

# Understanding public sector innovations

## The role of leadership activities for a climate for innovation

S.J. Dorsman, L.G. Tummers and M. Thaens

S.J. Dorsman MSc

Department of Public Administration

Erasmus University Rotterdam, the Netherlands

Burg. Oudlaan 50

PO Box 1738, Rotterdam

+31 (0) 104081987

E-mail: [dorsman@fsw.eur.nl](mailto:dorsman@fsw.eur.nl)

Dr. L.G. Tummers

Department of Public Administration

Erasmus University Rotterdam, the Netherlands

Burg. Oudlaan 50

PO Box 1738, Rotterdam

+31 (0) 104081863

E-mail: [tummers@fsw.eur.nl](mailto:tummers@fsw.eur.nl)

Prof. Dr. M. Thaens

Department of Public Administration

Erasmus University Rotterdam, the Netherlands

Burg. Oudlaan 50

PO Box 1738, Rotterdam

+31 (0) 104081863

E-mail: [thaens@fsw.eur.nl](mailto:thaens@fsw.eur.nl)

## **ABSTRACT**

Innovations are considered to be crucial for the success of public organizations. However, it is not a foregone conclusion that public organizations are innovative. This study is based on the leadership and innovation literature to consider whether team level leadership activities could be associated to an innovative climate which, consequently, may enhance public organizations' innovative capacity. More specifically, this study analyses to which extent rule-following and empowering leadership activities may affect five distinctive dimensions of an innovative climate. In order to reduce common method bias, this study conducted two different surveys in a public organization. The first survey measured team level leadership activities while the second survey measured an innovative climate four weeks later. Limited in line with our hypothesis, rule-following leadership activities partly disturb an innovative climate, as only the dimensions participative safety and interaction frequency were negatively influenced by those leadership activities. In addition, statistical support was found for the assumed positive relationship between empowering leadership activities and an innovative climate, as all dimensions were positively influenced by those leadership activities. So, rule-following leadership activities limited interfere with an innovative climate whereas empowering leadership activities strongly foster an innovative climate in the selected public organization.

## **KEY WORDS**

Leadership, innovative climate, team level, public sector

## INTRODUCTION

There is great interest in the topic of public sector innovations in the literature (e.g., Altshuler and Behn 1997; Hartley 2005; Osborne and Brown 2005; Walker 2006) which can be explained by the argument that innovations are considered to be crucial for the success of public organizations (Bekkers, Edelenbos, and Steijn 2011, 14). For example, innovations have proved to result in an improvement of public organizations' legitimacy, public services, and a stronger responsiveness to demands of citizens and private organizations (Bekkers, Edelenbos, and Steijn 2011). However, several reasons are put forward in the literature arguing that public organizations are not innovative (see for an overview Bekkers, Edelenbos, and Steijn 2011, 18). The most important one is that the public sector lacks competition which means that public organizations have a monopoly on the production of specific public services. As such, public organizations are limited inclined to innovate as they do not compete with others. So, whereas innovations are proposed to be crucial for the success of public organizations, it is not a foregone conclusion that public organizations are innovative.

To increase the innovative capacity of public organizations, Meijer notes that innovations need to be understood within organizational contexts (2014, 213). As such, our study focuses on the organizational context of a climate for innovation (Anderson and West 1996; 1998) since scholars emphasize that an innovative climate is important for enhancing innovative capacity (e.g., Somech and Drach-Zahavy 2003; West 1990). A climate for innovation is in particular based on two main factors (Anderson & West 1996). First, support for innovation focuses on the "practical support of attempts to introduce new and improved ways of doing things in the work environment" (West 1990, 315). For instance, employees get one out of each week from their supervisors to develop a way to carry out tasks more efficient. Second, a climate for innovation excellence relies on group norms about "excellence of quality of task-performance" (West 1990, 313) which result in employees' commitment to high quality standards, critical appraisals, and clear performance criteria (Eisenbeiss, Van Knippenberg, and Boemer 2008, 1438). For instance, supervisors provide a so-called benchmark of the performance of employees which rates their completed tasks based on clear indicators. So, while support for innovation focuses on the quantity of innovation, climate for excellence concentrates on the quality of innovation (West 1990).

