

## Innovative work behaviour in knowledge-intensive public sector organizations: the case of supervisors in the Netherlands fire services

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### ABSTRACT

Studying innovative employee behaviours within knowledge-intensive public sector organizations (KIPSOs) might seem an odd thing to do given the lack of competitive pressures, the limited identification of the costs and benefits of innovative ideas and the lack of opportunities to incentivize employees financially. Nevertheless, KIPSOs require innovations to ensure long-term survival. To help achieve this goal, this paper explores the role of supervisors in supporting innovative work behaviour (IWB) by considering the unique challenges of KIPSOs and the conditions and characteristics of IWB in this context. Based on our rich qualitative data of a single case study in the Netherlands Fire Services, we demonstrate the ability of public-sector supervisors to engage employees in innovative behaviours. On the downside, implementation failures and a lack of radical innovation projects seem to be the result of loosely coupled bottom-up and top-down innovation projects and decentralization in the KIPSO which requires situational leadership that emphasizes networking activities and lobbying with public managers.

### KEYWORDS

Innovative work behaviour; knowledge-intensive public sector organizations; the role of supervisors; public leadership

### Introduction

Employees' innovative work behaviour (IWB), defined as the development, adoption and implementation of new ideas for products, technologies and work methods by employees (Yuan & Woodman, 2010), is often claimed to be an important determinant of organizational success. In the public sector, innovation is viewed as the factor that contributes to the quality of public services and the problem-solving capacity (De Vries, Bekkers, & Tummers, 2016). Scholars studying the process of individual innovation within the public sector have found that IWB is likely to be restrained by more barriers and to a larger extent than in the private sector

(Borins, 2001; Damanpour & Schneider, 2009; Fernandez & Moldogaziev, 2012; Rainey & Bozeman, 2001). In public organizations, innovations can only be justified if they increase public value in terms of the quality, efficiency or fitness for purpose of governance or services (Hartley, 2005). These organizations operate in a political environment that lacks the competitive pressures and demands for performance improvements seen in private firms (Bysted & Jespersen, 2014) and this removes an important trigger for managers to stimulate innovativeness and IWB within their organizations. These organizations typically lack sales and profit indicators and incentives, have intangible, non-profit-related goals, have a large degree of political oversight and interventions by multiple authorities and interest groups (Rainey & Bozeman, 2001) and are funded primarily by governments rather than private investors (Hartley, 2005). Another barrier is the generally limited identification of the costs and benefits of the individual innovation process within public organizations. Reward systems for successful innovations are ill-defined, partially as a consequence of a lack of share ownership opportunities and the generally fixed nature of salaries with very limited bonuses (Borins, 2001). Further, the media and political oppositions expose public sector failures and publicly embarrass public servants (Borins, 2001). A general fear of failures may lead to strict central agency controls to ensure that public processes run smoothly. This context has led to bureaucratized, formalized and hierarchical systems, characterized by formal mechanisms, the widespread adoption of rules and regulations and the use of budget-based control systems, which together result in standardized services for the population (Hartley, 2005). Public employees typically 'apply the resources [available] for creation of innovative output as described by the top of the organization, i.e. the political system' (Bysted & Jespersen, 2014, p. 219), which limits the form of creative output. Although recent research from Scandinavia shows that public employees are not necessarily less innovative than employees in private organizations (Bysted & Jespersen, 2014), in general we know little about the innovative behaviour of employees in the public sector and even less how innovative behaviour can be initiated, and supported. It would be, however, too simple to claim our contribution to close this knowledge gap, and strive to understand the IWB in the public sector. Instead, we aim to generate new theoretical insights on characteristics of IWB, and the managerial impacts on it. Our practical contribution lays in the discussion on what these organizations can do to support IWB.

Public sector organizations are usually engaged in developing and providing knowledge (Starbuck, 1992) and so can be classified as knowledge-intensive organizations (KIOs). Since the work of public organizations largely involves the transfer of knowledge-based services, these organizations need to process knowledge effectively (Richards & Duxbury, 2014). Organizations characterized by these criteria are called knowledge-intensive public sector organizations (KIPSOs), that we define as organizations reliant on professional knowledge that provide knowledge-intensive services to create public value.

KIOs are characterized by a capacity to solve complex problems through creative and innovative solutions (Jenssen & Nybakk, 2009). To achieve this, they are dependent on the knowledge, creativity and innovative engagement of employees. Alvesson and Sveningsson (2003) discuss the ambiguity between creativity, which is necessary to be innovative, and formal knowledge, a requirement of KIOs. In some jobs, and particularly within the public sector given its characteristics, systematic knowledge might be more useful than the invention of something new. The bureaucratized system of many KIPSOs encourages the use of systematic knowledge and inhibits individual innovative efforts. We argue that these barriers to innovation may cause severe problems for KIPSOs given that IWB is essential for the performance and survival of public organizations.

From this brief overview of KIPSO's characteristics, we take further eight contextual factors that potentially affect IWB in these types of organizations: the goal of KIPSOs is enhancing public services and the problem-solving capacity; the transfer of knowledge-based services is at the core of the work; prevalence of systematic knowledge over new inventions; strong political environment; lack of competitive pressures and absence of triggers to stimulate IWB; rewards systems and other HRM practices to support IWB are ill-defined; strict agency control over the processes; formalization and strong hierarchy. The theoretical contribution of this paper lies in the focus on the unique challenges of KIPSOs and the conditions and characteristics of IWB in this context. Despite these contextual characteristics, we claim that public employees can be innovative and that KIPSOs can generate innovations when organizations succeed in supporting and stimulating it in the right way. Based on a single case study in the Netherlands Fire Services, we seek the way in which KIPSOs can benefit from the innovative capacity of their employees by stimulating the accumulation, usage and dissemination of knowledge.

