

## Making bottom-up and top-down processes meet in public innovation

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# **Making bottom-up and top-down processes meet in public innovation**

## **Abstract**

Innovations in an organisation derive from multiple sources. In the public sector, users and the policy sphere provide important but often unconnected impulses for innovation. These impulses are transmitted into the organisation by grassroots employees who interact with users, and managers who implement policy requirements. The article examines the actors and activities that coordinate bottom-up and top-down initiatives and promote their development into innovations. It creates a theoretical framework that combines the views of employee-driven innovation and strategic reflexivity and supplements them with an analysis of coordination in innovation processes. The functioning of this framework is illustrated in the context of children's day care services. The results highlight the central role of middle managers and provide new knowledge regarding their 'bridging' activities in innovation. The adjustment of bottom-up and top-down processes requires the personal involvement of managers, and the creation of communication arenas, networks and mediating tools.

Keywords: employee-driven innovation; strategic reflexivity; bottom-up and top-down processes; coordination; public services

## **Introduction**

Innovation has become increasingly important in meeting today's societal challenges. In the public sector, innovation is considered a central means for promoting welfare while simultaneously resolving efficiency demands. Policy-makers, managers and front-line workers are pushed to find new cost-cutting solutions that are necessary because the demand for public services is increasing.

Innovations in public services are often analysed as top-down activities initiated by policy-makers rather than bottom-up activities initiated by actors from lower organisational levels (Windrum, 2008). Regulations and policies are carried out to protect the public interest, when governments consider markets (public or private) inadequate in some way. Policies may include various goals such as the price, quality, environmental impact, equity, sustainability and safety of the service (Flynn, 2012). A problem for managers is how to match the public policies and programmes aimed at encouraging system-level changes with respective new practices at the local level. Another problem is that the public sector is highly sectorial between policy domains, and tightly layered according to administrative hierarchy, which often hinders the spread of innovative activities (Bason, 2010).

Allowing political slack, leaving enough room for interpretation and variations in policy implementation, is one way of leveraging the capabilities of local leaders in service provision (Contandriopoulos & Denis, 2012). However, because the renewal of the public sector has rested on structural reorganizing and policy implementation, the role of employees has remained restricted – they are usually regarded as adopters of changes imposed by policy-makers rather than innovators. The initiative activities of employees have been sometimes considered beneficial, but even then they have not been connected to structural renewal. However, surveys conducted in the USA indicate that about half of all innovations originate from middle managers or front-line workers, and the other half from agency heads, politicians, interests groups and individual citizens (Borins, 2002). While these studies do not reveal the background dynamics, they do describe the significant variety of sources of innovations. They also question the traditional argument that managers in the public sector focus on budgeting and routine operations instead of innovation efforts (Bason, 2010) – it seems that innovation

activities exist on all levels of public organisations.

Recently, an increase of theoretical interest in this field has been visible. There is an emerging body of literature based on the concept of ‘employee-driven innovation’ (EDI), which highlights the abundant ideas and solutions created in the user interface (Kesting & Ulhøi, 2010). The studies that apply this concept typically focus on *sources and drivers of innovation*, but there are also efforts to describe *innovation processes* in this context. Instead of the traditional stage-gate models (e.g. Cooper & de Brentani, 1991), researchers have sought for more flexible models – the application of the concept of ‘bricolage’ is an example (Garud & Karnøe, 2003; Fuglsang & Sørensen, 2011). Attempts have also been made to develop *a general framework for the management of innovation* in the public sector, including the aim to show how several simultaneous innovation processes can be integrated. The framework of strategic reflexivity is a particularly promising approach in this respect. It highlights the role of management (top-down processes) but also takes into account the stimulation of bottom-up processes and points out the importance of reconciling these activities which originate from opposite directions (Fuglsang & Sundbo, 2005). However, it does not examine the actors and activities that make the processes meet. Due to the layered organisational structure and the embedded policy aspect, the encounter and adjustment of top-down and bottom-up development is particularly challenging in the public context. To tackle this challenge, we suggest that the ‘classic’ views of the modes of coordination by Van de Ven, Delbecq and Koenig (1976) could be taken as the starting point.

Summarising, the background theories, concepts and approaches used in this study are: employee-driven innovation (grassroots sources and processes of innovation), strategic reflexivity (the framework of innovation management including policy implementation) and coordination (adjustment of activities and tasks within and

between innovation processes). Combining these different perspectives is the general contribution that we aim to provide in our study. A particular research gap that we have identified in the literature concerns detailed understanding of the actors and activities that carry out the brokering – the ‘bridging agency’ – function between the bottom-up and top-down innovation processes, which in the public sector tends to evolve more or less independently. Thus, we pose the following research question to guide our study: *What kinds of practical activities make the bottom-up and top-down innovation processes meet in the public sector and which managerial actors are the most crucial in this respect?*

Our focus is on *innovation management at the organizational level*, not primarily on the nature of public innovation as an outcome or a process. However, we consider it important to specify the definition of service innovation to be applied in order to avoid the vagueness that sometimes characterises the discussion. We apply the following definition, which includes both the outcome and process aspects: ‘A service innovation is a new service or such a renewal of an existing service which is put into practice and which provides benefit to the organisation that has developed it; the benefit usually derives from the added value that the renewal provides the customers. In addition, to be an innovation the renewal must be new not only to its developer, but in a broader context, and it must involve some element that can be repeated in new situations, i.e. it must show some generalizable feature(s). A service innovation process is the process through which the renewals described are achieved.’ (Toivonen & Tuominen, 2009, 893.)

This definition follows the Schumpeterian (1934, 1942) views on innovation, supplemented with the criterion of generalizability, which is important in the service context (Gallouj, 2002). As regards the innovation process, the significance of the

accumulation of new insights in everyday practices has been highlighted in both the general innovation literature (Lundvall, 1992) and the service innovation literature (Gallouj & Weinstein, 1997) since the beginning of the 1990s. This view is ‘a building block’ in the approach of employee-driven innovation, implying the appreciation of incremental innovations that may gradually even lead to radical breakthroughs. The definition provides us an analytical framework to focus on how the idea evolves from the hands of single employees into implemented activity for wider context, thus setting a solid basis for our theoretical elaboration and our empirical analysis.

