps et al., 2012). As new knowledge in planning is typically developed in interaction (Healey, 1992; Rydin, 2007; Rydin et al., 2007), discussion of the social processes in planning has emerged (Davoudi, 2015). In the social constructionist view of planning, knowledge evolves in social processes, and is continuously, purposefully and unconsciously filtered, selected, and post-rationalised. Learning in organisational processes takes place through memorization of different knowledges.

Various concepts regarding memory in organisations have been suggested by scholars, including organisational memory, network memory, systems memory, and transactional memory (e.g., Wegner, 1987; Walsh and Ungson, 1991; Spender, 1996; Olivera, 2000; Soda et al., 2004; Innes and Booher, 2010). Many of them highlight the social context of memory development. The variety of social interactions during planning processes may enable or inhibit process memory development by influencing the diversity and coverage of procedural and substance-related memories of the participating actors. Moreover, through the iterative utilisation of memory, organisations may also consciously unlearn and forget as original memories develop further (Holan and Phillips, 2004; Fernandez and Sune, 2009; Easterby-Smith and Lyles, 2011; Martin de Holan, 2011). This kind of intentional unlearning has been considered important for developing organisational processes (Martin de Holan, 2011). However, unconscious forgetting may have surprising impacts on organisational processes when valuable knowledge is lost (Holan and Phillips, 2004). A lack of process memory may challenge handling of complex planning challenges – for example, when process-related experiences and knowledge of substance-related solutions is lost. This memory loss is specifically a concern in long and knowledge-intensive processes, such as planning processes, in which personnel may change over time.

Public sector organisations have been criticised for their inability to assimilate knowledge (Moynihan and Landuyt, 2009). However, organisational learning capacity is essential for an organisation's development, influencing its capacity to adapt to changing societal needs (Senge, 1990; Prahalad and Hamel, 2000). Moreover, there has been considerable discussion about whether organisational learning and memory reside on the individual or organisational level (Senge, 1990; Walsh and Ungson, 1991; Nonaka and Takeuchi, 1995; Lehner and Maier, 2000). According to Senge (1990), individual actors learn, but learning itself happens through interpersonal dialogue as a relational activity. Previous research has suggested that learning in public sector organisations occurs in structural settings that encourage interaction (Moynihan and Landuyt, 2009; Siciliano, 2016). However, part of

the knowledge may be integrated into organisational structures, routines and traditions (Fiol and Lyles, 1985; Argyris and Schön, 1996). Consequently, memory in organisations also resides partly on the level of individuals and their relations (Argyris and Schön, 1978), and is distributional in nature (Walsh and Ungson, 1991). What is not encoded in information systems resides in the individuals, and transfers through their interaction in social networks. Coughlan and Coghlan (2011) have referred to the importance of network action in the context of inter-organisational learning. According to them, learning is both a capacity and a process, requiring intentional actions to be achieved. In order to enable learning and process memory development, an organisation has to be aware of its structures which affect the learning capabilities. Previous research on learning in the context of public administration organisations has merely acknowledged the interactions among organisations and groups. However, a multidimensional understanding of the actor-relational dynamics of knowledge-co-creation and process memory development as prerequisites for learning has not emerged.

The analysis of learning capabilities in organisations should deal with the dynamic processes of organising (Argyris and Schön, 1996) in social settings. Therefore, advancing the actor-relational perspective to the understanding of social networks is important for supporting the relational understanding of knowledge co-creation, process memory development and learning in organisational settings, as it makes the social processes of planning more explicit (Borgatti and Cross, 2003; Oh et al., 2004; Cummings and Higgins, 2006). The resulting hypothesis of this research is that learning in organisations is enabled through knowledge flows and memory development in various social networks. In order to deepen the view of planning as a socially constructed and knowledge-intensive process, this research focuses on actor-relational process structures which affect knowledge co-creation and process memory development over time. Building on current views regarding planning as a social process, this research acknowledges knowledge co-creation and process memory development as prerequisites to learning in planning organisations by moving the unit of analysis to the actor-relational level and longitudinal view of the complex and adaptive social systems (Innes, 2005; Innes and Booher, 2010) that reproduce knowledges over time.

