DO ALL ROADS LEAD TO INNOVATION CAPABILITY? A STUDY OF DYNAMIC CAPABILITIES IN THE PUBLIC SECTOR

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Abstract
This study uses inductive theory-building techniques to explore how different configurations of micro-foundations shape the development of dynamic innovation capability in three Norwegian municipalities. Its first contribution is the identification of 11 individual-, interaction and process-, and structure-level micro-foundations of dynamic innovation capability. Moreover, the analysis revealed that each of the examined municipalities formulated its own strategy of micro-foundation configuration, leading to individual-driven, interaction-driven, and structure-driven innovation capabilities. Although each type of dynamic innovation capability is idiosyncratic, their key attributes are similar. Thus, the analysis empirically demonstrates that the equifinality of dynamic capabilities also occurs in the public context.
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Keywords: Dynamic capability; Innovation; Public Sector; Qualitative Research Methods; Public Entrepreneurship; Strategic Management.
INTRODUCTION

Public organizations are entities that are collectively owned by a political community, are funded predominantly by tax revenues, are controlled by politicians (Boyne, 2002; Bozeman, 1987; Perry and Rainey, 1988), and operate in a very complex environment. An increase in the expected quality of the delivered services and an emphasis on increased effectiveness and efficiency in the public sector have been the major causes of public organizations and researchers’ increased attention to the issue of innovation in the public context (Albury, 2005; Choi and Park, 2014; Potts, 2009). To meet the efficiency- and quality-related expectations of their stakeholders, public organizations cannot innovate on an ad-hoc basis. They must develop the ability to innovate continuously—i.e., they must develop innovation capability.

The concept of innovation capability has been examined from different angles and understood differently by various fields of management studies (see e.g., Francis and Bessant, 2005; Samson and Gloet, 2014). Nevertheless, one stream in the extant literature, which have examined the concept of innovation capability drawing on the theory of dynamic capabilities, is represented particularly strong. Some articles in this stream (e.g., Börjesson, Elmquist, and Hooge, 2014; O’Connor, Paulson, and DeMartino, 2008; Ukko et al., 2016) have focused on the development of innovation capability in the context of the private sector. Furthermore, conceptual works by Lawson and Samson (2001), O’Connor (2008), and Saunila and Ukko (2012) have attempted not only to define the notion of dynamic innovation capability and its antecedents but also to assess its impact on organizational performance.

This study follows this stream of research and builds on the dynamic capabilities literature using the concept of dynamic innovation capability, which was formulated by Lawson and Samson (2001: 384). Since this study is conducted in the public context, some
minor adjustments to the definition of Lawson and Samson (2001: 384) must be made. Thus, I perceive the dynamic innovation capability as

‘the ability to continuously transform knowledge and ideas into new services, processes, and systems for the benefit of the organization, other stakeholders and the local society.’

Although there has been some research on innovation capability as a dynamic capability (e.g., Kumar and Rose, 2012; Yesil, 2014), the extant literature is scarce and fragmented on the issue of how dynamic innovation capability emerges and which factors contribute to its development, particularly in the context of the public sector.

Moreover, the literature on dynamic capabilities in general calls for more research using multiple case studies to provide insights about what dynamic capabilities in organizations are and how organizations develop them over time, revealing the dimensions that form dynamic capabilities (Ambrosini and Bowman, 2009; Barreto, 2010; Robert Mitchell and Shepherd, 2012; Zahra, Sapienza, and Davidsson, 2006). There is also a need for exploring the discussed theory in contexts other than rapidly changing environments, such as traditional industries or the public sector (Barreto, 2010; Easterby-Smith, Lyles, and Peteraf, 2009; Piening, 2013).

This study addresses the above-identified gaps in the extant literature, using a theory-building approach (Eisenhardt, 1989; Eisenhardt and Graebner, 2007) to explore the following question: ‘How do different configurations of micro-foundations shape the development of the dynamic innovation capability in the public context?’

I investigate this question using an inductive theory-building approach, conducting detailed case studies of three Norwegian municipalities. Inductive methods allow me to explore a highly complex construct of dynamic innovation capability more suitably than deductive research would by addressing the complexity of variables’ configurations, uncertain timing and divergent pathways to outcomes (Eisenhardt, Graebner, and Sonenshein, 2016).
This article’s first contribution is the combination of the theories of micro-foundations and dynamic capabilities in an empirical study of the under-researched context of the public sector. Moreover, this research identifies 11 individual-level, interaction and process-level, and structure-level micro-foundations of dynamic innovation capability in the public context. In doing so, it provides new insights into the extant literature by providing an empirical example of the micro-foundations of dynamic innovation capability and showing their features in a non-market context. Additionally, the analysis reveals that past decisions and the chosen strategies of micro-foundation configuration in each municipality have led to three types of dynamic innovation capability—individual-driven, interaction-driven, and structure-driven. Although the analyzed organizations have developed various methods, tools, and structures to continuously transform knowledge and ideas into innovations, the key attributes of their innovation capabilities are similar—they are built on the same micro-foundations, which interact with each other, and they all allow the organization to continuously develop innovations. This finding has implications not only for the public administration and management theories but also for practitioners because it shows that equifinality of dynamic capabilities (e.g., Eisenhardt and Martin, 2000)—i.e., the existence of multiple paths to obtaining dynamic innovation capability—also occurs in the context of the public sector.

THE PUBLIC-SECTOR CONTEXT

For the past few decades, the public sector has played a significant role in the economies of developed countries (Vogel, 2014). Although a great many articles in the public administration literature have discussed the differences between the public and private sectors, along with organizations’ ‘degree of publicness’ (e.g., Boyne, 2002; Perry and Rainey, 1988; Walley, 2013), there has been a consensus that typical public-sector organizations (such as municipalities) operate in a different environment than private firms.
The most significant differences between the private and public contexts are that public organizations are not exposed to market mechanisms and that their actions are not driven by the traditional profit motives (Boyne, 2002; Klein et al., 2010; Perry and Rainey, 1988). Moreover, taxes and fees are public entities’ primary sources of revenue (Albury, 2005). Furthermore, public entities must frequently cope with a variety of stakeholders and have various, sometimes conflicting, objectives, resulting in goal ambiguity (Malatesta and Carboni, 2015). Additionally, features of public organizations such as excessive bureaucracy, highly specialized employees, typically large scopes of activities and complexity have been noted (Fernandez and Moldogaziev, 2012; Hüsig and Mann, 2010).

Finally, the extant literature also finds that public entities can be characterized as having risk-averse cultures and short-term budgets and planning horizons, along with fewer incentives for public workers to innovate (Albury, 2005; Murray, 1992; Potts and Kastelle, 2010).

Despite the above-mentioned differences, however, scholars such as Rosenberg Hansen and Ferlie (2016) argue that it is possible to apply strategic management theories to research on public-sector organizations. The current research supports this view by building on the theory of dynamic capabilities and exploring the nature and emergence of dynamic innovation capability in three public-sector organizations.

THEORETICAL BACKGROUND

What are dynamic capabilities?