In addition to theoretical elaborations, our research includes case studies that offer the opportunity to unfold the dynamics of bottom-up and top-down interaction. We investigate the development of public services through multiple innovation processes and focus on the activities of employees and managers in initiating and coordinating the processes. Our empirical cases describe developments in municipally organised children's day care in two Finnish cities. The first case shows how unprejudiced management actions turn pressures to cut costs into a successful increase in the range of services. The second case illustrates how an employee-driven innovation process may develop into a rich local experiment including international contacts, and how crucial middle management activities are in spreading the new concept. The results highlight the central role of middle managers and provide new knowledge regarding their ‘bridging’ activities in innovation.

We have structured the paper as follows. We first present our theoretical background consisting of the approaches of employee-driven innovation, strategic reflexivity and coordination. We then proceed to presenting the data and methods, and describing the two cases. Next we discuss our empirical findings, focusing on the middle managers’ activities in promoting the innovations initiated by the front-line

employees and the top management, and including the perspectives of users and policy-makers. We conclude with theoretical contributions, managerial implications, limitations of the study and suggestions for future studies regarding innovation in the public sector.

### **Theoretical views on the management of innovation in public services**

Our theoretical framework consists of three complementary parts. First, we review how the literature on *employee-driven innovation (EDI)* analyses employees' and managers' roles and activities in renewing public services. Second, we examine the approach of *strategic reflexivity* as a way of structuring the whole, consisting of bottom-up and top-down processes in innovation. Third, we apply the *coordination* perspective to better understand the linkages of concrete actions within and between innovation processes. Finally, we summarise these approaches by creating a conceptual framework that is the basis for our empirical study and illustrates the research gap that we aim to narrow.

### ***Employee-driven innovation and the role of managers***

Central to employee-driven innovation (EDI) is the assertion that managers do not possess all the creative skills or all the knowledge in organisations. Front-line service workers may have *a better understanding of user needs based on the daily interaction*, but their creative potential is often under-utilized (Hasu, Saari & Mattelmäki, 2011). Employees may also have relevant network contacts outside the organisation, which may lead to potential sources of new knowledge and ideas (Kesting & Ulhøi, 2010). Thus, employees are important actors when organisations aim to open their boundaries and utilise the principles of open innovation (Chesbrough, 2011). In general, EDI means that employees' resources – ideas, creativity, competence and problem-solving abilities – are the driving forces of the innovation. However, in order to implement the ideas, the

bottom-up process needs to be supported, recognised and organised by the management (Høyrup, 2010).

From the perspective of managers, the overflow of ideas and solutions from employees may threaten the order of the system and appear chaotic and unpredictable. There are several alternatives to solving this problem. First, managers may join and empower employee-driven efforts by allocating new resources and formalising them. Second, managers may take initiative in innovation and invite employees to participate in top-down innovative processes. (Høyrup, 2012) Managing employee-driven innovation is not only a question of the flow of communication and coordination between bottom-up and top-down innovation processes. Managers have to perceive employees' initiatives as future opportunities for the entire organisation. An attempted innovation from the manager level may also fail if the employees do not recognise it as relevant at the front-line level (Brandi & Hasse, 2012). Employee-driven innovations emerge in organisations in which managers allocate planning time for the innovations, offer organisational recognition and support, and allow employees' participation to multiple social arenas inside and outside the workplace (Høyrup, 2012). It should be noted that emphasizing the needs of customers, participatory decision making, power sharing and learning have been proposed as vital ingredients in organizations' innovativeness already in the 1990's literature on market orientation (Kohli & Jaworski 1990; Hurley & Hult 1998). These studies, however, were based on quantitative surveys, and did not reveal actions and activities of the managers between bottom-up initiatives and organizational goals.

Until now, the main part of EDI literature has focused on employees as sources and drivers of innovation, who transmit real-life information on the needs of users and combine this information with their own ideas. There are, however, some related

approaches that have tackled the issue of the innovation process. The discussion based on *the concept of bricolage* is important in two respects. First, it provides a practice-based alternative to process models that consist of a well formulated goal and planned milestones towards that goal. Bricolage is the process of co-shaping an emerging path: various actors offer inputs to generate a virtuous learning circle. The gradual building of competences via learning by doing and through interaction plays a crucial role. The boundaries blur between design and implementation, and between rulemaking and rule following (Garud & Karnøe, 2003). Second, the bricolage view suggests that in a situation characterised by resource constraints employees may find innovative solutions based on ‘whatever is at hand’ (Baker & Nelson 2005; cf. Lévi-Strauss 1967). Both aspects are relevant in the context of employee-driven innovation, and the latter view is particularly useful in public services whose development typically has to take into account the conditions of scarce – even diminishing – resources.

So far, empirical analyses on employee-driven innovation processes have been rare. There are, however, a few earlier studies that are quite similar to our own approach. Fuglsang and Sørensen (2011) analysed the connection between top-management-initiated, management-mediated and employee-based innovation in the context of home care for the elderly. They concluded that there is a need for simultaneous fostering of these processes and loose coupling between the different innovation types. They also call for managers to better recognise employee-based bricolage, referring to mundane problem-solving activities with the resources at hand.

Although EDI recognises employees as a source of creativity and emphasises the role of managers in empowering bottom-up innovation processes, it has not unfolded the activities of managers (Brandi & Hasse 2012). We propose that the relationship

between bottom-up initiatives and top-down renewal should be seen as a critical point for innovation management theory and empirical analysis.

***Strategic reflexivity as a way to combine stimulation and control in innovation***

Sundbo and Fuglsang (2002; see also Fuglsang & Sundbo, 2005) present strategic reflexivity as answering the challenge of innovation through a process which does not usually include smooth interaction in a well-ordered environment, but is a fragmented and even conflict-based game amongst uncertainties. They discuss the need for a strategic and reflexive stance at three levels: between an organisation and its environment, between different ‘structures’ in an organisation, and between individual actors in an organisation. The concept of reflexivity highlights the reflections on the purpose of organisations and the goals of actors, as well as the interpretations of the interplay with the environment. The concept of strategy suggests that the questions ‘why, when and how to innovate’ should be carefully considered.