3. Methodology

A lack of process memory poses a critical challenge for learning in planning organisations; therefore, this research focuses on an example of social dynamics in an actual practice-related planning context. A mixed-methods approach is used, and detailed longitudinal data regarding organised actor interactions during a four-year statutory strategic spatial planning process in one of the cities in the Helsinki Capital Region are the key source. The primary focus is on in-person actor interactions, as these are an important channel through which learning can occur. The raw data include the documented process data, which were available after the process was ratified by the city council. There were over 10,500 pieces of process documentation (see Eräranta, 2019 for a more detailed description of the data). The raw data were processed into a standardised time series of approximately 400 total interactions with 400 people in total. The process was classified into four phases according to statutory definitions, including, goal-setting (G), draft (D), proposal (P), and ratification (R), which were further divided into intervals of two months in order to increase the analysis' resolution. Resident information was not individualised during the process, and was therefore excluded.

In addition to the process documentation, social network analysis (SNA) was used for identifying the everyday reality of the networked dynamics over time. Instead of focusing on the individual actor characteristics, SNA considers the relational attributes for exploring the dynamics of nodes (i.e., actors) and their ties (i.e., interactions) (McCulloh et al., 2013; Wasserman and Faust, 1994). As a well-established methodology, SNA includes a variety of network- and node-level measures for understanding the relational structures (Granovetter 1973). In this research, analyses of the socio-temporal network structures were elaborated through the measure of betweenness centrality. Betweenness centrality was selected for its capacity to analyse the potential information flows between social actors. In particular, betweenness centrality can be interpreted as an indicator of an actor's ability to control other actors' access to all parts of the network; as it measures how often a node is positioned on the shortest path between two other nodes (Brandes et al., 2016; Freeman, 1978). For example, central actors may be considered gatekeepers, as they are able to manipulate or bias communication in the network due to their relationally strong position (Rowley, 1997). Borgatti (2005) has suggested an equation for the betweenness centrality (Equation 1) to measure the number of times that information reaches a specific node. In the equation, b_k is the betweenness of node k ; g_{ij} is the number of geodesic paths from i to j , and g_{ikj} is the number of shortest paths from i to j , passing through node k .

$$b_k = \sum_{i,j} \frac{g_{ikj}}{g_{ij}} \quad (1)$$

In addition to its analytical capacity, betweenness centrality can be visualized with network graphs, where nodes represent actors (i.e., the individual participants) and links represent the strength of connection (i.e., participation in a same meeting during the process) between them. As a result, the actors with higher betweenness centrality have a more central position in the network graph. As SNA has not been applied in this context before, the findings were validated through individual interviews (Symon and Cassell, 2013) with participants of the analysed process. The applicability and relevance of the findings for planning practice were analysed through focus group interviews (Carey and Asbury, 2016) with practicing planners. All research data was anonymised to avoid harm to the research subjects.

4. Findings

4.1. Overview of Network Structure Dynamics

The overall finding is that the social network was in constant flux during the process, with many people entering and leaving. In Figure 1, the network graphs illustrate the betweenness centrality of the individuals, describing their relational positions for influencing the information flows between other actors. Each graph represents a two-month period in one of the four statutory phases. In the goal-setting phase (G1...G8), the process officially commenced, and the objectives were jointly discussed with multiple actors before the elected officials decided on the goals in G8. In the draft phase (D1...D4), the first draft of the plan was produced and published for public consultation. Thereafter, in the proposal phase (P1...P9), the draft was developed in response to submissions. Finally, in the ratification phase (R1...R6), the proposal was officially approved. In most of the graphs, the structure is strongly centralised with one clear core actor or a relatively small set of actors (an example of this structure can be seen in G7), suggesting that the relational power was highly centralised. The fewer central actors there are in the network, the greater their relational power may be, giving them a possibly stronger relational position considering the information transfer.