We focus on the role of supervisors in stimulating individual IWB within KIPSOs. Research in the private sector has shown the important role of the supervisor in stimulating and encouraging IWB among employees (De Jong & Den Hartog, 2007; Wang, Fang, Qureshi, & Janssen, 2015) and in building an innovative climate (Scott & Bruce, 1994) in which employees benefit from psychological safety in which they dare to seek feedback, report errors or feel free to experiment with new ideas (Carmeli & Gittell, 2009; Edmondson, 2004). Alvesson and Sveningsson (2003) stress the important role of supervisors in KIOs by demonstrating that leaders are central in determining the direction and overall guidelines for organizational performance because innovative ideas require leadership in the form of advocates. Research in KIPSOs shows that middle managers play a role as 'knowledge-transfer agents' (Richards & Duxbury, 2014, p. 1255) by establishing a context that facilitates individual knowledge acquisition and sharing. In such a context, employees would be encouraged to accumulate, use or even extend knowledge for the purpose of improving processes and innovation. But this would require that employees know how to translate knowledge

from various stakeholders in the organization into new operational policies and practices (Richards & Duxbury, 2014).

We continue building our theoretical contribution by mapping the concept of leadership with the characteristics of IWB in the context of KIPSOs. It is essential to understand which leadership styles supervisors need to use and what they need to do (or not to do) to stimulate public employees to generate, promote and realize new ideas in their work unit. This would translate into managerial practice on how supervisors can support employees in engaging in innovative ideas in public organizations. As such, our investigation is guided by theoretical contributions we want to make, and inspired by the research question: *which leadership practices contribute to the stimulation of innovative work behaviour among employees within knowledge-intensive public sector organizations?*

The structure of this paper is as follows: first, we define IWB and discuss the role of supervisors in encouraging IWB. Next, the results are reported of an exploratory case study within a typical KIPSO to identify leadership practices that stimulate IWB. Based on rich qualitative data, we explore characteristics of the employee IWB in the context of KIPSOs and the role of the supervisor to stimulate it. We highlight implications and insights for managers seeking to encourage employee innovativeness in KIPSOs.

## **Innovative work behaviour**

Inspired by the definitions of Kleysen and Street (2001) and of Yuan and Woodman (2010), we view employee IWB as:

All individual actions directed at the generation, processing and application/implementation of new ideas regarding ways of doing things, including new product ideas, technologies, procedures or work processes with the goal of increasing the organisational effectiveness and success.

IWB is a broad and encompassing behavioural construct consisting not only of the generation of ideas, but also of transforming these ideas into concrete innovations (Devloo, Anseel, De Beuckelare, & Salanova, 2015). Essentially, employees who engage in IWB will improve aspects of their working environment whenever opportunities are spotted and will generally be willing to adopt improvements proposed by colleagues or others outside the organization.

Building on the multidimensional notion of IWB, several studies have focused on its conceptualization and the identification of its specific phases (e.g. De Jong & Den Hartog, 2010; Janssen, 2004; Scott & Bruce, 1994). Most researchers agree that the IWB process consists of three phases: idea generation, idea promotion and idea realization. The idea generation step includes looking for ways to improve current products or processes, or to solve problems, through thinking about them in alternative ways and combining or reorganizing information and existing concepts (De Jong & Den Hartog, 2010). Once a new idea has been generated, it has to be promoted and championed as it will generally demand a change in the current

ways of doing business that can meet resistance. This step implies coalition building (De Jong & Den Hartog, 2010), promoting ideas to potential allies (Janssen, 2004) and finding sponsors (Scott & Bruce, 1994). In the final step, implementing new ideas involves producing a prototype or model of the new product, technology or process (Janssen, 2004), testing and modifying the prototype (Scott & Bruce, 1994) and routinizing the new way of doing such that the innovation becomes part of the regular work processes of work groups or entire organizations (De Jong & Den Hartog, 2010).

### **The role of the supervisor in IWB**

The supervisor role in enhancing IWB is difficult to overrate (De Jong & Den Hartog, 2007; Yuan & Woodman, 2010). Damanpour and Schneider (2009) found that having a public manager with a pro-innovation attitude positively influenced the adoption and implementation of innovative efforts within 725 US local governments. As leaders, business managers can influence workers' motivation and job satisfaction and create a work and social environment that encourages and rewards innovation and change (Damanpour & Schneider, 2009). De Jong and Den Hartog (2007) investigated the role of leaders in stimulating IWB in small KIOs and showed that different leadership behaviours are needed for encouraging idea generation than for the realization of ideas.

The above-mentioned selected empirical findings are rooted in the leader-member exchange (LMX) theory (Graen & Uhl-Bien, 1995), that in a nutshell argues that subordinates with 'high-quality' relationships with their supervisor are given greater resources, more decision-making abilities and freedom in return for high loyalty and commitment. Fresh considerations and experimenting with novel ideas require additional time, resources and freedom at work. Greater resources and support from a supervisor increase the likelihood that IWB will be successful (Yuan & Woodman, 2010). Supervisors tend to evaluate employees whom they trust more positively, leading to the overall perception that new ideas coming from trusted and respected subordinates are meaningful and significant. These employees are perceived as more powerful and influential because of their access to valuable information and resources held by their supervisor (Wang et al., 2015).

The supervisor's pro-innovative attitude, diversity in leadership behaviour, extrinsic rewards, resources and freedom at work, but also trust in relationships are needed to support IWB. The reality is that the public sector is virtually an 'oxymoron' (Borins, 2002, p. 467) as public sector agencies usually operate as monopolies without competitive pressures. Central agencies impose constraints to ensure due processes are followed and this limits innovation. However, several scholars report that the conventional view regarding the space for innovation in the public sector can be questioned. Driven by pressure to reduce debt burdens, to counter

public criticism and to comply with the ever-accelerating digitization, public sector organizations and KIPSOs, are encouraged to implement innovations.