According to Sundbo and Fuglsang (2002), the notion of strategic reflexivity is implicit in the majority of present innovation theories. However, they want to make this approach more explicit. From our viewpoint, their discussion of the role of management in service innovation is particularly relevant. Thus, we concentrate on this discussion, which focuses on *the interaction between different structures in an organisation*. Sundbo and Fuglsang base their analysis on the theory of the dual structure of society by Giddens (1984), which they apply in organisations. According to them, organisations include a managerial structure and a loosely coupled interactive structure, in which employees and managers participate. These structures operate with different logics. The managerial structure operates with a hierarchical logic, guiding the organisation’s activities. The loosely coupled interactive structure is the ‘realm of creativity’ in which the ideas emerge and in which innovation champions - also called ‘intrapreneurs’ or

‘knowledge angels’ – promote them (Sundbo, 1996; Muller, Zenker & Ramos, 2012). These ideas are represented, shared and distributed through interactions between employees, managers and external actors.

The logic of the loosely coupled interactive structure is in line with the basic rationale of EDI (cf. Kesting & Ulhøi, 2010). The framework of strategic reflexivity highlights *the role of top-down processes* in particular (Sundbo & Fuglsang, 2002; see also Sundbo, 1996). The task of the management is to focus the attention of individuals onto the potential for changes in the organisation instead of lapsing into the status quo. The stimulation of innovative thinking is one of the main responsibilities of the management. With this approach, employees are encouraged to create new interpretations of the organisation’s purpose, strategy and environment, and the participation of people with diverse skills and frames of reference is organised according to the principles of empowerment.

However, management also has the task of controlling and channelling innovativeness: to link purpose and meaning to local innovations. The managerial top-down structure of an organisation aims at efficient implementation of new ideas created within the interactive bottom-up structure. It disseminates and institutionalises the renewals in the organisation and makes sure that the organisation’s overall goals are accounted for in the local innovation processes. It brings the whole to the parts and collects the parts into a whole. (Sundbo & Fuglsang, 2002; cf. Van de Ven, 1986)

Although the approach of strategic reflexivity focuses on managerial tasks, it describes an organisation’s innovation processes as continuous interaction between managers, employees and users, and promotes the importance of harnessing employees’ competencies and knowledge. It is not the opposite to EDI, but concentrates on a different actor group. Its particular contribution is a managerial framework for the

efficient implementation and dissemination of local solutions. However, it does not describe how the employee-driven and strategy-based processes could actually meet. We propose that the perspective of coordination provides a starting point for tackling this challenge.

### ***Modes of coordination within and between innovation processes***

Coordination is an issue that has been discussed in organisation theories for over 30 years. Linking this issue to innovation theories is rare, but Van de Ven has highlighted its importance in the management of innovation (Van de Ven, 1986). In this paper, we apply the analysis of the modes of coordination in particular (Van de Ven et al., 1976).

Van de Ven et al. (1976) define coordination as the interchange of information between two interdependent tasks or processes. Interdependencies can be of different kinds. Some tasks are implemented one after another, some are implemented in turns, and others are implemented simultaneously. In the first two cases, information is produced in one task, given to another task as input, and then applied in the implementation of this task. The third case is more complicated: as tasks are being implemented simultaneously, the implementation of each affects the implementation of the others. As a result, requirements for scheduling, resourcing or substantive contents may emerge. Decisions and choices regarding these aspects in one task affect those made in another task and mutual adjustments are needed. Interdependencies may exist between tasks within an innovation process or between innovation processes. Due to our interest in reconciling bottom-up and top-down processes, we focus on the latter.

Different modes of coordination can be applied in managing the different types of interdependencies between processes. The *impersonal mode of coordination* relies on pre-established plans, rules, policies, schedules, and standardised information and communication channels. They achieve coordination by programming tasks and

processes to be performed in the organisation. *Personal and group modes of coordination* rely on feedback from the tasks and processes as they are implemented. Personal modes of coordination function by individuals acting as communication channels in the organisation. Group modes of coordination function through scheduled and unscheduled meetings as communication channels. (Van de Ven et al., 1976)

The impersonal mode of coordination is particularly usable when the coordinated tasks or processes are implemented one after another (Van de Ven et al., 1976). From the viewpoint of innovation, this means a natural linkage to processes that consist of separable stages. In recursive processes, and particularly in the processes that merge planning and implementation (e.g. bricolage), coordination modes based on feedback are necessary, as they provide a means for the *mutual adjustment of tasks*. This implies that the personal and group modes of coordination are highlighted in the employee-driven innovation context. However, the significance of the impersonal mode cannot be underestimated either. Already in the 1970s, the researchers stated that usually the different mechanisms of coordination are needed simultaneously (ibid.).

In the framework of strategic reflexivity (Sundbo & Fuglsang, 2002), the construction of communication structures and information channels is one way in which the managers can stimulate and channel the creativity of employees. The three modes of coordination provide a tool with which to analyse these actions and thus partially unfold the dynamics of strategic reflexivity. A hierarchical structure is often based on impersonal and personal communication channels, and an interactive structure on personal and group communication channels. However, Sundbo and Fuglsang present multiple ways of promoting strategic reflexivity, and some of them are difficult to interpret through the lens of information and communication (e.g. reward systems).

Thus, the perspective of coordination should be broadened to take into account other organisational practices.

Another problem is that the coordination approach concentrates on processes that exist and are known. However, in the innovation context it is usual that the processes to be coordinated are only emerging. In our empirical study, we aim to illustrate how the latter types of processes are shaped as the managers gain insight into the employee-driven initiatives as parts of wider objectives of the organisation. Before the empirical case analyses, we summarise the above-described theories in an integrated framework which also includes the research gap that we have identified.

### ***Summary of the approaches in an integrated theoretical framework***

Figure 1 summarises the relationships between the approaches of employee-driven innovation, strategic reflexivity and coordination as partly overlapping and complementary. By using these approaches we study practical activities and actors that make bottom-up innovation processes meet top-down processes. The dynamics of intertwining the organizational goals and policies of the top management to initiatives emerging from the mundane problem solving and creativity of the employees and users is the empirical phenomena in focus.

[Figure 1 to be inserted here]

While EDI focuses on bottom-up processes and strategic reflexivity focuses on top-down processes, they tackle the same challenge of stimulating innovativeness among employees by *empowering* them and by harnessing their capabilities. The *managerial* perspective is also included in both approaches, but it is discussed in more detail in the framework of strategic reflexivity, which points out the need for balancing stimulation

and control in innovation. The *needs of users* are embedded in the EDI approach: it highlights the mundane problem-solving that takes place in the interaction with users. The needs of users are also reflected in the formulation of policies. Thus, they are transmitted to organisations via policy implementation, which is a managerial task and an important part of the goal-directed activity included in strategic reflexivity – in the public sector in particular.