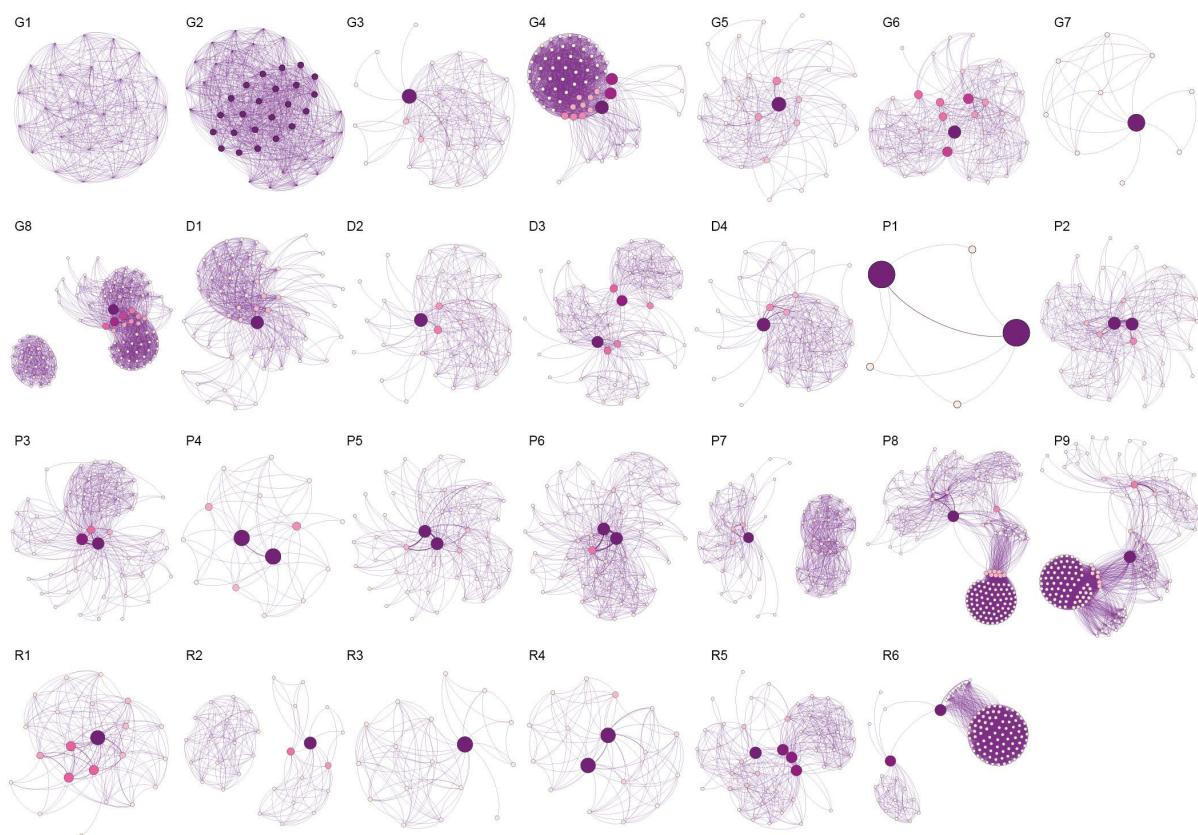


Figure 1 - The Betweenness Centrality Dynamics of a Four-year Strategic Planning Process

4.2. Factors behind the Dynamic Patterns of Interaction

Compared with the linear and sequential statutory phasing, the emergence of the networked structures was nonlinear. The structures were not tied to specific process phases, but were influenced by a variety of factors on multiple levels (for example individual, actor-relational, institutional). Some of the network dynamics were explained through institutional rules and routines, such as decision-making procedures; but some were shaped by emergent actor-relational factors, such as escalated arguments between some actors. Alongside the institutional framing of the collaboration, emergent social dynamics affected the interactions over time. According to the interviewees from the planning process, the social dynamics had effects on the intensity of their involvement in the process. These actor-relational dynamics were typically not bound to this specific process, but originated in, or had consequences for, other planning processes.