The roots of the notion of dynamic capabilities can be traced to Teece and Pisano (1994) and the seminal article of Teece, Pisano, and Shuen (1997), who introduced the concept of dynamic capabilities to the literature on strategic management. These authors defined it as ‘the firm’s ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environment’ (Teece et al., 1997: 516).
The formulation of this groundbreaking concept has led to numerous publications in the extant literature that have sought to understand and examine what dynamic capabilities are and how they influence a firm’s performance (Easterby-Smith et al., 2009). The dynamic capabilities framework has been used in studies conducted in various industries and sectors around the world (Barreto, 2010).

It appears challenging to provide a precise definition of the concept in question. The reason for this difficulty is the lack of a construct clarity of dynamic capabilities with respect to their definition, scope conditions, and relationships (Suddaby, 2010). Nevertheless, some scholars in the extant literature have attempted to formulate their own definitions of this notion. Among the most frequently cited definitions of dynamic capabilities includes those developed by Eisenhardt and Martin (2000), Zollo and Winter (2002), Winter (2003), Zahra et al. (2006), and Helfat et al. (2007).

In accordance with Ambrosini and Bowman (2009), all the above-mentioned definitions share some similarities. They claim that the vast majority of the articles on dynamic capabilities perceive them as organizational processes that are path dependent and built over time within a firm. Furthermore, their role in a company is to change its resource base. Eventually, Ambrosini and Bowman (2009) highlighted that dynamic capabilities are the result of deliberate and intentional efforts, not the consequences of ad-hoc problem solving or luck.

**The micro-foundations of dynamic capabilities**

The literature on management studies has a long tradition of using macro-level variables to explain macro-level constructs (Felin et al., 2012). Nevertheless, over the past decade an increased focus on micro-concepts has been observed (Felin, Foss, and Ployhart, 2015). Only a few (predominantly conceptual) papers on dynamic capabilities have studied the micro-foundations of dynamic capabilities (Argote and Ren, 2012; Eisenhardt, Furr, and Bingham, 2010; Teece, 2007). For example, Felin et al. (2012) argued that the micro-foundations of
dynamic capabilities can be grouped into three categories: individuals, processes and interactions and structure. It appears, however, that there is a need for more empirical insights into this issue.

Furthermore, hardly any research has been conducted on the micro-foundations of dynamic capabilities in the public context. The vast majority of studies have discussed this concept in an indirect manner (Daniel and Wilson, 2003; Jas and Skelcher, 2005; Ridder, Bruns, and Spier, 2005). As a result, the importance of establishing micro-foundations for dynamic capabilities theory has been emphasized (Foss, 2011).

**Dynamic capabilities in public-sector organizations**

As shown in the previous paragraphs, the vast majority of studies on dynamic capabilities have been conducted in the private sector. Nevertheless, authors such as Piening (2013) and Ridder et al. (2005) argue that this approach can also be applied to examine various phenomena in public-sector organizations.

The extant literature suggests that the application of the dynamic capabilities theory to the public context can be challenging because of the above-mentioned features of the public-sector context. However, since every public-sector organization might be described as a collection of resources and capabilities whose aim is to realize policy initiatives and provide defined services (Bryson, Ackermann, and Eden, 2007), it is possible to observe changes in a public entity’s resource base. Moreover, prior studies by Daniel and Wilson (2003), Klein *et al.* (2013), Pablo *et al.* (2007), and Piening (2013) have shown that the theory of dynamic capabilities is relevant to the issues faced by public-sector organizations because it focuses on internal resources and has the ability to explain how value is created in public organizations. These studies have also demonstrated that this concept can successfully be applied to empirical research in the public context.
The extant literature provides some empirical studies that have drawn on the dynamic capabilities theory. Examples of dynamic capabilities in the public context include learning through experimenting (Pablo et al., 2007) and an organization’s ability to build commitment to change (Daniel and Wilson, 2003).

This study follows this stream of research and builds on the concept of dynamic innovation capability to examine its nature and emergence in selected Norwegian municipalities.

METHODS

My research approach was that of inductive theory building (Eisenhardt, 1989). The inductive strategy is particularly useful both for exploring difficult-to-measure or -identify constructs and for use in studies requiring contextual understanding (Eisenhardt et al., 2016). I found this approach appropriate because of the scarcity of theory and empirical research concerning the nature and emergence of the difficult-to-measure concept of dynamic innovation capability in the public-sector context.

The chosen setting was the Norwegian municipal sector. Norway’s municipal sector is known for its emphasis on innovativeness. This quality made it a suitable context for such a study. I used a multiple case-study approach that allowed me to scrutinize a particular phenomenon using various data sources to provide a strong base to build theory (Eisenhardt and Graebner, 2007) and employ a ‘replication’ logic. This logic perceives the cases as experiments that either confirm or disconfirm the findings from the other analyzed cases (Yin, 2014) and extend the obtained theoretical insights (Eisenhardt, 1991).

The unit of analysis in this research was a municipality. The study design involved three municipalities that either were nominated or won the Norwegian Innovation Award for the Municipal Sector (Government.no, 2014) in 2014 and 2015, i.e., Arendal, Narvik, and Asker. Municipalities in Norway may be nominated for the award by a jury if they have developed
and implemented innovations that have generated value, have changed working methods, and have the potential to be diffused throughout the public sector (Agency for Public Management and eGovernment, 2016). I decided to focus on the municipalities nominated for the above-mentioned award because their ability to develop successful innovations increased the likelihood that they also possessed dynamic innovation capability.

To increase generalizability, I selected three very different municipalities—polar cases—of the six nominated organizations for the above-mentioned award. The chosen municipalities differ in size, are in different parts of Norway, have different economic situations (Table 1), and were nominated for various efforts in their work on innovation.

Because of the retrospective character of this study, I took some measures to reduce the risk of ex-post rationalization. First, I selected respondents from multiple hierarchical levels to be given separate descriptions and interpretations of the same concrete events. This approach enabled me to validate the plausibility of the informants’ accounts.

The informants included individuals from three groups: the top administration, the political level and the bottom of the organization. The first two groups were represented by mayors, deputy mayors, chief administrative officers, and heads of innovation-related units. The other informants consisted of managers and workers on innovative projects, most of whom were ordinary employees of the municipalities.

The interviewees were knowledgeable individuals who had worked with innovation in their organizations for a number of years, had participated in changes in the municipalities over the years, and were actively involved in work on innovations at the time of the study. This approach resulted in incorporating both retrospective and real-time data and allowed me to obtain a deeper understanding of how events developed over time (Leonard-Barton, 1990).

To identify the informants, I used ‘snowball sampling.’ First, I contacted the individuals who were the contact people for their municipality when it was nominated for the Norwegian
Innovation Award for the Municipal Sector. This initial contact then identified the other relevant individuals who had been most involved in the work on innovation in the organization and were developing innovative projects at the time of the study. To ensure that these were the appropriate informants, I asked some of the additional respondents to name other individuals who were critical to the work on innovation in the organization or for the innovative project on which this respondent had worked. The result of this approach was a set of key administration officers, politicians and ordinary employees, whom I contacted and interviewed.

**Data collection**

I used three sources to collect the data: (1) semi-structured interviews with politicians, top administrative officers, heads of innovation-related units, and project managers and workers; (2) follow-up emails; and (3) archival data composed of project and municipality websites, internally published books, press articles, and other internal documents provided by the informants.