In both EDI and strategic reflexivity, innovation is the main focus of theorizing. Understanding the *nature of innovation* is also similar: innovation processes are seen as inherently uncertain and complex with changes of many sorts. Thus, both approaches are based on a recursive and cyclical view of innovation (Kline & Rosenberg, 1986; Lundvall, 1992). This view highlights innovation as repetitive sequences of goal formulation, implementation and modification – a process in which goals are constructed and enacted on the basis of previous actions.

The approach of coordination does not originate in innovation research but the works of some scholars (e.g. Van de Ven, 1986) has provided new insights concerning the institutionalisation of innovative ideas in organisations and highlighted the importance of organisational infrastructures in which innovation can flourish. In our study, the perspective of coordination is necessary in order to enable the analysis of actors and activities that make the bottom-up and top-down processes meet. The identification of the different modes for the adjustment of activities within and between innovation processes is an important step towards understanding how the processes that originate from different levels and parts of the organisation form a unified whole.

## **Data and methods**

We conducted our case studies as part of a research project regarding the renewal of services in seven Finnish public sector organisations. These organisations were chosen

for the study because they had been identified as forerunners in public innovation; in the research negotiations, they were able to refer to several on-going innovations as potential objects of study. This kind of *precursor analysis* is a generally used sampling method in futures studies that are tightly linked to innovation (Coates, 1996). Here, we focus on two cases, which trace innovation processes in a middle-sized town, Hämeenlinna, and in a larger city, Vantaa. The criteria for selecting the two cases was that the employees and the middle managers had significant roles in initiating the innovation, their top-down and bottom-up processes could be clearly identified and described, and the impacts of the innovation processes developed across the borders of a single local organisation and took a long period of time. Both cases represent the context of children's day care services.

The data was collected during one year, 2011, covering innovation processes that lasted from 2000 to 2011. In both cases, we identified several actors involved in the innovation processes: policy-makers, service directors, managers, supervisors and employees. In the city of Hämeenlinna we chose a local service experiment, called *Forest Pre-School*, as our case. The Vantaa the case describes a set of operational and policy measures aiming to offer *Light Day Care Services* to families. We collected our data by interviewing participants chosen by snowball sampling (cf. Noy, 2008). In Hämeenlinna we interviewed 9 informants and in Vantaa 14 informants. Each interviewee was asked to tell the story of the chosen innovation case from his or her own perspective. This part covered the entire trajectory of the innovation from its emergence to the **beginning** of diffusion. Additional questions were made on interviewee's own participation and activities during the process. Common themes such as orientation to users, employee-driven innovations, innovation management and work-related well-being were also discussed in the interview. All the interviews were

recorded and transcribed. In addition, we observed a day in the Forest Pre-School and a development meeting of the children's day care units in Vantaa related to the dissemination of good practices. Field notes were written during and after the observations. We also collected documents, plans and newspaper articles concerning the two innovation processes during each interview. This data consisted of 43 documents from case Vantaa and 38 documents from case Hämeenlinna.

In the first phase of the analysis, we created a thick description of each innovation process. A thick description explains behaviour in its social and cultural context (Hennink, Hutter & Bailey, 2011). This means respecting the multiple perspectives of the participants and focusing on their personal narratives of the innovation. Multiple data sources and various perspectives of the informants guaranteed the triangulation of both case descriptions, thus increasing the validity of the study. (Jick 1979, Miles & Huberman 1994).

In the second phase, the description of the case was presented to the representatives of the organisations. This feedback seminar was an occasion to further validate the analysis and to provide a collective sense-making arena for the participants to reflect on the innovation processes and lessons learnt so far. Both meetings were videoed with the participants' written consent.

In the third phase, the empirical thick descriptions were analysed against the theoretical and conceptual model (figure 1). Both innovation cases were analysed by identifying service directors' and supervisors' activities which had promoted either bottom-up or top down innovation processes. Furthermore, three coordination modes were interpreted from the cases. First two authors conducted all the interviews and analyses. The interpretations of innovation management actions and coordination mechanisms were developed and discussed by all the authors until consensus on was

reached (Miles & Huberman 1994). The participation of several researchers increased reliability of the analysis. The final results of the analyses are presented in tables 1-2. The conceptual model gave a framework for the comparison of the two cases in order to clarify what distinguishes each story from the other (Hennink et al., 2011). By exploring two innovation cases from two different municipalities, but from the same service context, we aimed to reveal how the actors and actions of the different hierarchical levels influence the innovation processes.

### **Context and case descriptions**

Finland has been a pioneer in social policy by supporting long-term maternity leaves (up to 10 months). However, since the 1970s, women with families have been strongly encouraged to work full time. Since 1996 the law has guaranteed parents with children aged 0-6 access to day care in their own municipality. By 2010, about 62% of children aged 1-6 were in municipal or private day care (National Institute for Health and Welfare [NIHW], 2011). The right to day care also applies also to parents who are not employed, or who take care of their younger children at home. Many of these parents use this right because they do not want to jeopardize the continuity of their older children's day care places.

Early childhood education and care in Finland has been traditionally organised by the welfare administration, with emphasis on the basic care of children. Nowadays the children's day care is administered by the education administration, which has shifted the emphasis to pedagogical content of services, enabling new variations and pedagogical experiments. Our two case cities are forerunners in this emerging development and thus give a prominent environment for observing both bottom-up and top-down innovation processes.

### ***Case: Light Day Care Services in the City of Vantaa***

In Vantaa, the 2008 financial crisis resulted in a steep decline in tax revenue. This created pressure on the politicians and top management of the city to take measures to balance the budget. In the fall of 2009, the different political groups in the city council formed in a joint statement, called the 'Vantaa agreement'. The political groups launched three objectives: 1) To maintain public services to citizens, 2) To increase the municipal tax rate, and 3) To pursue changes in service structures to develop the range of services offered. This statement guided the budget planning of all service sectors in the city organisation.

After an explicit demand from the city council to '*come up with new solutions instead of simple budget cuts*', the service director of children's day care collected the ideas from her personnel and created a portfolio of five changes in the provision of day care services. These changes stemmed from existing pilots and ideas collected from the employees and users during previous years, as well as from experiences of other cities. These included 1) an increase in home care subsidy, 2) restricting the subsidy to those not using full-time day care, 3) guaranteeing a place in day care in the future for children who are taken from full-time day care to home care, 4) increasing club activities for children, and 5) setting up ad hoc day care services for children mainly taken care of at home.