The findings show that the institutional framework did not support the longevity of network ties between processes. Planning processes are traditionally separated into different sub-projects led by different individuals – obstructing learning between the processes. As the processes are dependent on the same scarce organisational resources, the situation is vulnerable to disturbances. The administrative division of the processes is typically due to a large number of simultaneous processes, which may challenge the actors' ability to focus on an individual process. According to the interviews, when the participants see only disconnected snapshots in time, their commitment to the specific processes might decrease. Some actors did not have enough time for active participation, thorough consideration, information acquisition or collaboration. As the actors participated in the process infrequently, and only in relation to their own sectoral expertise, their overall understanding of the process remained severely limited. Moreover, their awareness of how their own input affected the plan solution, or the subsequent parts of the urban development process, remained low.

Based on the interviews, centrality reinforced more centrality in network structures. According to the interviewees, when the central actors were well-known by other actors, they were used for information acquisition in the process – in turn giving them an even more centralised position. All interviewed actors referred to one specific actor as a focal point for information transfers in the process. In addition, the polarised positions between the few central actors and the others was intensified by the intentional withholding of information. The decision not to inform everyone about changes in the process was aimed to protect the actors from information overflow and give them an opportunity to focus on their own responsibilities. However, some participants explained that this decision decreased their ability to form an overall understanding of the process. It also challenged their ability to develop an understanding of the interrelations between various scales and sectoral themes. Additionally, the sectoral themes were kept separate from each other, and were mainly handled among the few central actors and the assigned sectoral experts. In case an actor had a tight sectoral responsibility in the process, a holistic view of the plan solution was typically decreased. Moreover, the adhocism of communication challenged the development of an overall understanding over time.

In addition to the aspects above, the actors' own activity (as well as the actual subnetworks in which the actors participated) influenced the emergent structures. Interviewees named securing support from other actors with similar backgrounds as an important reason for forming subnetworks during planning processes in general. The support structures were explained to be dependent on personal relations which take time to establish. However, some of the participants said that their collaboration patterns were negatively influenced by conflicting arguments, which led to their lack of input in the process. The participants explained that sometimes the planning solutions could have been different if they had not withdrawn from collaboration due to actor-relational disputes. Confrontations were intensified by the strongly centralised structures, leading to distrust between actors. As a result of previous experiences, some actors tried to avoid confrontations – reducing the information transfer and knowledge co-creation further. Thus, it is important to stress that emotional factors can influence processes and plans. Some participants even argued that challenges resulting from conflict and the compartmentalisation of information left the process occasionally seeming irrational. When some participants left the process their tacit knowledge was lost, and ways of working were changed. Changes on the individual level also affected collaboration patterns, as actors holding the same administrative position had different structures for their collaboration networks.

4.3. Implications of the Network Structures for Knowledge Co-creation and Process Memory Development

The network structures during the process can be classified into four main categories: single-core structures (e.g., G7 in Figure 1), dual-core structures (e.g., P2 in Figure 1), multi-core structures (e.g., G6 in Figure 1) and complete structures (e.g., G1 in Figure 1). In addition, disconnected structures (e.g., G8 in Figure 1) may be formed through combinations of two or more simultaneous networks without a direct connection between them. These lead to challenges when the networks do not communicate. Here, the four basic structures are explored (Figure 2), focusing on their possible advantages and challenges for information transfer between various fields of expertise and for process memory development. The possible advantages and challenges were discussed in focus group interviews with practitioners, who work in and around strategic planning processes.

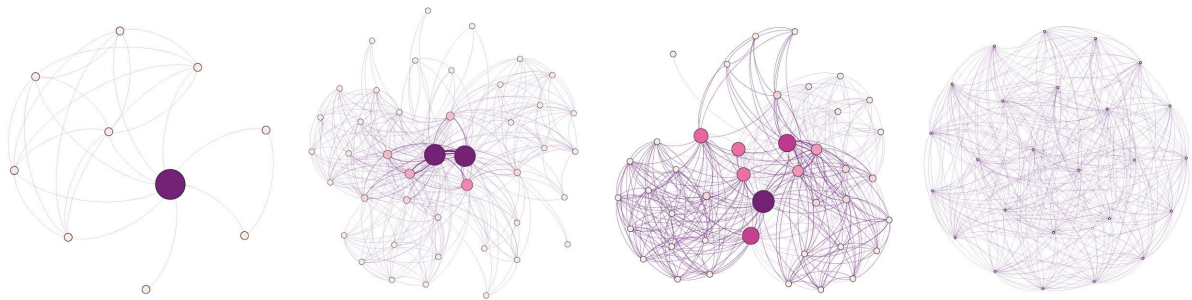


Figure 2 - The Four Main Categories of Network Structures (from left: single-core, dual-core, multi-core, complete).