A relevant aspect for our research is that, in contrast to the widely acknowledged importance of employees' IWB in the private sector, innovation in KIPSOs is believed to come mostly from the top, placing the responsibilities and driving forces for innovation outside the KIPSOs themselves. This corresponds with the view that stimulating IWB in the public sector conflicts with the traditional mission of the sector that reflects stability and accountability (Gawthrop, 1999). This leaves knowledge space to discover how supervisors can stimulate IWB in KIPSOs, in situations where formal rules and procedures and limited competitiveness do not create many opportunities for supervisors to incentivize professionals and in which the public eye discourages changing the status quo.

Before we proceed with the case study, we map our knowledge in two constructs. First, we progress with the unique challenges of a KIPSO and the conditions and characteristics of IWB in this context: the goal of KIPSOs is enhancing public services; the transfer of knowledge-based services is at the core of the work; prevalence of systematic knowledge over new inventions; strong political environment; absence of triggers to stimulate IWB; HRM practices to support IWB are ill-defined; strict agency control over the processes; formalization and strong hierarchy. Secondly, we progress with the knowledge about leadership practices that impact IWB. This case study aims, therefore to unfold the link between the two.

## Methodology

To specify the leadership factors that stimulate IWB in KIPSOs, an exploratory case study has been conducted within an organization that constitutes a typical example of a KIPSO. The organization, purposively selected for this case study, is the Netherlands Fire Services (NFS). The NFS satisfy all characteristics of a KIPSO, as mentioned above.

Their main objective is to 'increase national safety through controlling and preventing fires and related calamities', and this is directed and supported by multiple political and public authorities and interest groups, and is funded primarily by governmental budgets. The organizational structure of the NFS can be described as mechanistic, with high levels of standardization and centralization and as highly formalized throughout its chain of command with an extensive network of rules, regulations and prescriptions. The adoption of such organizational structures is a common phenomenon within the public sector (Fernandez & Moldogaziev, 2012; Hartley, 2005).

The delivery of the NFS' outputs relies on the complex knowledge of firefighters and scientific techniques to extinguish and prevent different forms of fires in various situations, and this work is typically human capital intensive. A low capital intensity is reflected in the organization's production not involving significant amounts of non-human assets, such as inventory, factories and equipment.



**Table 1.** Description of Interview methods.

Interviews with employees of Firefighting Academy (number: 5)	<ul style="list-style-type: none"> <li>•<b>Goal:</b> Check formal guidelines and communications about IWB; determine what is needed from to stimulate IWB?</li> <li>•<b>Nature:</b> Unstructured (one-hour) interactive interviews.</li> <li>•<b>Example of questions asked:</b> What initiatives are implemented to stimulate IWB? What restrains IWB?</li> </ul>
Interviews within Fire Stations (number: 21)	<ul style="list-style-type: none"> <li>•<b>Goal:</b> Identify perceptions of leadership behaviors of district commanders, team leaders and firefighters in IWB process.</li> <li>•<b>Nature:</b> Semi-structured (one-hour) interviews.</li> <li>•<b>Example of topics addressed:</b> Relationship with and role of supervisor in IWB process. How to stimulate generation, promotion and generation of IWB?</li> </ul>
Interviews with employees who initiated an innovation 'innovative initiative' (number: 10)	<ul style="list-style-type: none"> <li>•<b>Goal:</b> Determine experiences of innovation initiators about what they needed to generate, promote and realize IWB</li> <li>•<b>Nature:</b> Semi-structured (one-hour) interviews.</li> <li>•<b>Example of questions asked:</b> What really helped and stimulated your innovative process; what restrained it?</li> </ul>

A professionalized workforce is associated with a particular knowledge base (here built on specific education at the firefighting academy), regulation and control of that knowledge base (regular participation in training and renewal of certificates to work in the firefighting profession; firefighting is controlled by many public rules and procedures) and ideology (the firefighting profession has a professional code of ethics).

Given that the nature of firefighting activities induces high demands for the continuous development and improvement of work processes and techniques in order to increase general public safety, it is highly likely that there is a desire within firefighters to generate new ideas on improved ways of working. Indeed, as described in the sections below, the degree of employee IWB is high within this organization, resulting in many innovative ideas generated. Since the NFS is a good representative of the public sector as a whole, this makes it an excellent setting for identifying leadership factors that stimulate the IWB process.

### **Data collection methods**

The exploratory case study included interviews with a variety of participants and document analyses.

### **Interviews**

In-depth interviews have been conducted with several actors to explore their perceptions and behaviours regarding employee IWB (Table 1).

First, interviews were conducted at the headquarters of the NFS with members of the Firefighting Academy to check the formal guidelines and communications for the Regional Safety Units and how they stimulate IWB. The respondents selected for these interviews were all involved with innovation across the organization.

Interviews were also conducted with firefighters, their direct supervisors and district commanders at the local level in order to identify the leadership practices stimulating IWB at three distinct levels of the hierarchy. Interviews were conducted in one local fire station in each of three Regional Safety Units, which were selected based on their innovative record between 2008 and 2014. The innovative ability of a unit was measured as the number of innovative initiatives officially submitted by local fire departments. We used maximum variation sampling techniques: to be representative and to develop an unbiased view leadership practices stimulating IWB across the KIPSO, one of the most innovative and one of the least innovative regions were included in the sample along with a third taken from mid-range (van Aken, Berends, & van der Bij, 2012). Within each unit, one local fire station was randomly selected and, within each station, five firefighters (two volunteers, two professionals and one employee occupied with prevention-related services) as well their team leader were interviewed. Further, the district commander of each selected unit was interviewed to discover how IWB was stimulated by the higher hierarchical levels. The interviews lasted approximately one hour, with the 21 interviews totalling around 25 h.