Even before the 'Vantaa agreement', many administrative regions in the city had offered variations in their day care services locally. These variations made it possible for the day care organisation to develop the five-part development portfolio rapidly, as many of the ideas already existed as local employee-driven innovations. An example is a sports club developed by a kindergarten teacher wanting to work part-time. Her superior asked her to make a suggestion as to how she would organise her work

differently. As a result, she developed a plan for a children's sports club based on her background in sports and utilizing the nearby facilities of the city. The plan was passed upwards in the hierarchy and was given support and resources. The new club began within a few months.

Nowadays, the day care organisation has a structure for development activities. It consists of various development forums on all levels of the organisation. Instead of having various development activities the organisation focuses annually on a specific theme: e.g. how to promote physical exercise or learning from nature in day care centres. Initiatives, ideas, material, and results are communicated and disseminated through the development structure. Each employee, supervisor and manager participates in the activities in one form or another. Some employees work as part-time development coordinators, making sure that ideas and results are disseminated between units. The rapid implementation of the five-part development portfolio utilised this structure.

The five-part development portfolio resulted in a significant increase in light day care services and a reduction in the use of full-time services, meaning considerable cost savings. Before the launch of this agreement, approximately 1250 children were in full-time day care in the city, of which at least one parent was at home taking care of younger children. The full-time care of these children cost about 8 M€ annually. As a result of providing light day care services, the demand for full-time day care from these families was reduced and cost savings achieved. In addition, the families were clearly satisfied with the types of services offered and the new flexibility in using them.

### ***Case: Forest Pre-School in Hämeenlinna***

The Forest Pre-School is a service improvement and a pedagogic renewal focusing on empowering children's relationship to nature, mediating ecological values and sustainable development. The innovation process originates from the early 2000s, when

a new day care centre was founded in a new residential area. The manager of the new centre encouraged the staff to use the surrounding forest and nature in their educational practices and training for it was provided. In early 2005, the manager realised that the number of pre-schoolers in the area would exceed the space available in the centre. Together with her staff, she created the idea of taking one group of pre-schoolers outdoors to alleviate the space constraint. The manager of the centre asked for an inspired kindergarten teacher to form a plan. Within few months, a small hut was built in the nearby forest for the outdoor group of pre-schoolers and the new service started.

The forest pre-school was run as a local peculiarity within the town for the next five years. The kindergarten teacher and the child-minder (previously a carpenter) complemented each other's expertise as they developed the educational practices together. They had local and international contacts to similar pedagogical experiments, which nurtured the original concept. Hämeenlinna joined a learning network between different Finnish day care centres, which apply 'forest pedagogy' in their early childhood education.

The local innovation proceeded without clear support from policy actors for several years. In 2005–2008, many structural renewals took place in Hämeenlinna's public service management on the entire city level, thus diminishing managers' focus on local innovations.

However, the development of the new educational concept continued. It was even acknowledged abroad. The development accelerated when the city selected a new director for children's day care. She decided that the concept should be disseminated to other areas in the city and took charge of these efforts using the expertise of the staff in the day care centre. The expanded municipality offered new areas for spreading the idea, and the concept of the forest pre-school became more general and applicable to

other age groups. The top management demanded the ‘productization’ of the local innovative service to make it transparent for the day care centres, families and the city council and board. At the same time the service director organized meetings for voluntary day care centres to distribute the concept. Six new centres started forest groups or pre-schools at Hämeenlinna by 2013. They are all new applications of the original Forest Preschool. They collaborate with each other and form a network to learn from each other. The role of the employee-innovator, the kindergarten teacher, was to act as the producer of the substantial content. She even wrote a book about her experiences and teaching methods in the Forest Preschool. In the following section we examine in more detail the activities of the middle managers in both cases.

## **Research results: comparison and analysis of cases**

### ***Actions of the service directors in coordinating bottom-up and top-down innovation processes***

The middle managers, whose actions are analysed, refer to hierarchical positions between policy actors and employees. The service director is in charge of the children’s day care services in the city-level, and the supervisors refer to managers of the day care centers. In Vantaa regional service managers worked between the service director and the supervisors. In the analysis their actions are included in the service director level. With the analysis, we point out similarities and differences in the cases, which may influence the successful management of innovation. Since both cases are success stories in their own right, our aim is not to point out which case is better. Instead we aim to highlight general lessons to be learnt.

Table 1 presents the activities of the service directors. The actions are divided into those that promote top-down (policy- and top-management driven) and bottom-up

(employee- and user-driven) innovation processes. Activities coordinating these processes are divided into personal-, group- and impersonal modes (Van de Ven et al. 1976).

[Insert table 1 near here.]

In the Vantaa case, the service director was the most significant coordinating actor. Although the starting point in the innovation came from the policy-level actors as demands to cut costs from service provision, she saw the demand as an opportunity to renew services and benefit from employees' initiatives. She gathered her surrounding staff and asked them to propose solutions:

I got my people together as quickly as possible, all other tasks were suspended, and [I said] 'we have exactly one day, we need everything this machine can give, everyone gives what they have.' And all units in this office sat in workshops or sessions or the like, and we, in a way, forced out the required cost savings and the solutions we can do. (Service director, case Vantaa)

This excerpt reflects the moment of combining bottom-up ideas into top-down frame. Continuous collaboration and communication in various development arenas made the staff and the managers aware of what was already emerging on the frontline in the different day care centres. Her actions reflect sensitivity to the needs of the families and the initiatives of the front-line workers. In the five solutions for increasing light day care services, they integrated top-down demands and bottom-up efforts and made them support each other. Previously formed interactive development organisation alongside the decision-making organization provided arenas (group mode coordination) for spreading pedagogical experiments horizontally without specific actions to disseminate light services.

The Vantaa case indicates efficient use of both personal and group communication modes in coordinating top-down and bottom-up innovation processes. The document with five-part solution represents impersonal mode of coordination as it became a common and material agreement adjusting the policy-level demands and employee-level solutions. A produced guideline how to market new services to families represent also impersonal mode of communication implementing the change in the day care centers.