Single-core networks have one central actor. According to the interviews, a single-core structure can be effective for information transfers with one clear coordinator, but it has few possibilities for wider deliberation and integration due to the scarce connections between actors. As one central actor manages the integration of the various views, the underlying reasoning remains unclear to the other participants. Moreover, as was suggested by some interviewees, the central actor can dominate the information flows. Considering process memory and knowledge co-creation, the single-core structure is risky as it is focused on one key actor. As was suggested by some of the interviewees, the structure may lower the quality of the planning outputs because it is not possible for any one actor to consider the variety of interrelations alone. In addition, if the central actor leaves the process, the rest of the network may be severely disturbed. Overall, according to the interviewees, overly centralised responsibility is beneficial neither for the individual, nor for the organisation, nor for the substance of the process.

Dual-core networks have a pair of central actors. As was suggested in the interviews, a dual-core structure allows either of the central actors to be replaced without a total loss of process memory. If one of the central actors leaves while the other remains, the remaining actor can train a replacement. According to the interviewees, the dual-core structure is similar to the single-core arrangement as it does not enable diverse enough discussion and ideas to emerge, and does not allow holistic consideration of the various sectors and scales. The process may also end up reflecting the personal views of the central actors – which was a concern articulated by the interviewees. The benefit of the dual-core structure is that the actors can support each other and discuss the issues. Some interviewees pointed out that for this structure to be efficient, both of the central actors should build their own subnetworks.

Multi-core networks are built around multiple, interconnected cores. Various experts, supported by their own subnetworks as mentoring structures, can form the core team. The central actors can integrate the knowledge of the subnetworks in the core – bringing added value into the process. According to the interviews, a multi-core structure allows all of the actors to proceed quite independently. When the central actors are strongly linked, and their subnetworks are known, they can also be replaced more easily. A multi-core structure enables the utilisation of shared expertise, as was suggested by some interviewees.

In complete networks, all actors are connected with each other. When actors represent different fields of expertise or different scale, the structure supports the testing and integration of various views. According to the interviewees, a complete structure has a low risk of disruption, as all actors hold similar meeting-based knowledge. From a process memory perspective (without considering the differences in expertise), any actor can be replaced without the risk of process memory loss. Thus, when everyone is equally informed, the risk of memory loss resulting from personnel turnover is low. According to the interviews, a complete structure has good possibilities for effective information transfer within the network. However, as a disadvantage, the structure can also be considered inefficient and resource-consuming.

4.4. Relevance of the Process Analysis to Planning Practice

In relation to process memory development, the planners stated that statutory strategic spatial planning processes are rare in planning organisations, and occur only once every 10-15 years in a specific area. When the process experiences are not documented and actors change, much of the memory is lost, and subsequent processes have to start from scratch. Thus, processes can become inefficient. Time is wasted on testing approaches and on re-establishing networks. As suggested in the focus group discussion, process memory supports organisations in situations when personnel turnover is high. Confining memory and knowledge to specific actors increases the risk posed by personnel turnover or the voluntary withholding of information. However, some interviewees pointed out that personnel turnover and unintended forgetting are not always a challenge. Contrastingly, it was suggested that organisations can also learn through personnel turnover by adapting new practices from outside. Moreover, when people change, process memory is dispersed into other organisations, and is not situated only in the originating organisation. According to the interviews, process memory also supports organisational learning between processes.

The interviews show that network and process thinking in municipal planning organisations is diverse and that changing the established practices is difficult. Many interviewees stated that planning processes are not understood well enough. Consequently, generating more understanding of the process structures is important in understanding the reasons behind the actors' involvement in the processes. According to the interviewees, the discussion of planning processes is strongly focused on digital methods instead of collaboration structures. Thus, it was suggested that improving awareness about networked structures and their possible impacts on knowledge co-creation and process memory development is important. Moreover, interviewees pointed out that SNA, as a method, is suitable for analysing the processes because it makes them visually understandable. In the interviews, the analyses were seen to be useful for learning new ways of thinking about process development in planning practice, and for visualizing process development needs. Improved process awareness may enable better utilisation of shared expertise, as actors become more aware of the phases in which they could share their expertise.