In order to foster an innovative climate, and, consequently, the innovative capacity of public organizations, this study investigates how leadership at the team level is carried out, because leadership at this level is often related to an innovative climate (e.g., Bass and Riggio 2006; Eisenbeiss, Van Knippenberg, and Boemer 2008; Somech and Drach-Zahavy 2013). We approach team level leadership as performing a particular set of practical activities as this approach fully considers employees and situations as well (Gronn 2002, 446). On the one hand, this study analyses team level leadership activities that may interfere with an innovative climate. This set of leadership activities can generally be regarded as enabling employees to act in accordance with rules and procedures. For instance, we expect that if team managers exclude new and improved ways of doing tasks at hand of employees by managing them on output and outcome indicators, an innovative climate will be negatively influenced. On the other hand, this study investigates leadership activities

which seem to foster an innovative climate. This set of team level leadership activities can generally be characterized as facilitating and empowering employees to carry out their tasks. For instance, we suppose that if team managers provide opportunities for employees to learn new skills such as by training and education, an innovative climate will be positively influenced.

This study aims to clarify how leadership activities at the team level may affect a climate for innovation and, hence, influence the innovative capacity of public organizations. As such, our research question is: *how do team level leadership activities affect an innovative climate in a public sector organization?* By doing so, this paper contributes to the literature in two ways. First, there is much organizational climate research with a specific focus on innovation (e.g., Anderson and West 1998; Somech and Drach-Zahavy 2013). However, to our knowledge, very limited attention is paid to empirically examine an innovative climate in the specific public context (e.g., Moolenaar, Daley, and Slegers 2010) and its predictors. In particular, our assumed relationship between leadership activities that enable employees to act in accordance with rules and procedures, and an innovative climate is rarely investigated. So, since the main focus of our study is to analyze effects of distinctive sets of team level leadership activities on an innovative climate in a public sector organization, this study contributes to the public management literature. Second, public management scholars are beginning to pay more attention to common method bias, as it has received limited attention as a distinct topic in public management research (Jakobsen and Jensen 2014, 1). Common method bias is a biasing of results that is caused by a common method, such as a single survey (Favero and Bullock 2015, 285). In order to reduce common method bias, this study conducts two surveys. The first survey concentrates on team level leadership activities while the second survey measures an innovative climate four weeks later. By doing so, we contribute to a serious methodological challenge for public management studies.

In the next section, the theoretical background of this study is presented which results into a number of hypotheses. Section 3 elaborates on the study's methodology. In section 4, results are showed which clarify how team level leadership activities may affect an innovative climate in a public sector context. Finally, in section 5, conclusions, implications and limitations are presented.

## **TEAM LEVEL LEADERSHIP ACTIVITIES AND AN INNOVATIVE CLIMATE**

### ***Defining Leadership***

Many definitions and theories of leadership are coexisting. However, no consensus exists in the literature as to what leadership exactly is (Bass and Bass 2008, 15). For instance, scholars in the 1950s emphasize that leaders are born as they argue that leaders should have necessary traits (Bass and Bass 2008, 16). This focus is shifted in the 'behavioural theories' of leadership since these theories define leadership as "the particular behaviour in which a leader engages in the course of directing and coordinating the work of group members" (Bass and Bass 2008, 17).

This study approaches team level leadership as performing a particular set of practical activities, because this perspective to leadership moves beyond more leader-centric approaches (Van Slyke and Alexander 2006, 370). Leader-centric approaches suppose that leaders have certain

necessary traits and skills, which is in line with Gronn (2002, 446) as he argues that the dominant unit of analysis of these approaches is the solo or stand-alone leader. Regarding this, Van Wart (2013) notes that it is problematic for these approaches to take into account the 'public' element when they analyse leadership in a public context, because they are leader-centred. In order to grasp the essence of leadership in a public context, leadership should be understood as an "interactive process between those we call leaders, the people that choose (or feel forced) to be led by them, and the environment in which their interaction takes place" ('t Hart 2014, 10). From this perspective, it is the collective interactions among leaders, followers, and their context that are paramount ('t Hart 2014). This study therefore defines team level leadership as a particular set of activities and interactions that people in position and power as well as other people engage in ('t Hart and Uhr 2008, 3). As such, our definition is closely related to the concept of shared leadership (Pearce and Conger 2003). Shared leadership theory, also known as collective or distributed leadership, departs from the traditional understanding of formal hierarchical leaders who influence their followers, and conceptualizes leadership as a dynamic social process (Pearce and Conger 2003, 1-2). So, our definition implies sharing of leadership activities "through empowerment mechanisms such as participation and delegation" (Van Wart 2012, 92).