The primary source of data was 31 semi-structured interviews, which were conducted with individual informants over a period of three months. The length of the interviews ranged from approximately 20 to more than 60 minutes. The total length of the interviews exceeded 20 hours. Before the interviews, I sent an e-mail to each respondent informing him or her about the topic and purpose of our study. Additionally, I examined the available information about each municipality’s innovative efforts from the published sources and previous interviews. Also prior to the main data collection, I carried out two pilot interviews in a local municipality to gain some insight into the character of innovation in the public sector and to test potential questions that could be asked while conducting the main interviews. All the interviews were recorded and transcribed.

The archival material contained descriptions of innovative projects, applications for funds, reports, internal strategies, brochures, PowerPoint presentations, and websites of
innovative projects, along with internally published books and media coverage of the municipalities’ innovative work. In total, the collected secondary data comprised approximately 2000 pages and slides, 16 Excel files, and more than 40 minutes of video recordings. I used secondary data to increase the quality and validity of the gathered data. By doing so, I followed the principle of triangulation. Table 1 gives a detailed overview of the selected cases and informants.

Insert Table 1 here

Data analysis

Following the logic of inductive research, I began the data analysis process by building individual case studies. Subsequently, I conducted a cross-case comparison to create a conceptual framework (Eisenhardt, 1989). The within-case analysis started by writing a narrative for each case study (Pentland, 1999). The narratives were written on the basis of both the conducted interviews and the archival data. Typically, there was high agreement among the informants about aspects of dynamic innovation capability in their organization, their municipalities’ strategies toward dynamic innovation capability and its consequences (in the form of methods, structures and tools), and the influence of the innovation-friendly environment on the development of various innovative projects. The case narratives ranged from approximately 30 to 70 double-spaced pages in length. They consisted of narratives, quotes from the respondents, figures, charts, and bullet points.

Moreover, the within-case analysis involved an iterative process of developing first-order measures (Gioia, Corley, and Hamilton, 2013) in every narrative story. The measures emerged from the gathered data and the described events. In each case, initial codes covered topics related to various aspects of dynamic innovation capability. They expressed the views of both the top and bottom of the analyzed organizations. For instance, while writing a narrative story about the municipality of Arendal, I observed that the employees had high tolerance of
failure, whereas the top administration officers and politicians stated that they emphasize an attitude of trying and failing in their organization. Consequently, ‘a feeling of high tolerance of failure’ and ‘an emphasis on a try-and-fail attitude’ were coded as first-order measures.

Although I observed common categories or differences among cases, further analysis was left until all the case narratives were completed. By doing so, I maintained the independence of the logic of replication (Eisenhardt and Graebner, 2007; Yin, 2014).

I began the cross-case analysis upon completion of all the case narratives. Following Eisenhardt (1989), I searched for the presence of common measures and theoretical themes and concepts across the multiple cases. In doing so, I compared the independently coded first-order measures among the cases that were identified in the within-case analysis. I refined emerging relationships using the logic of replication (Eisenhardt and Graebner, 2007; Yin, 2014). Additionally, I used tables to facilitate cross-case comparisons.

The first phase of cross-case analysis revealed 11 second-order theoretical constructs, which were common to all the cases. In the next phase, I reviewed the extant literature and grouped these 11 constructs into three categories suggested by Felin et al. (2012), which corresponded to their nature and functions in the organization. These categories were individual-, interaction and process- and structure-level micro-foundations of dynamic innovation capability.

Subsequently, I observed that despite the existence of a common set of micro-foundations in the analyzed municipalities, each municipality had developed a different set of methods, tools and structures to continuously transform knowledge and ideas into innovations. I found that the rationale for developing different types of dynamic innovation capability was the varying importance that the municipal actors assigned to particular groups of micro-foundations.
Furthermore, I found that the other categories of micro-foundations than the ones that had the dominant effect on the developed dynamic innovation capability, were also relevant to each type of the identified dynamic innovation capability. Nonetheless, they played an exclusively complementary and strengthening role in the dynamic innovation capability emergence process.

Figure 1 presents a data structure diagram depicting the iterative data analysis process.

Insert Figure 1 here

**FINDINGS**

The cross-case analysis of three municipalities in Norway—i.e., Arendal, Narvik, and Asker—revealed that despite their differences in size, economic situation, geographical location, and methods of developing dynamic innovation capability, all the examined municipalities possess a set of 11 common micro-foundations that enabled them to obtain dynamic innovation capability. I decided to group them according to the categories proposed by Felin *et al.* (2012), i.e., individual-, interaction and process- and structure-level micro-foundations. The following paragraphs briefly discuss each of the above-mentioned foundations. Table 2 shows the verbalization of some of the discussed foundations in the three analyzed municipalities.

Insert Table 2 here

**Individual-level micro-foundations of dynamic innovation capability**

**Supportive politicians.** The political leadership is responsible for establishing the direction of societal development—the innovation’s ‘where.’ Politicians can have a direct political impact on a particular project (e.g., the ‘Borgen Project’ in the municipality of Asker)—they come up with the idea for a project and then closely follow it up. Nonetheless, the influence of politicians is usually indirect—they ensure that innovations occur in the municipality. Their engagement, however, varies from municipality to municipality. Although
innovations can be developed in municipalities with scarce political support for innovations, it appears that having supportive politicians is an essential foundation for dynamic innovation capability to constantly develop innovative projects that transform new knowledge and ideas into new services and processes.

**Supportive managers.** The managers and employees in all the examined municipalities emphasized the role of skilled, smart and good leadership in the development of innovations. Top administration managers give employees autonomy to act, ensure higher risk tolerance of innovative projects, empower employees, and create an organization in which innovation is desired and demanded. Finally, they give employees broadly understood support in the course of project implementation.

**Innovation champions.** Having supportive managers and politicians is not sufficient to develop innovative projects if an organization does not also have creative, skilled, and enthusiastic employees who come up with innovative ideas to solve local problems. The top administration managers and politicians in all the analyzed municipalities emphasized that highly involved employees are a critical source of innovation in their respective organizations.

**Interaction and process-level micro-foundations of dynamic innovation capability**

**Autonomy to act.** All the analyzed municipalities give great autonomy to act to their employees and managers. Both the ordinary project workers and managers and the top administration officers and politicians assert that having room for action and the ability to try new solutions is essential not only for them and their projects but also for addressing larger, more systemic issues. They also feel autonomy to act in their organization.

The autonomy to act, however, will not stimulate innovation development if employees are not given the authority to take initiative. Efficiency improvements and the further development of a service offer require ‘empowered employees’ who have the appropriate
competencies. Employees must be allowed to ask ‘why?’ and come up with new thoughts and ideas.

**Higher tolerance of failure.** Because innovations are frequently about trying out new solutions, they are naturally associated with both trying and failing. Therefore, a higher-than-usual tolerance of failure is required. At the same time, however, one should attempt to minimize the failure rate by employing high-quality uncertainty management.

One of their most important tasks in the examined organizations was to create a safe environment for their employees in which one is allowed to try and fail and there is a higher tolerance of failure.