Finally, interviews were conducted with employees who had previously submitted and championed an innovative idea or initiative as a means to improve their work processes. Respondents were randomly selected from a national database of innovative initiatives between 2008 and 2014. The goal of these interviews was to discover supervision behaviour during the processes of IWB experienced by project champions. Ten interviews were held, each again lasting around one hour.

Although the interviews were based on a pre-determined set of questions, the structure was not slavishly followed and varied depending on the specific situation of each interviewee. Probing techniques, such as asking for explanations, examples and clarifications regarding distinct statements, were used to maintain flexibility and an open atmosphere.

### ***Document analyses***

Formal organizational documents have been analysed to determine the organizational vision and mission about IWB, the nature of their communication throughout the organization, and the formal organizational practices with regard to the stimulation of IWB. For our study, it was important to determine whether the documents indicate a tendency to stimulate innovative behaviour as well as whether and how the content of these documents are translated into actual practices, mechanisms, programmes, norms and values.

### ***Data analysis***

The analysis of the interviews towards building theoretical contributions had five phases. First, one of the authors transcribed all interviews. 40 h of interviews led



to 160 h of transcribing that resulted in about 140 pages of text, ready for the next step in the analysis. The second phase included codifying the transcripts by inserting them into the software program NViVO. At first, we codified chunks of texts using descriptive codes (Miles & Huberman, 1994). The descriptive codes were based on the clusters from the interview protocol and covered three initial categories of IWB: supervising idea-generation, idea-promotion and idea-realization. These three themes shaped the start list of codes prior to the analysis. We continued then with NViVO to mark off segments of data within each of descriptive codes (inductively). In total, we analysed 1256 text chunks extracted from the 36 interview transcripts. Periodic re-readings of the transcripts allowed for inferential coding (Miles & Huberman, 1994). The third phase of the analysis included revising categories by three researchers. We performed such activities as filling in (adding sub-categories), extension (interrogating chunks of texts in a new way, with a new category), ‘surfacing’ (identifying new categories). Together we grouped all codes into 25 categories and various sub-codes related to IWB in the NFS and the role of the supervisors in supporting IWB. The fourth step was to link IWB patterns with the organizational context. In the final step, theoretical coding was used to search for potential relationships between perceptions (van Aken et al., 2012). During this coding process, regular discussions were held between the authors of this paper to reach consensus.

To secure code-recode reliability, we checked for internal consistency through double revising of all codes by every researcher separately. To enrich the inter-coder reliability, we discussed the final codes of the full data-set together as we were sensitive to the fact that the findings become sharper from joint interpretations. We regularly discussed the ongoing results with the representatives of the NFS.

## Findings

### *Employee IWB within the NFS: current stimulation and motivations*

#### *Organizational vision, mission and communications*

The organizational documents articulating the organization’s vision, goals and ambitions indicate that its management strongly strives for innovation and innovative behaviour of its employees. For example, in the vision document 2015 to 2040, innovative ability is described as a future key performance indicator for fire control and fire prevention, reflected in the call for a new doctrine of fire safety, the adoption of innovative technologies and an increase in the knowledge of employees. Another document, explaining the vision with regard to volunteers, articulates similar attitudes to innovation, with calls being made to regional administrations to provide autonomy and independence for local fire stations, to stimulate the use of modern techniques, to involve volunteers in the development of new policies, to offer training and learning opportunities and to direct volunteers based on trust rather than on regulations. The HRM

and leadership vision explicitly articulated the recommendations of the Board of Fire Commanders towards the HR department to ensure that firefighters are stimulated to come up with individual or collaborative initiatives to seize the opportunities they see.

The above-described organizational documents point towards the presence of a high degree of ambition with regard to innovation and employee IWB and seem to understand and emphasize their importance. Indeed, almost every organizational document that we read included the word innovation. However, the vast majority of the documents communicated by the Board of Fire Commanders constitute only guidelines towards the administrations of the Regional Safety Units (RSU). As these units are autonomous, the guidelines are not perceived as obligations, and innovative efforts are not safeguarded. It means that at the policy-making level, we observed a loose coupling towards decentralized effort.

### ***IWB within the NFS: loose coupling, weak implementation***

Employees seem to be highly motivated to come up with new and innovative approaches. Many interviewees indicated that they had contributed to at least one innovative process, and had come up with and championed an innovative idea at least once. Most of these ideas concerned incremental innovations such as new data applications, new training methods or new procedures. We learnt that in this KIPSO, large radical innovation projects focused on novel extinguishing techniques such as the use of robots and drones to reduce the involvement of individual employees.

Our analysis shows that firefighters look for ways to develop new knowledge for the organization. The findings indicate that, because every fire crisis is different and may need a different approach and solution, firefighters perceive intrinsic motivation arising from the nature of their work and a need to be prepared to innovate at all times. This innovative mentality leads to a high level of generating and championing innovative efforts:

When you leave a fire station to go to a crisis, you don't know what you are going to have to deal with. Therefore, you always have to be ready to improvise, to innovate, to be flexible and to think creatively. (district commander – RSU1)

The nature of the firefighter is that of an inventor and someone who wants to fix and change things. (supervisor – RSU3)

Although readiness to innovate constitutes the mentality of employees in the NFS, we saw that many innovative projects are implemented top-down or stay within specialized project groups not involving people from the work floor. Many innovative ideas seem to come from higher hierarchical layers and are imposed on the lower levels who need to use them:

All these projects [...] are projects which are imposed from above. We had to focus on it, determine the costs and benefits, and we had to find a way to implement it. Whether we thought it was a good idea did not matter. So we had to take it or leave it. (voluntary firefighter – RSU3)

Employee perceptions concerning radical innovative ideas are somewhat more sceptical than perceptions of incremental innovative ideas, and they tend to oppose the former type of innovation more. This may indicate that firefighters are afraid to change radically the way they do things:

Many people have severe problems with large, radical innovations and changes. Whenever the organization changes too rapidly, it will lose people along the way. (firefighter – RSU3)

The findings indicate that the idea-generation stage of the IWB process is stimulated and takes place widely within the organization, with our findings pointing to a general openness and support by respondents of innovations. But at the same time, we also saw severe scepticism towards innovative ideas, indicating that the idea-promotion stage of the IWB process is not always completed successfully:

Whenever I propose something to colleagues, the general response is negative. The majority of people, especially my more experienced colleagues, do not instantly believe your idea is good, indicating that you have to invest a significant amount of time and effort in convincing them of the value of your project. (innovative initiative – RSU3)

Although the generation and posing of innovative ideas are stimulated, championing and realizing innovative ideas are much more difficult.