In the Hämeenlinna case, the innovation effort was mainly employee-driven for the first years and there was no clear connection to policy actors. However, during the early development phase of the forest pre-school service director provided financial resources. Her personal visits to other cities' forest groups provided also a model and inspiration. During the five years of local experimenting, the top management and policy actors were busy with the merger of the city with its surrounding municipalities and with the creation of a purchaser-provider management model. This decreased management's attention to local innovations. As a result, the employees developed the service innovation to a mature level before it started to spread to other areas in the city. The recognition of the forest preschool by a foreign researcher made the service director start the diffusion activities, as she explained:

I signed the permission [requested by the foreign researcher] for the study, and then the researcher came to meet me. She was so impressed, and then I realized – oh my god! We have a treasure here in the middle of the forest here in Hämeenlinna. I have to do something! I became worried, what if she [the employee innovator] gets tired, how can I keep her here.. (Service director, Case Hämeenlinna)

This excerpt reflects a moment of recognising employee-driven innovation in the wider context and a point at which the construction of the missing top-down innovation process began. In terms of coordination, her actions were based on a personal mode of

communication at first, but organizing diffusion meetings, and her support for establishing a learning network between the new forest groups shifted the coordination to group mode. Productization as impersonal mode of coordination, made the new service applicable and recognized more widely.

***Actions of the supervisors in coordinating bottom-up and top-down innovation processes***

In the Vantaa case, the supervisors informed their superiors about their emerging club activities. After the co-construction of the five solutions, they encouraged their employees to increase club activities, and guided families to use them. The supervisors were the ones, who were the first to acknowledge the employees' competencies or their needs for working part-time. The spread of the innovation was thus leaning on their personal mode of coordination. The supervisors participated both in the horizontally organized development arenas and to the hierarchical decision-making arenas. This dual structure in the organization worked like a group mode of coordinating the innovation processes. Documents, such as brochures or informal curriculum of the local club experiments could be seen spreading them in impersonal way. Table 2 presents the actions of the supervisors.

[Insert table 2 near here.]

The Hämeenlinna case was more employee-driven as a whole, so the supervisor's relationship to the employee-level innovators was crucial in the initial phase. The supervisor protected the fragile innovation effort and reacted to every obstacle in its path, letting the educational staff focus on the brighter side of the development work. She encouraged and guided the employees towards extra training on the topic. In this

sense she leaned on personal coordination mode and provided a safe local ground for the innovation to grow. The group mode of coordination became active only later on. The network of forest groups emerged gradually across day care centres inside the city and with other cities. Also contact to researchers of the forest pedagogy gave support to the development of the innovation. When the forest pre-school was in its mature form, the diffusion of the concept was realized also in impersonal mode: the experiences were documented to a book and several newspaper articles.

### **Comparison of the cases**

The cases indicate that it is critical that managers make the bottom-up innovation processes meet top-down processes in order to gain wider impact. As managerial work, this means *intentionally utilizing all three modes of coordination*. Figure 2 outlines how the three modes of coordination were used to connect the bottom-up and top-down innovation processes and promoted the **city-wide** diffusion of the innovations in the two cases.

[Insert Figure 2 here]

When we compare the management activities of the innovation processes in the two cases, we notice that in both cases the service director's *personal involvement* and actions were crucial in combining the bottom-up processes with the top-down demands. They acted like translators, both making front-line workers' initiatives recognized upwards and making top-down efforts more operative and combining them with employee-driven efforts. The supervisors' role became most crucial in facilitating and encouraging employee-driven innovations locally in the early development phase. The activities and collaboration of both managerial levels were needed in the process, from

local experiments to organization wide innovations.

In Vantaa, *group mode* channels were more advanced in the level of the entire city and they functioned as systematic, visible arenas for exchanging ideas and spreading experiments. One reason for this might be that the city organisation was larger and thus needed more structures than Hämeenlinna. Another reason might be that they built a development structure alongside the decision-making organization. In Hämeenlinna, in the early phase, the group mode existed in the form of a network of outsiders instead of organizational units. However, the employee-innovator and the service director constructed the network also inside the city during the innovation diffusion to other geographical areas.

What made the managing *impersonal* and less dependent on personal actions was that in the course of both innovation trajectories, mediating tools were constructed, in the form of written statements containing principles, rules and knowledge. In Vantaa this was a five part solution document, and in Hämeenlinna a productization document.

## **Concluding discussion**

### ***Theoretical contributions***

This paper has focused on revealing the activities and actors that make the bottom-up and top-down processes meet in innovation in the public sector. Based on the theoretical analysis, we formed a framework that summarises the most essential earlier contributions to this topic and crystallises the research gap that we have aimed to narrow. We identified three theoretical approaches as particularly useful: employee-driven innovation (Kesting & Ulhøi, 2010; Høyrup & al, 2012), strategic reflexivity (Fuglsang & Sundbo, 2005), and coordination theory (Van de Ven & al.,1976). Employee-driven innovation emphasises the initiatives of employees – the bottom up

perspective – and highlights the need for managers to foster them. Strategic reflexivity opens up the managerial tasks, but relies more on the top-down perspective by pointing out that the strategy implementation may function as an important way to stimulate and channel innovativeness (Sundbo & Fuglsang, 2002). Coordination theory provides a starting point for the analysis of the various modes (impersonal, personal and group modes) that may integrate several innovation processes taking place in an organisation.

We carried out an empirical case study, with two cases, in order to gain a deeper insight into the brokering actors and bridging activities in public innovation. Our results indicate that the role of *middle managers* – in our cases the supervisors and service directors – is essential. The cases reveal the need for multiple empowering and coordinating activities by middle managers, thus contrast with traditional views on innovation management as an endeavour of strong, individual champion within an organisation. Top-down innovation processes are initiated in strategic management (and in the public sector are based more or less on political decision-making), and employee-driven innovation processes originate from front-line workers. Middle managers are positioned between these organisational levels, which typically leads to a coordination responsibility. Supervisors are most crucial actors in the creation of a local innovation, but upper management (service directors) are most crucial in coordination and implementing the innovation into wider use.

The role of middle management is demanding because it includes tasks of different nature, corresponding to the different points of emphasis of the three theoretical approaches we reviewed. First, in line with the focus of EDI, concrete activities that foster empowerment are required. The transformative agency of employees does not emerge by itself, but in order to become responsible agents in innovation, employees need recognition and respect from managers. Our study

contributes to EDI literature, in which concrete activities and actions of the managers supporting employee-driven innovations have not yet been much discussed or opened up at the level of fine-tuned empirical analyses (Brandi & Hasse 2011).