**The recognition and promotion of innovators.** The analyzed municipalities perceive the recognition and promotion of innovators as a salient foundation that motivates employees to innovate. Notably, the top administration managers do not solely recognize the efforts of successful innovators. For them, the most important issue is that someone has an idea for an innovative project and is brave enough to attempt to implement his/her idea in practice. In doing so, the managers develop internal pride and increase employees’ willingness to be involved in the process of innovation development. The head of Arendal’s innovation and competencies unit argued that giving material rewards to municipal employees does not stimulate them to innovate—instead, it is the recognition of their everyday work that matters.

‘It is not any reward that stimulates someone to come up with innovative projects. It is more about making someone’s work noticed at a workshop, in the Conference of Arendal or in other ways, giving someone attention—that is what I think is perhaps one of the drivers of innovation here. I think it reinforces and creates the perception among the employees that innovative projects are emphasized and it gets attention.’

**Interdisciplinarity and learning across operation units.** In all the analyzed municipalities, the vast majority of projects are developed in teams composed of employees from different operation units and with various professional backgrounds. It is also common for municipalities to cooperate with individuals from volunteer organizations while developing
innovations. Such diversity of backgrounds allows the municipality to come up with better ideas and learn across operating units.

The analyzed municipalities also use various tools to learn from project to project. Examples include meetings of unit managers to exchange experiences and knowledge from projects or the possession of virtual experience history tools, which allow a project manager to quickly compare what others did in each phase of their projects and their main challenges in the concept development and implementation phases.

**Participation in cross-sectoral networks.** The examined municipalities have developed a large number of projects in cooperation with various volunteer and private organizations. For example, Arendal involves the volunteer sector in the provision of public services through, inter alia, the project ‘With heart for Arendal.’

Furthermore, each of the analyzed municipalities cooperates closely with the Norwegian Association of Local and Regional Authorities and participates in local and national networks, from which they obtain ideas for innovative projects and in which they can exchange experiences and knowledge and diffuse practical and innovative solutions to common problems. The municipality of Arendal, for example, benefits most from the organization of two national conferences: the Conference of Arendal and the Conference of Arendalsuka. According to the head of the innovation and capabilities unit, in the municipality of Arendal external sources of ideas and knowledge are essential to her organization:

‘It is important to have a very big network from which one can actively look for good examples and good projects and from which the municipality of Arendal can learn. Therefore, the Conference of Arendal is a very important arena for us.’

**Structure-level micro-foundations of dynamic innovation capability**

**Constant increase in knowledge and improvement in competencies.** The provision of systemic solutions that enable constant improvement of employees and managers’ competencies is essential for all the examined organizations because improved competencies
increase the probability of developing innovations in the future. Possessing the required competencies allows employees either to find better solutions externally or to come up with new ways of doing things based on their own expertise. Therefore, all the analyzed municipalities provide their employees with training and professional development that are aimed at increasing their professional knowledge and competencies.

Innovation coordinating unit. All the examined municipalities have established a unit or a section within a unit in which the activities associated with innovation development are coordinated and supported. The innovation units provide training to improve the organizations’ innovation abilities; they are a driving force of sharing and spreading knowledge and experience across the organizations’ operating units. Additionally, they facilitate the development of competencies and experiential learning and provide broadly understood support in the process of implementing innovative projects.

For example, in the municipality of Ask, the Knowledge Center is such an innovation coordinating unit. The Knowledge Center works on competency, knowledge improvement, and organizational development. Nonetheless, the Knowledge Center is not solely an innovation unit or department. The head of the Knowledge Center described her department as follows:

‘We are very concerned with ensuring that the Knowledge Center is not an innovation department. We are not the ones who work directly with innovation—it is the project managers who do that. The Knowledge Center is something more than that—it is a hub and a ‘muscle’ of the organization, as we say here. We have around 35,000 external and internal visitors here per year.’

Lean organizational structure. A two-level model composed of the Chief Administrative Officer’s team and operation unit managers is used in the three examined entities. Regardless of internal variation in the two-level model, however, the primarily consequence of this lean organizational structure is that the management activities are transferred to the operating units, so that every unit manager is given responsibility for financial issues, employment, and everyday work in operational areas.
In this model, unit managers are given full responsibility for their activities, and their contact with top administration is conducted primarily through reporting to the Chief Administrative Officer and the Assistant City Administrator. The two-level model puts the municipalities into a better position to develop both top-down and bottom-up innovations. In this heavily decentralized structure, it is also easier to be heard and noticed and to present one’s ideas to the unit managers or top managers.

**Summary.** The description of the 11 micro-foundations suggests that they comprise a set of inter-related factors that interact with each other. Supportive managers and politicians interact both with each other and with their peers outside their organization. Additionally, they interact with creative and competent employees by providing them with support, recognition, autonomy to act and higher tolerance of failure. Given such conditions, innovation champions come up with innovative ideas. They also learn from each other, cooperate internally within the organization and exchange their experiences with external actors in the process of innovation development. These entrepreneurial interactions among politicians, managers, employees, and external actors, in turn, are strengthened by the innovation-friendly structure in the organization. In formal terms, these findings suggest the following relationship:

*Proposition 1: Interactions among the 11 individual-, interaction and process-, and structure-level micro-foundations lead to the development of dynamic innovation capability in public-sector organizations.*

**Three types of dynamic innovation capability**

As the previous section has shown, all the analyzed municipalities possess dynamic innovation capability, which is composed of the above-mentioned 11 micro-foundations. Nonetheless, each municipality has taken a different path to dynamic innovation capability. The decisions to emphasize various categories of micro-foundations, verbalized by the choice of various methods, tools, and structures, have resulted in the development of a particular type
of dynamic innovation capability in each of the analyzed organizations. Table 3 presents key characteristics of each type of dynamic innovation capability in the analyzed municipalities.

Insert Table 3 here

**Individual-driven dynamic innovation capability.** Arendal has developed a type of dynamic innovation capability in which the individual-level micro-foundations have a dominant effect on the continuous development of innovations. In other words, the main force of entrepreneurial actions in this organization is creative, enthusiastic, and competent individuals whose efforts are supported by administrative officers—i.e., managers and politicians.

The origins of Arendal’s micro-foundation configuration strategy can be traced to a large reorganization project launched in 1998. The outcome of this project was a new administrative, political, and economic organization of the municipality. The Chief Administrative Officer of the municipality described the importance of this project as follows:

‘It was a very big reorganization, both politically and administratively, which required totally new solutions and new ways of working. So in my view, it was then that our innovation culture was born, during this big reorganization project.’

The path initiated toward more innovation was strengthened by several radical and incremental changes that were made in the first decade of the 2000s. The most significant of these was the late 2004 construction of and move to a new town hall. Arendal’s Chief Administrative Officer argued that this event ultimately shaped the very bottom-up and individual-oriented approach to continuous development of innovations.