To reduce the perceived restraining effect on employee IWB of the lack of competitive pressures, the management of the organization has developed and implemented an annual competition. This initiative, known as the Jan van der Heyden prize, awards a prize each year to the local fire department that has submitted the highest rated innovative initiative (BrandweerNederland, 2014). This annual competition has been held since 2008 and has seen 142 innovative ideas and projects submitted. Examples of these innovative ideas include a new handle for victims with a breathing apparatus (2009); a new diving tool for use in rescues (2013); and a 'snake catcher': a tool for quickly rolling up fire hoses (2014) (Jan van der Heyden Prize). As the winning department receives a prize of €10,000 to be used to further develop and implement the idea, and as there are image gains associated with the prize, this initiative creates competition between local and regional departments. As such, it constitutes a self-made competitive force for IWB which was previously absent due to the public nature of the organization.

These findings indicate that, while this initiative stimulates the IWB process idea-generation stage through offering incentives to come up with new ideas and the idea-promotion stage by offering innovative ideas publicity and a stage on which to find support, it sometimes fails to stimulate the idea-realization stage.

### ***The supervisor's role in employee IWB in the NFS***

#### ***Duality of leadership styles***

Employees described the relationship with their supervisor as very open and based on collaboration, mutual trust and respect. Almost all respondents indicated they can discuss anything with their supervisor including new ideas with regard

to innovative approaches. However, the relationships and interactions between firefighters and their supervisors can be described as balance-searching: while supervisors have, in some situations, been found to adopt supportive and collaborative leadership styles, in others they adopt directive leadership styles:

Within the fire station, I have very open relationships with my guys, and I support them as far as possible, providing them with the facilities they need [...] During action, however, I have to lead directly, commanding people what to do and how to do it. In such situations, our relationship is based on command and follow. (innovative initiative – RSU3)

It was interesting to find that all the respondents recognized this dual relationship and that the majority of them accepted it and were even convinced that it was necessary and desirable. As such, the directive style of leadership, generally adopted during operational actions, is not perceived as undesirable.

The nature of the firefighters' work calls for adopting more supportive and coaching leadership styles. 'Cold' phases, those which do not require active fire extinguishing exercises, do not require directive leadership styles, but leaders are rather part of the team:

I share 24-h shifts with my guys, meaning that we see each other all day. Therefore, I am practically one of the guys (...). Because we share such long shifts, a bond of trust and mutual respect has developed. Therefore, they know that they can come to me with anything and that they can discuss everything with me. We speak openly about several things, including private matters. (supervisor – RSU2)

The relationships between subordinates and their immediate supervisors are generally found to be open and personal. Supervisors maintain open, informal and personal relationships with them based on collaboration, mutual trust and respect in which everything is open for discussion.

### ***Supervising the process of IWB***

The attitude of direct supervisors with regard to new ideas is perceived as positive with respondents indicating that their supervisors are generally open to new ideas, appreciate suggestions and that they provide constructive feedback including advice on how to develop ideas further. Supervisors and district commanders indicated that they valued and supported the posing of new ideas and that they perceived it as highly important to be as open as possible to subordinates approaching them. The judgement that supervisors make about specific ideas remains an important factor in determining their openness to new ideas:

In general, my supervisor is relatively open to new ideas. (firefighter – RSU2)

You have to be open to new ideas. (supervisor – RSU1)

During the idea promotion phase, supervisors are valued for their openness, feedback and facilitating efforts. Respondents were convinced that their supervisor was a crucial factor for success through offering feedback, autonomy, resources

and necessary facilities. People with a supervisory role indicated that they give their subordinates much freedom to perform their tasks and do not monitor every little step:

It is very important that your supervisor trusts you and gives you space. [...] My supervisor clearly trusts me and gives me a large extent of freedom to achieve my goals. (innovative initiative – RSU5)

Whenever a fire fighter comes up with an idea, the supervisor judges the idea, might discuss it with other team leaders and provides the employee with feedback. Feedback seems to depend on the resources needed to develop the idea further and the achievability of the innovation. Money and time needed to promote the innovate idea are an important point and influence the kind of feedback provided to employees.

Direct supervisors are not perceived as having an active role in the promotion phase, but they are certainly not perceived as restraining the process. During innovative processes that require a relatively large investment, the role of the supervisor is mainly influential during the idea-generation stage of the IWB process and during the first part of the idea-promotion stage. All the respondents who had experienced such a process indicated that, although their supervisor can be stimulating by being open, supportive and offering constructive feedback, this role generally ends during the idea-promotion stage.

To complete the innovation process, an idea has to be passed to the higher ranks of the organization for formal approval in order to attract finance.