Second, the ability to match individual processes with the strategy is highlighted: middle managers are implementers of strategic reflexivity. They have to see employee-driven innovation and strategy-driven innovation as complementary processes that pursue a common goal. Fuglsang and Sorensen (2011) pointed out that many potential innovations in the form of bricolage occur without the perception of managers. According to them, it is also beneficial that some innovations develop outside management's control. The case analyses show that managers may intervene in the local level development either in its early or mature phase. However, in both cases different modes of coordination are needed before they become the entire organisation-wide innovations.

Third, new innovation processes do not only emerge among grassroots employees or within the top management (based on the strategy), but bottom-up and top-down innovation processes need to be initiated as part of the coordination work. Middle managers who often carry out the coordination task may also be co-developers of innovation. When examining coordination in more detail, we found that middle managers utilised all modes of coordination. The *personal mode* is important in the early phase of innovation. The *group mode* of coordination between the managers and innovator-employees makes the integration of different innovation processes more efficient. The *impersonal mode* of coordination enables the generalization of innovation, such as forming a new rule or plan that has ingredients from both strategy-driven and employee-driven innovation. When these rules are turned into written documents, they mediate the core ideas of innovation, and thus make the innovation

process less dependent on single managers' talk and actions.

Our study reveals interesting observations that at least to some extent oppose common sense views. It turned out that in large organisations, with several hierarchical levels, the spread of employee-driven innovations may actually be quite efficient because of the established communication arenas. In smaller organisations, the process may be too bottom-up orientated: the employee-driven efforts may continue in a single local part of an organisation for a long time, without a clear connection to the related top-down processes. In our smaller case organisation, the employee-innovators searched for support and networks from outside the city borders rather than from the top management of their own organisation.

Our cases, both of which are success stories, show that the critical encounter between employee-driven and strategy-driven innovation can be achieved in different ways. More specifically, *the bottom-up and top-down processes may meet in different periods* of the renewal trajectory. The focus may be on the early phase between numerous independent employee-driven innovation activities and the managerial attempt to create structural changes (possibly based on pressures from the policy level). The integration may also take place after the employee-driven development has achieved a mature form and content. Sometimes top management needs external contacts in order to realize the value of their own local employee-driven innovation. Our study also indicates the acceleration of innovation when the employee-driven and strategy-driven processes are successfully coordinated.

### ***Managerial implications, limitations and suggestions for further studies***

The main *managerial issue* derived from our study is how to support employee-driven innovation and how to integrate it with the top-down efforts. Employees' initiatives should not be utilised in the ideation phase only; their expertise is also needed in the

further development and implementation of ideas. Managers may foster the emergence of employee-driven innovations in two ways. First, they may support general innovativeness, such as offer chances for educating, allow employees to visit other organisations or even travel abroad to learn new ideas. Second, they may facilitate the development processes, by, for example, finding resources for experiments, and allocating time to improving services or planning new ones. Our study confirmed the significance of both of these actions. It also provided examples of the importance of bricolage: improvements born from problem-solving by frontline employees on the basis of the resources at hand.

Top-down renewal is usually experienced as a threat at the employee-level. However, it appears that if managers succeed in adjusting top-down renewals with bottom-up initiatives, employees engage in innovation activities quite easily. The managers should provide sufficient time and arenas for employees to develop services as part of their everyday work. Supervisors and managers may protect the positive spirit and well-being of employees by taking care of the institutional obstacles and promoting wider impacts of innovations.

There are some apparent *limitations* linked to the case study nature as our two cases were restricted to the same service area in one country. Nevertheless, we assume that the different activities of the middle managers identified have some generalizability even in other countries and service contexts. The data was collected from a cross-sectional round of ex-post interviews, rather than from long-term ethnographic observation of management actions. However, there is a significant overlap and complementary narratives from multiple respondents in the data. The analysis was carried out by two researchers separately, followed by discussions and adjustments in the interpretations. Thus, the process included respondent, data and researcher

triangulation (Miles & Huberman 1994; Jick 1979). The validity of the descriptions of innovation processes was also improved by presenting them to the actors of the case. Some details were corrected after the dialogue.

Our study opened up innovation management inside the sector of early childhood education. As regards the prospects for *future studies*, the care services – now organised in separate sectors for children, the young and the elderly – could learn from each other's ideas and ways of managing innovations. The emergence of cross-sectorial innovations could add a horizontal perspective for understanding the dynamics of innovations. Another interesting topic emerging from our study is the dynamics of the well-being of employees, and its connection to the organisation of innovation activities. In practice, the management of renewals and different actors' roles often remain invisible. More research is needed which analyses how public sector managers make employees overcome institutionalised obstacles for creativity and innovation.

The beneficial impact of the active appreciation of *user needs* in public service innovations was embedded in the study. In the case organisations, this appreciation manifested itself in the activities of the middle managers as they brought the need for specific services from the citizens at the level of the entire city and the experiences of the front-line service employees together. In service innovation literature, the value of customer or user co-creation in developing service innovations has been raised up (e.g. Gustafsson, Kristensson & Witell, 2012). We suggest that future studies should involve innovation processes in which both employees and customers are active participators. In addition to this dyadic perspective, studies including networks of innovators and applying the idea of open innovation are urgently needed, as public innovations increasingly concern – not only individual services – but service systems.

Both cases examined in this paper described innovation processes originating from economic or other forms of external pressures. They present a recovery from a potential crisis and also beneficial developments in the contents of the services. This result proposes an alternative way of thinking in the face of threats in public sector services – instead of simple budget cuts and subtractions in service offering, an organisation may respond to threats with beneficial innovations. Comparing processes with these different approaches is an additional topic for further research. While our study has highlighted the coordination of bottom-up and top-down processes in innovation, in the longer term, the issue of profitability could be conceptualised from a new angle based on these kinds of comparative studies.