‘I think I can say that the year when we moved into the new town hall and removed almost all structures was decisive. It was an ‘innovative grip’ and a brave move in relation to the bureaucracy, but we succeeded. We thought: ‘let’s try out new ways of working and base an organization on self–management, where professional discussions were aimed more at horizontal exchanges of knowledge and experiences, and maximal delegation of power to ordinary employees’. So it was the employees and their professional colleagues who were actually given the authority to make a decision.’
Apart from a series of self-management-oriented reorganization projects, the charismatic style of leadership employed by Arendel’s innovation and development advisor and its Chief Administrative Officer was crucial for the development of this particular type of dynamic innovation capability. In particular, the role of the innovation and development advisor has been decisive. He supports and encourages various bottom-up innovative projects and individuals in their efforts to innovate. Additionally, his style highlights more informal, interpersonal development of ideas and exchange of experiences (instead of preparing many internal documents, which ‘no one reads anyway’). Thus, his decisions have strengthened the individual-oriented approach to the continuous development of innovations. Furthermore, his emphasis on constant work on innovation has resulted in the establishment of the municipality’s innovation and competencies unit.

Since spontaneous personal interaction, meetings, and substantial employee autonomy are emphasized, no standard tool for implementation of innovative projects or for improvement of experiential learning and knowledge sharing has been developed. As the top administration managers noted, it is most important to them to have a self-reinforcing process in which people contact the ‘innovator,’ spontaneously exchange ideas during meetings and informal conversations, and want to pursue others’ innovative ideas, ensuring that employees have the ability to convert ideas into solutions.

The above description suggests that the other groups of micro-foundations play a complementary role to the individual-level micro-foundations in this type of dynamic innovation capability. For example, interaction and process-level micro-foundations, such as autonomy to act, a higher tolerance of failure, and the recognition of innovators, give creative individuals trust, legitimacy, and freedom to act and motivate them to perform entrepreneurial activities. Similarly, structure-level micro-foundations, such as a systemic emphasis on constant knowledge and competency improvement or an innovation coordinating unit, allow
innovators to improve their skills to more efficiently and effectively solve problems and share their experiences across the organization.

Thus, it appears that the other two groups of micro-foundations do not have a decisive impact on the shape of this particular type of dynamic innovation capability. Their interaction with individual-level micro-foundations, however, releases and strengthens the influence of the latter micro-foundations. Consequently, individual-level micro-foundations become the main force in the municipalities’ continuous development of innovations. This suggests the following relationship:

*Proposition 2: A strategy of micro-foundation configuration, which builds a process of continuous innovation development on individual-level micro-foundations, leads to the emergence of individual-driven dynamic innovation capability.*

*Interaction-driven dynamic innovation capability.* Narvik has been in a difficult economic situation since the 1990s. Because of large-scale redundancies in its largest local enterprises, it became a restructuring municipality. A severe local financial crisis was the ‘trigger’ for the municipality to develop a culture of thinking differently and to continuously seek new solutions to the obstacles it must overcome to achieve its objectives.

After the recovery and a decade of prosperity, Narvik experienced yet another crisis, at the beginning of the 2010s, in the form of the collapse of the local solar cell industry and the departure of the headquarters of a large Norwegian cruise, ferry, and cargo operator. The internal economic situation was also difficult because of unsuccessful municipal investments in complicated U.S. financial products. Because there were very limited resources for innovations, it was decided that the unit managers would be responsible for assessing which innovations would be implemented and which would be postponed or rejected. This decision was a decisive event that shaped Narvik’s strategy toward the continuous creation of innovations.
Narvik has developed a type of dynamic innovation capability in which interaction and process-level micro-foundations have a main effect on the continuous development of innovations. In this case, the entrepreneurial interactions of managers and employees are the main source of innovative projects in the organization.

Narvik’s former mayor argued that the key to success in his organization is the existence of unit managers who dare to let employees use their knowledge and skills and who provide them with available resources to develop innovations. In his view, the task of the managers is also to coordinate the work on innovations in the desired—from the organization’s perspective—direction. Thus, it appears that the entrepreneurial interactions in this organization are the outcome of innovative activities of the empowered employees, who are given autonomy to act and a high tolerance of failure and recognition, along with the decision-making activities of managers who select the projects to be further developed and implemented. Nevertheless, the complementary character of the other categories of micro-foundations is also evident in this case.

First, an organization needs creative employees and supportive managers to interact in an entrepreneurial manner. Moreover, a two-level structure is essential because it facilitates manager-employee interaction by eliminating middle managers. Consequently, a creative employee must convince only one manager to implement his or her innovative idea. According to the former mayor, the lean two-level structure strengthens employees and managers’ ability to interact. He described the importance of this structure in the following manner:

‘I think that it [the two-level structure] definitely strengthens the development of innovations if one is able to carry forward the pride and involvement at the workplace and if one lets people try and fail because it leads you to good solutions and a lot of innovations start in such a way.’

Furthermore, the management of innovative projects in the examined organization does not differ from that of non-innovative projects and involves the creation of management, project, work, and reference groups.
Finally, Narvik emphasizes the salience of interdisciplinarity and experiential learning across the organization. The storage of knowledge and exchange of experience is performed differently at different levels of the organization. The Chief Administrative Officer of the municipality stated that they have methods and routines to spread knowledge across the organization. One example of such a method and routine is that of management group meetings at which administrative officers and project managers share their experiences, findings, and suggestions from their projects and prepare documents aimed at experiential learning in the organization. Additionally, they can provide inputs to and follow the progress of other projects. Moreover, the development section, which is part of the administration and management unit, is responsible for following innovative projects that are being implemented and documenting those projects’ experiences. The former mayor of the municipality described these actions as follows:

‘It is mainly administrative work in which one stores experiences and learns constantly how one should organize such projects. Nevertheless, it’s not like one constantly succeeds. If one fails, one can at least draw some conclusions, for example: ‘this is a good way of working here, whereas how we did it in two projects before did not work’. So this is definitely our base of experiences.’

Thus, based on the above findings, one can suggest the following relationship:

Proposition 3: A strategy of micro-foundation configuration that builds the process of continuous development of innovations on the interaction and process-level micro-foundations leads to the emergence of interaction-driven dynamic innovation capability.

Structure-driven dynamic innovation capability. In contrast to the other two investigated municipalities, the municipality of Asker has experienced a decent financial situation in recent decades. Hence, the decision to emphasize continuous development of innovations was not a necessity but instead a conscious choice.
The first step in the desired direction was the 2003 establishment of the Knowledge Center. The initial purpose of creating the Knowledge Center was to have a place for courses and meetings. Asker is one of the largest municipalities in Norway, and it needed a separate place where such activities could be conducted. Additionally, the municipality began working on the center using the development of innovation. The administration quickly observed that one of the main challenges in working with innovations is to do so an interdisciplinary fashion. They found that it is critical to be good at supporting development processes and to have a project methodology are critical. Thus, the Knowledge Center became not only a meeting place for municipal employees but also a place where one utilizes the interdisciplinary character of the environment for the benefit of the municipality.

The municipality of Asker has developed a type of dynamic innovation capability in which structure-level micro-foundations have the primarily impact on the continuous development of innovations. In this case, systemic solutions aimed at constantly increasing knowledge and improving competencies, along with the existence of the innovation coordinating unit—the Knowledge Center—are especially essential.

To work with innovation in a more structured fashion than other municipalities, the Knowledge Center prepared a document called the ‘Innovation Strategy,’ which describes the innovation culture and the systematic methods of working with the implementation of innovative projects. The objective of the ‘Innovation Strategy’ is to contribute to a structured innovation and sharing culture both across the various service areas in the municipality and in interactions with external actors.