For projects demanding large investments, the best I can do is send my guys home and let them think thoroughly about their idea. I let them write a good proposal in which they justify why their idea is needed, what it will deliver, what it will cost and what the possible disadvantages and consequences are. When they have really thought about it and written something down, I will go with them and let them present their ideas to those in the higher ranks. After this, my role and influence ends. (supervisor – RSU3)

Several explanations are given for this problem. Multiple parties within the NFS have an interest in an idea and need to decide on how to proceed with it: resources like time, people and knowledge have to be available. Hierarchy also seems to play a role in the realization of ideas. Being involved in innovative projects often seems to be the privilege of people higher in the organization with more influence and more power. Some firefighters are frustrated about the fact that innovative ideas from higher hierarchical layers are implemented faster or rather than those ideas generated at the work floor:

People at the floor are restrained from being innovative; their ideas are not used and are not taken seriously. Things which are initiated from below take far longer to be implemented than things from above; or they are not even implemented at all. (firefighter – RSU3)

Those ideas that are implemented within the organization are rather incremental innovations, because these kind of innovations do not cause many troubles and resistance from the work floor:

Most of these minor improvements have been implemented. That was relatively easy because they were relatively small and their value and use was clear. Their influence with regards to money and the changing of current processes was small. (supervisor – RSU1)

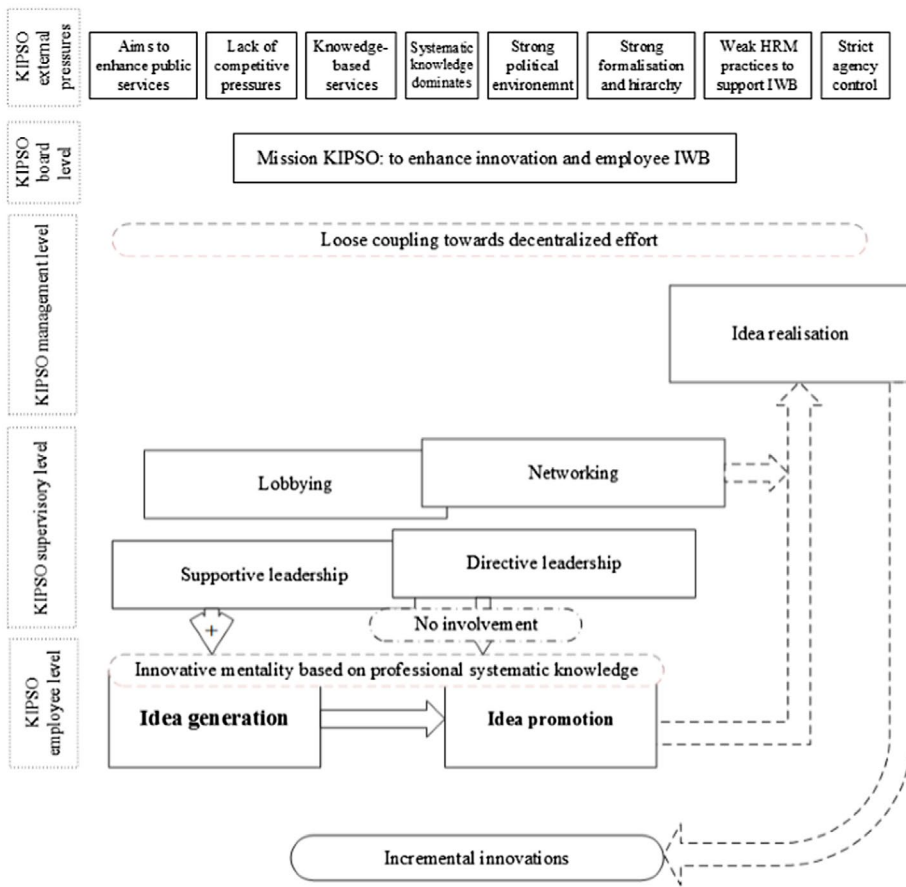
To summarize the findings, supervisors are generally perceived as being open to new ideas and are crucial in stimulating IWB. However, during processes demanding significant investments, their role is limited to the support of the idea-generation and the first part of the idea-promotion phases and they are not involved in the idea realization stage. Whereas IWB is certainly present at the NFS, many innovative ideas come top-down into the organization or are generated by fire-fighters but further developed by higher ranked managers due to the structure for funding finance for innovative projects.

### **Mapping leadership to support IWB in the context of KIPSOs**

The explorative case study in the NFS allowed us to map the KIPSO's external context, leadership styles to support IWB and the results (Figure 1).

The scheme shows that two streams of innovation orientation in the KIPSO do not fully match: while the organizational mission is announced as to support and enhance innovation and employees show a great degree and capacity of innovative mentality, the loosely coupled top-down and bottom-up innovation streams within the KIPSO result in little realization especially of bottom-up innovative ideas. In the figure, we show that the KIPSO is successful in generating IWB, but less so in realizing them by different fonts. The environmental pressures, especially lack of trigger to compete and innovate, strict agency control, and strong formalization, in an effort to secure quality of public services, reinforce the mismatch between a call to innovate and the actual implementation of innovative ideas. In integration, it allows at best only to produce some incremental ideas. Having said that, we still see a great potential for the public sector in generating innovations. We have to acknowledge that their way is different, given the institutional context. One, who expects KIPSOs to engage in radical innovations, would be disappointed. However, we uncovered a strong record of incremental innovation within the KIPSO. This result supports Borins (2002, p. 475) suggestion that 'bottom-up innovations occur more frequently in the public sector than received wisdom would have us believe'. However, we need to add here that bottom-up innovations occur but are difficult to implement in a KIPSO. Their way is also different because in KIPSOs, supervisors are only actively involved in the generation and promotion phases of IWB. After they have actively supervised employees to develop innovative ideas, have given feedback and helped them to develop the idea further, employees need to look for support from higher layers in the organization to promote ideas further because this is where budgets will be provided and doors be opened to succeed with innovative ideas. This means supervisors are not involved in the realization of these ideas. In KIPSOs, the realization finds place at the managerial level and





**Figure 1.** Mapping context, leadership and IWB in KIPSOs.

involves public managers instead of operational supervisors. This would be a logical step to safeguard implementation in all organizational units of the decentralized organization, but in this KIPSO innovations are only implemented at the unit level and are not shared between units.