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Table 1: Innovation management activities at service director level

Service director-level	Vantaa Case	Hämeenlinna Case
General role	Combining demand of cost-efficiency and employee-driven efforts	Enhancing and transferring an employee-driven effort to policy level
<b>Activities promoting top-down processes</b>	<i>Responding</i> to policy-level Vantaa agreement to demand to cut costs <i>Translating</i> of information regarding 1250 children in full-time day care with parent(s) at home into possibility to develop new services	Despite focus on structural renewal and development of pp-model at policy-level, <i>support of</i> forest pre-school Gradually more <i>focus</i> on and <i>recognition</i> of pedagogic variations
<b>Coordination activities</b>		
Personal mode	<i>Communicating</i> policy-level demands on cost cuts and service structure development to leaders and staff. <i>Organising</i> staff to design five-part solution. This gathered together earlier experiments by employees, external ideas and child care subsidies.	<i>Granting of permission</i> and provision of resources to start first forest pre-school <i>Spreading</i> of concept to the city after five years of local activity <i>Providing resources</i> for new huts and ordering them
Group mode	<i>Forming</i> interactive structure for horizontal and vertical distribution of information and development of practices and ideas in organisation.	<i>Organising</i> diffusion meetings to disseminate concept in the city
Impersonal mode	Using solution document with five-part solution to encourage and direct local development of services. Producing guideline for user guidance of new services.	Productization of forest group concept (a document) made features of new service transparent to policy-actors, employees and users
<b>Activities promoting bottom-up processes</b>	<i>Identifying</i> part-time clubs developed by employees as new service solution. <i>Encouraging</i> staff to spread club activities.	<i>Visiting</i> other cities' forest groups before idea initiation in home town <i>Allowing</i> entire day care center and local community of citizens to use new huts

Table 2: Innovation management activities at supervisor-level

Supervisor-level	Vantaa Case	Hämeenlinna Case
General role	Encouraging EDI and spreading new services	Facilitating and securing EDI
<b>Activities promoting top-down processes</b>	<i>Encouraging</i> employees to experiment and develop new club services <i>Actively guiding users</i> to new services.	<i>Seeing problem as opportunity</i> for new service: growing number of pre-schoolers provided opportunity to move group outdoors <i>Contacting</i> local media to make families recognize value of pre-school
<b>Coordination activities</b>		
Personal mode	<i>Acting as mediators</i> between experimenting employees and service directors. <i>Facilitation of decision-making</i> regarding the experiments, e.g. regarding decisions on costs and resources.	<i>Visiting</i> pioneer day care centres in other cities <i>Fighting for and negotiating</i> resources and new tools <i>Giving credit</i> to employees
Group mode	<i>Participating</i> in interactive development structures and formal decision-making structure meetings. Allowing employees to have local development meetings.	<i>Widely educating staff</i> in using nature in early childhood education
Impersonal mode	<i>Documenting</i> local club experiments helps their generalization and wider communication.	Guidebook on forest pedagogy written by the employee-innovator spreads pedagogy
<b>Activities promoting bottom-up processes</b>	<i>Translating</i> employees' needs for flexible work arrangements into ideas for new types of services. <i>Utilising</i> employees' specific, extra competencies in new services. <i>Supporting</i> employees' participation in development meetings and training. <i>Translating</i> families' needs into ideas and experiments of new types of services.	<i>Empowering</i> kindergarten teacher to plan, providing her with opportunities for extra training and to obtain ideas from abroad <i>Welcoming</i> parents to give their knowledge and equipment



Figure 1: Relations between theoretical backgrounds

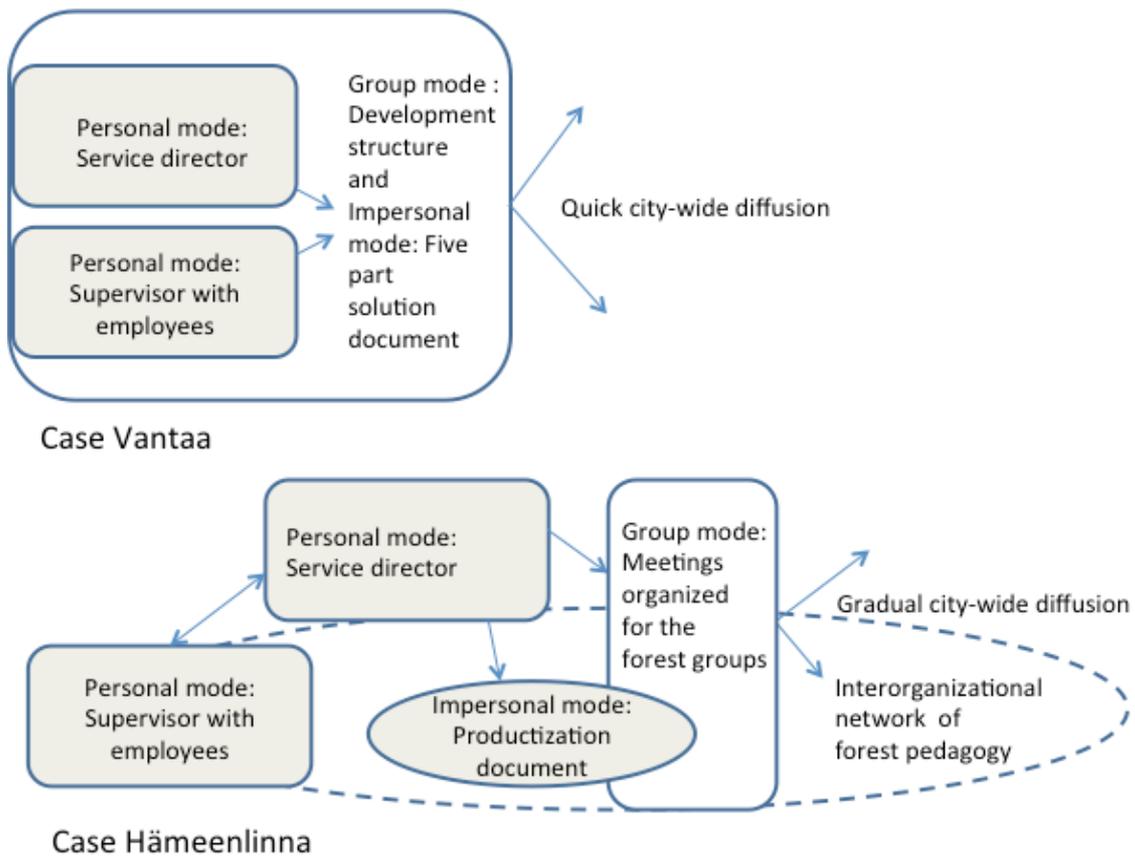


Figure 2: Coordination modes in empirical cases