Based on our definition of leadership, this study analyses two different sets of leadership activities of team managers. The first set of leadership activities refers to activities which enable employees to act in accordance with rules (Tummers and Knies 2014). Acting in accordance with rules is a key public administration value as Lane (1994, 144) notes that public administration is in its core about rule of law. Related to this, Van der Wal, De Graaf, and Lasthuizen (2008) empirically found that lawfulness was the second most important public sector value. So, these so-called rule-following leadership activities facilitate employees to perform in line with governmental rules and regulations (Tummers and Knies 2014) which is underpinned by Terry (2003, 77) who notes that an important task of public leaders is to prevent or reduce violations of laws. Second, this study analyses a set of leadership activities that can be regarded as the process by which team managers "share power with employees by providing additional responsibility and decision-making authority over work and resources as well as the support needed to handle the additional responsibility effectively" (Martin, Liao, and Campbell 2013, 1375). These so-called empowering leadership activities implies an ongoing development of sharing broader responsibilities (Mills and Ungson 2003) and tend to encompass a broad range of behaviours, such as expressing confidence in employees and assisting in increasing employees' capabilities (Yukl and Lepsinger 2004). So, empowering leadership activities have in common that they highly value employees and their abilities.

In order to illustrate the two different sets of team level leadership activities, the next table presents an example of each set:

Table 1: A practical example of each distinctive set of team level leadership activities

<b>Set of leadership activity</b>	<b>Practical example</b>
Rule-following leadership activities	If a citizen receives a social benefit from a public insurance agency which is even 10 euros too high as a result of a lack of information about his or her income, the team manager of the employee involved of the insurance agency puts pressure towards him or her to financially sanction this citizen
Empowering leadership activities	Team managers give each employee in his or her team the possibility to spend each year 1.000 euros for training purposes based on an individual development plan

The table above shows an illustrative example of rule-following and empowering leadership activities. This study analyses how these two sets of team level leadership activities may affect an innovative climate in a public sector organization, and, consequently, its innovative capacity.

### ***An Innovative Climate***

An organizational climate is regarded as an aspect of the internal environment of the organization. In line with scholars (Anderson and West 1998; Schumpeter 1942; Somech and Drach-Zahavy 2013; West and Farr 1990), an innovative climate is defined in this study as common perceptions about the desired practices, procedures and behaviors that promote new combinations of existing resources. Regarding our definition, Rogers (2003, 12) argues that innovation is often ‘relatively’ new. Here, Rogers means that innovation might not be new for all organizations, but just new for that particular organization in terms of its organizational process and its outcomes.

There are several instruments designed to assess the organizations’ internal environment in relation to innovation. Based on a review, Mathisen and Einarsen (2004, 121) argue that there are the following instruments: Siegel Scale of Support for Innovation (SSSI; Siegel and Kaemmerer 1978), KEYS (Amabile et al. 1996), the Creative Climate Questionnaire (CCQ; Ekvall 1996), the Team Climate Inventory (TCI; Anderson and West 1994; 1998) and the Situational Outlook Questionnaire (SOQ; Isaksen, Lauer, and Ekvall 1999). As a result of their review of the quality of these five instruments, Mathisen and Einarsen conclude that the SSSI and the CCQ do have some doubts in terms of reliability and validity (2004, 125-128). Furthermore, they note that KEYS particularly focuses on a climate for creativity instead of innovation (2004, 128), while the factor structure of the SOQ has limited been explored (2004, 123). Since the quality of the TCI instrument is widely tested and is generally been accepted, Mathisen and Einarsen (2004, 135) emphasize that this instrument is highly useful. This study hence fully adopts the work of Anderson and West to further elaborate on an innovative climate.