KIPSOs often restrain the implementation of innovative ideas by burdening innovative employees with paperwork, failing to provide budgets to develop these ideas further and involving too many actors to actually implement these ideas at the supervisory or employee level. Many innovative ideas seem to be developed by higher ranked employees situated in offices, not the operational firefighters, often after ideas were generated at the work floor. Firefighters feel that while they are busy with the core business, office personnel get the time for what they call ‘fun stuff’.

This study supports previous claims regarding the importance of the direct supervisor for the creation of a work and social environment that encourages innovation and change (Damanpour & Schneider, 2009; Yuan & Woodman, 2010). We saw the importance of high-quality LMX relationships for employees’ IWB within

a KIPSO, a link well-established in private-sector research (Scott & Bruce, 1994; Yuan & Woodman, 2010). In 24 h shifts, firefighters and supervisors may watch television at one moment and extinguishing fires at another moment. This often results in high-quality relationships between firefighters and their supervisors based on trust, support and mutual respect. To achieve this, supervisors strongly favour situational leadership (Hersey, Blanchard, & Natemeyer, 1979), indicating that there is not one ‘best’ style of leadership but that supervisors adapt their behaviour to meet the demands of each unique situation. Supervisors in KIPSOs assess the demands of the situation based on an interplay among (1) the direction (task behaviour) they give, (2) the socio-emotional support (relationship behaviour) they provide and (3) the ‘readiness’ level that followers exhibit in a specific task that the leader is attempting to accomplish through the individual or group (Hersey et al., 1979). During crisis situations, supervisors apply a rather directive leadership style as the situation demands clear orders and control. However, when the action is over, they are more likely to apply transformational, supportive leadership styles aiming for a relationship based on mutual trust and support.

We believe that the shift working patterns and long periods of non-action create numerous opportunities for supervisors and subordinates to generate and discuss new ideas, maybe even more than in private organizations where competitive pressures and a focus on lean working often mean there is no time to think about improvements. Public literature showed that a marked difference between IWB in the private and public sectors is that, in the latter, innovation and IWB governance are demanded by political representatives when they are believed to increase general safety. At the same time, an opposing force is applied to radical innovative projects: political actors and society will demand the minimizing of risks in the provision of the essential public services that KIPSOs deliver (Borins, 2001). As a result, experimentation and risk-taking might be held back within such organizations to ensure general public safety, and especially when the outcome of a given project is uncertain. Our results indicate that in the KIPSO context, the uncertainty whether innovative ideas and investments do indeed result in increasing general safety and will be approved by the public eye seem to especially result in lacking implementation of innovative ideas despite their existence. As long as this hesitation and the above-mentioned bureaucratic burden towards realizing innovative initiatives stays unchanged, innovation-focused HRM systems (e.g. Ceylan, 2013) or HRM systems developed especially for the public sector (e.g. Knies, Boselie, Gould-Williams, & Vandenabeele, 2015) might not have much effect.

### ***Practical implications***

Public managers desiring to increase the innovativeness of their organizations and the IWB of their subordinates may have to cope with challenges arising from a generally low perceived need and desire of organizational actors to engage in

innovative efforts. Rather than being the instigators of innovations, managers might better see themselves as responsible for creating the environment and conditions in which IWB can flourish. We suggest therefore to invest more in an innovative climate in which failed innovative projects will be considered as opportunities for learning, rather than as failures (Carmeli & Gittel, 2009) and where employees feel stimulated to develop innovative ideas and supported to realize them in their unit.

KIPSOs seem to be successful in generating innovative ideas, but we have also seen that turning these innovative ideas into the new norm was difficult, a consequence of KIPSOs being characterized by bureaucracy and routine standards (Hartley, 2005). We believe, however, that supervisors should be able to succeed in realizing many more innovative ideas than they currently are. Research has shown that external contacts are crucial for innovative behaviour in private sector KIOs because innovative products or services are often developed in close cooperation with customers. Supervisors therefore may engage in networking activities to open doors to internal and external contacts when innovative ideas need to be promoted and realized. Lobbying with public managers within and outside the organization might help to attract sufficient attention and budgets to develop innovative ideas further and eventually implement them in the organization.

Future research could identify which leadership behaviours and initiatives are especially successful in stimulating idea realization and implementation. In KIPSOs, HR managers could play an important role in realizing this goal by designing HR initiatives that not only encourage the generation of innovative ideas, but especially their realization. These might be appraisals leading to prizes that stimulate innovation realization, but might also be introducing focus groups that especially focus on generating a climate that supports the realization of innovative ideas. These groups should be in a position to provide resources and management support to realize innovative ideas. Another possible role for HR managers in KIPSOs might lie in bringing employees from different departments and hierarchical levels together to develop innovative ideas further by sharing knowledge, expertise and understanding. As direct supervisors lose their impact after innovative ideas are generated and promoted, HR managers could build a platform that guides the implementation of innovative ideas by bringing those people together that could realize the potential of innovative ideas between different units of the organization.

### ***Limitations and suggestions for future research***

We acknowledge that this study is not without limitations but see them as mirroring the strengths of this research and opening possibilities for future research. Since radical innovative projects were scarce within this KIPSO, the results are based mainly on projects concerning incremental innovations. However, the lack of radical innovative projects in the sample does not conflict with the central goal

of this study, which was to explore IWB independent of the type of innovation. Nevertheless, the results might be less generalizable to radical innovative behaviours resulting in the need for more insights into the generation, promotion and realization of radical innovative efforts by individual employees.