5. Discussion

The findings provide an overview of integrated planning processes. The different scales are visible through the varying sizes of the networks, which in turn reflect the to-and-fro of actors over time as different kinds of knowledges, skills and roles are required. In addition, the network structure includes the formation of subnetworks and high betweenness centrality. Knowledge and memory in the analysed process were strongly concentrated on the few central actors, who were trusted as information sources and acted as knowledge brokers in a manner similar to that described by Rydin et al. (2007). Moreover, it is important to underline that high-centrality structure was reinforced through the central role in information flows, highlighting the importance of understanding integration as communicative practice.

Previously established networks were primarily utilised for information acquisition, and the actors turned more easily to someone whose expertise they already knew in advance. Previous research, in comparison, has argued that core networks represent ties which provide support over time, while the peripheral network assists at specific moments (Cummings and Higgins, 2006). This seems to also be the case in the process studied in this paper. Central actors, and their ties, endured over time. The more peripheral actors typically changed from one phase to another. Moreover, in line with previous research (Oh et al., 2004), core ties seem

to have offered a more homogeneous social influence and constant support due to their strength – such as in mentoring relations. Contrastingly, the more peripheral ties provided ad hoc support through access to diverse knowledge and support. Although the memories of the process were generally incomplete among the peripheral actors, multiple participants visited the process for varying periods and carried parts of the process knowledge they acquired between processes. Consequently, memory in the process was not only located in the specific planning unit, but was also dispersed widely through the wider social network, positively influencing the longevity of ties over other processes.

In line with previous conceptualisations of organisational memory, at least two types of memories developed during the planning process: content-related and procedural. Content-related memories are context-dependent, spatially bound, and deal with the rationalisation and justification of the planned solution. They are applicable on various scales in a certain spatial context, and give answers to questions like ‘what’ and ‘why’. Procedural memories are structural, and serve various purposes on different scales and in different contexts. They assist in process development aims, and answer questions such as ‘how’, ‘why’, ‘who’ and ‘when’. The findings highlight the importance of procedural memories for organisational learning and process development, and cast additional understanding on the underlying social dynamics. Adding additional understanding to conceptions of organisational unlearning (Holan and Phillips, 2004; Fernandez and Sune, 2009; Easterby-Smith and Lyles, 2011; Martin de Holan, 2011), the findings suggest that memories of planning processes are vulnerable to accidental and intended forgetting. Moreover, unlearning not only presents challenges due to lost knowledge. It can also be associated with a decrease in trust among planning actors. In the case study, the actors’ ability and willingness to collaborate depended on personal relations – whether they be confrontations or a supportive peer experience. Thus, emotionally experienced realities, either positive or negative, have an important effect on trust and memory-formation.

The findings also imply that process memories are typically recollected as patterns of activities which are detached from time. Thus, memories are affected by selection and post-rationalisation. Moreover, the intensity of involvement in the process influenced the randomness of memory-formation. The selected memories were strongly related to the actual networked structures, and their information transfer capabilities in the process. Differences in the process memory across actors were considerable, and typically related to the actor’s thematic responsibilities and position in the network. The more an actor was involved in the process, the more exact their memories and wider their awareness of the process. The interview findings suggest that this was partly because information transfers were insufficient, and the interdependencies between the various themes were typically handled by only a few actors. As a result, the centralised structures inhibited the generation of integrated solutions.

Reflecting on previous conceptualisations of actor-relational network structures (Curtis and James, 2004; Stead and Meijers, 2009), the findings of this research imply that coordination refers to a single-core structure, whereas integration entails a more equally-connected structure. These different structures can have various implications for integrated planning, and on processes’ vulnerability to process memory loss (Figure 3). In the structures that allow the simultaneous integration of a multiplicity of views, the vulnerability to process memory loss is decreased, as many actors know the rationalisation behind the plan solution. However, the depth of the collaboration and reflection of various views absorbs time and resources. As the number of central actors decreases, the possibility to integrate multiple views also declines and the integration is done by the handful of central actors, who coordinate the discussion between various separate thematic groups. Simultaneously, vulnerability to process memory loss increases.