The importance of the systematic gathering, sharing and spreading of knowledge, all of which are emphasized by the Knowledge Center and the ‘Innovation Strategy,’ became the municipality’s primary mission. According to the ‘Innovation Strategy,’

‘Innovation is largely about implementation and active knowledge sharing. It requires a holistic working method throughout the whole way from the idea to utilized solutions.'
Practical orientation methodology and good tools make it easier to support an innovative form of working. The municipality works on the further development of support tools for innovation processes.

Moreover, what differentiates the municipality of Asker from the other two analyzed municipalities is its emphasis on systematic innovation development and connecting small incremental improvements to create a holistic picture of all projects, which can lead to more radical changes in the organization. To do so, one must create a sharing and mobilization area. The head of the Knowledge Center asserted that this area will be strongly prioritized in the future.

‘We think that if these small things are shared inside and outside of the organization, it can lead us to quite big things that will be beneficial for the municipality. That is the reason we are concerned with working systematically. It is crucial to take a strategic look at projects and know where to go at all times. The most important thing is that we move in the correct direction.’

The innovation strategist at the Knowledge Center then argued that innovation is not only about abundant creative randomness. Instead, it also involves systematization. In his view, it is possible to combine creativity with systematization.

‘Let the creativity flourish and grow in the environment, which is sufficiently structured, so that you have a bit of overview and a bit of control. It is important to have holistic management of innovation processes that will allow the organization to flourish and improve the services, which affects our users.’

Therefore, to work systematically with innovations, the municipality of Asker has developed tools that facilitate gathering, sharing, and spreading knowledge, experiential learning, and common methods of innovative project implementation. The most important of these tools are ‘the Project Wizard 2.0,’ ‘Portfolio management,’ and a digital experience history tool that a project manager can use to save and mark some of the most important experiences from his/her project.

Similar to the previous cases, the other categories of micro-foundations play a complementary role in the development of structure-driven dynamic innovation capability. As
discussed above, interdisciplinarity and learning across units is salient for the municipality of Asker. Additionally, to systematically gather and share knowledge, one must have some creative individuals who develop new knowledge, i.e., empowered employees, along with supportive managers who not only give those employees autonomy to act and higher tolerance of failure but also engage in building tools and methods to facilitate experiential learning across units. In other words, one needs individuals, interactions and processes in the organization to enable the organization to benefit from the results of structure-level micro-foundations.

Thus, it appears that the interaction of individual-level and interaction and process-level micro-foundations with structure-level foundations releases and strengthens the influence of the latter micro-foundations, making them the main force of the continuous development of innovations. Based on the findings above, I suggest the following relationship:

Proposition 4: A strategy of micro-foundation configuration that builds the process of the continuous development of innovations on structure-level micro-foundations leads to the emergence of structure-driven dynamic innovation capability.

DISCUSSION

I motivated this study by asking how different configurations of micro-foundations shape the development of dynamic innovation capability in the public context. The empirical findings show that dynamic innovation capability in the analyzed municipalities consists of 11 interacting micro-foundations, which can be grouped into three categories: individual-level, interaction and process-level, and structure-level. Furthermore, the data suggest that each municipality has developed its own type of dynamic innovation capability based on its emphasis on one of the above-mentioned groups of micro-foundations. Figure 2 summarizes these findings.

Insert Figure 2 here

The underlying nature of dynamic innovation capability
Prior research has repeatedly demonstrated that certain external and internal factors can stimulate the development of dynamic capabilities in the private sector. Among the antecedents of dynamic capabilities, factors such as managerial behavior, creativity and leadership, organizational knowledge, learning practices, and firms’ and individuals’ experience are often discussed (Ambrosini and Bowman, 2009; Eisenhardt and Martin, 2000; Zollo and Winter, 2002). Additionally, some studies have identified similar stimulating factors of dynamic capabilities in the public sector (e.g., Daniel and Wilson, 2003; Carmeli and Tishler, 2004; Pablo et al., 2007).

Prior research on dynamic innovation capability, in turn, mentions underlying factors that can be grouped into the following categories: leadership and decision-making processes; organizational structures; culture, climate, and communication; individual creativity and expertise; and collaboration and external links (Lawson and Samson, 2001; O’Connor, 2008; Saunila and Ukko, 2012: 359).

It appears, however, that the above-mentioned studies of antecedents of dynamic capabilities in both the private and public sectors have provided a barely empirical and relatively fragmented picture of elements that an organization needs if it is to continuously innovate. Furthermore, the extant literature is severely lacking in regard to capturing the micro-foundations of dynamic capabilities (Foss, 2011), especially in the public context.

This study gives some empirical insights and expands understanding of the micro-foundations of dynamic innovation capability in the public sector. First, the data identify the 11 individual-, interaction and process-, and structure-level micro-foundations. Moreover, it shows that interactions among them led to the development of dynamic innovation capability in each public organization that was examined (Proposition 1).

Thus, the data analysis reveals that despite many differences among the examined municipalities, the dynamic innovation capability in all the organizations is built on the same
11 micro-foundations. It also shows that these 11 micro-foundations can be grouped into the three categories discussed by Felin et al. (2012), i.e., (1) individuals, (2) processes and interactions and (3) structure. By doing so, the data suggest that the micro-foundations of dynamic innovation capability in the public context do not differ considerably from those identified in the private-sector literature.

Development of different types of dynamic innovation capability

The extant literature has shown that dynamic capabilities are developed in a path-dependent manner (Ambrosini and Bowman, 2009). Various studies argue that the process of creating and implementing dynamic capabilities is influenced by an organization’s history (Ambrosini and Bowman, 2009; Teece et al., 1997, Wang and Ahmed, 2007). Organizational routines and capabilities, which underlie dynamic capabilities, are especially likely to be largely path dependent (Piening, 2013). The literature also highlights that heterogeneity on the individual and micro level, which influences dynamic capabilities, can be path dependent, primarily as a result of individuals’ past decisions (Felin and Foss, 2005).

This study builds on the extant literature (Ambrosini and Bowman, 2009; Felin and Foss, 2005; Teece et al., 1997, Wang and Ahmed, 2007) by showing that past events and individuals’ decisions to use a certain strategy of micro-foundation configuration resulted in different types of dynamic innovation capability.

The data indicate that in each of the examined municipalities, different groups of micro-foundations played a dominant role in the process of the continuous development of innovations, leading to various types of dynamic innovation capability. As noted by Felin et al. (2012: 1362), time-dependent processes and interactions ‘necessarily inform routines and capabilities in two fundamental ways.’ First, processes are ‘a sequence of interdependent events.’ Moreover, intervention by individuals puts processes into action and creates certain
structures. As a result, studying the interactions among processes, individuals and structures within organizations can provide useful insights into how dynamic capabilities are developed.

In the case of the municipality of Arendal, the reorganization processes of the late 1990s and early 2000s and the decision to employ a charismatic Chief Administrative Officer and innovation and development advisor resulted in an individual-oriented attitude in the municipality, which emphasized a lack of micro-management, the empowerment of employees, and interpersonal communication. Therefore, because of the emphasis on individuals in the process of continuous innovation, the strategy of micro-foundation configuration in the municipality of Arendal was based on individual-level micro-foundations and led to the development of individual-driven dynamic innovation capability (Proposition 2).