As all case study researchers, we were conscious of being swamped in data. Once we chose the data to be analysed, which was itself a contentious issue, much had to be omitted to stay focused in the analysis. We acknowledge that some categories are given more detail than others. Furthermore, even the most detailed of those stories is a significant simplification of what we observed in the case. Despite the fact that our results do not provide numerical population-wide generalizations, they do provide more than simply idiosyncratic understanding of IWB in the NFS. We prefer not to think of this as generalization in statistical significant large-scale terms. The issue is what did our study tell us about the IWB situations in KIPSOs beyond the conventional studies. Our findings can 'ring true' in other settings than the NFS. Organizations with a workforce combined of dedicated and voluntary employees, with encouragement for incremental innovations through regular knowledge sharing, and safety as the primary context, will find our findings useful.

### Disclosure statement

No potential conflict of interest was reported by the authors.

### References

- Alvesson, M., & Sveningsson, S. (2003). Good visions, bad micro-management and ugly ambiguity: Contradictions of (non-)leadership in a knowledge-intensive organization. *Organization Studies*, 24, 961–988.
- Borins, S. (2001). Encouraging innovation in the public sector. *Journal of Intellectual Capital*, 2, 310–319.
- Borins, S. (2002). Leadership and innovation in the public sector. *Leadership & Organization Development Journal*, 23, 467–476.
- BrandweerdNederland. (2014). *Innovatie 2014 (Innovation 2014)*. Arnhem: GLD Grafimedia.
- Bysted, R., & Jespersen, K. R. (2014). Exploring managerial mechanisms that influence innovative work behaviour: Comparing private and public employees. *Public Management Review*, 16, 217–241.
- Carmeli, A., & Gittell, J. H. (2009). High-quality relationships, psychological safety, and learning from failures in work organizations. *Journal of Organizational Behavior*, 30, 709–729.
- Ceylan, C. (2013). Commitment-based HR practices, different types of innovation activities and firm innovation performance. *The International Journal of Human Resource Management*, 24, 208–226.
- Damanpour, F., & Schneider, M. (2009). Characteristics of innovation and innovation adoption in public organizations: Assessing the role of managers. *Journal of Public Administration Research and Theory*, 19, 495–522.
- De Jong, J., & Den Hartog, D. (2007). How leaders influence employees' innovative behaviour. *European Journal of Innovation Management*, 10, 41–64.

- De Jong, J., & Den Hartog, D. (2010). Measuring innovative work behaviour. *Creativity and Innovation Management*, 19, 23–36.
- Devloo, T., Anseel, F., De Beuckelaer, A., & Salanova, M. (2015). Keep the fire burning: reciprocal gains of basic need satisfaction, intrinsic motivation and innovative work behaviour. *European Journal of Work and Organizational Psychology*, 24, 491–504.
- De Vries, H., Bekkers, V., & Tummers, L. (2016). Innovation in the public sector: A systematic review and future research agenda. *Public Administration*, 94, 146–166.
- Edmondson, A. C. (2004). Psychological safety, trust and learning in organizations: A group-level lens. In R. M. Kramer & K. S. Cook (Eds.), *Trust and distrust in organizations: Dilemmas and approaches* (pp. 239–272). New York, NY: Russell Sage Foundation.
- Fernandez, S., & Moldogaziev, T. (2012). Using employee empowerment to encourage innovative behavior in the public sector. *Journal of Public Administration Research and Theory*, 23, 155–187.
- Gawthrop, L. (1999). Public entrepreneurship in the lands of Oz and Uz. *Public Integrity*, 1, 75–86.
- Graen, G. B., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader-member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *The Leadership Quarterly*, 6, 219–247.
- Hartley, J. (2005). Innovation in governance and public services: Past and present. *Public Money and Management*, 25, 27–34.
- Hersey, P., Blanchard, K. H., & Natemeyer, W. E. (1979). Situational leadership, perception, and the impact of power. *Group & Organization Management*, 4, 418–428.
- Janssen, O. (2004). How fairness perceptions make innovative behavior more or less stressful. *Journal of Organizational Behavior*, 25, 201–215.
- Jenssen, J. I., & Nybakk, E. (2009). Inter-organizational innovation promoters in small, knowledge-intensive firms. *International Journal of Innovation Management*, 13, 441–466.
- Kleysen, R. F., & Street, C. T. (2001). Toward a multi-dimensional measure of individual innovative behavior. *Journal of Intellectual Capital*, 2, 284–296.
- Knies, E., Boselie, P., Gould-Williams, J., & Vandenabeele, W. (2015). Special issue of International Journal of Human Resource Management: Strategic human resource management and public sector performance. *The International Journal of Human Resource Management*, 26, 421–424.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. Beverly Hills, CA: Sage.
- Rainey, H. G., & Bozeman, B. (2001). Comparing public and private organizations: Empirical research and the power of the a priori. *Journal of Public Administration Research and Theory*, 10, 447–469.
- Richards, G. S., & Duxbury, L. (2014). Work-group knowledge acquisition in knowledge-intensive public-sector organizations: An exploratory study. *Journal of Public Administration Research and Theory*, 25, 1247–1477.
- Scott, S. G., & Bruce, R. A. (1994). Determinants of innovative behavior: A path model of individual innovation in the workplace. *Academy of Management Journal*, 38, 1442–1465.
- Starbuck, W. H. (1992). Learning by knowledge-intensive firms. *Journal of Management Studies*, 29, 713–740.
- van Aken, J., Berends, H., & van der Bij, H. (2012). *Problem solving in organizations*. Cambridge: Cambridge University Press.

- Wang, X.-H., Fang, Y., Qureshi, I., & Janssen, O. (2015). Understanding employee innovative behavior: Integrating the social network and leader-member exchange perspectives. *Journal of Organizational Behavior*, 36, 403–420.
- Yuan, F., & Woodman, R. W. (2010). Innovative behavior in the workplace: The role of performance and image outcome expectations. *Academy of Management Journal*, 53, 323–342.