The findings show that there is no one optimal solution for all processes, but various structures may serve various phases and purposes during planning processes. In case of high personnel turnover, holistic memory held only by one or two individuals is not a resilient strategy, as it is vulnerable to actor-level changes. This brings the questions about duration and the phasing of different structures in different planning processes into focus, as (non)repeating structures can affect (un)learning. Moreover, the actual duration and means dedicated to communication are important aspects for further consideration.

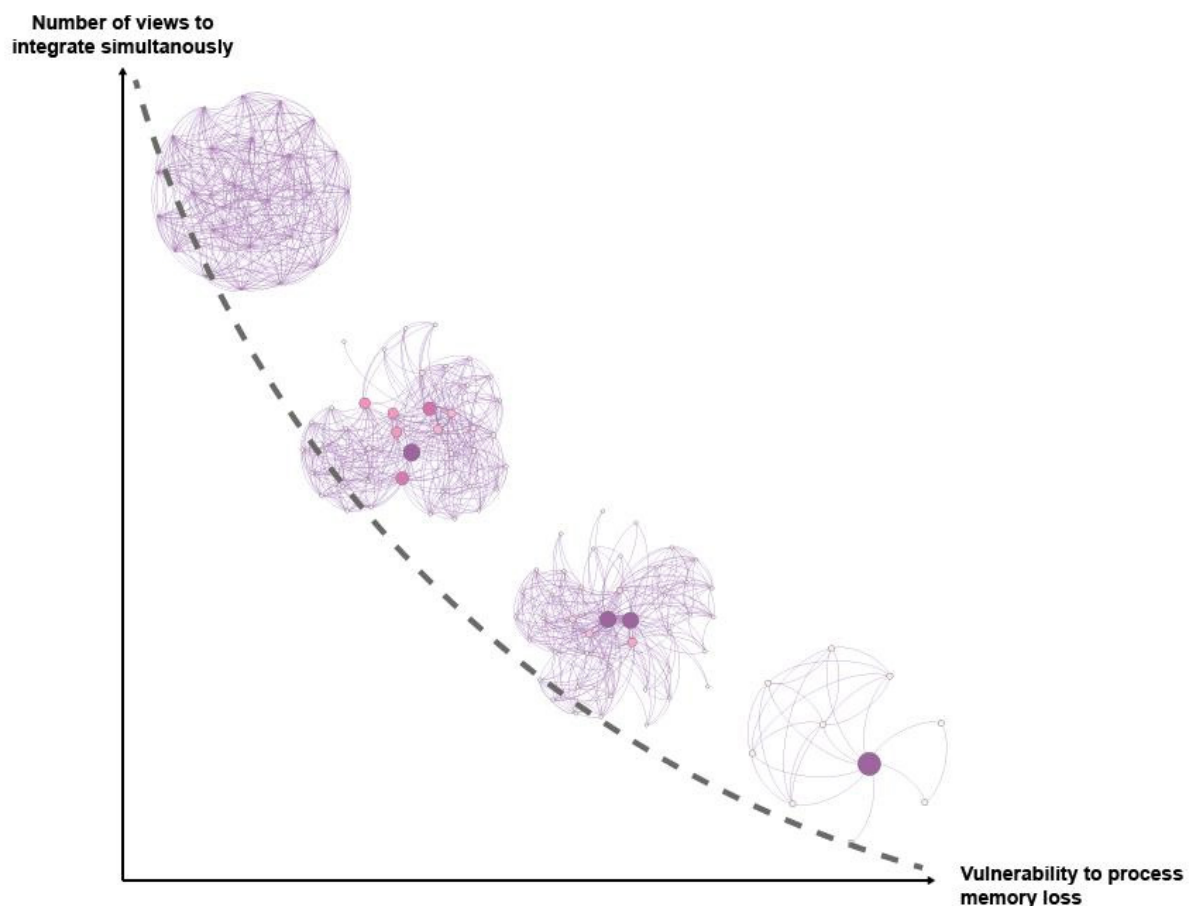


Figure 3 - Main network structure categories in relation to vulnerability to process memory loss and number of views for simultaneous integration.