In the municipality of Narvik, the long-lasting financial crisis, several reorganizations, the adoption of a lean organization structure, and most significantly, the decision to allow managers to assess the relevance of proposed ideas for innovations in the organization, resulted in a continuous dialogue between the top administration managers and employees, leading to the development of numerous innovations. Because, a strategy was built based on interaction and process-level micro-foundations, interaction-driven dynamic innovation capability emerged (Proposition 3).

Finally, the creation of the Knowledge Center in 2003, the decision to place the focus on systematic work on innovation, and the formulation of the ‘Innovation Strategy’ resulted in the creation of the structure-oriented approach to innovation development. Therefore, to continuously innovate, the strategy that assigns the main role to the structure-level micro-foundations was developed, leading to the emergence of ‘structure-oriented’ dynamic innovation capability (Proposition 4).

Notably, a deeper analysis of the collected data reveals that although the three analyzed organizations had different starting points and followed unique paths toward dynamic
innovation capability, they ended up with capabilities that are similar in their key attributes. In other words, despite formulating various strategies of micro-foundation configuration, the three types of dynamic innovation capability obtained are built on the same foundations and differ only in the details. Above all, their essence is that all types of dynamic innovation capability allow a municipality to ‘continuously transform knowledge and ideas into new services, processes, and systems for the benefit of the organization, other stakeholders and the local society.’ Therefore, this finding shows that the equifinality of dynamic capabilities (Eisenhardt and Martin, 2000) also exists in the public-sector context.

Accordingly, this study empirically supports the findings of Eisenhardt and Martin (2000: 1116), who argue that dynamic capabilities are more homogeneous than is usually assumed despite their uniqueness to a particular organization and their path-dependent way of emerging. It also shows that dynamic capabilities in the public context do not differ considerably from those observed in the private sector in terms of both their nature and their development. These findings have implications for both managers and policy makers.

First, they suggest that public organizations continuously develop innovations in a manner similar to that used by private organizations. Therefore, the application of theories and practices formulated in the private context can be useful in the process of developing dynamic innovation capabilities in a public organization.

The findings also show that there are several ways to obtain dynamic innovation capability. Hence, it appears to be beneficial and cost effective for an organization to build dynamic innovation capability into their routines, unique features, and history because if dynamic innovation capability is built with the correct ‘ingredients’ (i.e., the 11 individual-, interaction and process-, and structure-level micro-foundations), then the ‘recipe’ does not matter.

CONCLUSION
This study explored how different configurations of micro-foundations shape the development of dynamic innovation capability in the public context. I found that dynamic innovation capability in the public sector is composed of 11 micro-foundations, which can be grouped into three categories discussed by Felin et al. (2012), i.e., individual-level, interaction and process-level, and structure-level. Moreover, the data revealed that because of past events and the decisions to formulate different strategies of micro-foundation configuration, various types of dynamic innovation capabilities were developed: individual-driven, interaction-driven, and structure-driven. Although these types of dynamic innovation capability are idiosyncratic, they are similar in terms of their key attributes, showing that the equifinality of dynamic capabilities also occurs in the public-sector context. Thus, the findings suggest that the underlying nature and development of dynamic innovation capabilities in the public sector and the private sector are similar despite contextual differences in how public and private organizations operate.

The presented model has its limitations and contains elements that require further exploration. Further research ought to, inter alia, test whether the discussed 11 micro-foundations exist in a larger number of public-sector organizations. Moreover, more studies should explore whether and what other types of dynamic innovation capability can be developed, along with how they influence the performance of public organizations.

Can one claim that all roads lead to innovation capability? Probably not. The data suggest, however, that there are multiple roads to dynamic innovation capability in the public sector if they are built on the above-mentioned 11 individual-, interaction and process-, and structure-level micro-foundations.

REFERENCES


FIGURE 1

Data structure diagram

1st Order Measures
- Politicians participate in projects
- Political leadership
- Politicians as creators of innovation-friendly environment
- Managers provide smart and good leadership
- Managers are brave enough to let the workers use their skills and knowledge
- Existence of enthusiastic employees who come up with innovations
- Co-creation and citizens’ involvement
- Empowered employees
- Trust-based room for action
- Emphasis on try-and-fail attitude
- Feeling of high tolerance of failure
- Recognition of creative employees’ initiatives
- Cultivation of pride and involvement in the units
- Importance of working across the traditional ‘silos’
- Sharing experiences with units through various tools
- The ability to learn from project to project and store the knowledge both within and across units
- Cooperation with the volunteer sector
- Participation in local and national networks
- Openness to ideas from outside the organization
- Importance of conferences for idea development
- Culture of thinking differently
- Professional knowledge and pride of workers
- Provision of programs that improve competencies
- Existence of units that coordinate innovations and provide training to improve innovation abilities
- Centralized support for innovation implementation
- Two-level organizational structure in all entities
- Little hierarchy and openness in all entities
- Org. structure supporting bottom-up and top-down projects

2nd Order Constructs
- Supportive politicians
- Supportive managers
- Innovation champions
- Autonomy to act
- Higher tolerance of failure
- Recognition and promotion of the innovator
- Interdisciplinarity and learning across units
- Participation in cross-sectoral networks
- Constant increase in knowledge and improvement in competencies
- Innovation coordinating unit
- Lean organizational structure

Aggregated Constructs
- Individual-driven dynamic innovation capability
- Interaction-driven dynamic innovation capability
- Structure-driven dynamic innovation capability
FIGURE 2
Model of the development of various types of dynamic innovation capability in public organizations

(Propositions 1)

**Individual-level micro-foundations:**
- Supportive politicians
- Supportive managers
- Innovation champions

**Interaction**

**Interaction and process-level micro-foundations:**
- Autonomy to act
- Higher tolerance of failure
- Recognition and promotion of the innovator
- Interdisciplinarity and learning across the units
- Participation in cross-sectoral networks

**Interaction**

**Structure-level micro-foundations:**
- Constant increase in knowledge and improvement in competencies
- Innovation coordinating unit
- Lean organizational structure

**Main effect**

(Proposition 2)

**Main effect**

(Proposition 3)

**Main effect**

(Proposition 4)