The utilisation of longitudinal time-series data allows the analysis and evaluation of evolving phenomena, such as process memory. SNA may support the identification of structures which may cause sectoral siloing or process memory loss. In addition, using SNA in a mixed-methods framework supports the exploration of process memory development which is influenced by different relational dynamics. Currently, the related factors, such as organisational memory or experience (e.g., Wegner, 1987; Walsh and Ungson, 1991; Spender, 1996; Olivera, 2000; Soda et al., 2004; Innes and Booher, 2010), are mainly utilised in a descriptive manner without methods for analysing their relation with various process structures. Thus, the implemented methodology raises implications for the capacity of traditional methods, such as interviews, to trace process dynamics. Such methodological challenges are highlighted due to post-rationalisation and selective memorisation even among central actors. Contrastingly, the findings show that SNA has the ability to generate visual and statistical criteria for analysing such concepts, suggesting a methodological contribution for studying integrated planning processes. In particular, such mixed-methods approaches have relevance for both research and practice, and they could rely on visual thinking often present in the planning community.

6. Conclusion

The aim of this research is the development of methodological contributions for understanding knowledge co-creation and process memory development in collaborative planning settings over time. In order to enable the understanding of planning as a socially-constructed and knowledge-intensive process, this research focuses on actor-relational process structures, which are hypothesised to affect integrated knowledge co-creation and process memory development. The methodology has relied on a novel triangulation of social network analysis, document analysis, interviews and focus groups in one strategic spatial planning process. Planning processes are context-dependent and unique, and need to be considered in their contextual settings. This research

has provided the first illustrative example of the impact of actor-relational dynamics on integrated planning practice with the suggested research design. As the findings indicate, the proposed perspective and research design are promising for future applications. Despite the limitations of a single case process, we can infer the scale of dynamics and change in planning processes as social systems. The general conclusion of this research is that learning in organisations is enabled through knowledge flows and memory development in various social networks. These complex socio-communicative dynamics contest the everyday planning practice from within. Memories formed in a planning organisation are a basis for learning, and consequently, for conscious process development practices. These conclusions are already important points for consideration during the ongoing development of the integrated planning practices in Finland.

The findings highlight additional dimensions to knowledge development through the networked setting of interpersonal dialogue. In particular, they show that appreciation of several additional dimensions to communicative social practices at the level of actor-relational dynamics is essential for advancing the understanding of integrated knowledge co-creation and process memory development. The findings further indicate the value and knowledge-based foundations to these social dynamics, as well as the essential role of emotional experiences and trust building.

In the future, engagement with the policy learning literature might provide new opportunities for deepening understanding of knowledge integration in planning processes. Moreover, findings from this research have an opportunity to tie into an ongoing conceptual development regarding processual conceptions of policy integration (Candel and Biesbroek, 2016) which are essential for wider understanding of integrated planning. The findings also generate questions regarding generalisable and repetitive structures that go beyond the unique nature of particular planning processes. The research suggests that despite the possible integrative aims of planning, knowledge integration does not necessarily occur, partly because the networked structures do not enable integration. Consequently, further empirical research on integration in actual planning processes is needed.

The exploration of the social dynamics of planning processes, and their relations with process memory development and organisational learning, is a promising research direction. Here, the use of SNA with other qualitative methods was a valid approach with added value compared to traditional methods. This research stream may be supported with longitudinal and relational methods in future. They can enable a visual-analytical understanding and evaluation of the various networked process structures and their impacts. Further comparative analysis with processes within the same or in different planning contexts is another important stream for future research. In addition, a deeper evaluation of methods that are more suitable for understanding content-related (compared to process-related) memories is needed. Reflection over potential methods will inevitably lead to questions about other conceptualisations of organisational learning and associated social practices, as well as the nonlinear and complex nature of planning processes. Such a conceptualisation of complexity from within planning processes will have to deepen its understanding of the psychosocial realities that actors in planning experience on a daily basis (Mladenović and Eräranta, 2020).

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