Types of dynamic innovation capability

- Individual-driven dynamic innovation capability

- Interaction-driven dynamic innovation capability

- Structure-driven dynamic innovation capability
## TABLE 1
Overview of cases

<table>
<thead>
<tr>
<th>Case</th>
<th>Number of employees</th>
<th>Geographical location</th>
<th>Economic situation</th>
<th>Number of interviews</th>
<th>Secondary data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipality of Arendal</td>
<td>~ 3,000</td>
<td>Southern Norway</td>
<td>Difficult</td>
<td>Total: 15 (619 minutes)</td>
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<td></td>
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<td>Top administration and politicians: 3 (139 minutes)</td>
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<td>- Deputy Mayor (35 min)</td>
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<td>- Chief Administrative Officer (64 min)</td>
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<td>- Head of innovation and competencies unit (40 min)</td>
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<td>Project managers and workers: 12 (480 minutes)</td>
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<td>Internal documents (308 pages)</td>
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<td>Internally published books (214 pages)</td>
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<td>PowerPoint presentations (105 slides)</td>
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<td>Leaflets and posters (6 pages)</td>
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<td>2 newspaper articles (2 pages)</td>
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<td>2 project websites</td>
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<td></td>
<td>1 Excel file with data</td>
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<td>1 Video about the project (12 min)</td>
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<tr>
<td>Municipality of Narvik</td>
<td>~ 1,500</td>
<td>Northern Norway</td>
<td>Very Difficult</td>
<td>Total: 6 (283 minutes)</td>
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<td>Top administration and politicians: 2 (95 minutes)</td>
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<td>- Former Mayor (65 min)</td>
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<td>- Chief Administrative Officer (30 min)</td>
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<td>Project managers and workers: 4 (188 minutes)</td>
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<td>Internal documents (508 pages)</td>
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<td>PowerPoint presentations (327 slides)</td>
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<td>1 project website</td>
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<td>15 Excel files with data</td>
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<tr>
<td>Municipality of Asker</td>
<td>~ 2,500</td>
<td>Eastern Norway</td>
<td>Good</td>
<td>Total: 10 (346 minutes)</td>
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<td>Top administration: 2 (83 minutes)</td>
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<td>- Head of the Knowledge Center—the innovation unit (42 min)</td>
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<td>- Innovation Strategist (41 min)</td>
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<td>Project managers and workers: 8 (263 minutes)</td>
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<td></td>
<td>Internal documents (536 pages)</td>
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<td></td>
<td>PowerPoint presentations (18 slides)</td>
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<td></td>
<td>4 project websites</td>
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<td></td>
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<td>3 videos about the projects (37 minutes)</td>
</tr>
</tbody>
</table>
### TABLE 2

**Verbalization of the selected micro-foundations of dynamic innovation capability in the three analyzed municipalities**

<table>
<thead>
<tr>
<th>Foundation</th>
<th>Arendal</th>
<th>Narvik</th>
<th>Asker</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Supportive politicians</strong></td>
<td>‘I cannot say that politicians are not important because if we had a town council that really felt that innovation is important, we would be even better at innovation than we are now. So politicians are important. However, if you have a very strong innovation culture, room to exploit opportunities, then innovation will flourish anyway, regardless of whether you have the politicians onboard or not. But, with them it is easier and faster. Therefore, we seek their support’—Head of innovation and competencies unit</td>
<td>‘Work on innovations and development does not begin at the city council level in the organization. It starts by enabling employees to try out their ideas, providing a ‘united front’, supporting them when they implement an innovative project and being generous and boasting about successful project managers when they succeed. That is what the politicians can and should do. The political will and appropriate climate for innovation are thus decisive if a municipality wants to develop itself constantly’—Former Mayor</td>
<td>‘The mayor here has a so-called ‘An hour with the Mayor’ policy, where she meets with citizens one time per month. She sits at the library and all can come and talk to her. She is very open. As a result, various people, such as citizens or entrepreneurs, can directly contact her and ask for a meeting. If your idea is exciting, she will connect you with me. That is what happened with the project ‘New City’, for example. So, that is one way the politicians can influence the development of innovative projects here’—Head of the Knowledge Center</td>
</tr>
<tr>
<td><strong>Supportive management</strong></td>
<td>‘A safe environment is essential. In my case, it was absolutely necessary to have the support of the Chief Administrative Officer. He gave me autonomy and allowed me to try out my ideas. Some things did not go the way we planned, so we had to try another way. In this municipality, it is possible to do that and we had no problems when it comes to taking another way’—Manager of an innovative project</td>
<td>‘One has to ensure good management of units in the municipality. Finding a balance among providing more autonomy for units, staying within the budget and performing core activities well while applying for external funds is necessary, but extremely challenging. Nevertheless, it is necessary when one wants to work on innovative projects’—Former Mayor</td>
<td>‘Our employees know that they have managers, someone who will support them in doing such innovative projects. It is safe to try out new things here’—Head of the Knowledge Center</td>
</tr>
<tr>
<td><strong>Autonomy to act</strong></td>
<td>‘The idea was that those who work with the issues in their professional area at the bottom of the organization are the most suitable to identify new solutions and come up with new and innovative ideas. The politicians and the top administration managers thought that this sounded reasonable. That is why we decided to ‘empower’ our employees’—Chief Administrative Officer</td>
<td>‘The unit managers must be brave enough to let the employees use their knowledge, skills, and available resources to develop innovations. That is the key to success in the work with innovation here’—Chief Administrative Officer</td>
<td>‘The municipality of Asker allows me as an employee to think a bit ‘outside the box’. If I come with a proposal, then I will be taken seriously. This means that we have room to try out our ideas’—Manager of an innovative project</td>
</tr>
</tbody>
</table>
### TABLE 3

Three types of dynamic innovation capability

<table>
<thead>
<tr>
<th>Key characteristics</th>
<th>Individual-driven dynamic innovation capability</th>
<th>Interaction-driven dynamic innovation capability</th>
<th>Structure-driven dynamic innovation capability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipality</td>
<td>Arendal</td>
<td>Narvik</td>
<td>Asker</td>
</tr>
<tr>
<td>Trigger for the taken path</td>
<td>Restructuring of the organizational structure in the late 1990s</td>
<td>A long-lasting, very difficult economic situation and the decision to give the unit managers authority to assess which innovations are to be implemented</td>
<td>Establishment of the Knowledge Center in 2003</td>
</tr>
<tr>
<td>Financial status</td>
<td>Tight economy, little money for innovation development</td>
<td>Tight economy, very little money for innovation development</td>
<td>Decent economic situation</td>
</tr>
<tr>
<td>Dominant group of micro-foundations</td>
<td>Individual-level</td>
<td>Interaction and process-level</td>
<td>Structure-level</td>
</tr>
<tr>
<td>Approach to innovation development</td>
<td>Innovations spontaneously developed by creative and enthusiastic individuals</td>
<td>Innovations developed as a result of interactions between employees and top administration managers</td>
<td>Systematic work on innovation development by the employees and top administration managers</td>
</tr>
<tr>
<td>Approach to innovation implementation</td>
<td>No standard tool to implement innovative projects</td>
<td>Some tools to facilitate the organization and implementation of innovative projects</td>
<td>Standard tools for the implementation of innovative projects</td>
</tr>
<tr>
<td>Approach to experiential learning from innovations</td>
<td>No systematic storage of knowledge and experiences—spontaneous sharing of knowledge and experience among employees and administration managers, usually through personal interactions and meetings</td>
<td>Mix of spontaneous and systematic sharing of knowledge and experience—the preparation of some documents, sharing routines combined with an emphasis on learning in face-to-face interactions</td>
<td>Systematic storage and sharing of knowledge and experiences—the use of portfolio management and digital tools through which experiences from projects can be shared</td>
</tr>
<tr>
<td>Formal emphasis on innovation</td>
<td>No formal document emphasizing the importance of innovation for the organization has been implemented</td>
<td>No formal document emphasizing the importance of innovation for the organization has been implemented</td>
<td>A formal document emphasizing the importance of innovation for the organization—’Innovation Strategy’—was formulated and implemented</td>
</tr>
</tbody>
</table>