Based on Anderson and West (1998), five dimensions identify an innovative climate. The next table defines each dimension, illustrated by an example:

Table 2: The five dimensions of an innovative climate (definitions are based on West 1990, 310-313)

<b>Dimension</b>	<b>Definition</b>	<b>Practical example</b>
Participative safety	Characterized as a single psychological construct in which the contingencies are such that involvement in decision-making is motivated and reinforced while occurring in an environment which is perceived as interpersonally non-threatening	Employees discuss in a safe atmosphere with team members how to influence outcomes of decisions in which they are involved
Support for innovation	The expectation, approval and practical support of attempts to introduce new and improved ways of doing things in the work environment	Employees get one our each week from their team manager to develop and work on a way to carry out tasks more efficient
Vision	An idea of a valued outcome which represents a higher order goal and a motivating force at work	Employees come up with new goal-related methods of working as a result of clearly defined goals
Task orientation	A shared concern with excellence of quality of task performance in relation to shared vision or outcomes, characterized by evaluations, modifications, control systems and critical appraisals	Team managers provide a benchmark of the performance of employees which rates their completed tasks based on clear indicators
Interaction frequency	Formal and informal interaction processes between employees	Employees organize regularly meetings with their team members to talk both formally and informally

The table above defines the five dimensions of an innovative climate, illustrated by an example. Scholars emphasize that high levels of participative safety (Anderson and West 1998; Wright and Cordery 1999), support for innovation (Somech and Drach-Zahavy 2013), vision (Somech and Drach-Zahavy 2013), task orientation (Eisenbeiss, Van Knippenberg, and Boemer 2008), and interaction frequency (Anderson and West 1998) result into enhanced willingness of employees to develop new ideas of working, share resources, take risks and working together in implementing new ideas. As such, if these dimensions are high, innovations are more likely to be provoked and, consequently, innovative capacity of public organizations increases.

### ***Leadership Activities and an Innovative Climate***

This study builds on the argument that there exists a strong relationship between team level leadership and an innovative climate (e.g., Bass and Riggio 2006; Eisenbeiss, Van Knippenberg, and Boemer 2008; Somech and Drach-Zahavy 2013).

Since rule-following leadership activities are in particular concentrating on employees to act in accordance with governmental rules and procedures (Tummers and Knies 2014), it seems that rule-following leadership activities exclude individual discretion and risk-taking behaviour of employees. Tummers and Knies note that rule-following leadership activities imply that “leaders should stimulate employees to follow governmental rules and regulations, and prevent them from rule-breaking” (2014, 8). Performing in line with rules and procedures implies that employees carry out government policies properly which, consequently, may not encourage employees’ willingness to generate new ideas and take risks. For instance, if employees are pressured to follow rules and process, they are not encouraged to think carefully and critically about how they can carry out their tasks differently or more effective. An innovative climate, however, mainly focuses on “the expectation, approval and practical support of attempts to introduce new improved ways of doing things in the work environment” (West 1990, 38) and thus implies to some extent individual discretion and risk-taking behaviour of employees (Somech and Drach-Zahavy 2013, 690). This study therefore expects that rule-following leadership activities may hinder an innovative climate.

### **H1: Rule-following leadership activities negatively influence an innovative climate**

In addition, scholars support an indirectly positive relationship between empowering leadership activities and innovative behaviour (e.g., Chen et al. 2011; Seibert, Gang, and Courtright 2011). First, self-determination theory (SDT; Gagne and Deci 2005) emphasizes that the need for competence and autonomy is crucial for employees’ intrinsic motivation. Such motivation consequently encourages more creative and innovative behaviour as these behaviours are intrinsically satisfying (Zhang and Bartol 2010, 112). Empowering leadership activities delegate authority to employees, involve employees in decision making, and convey confidence in employees’ ability to deal with challenging work situations (Martin, Liao, and Campbell 2013, 1375-1376). As such, Zhang and Bartol (2010, 117) indicate that these empowering leadership activities can give employees a sense of competence and autonomy that enhance intrinsic motivation, and subsequently foster innovative behaviour of employees. Second, Chen et al. (2011, 543) found that managers who carry out more empowering leadership activities promote employees’ psychological empowerment, because these activities encourage employees’ personal beliefs that their work is meaningful and important, and that they are able to influence outcomes in their team and organization. Moreover, empowering leadership activities also strengthen employees’ affective commitment, because these activities result in that employees feel more individually accountable and emotionally engaged with their work (Chen et al. 2011, 543). Regarding this, studies have found that employees who feel a sense of autonomy, competence and ownership in their work, those are the more psychologically empowered employees, are more likely to innovate (e.g., Gong, Huang, and Farh 2009; Zhang and Bartol 2010), while employees with higher



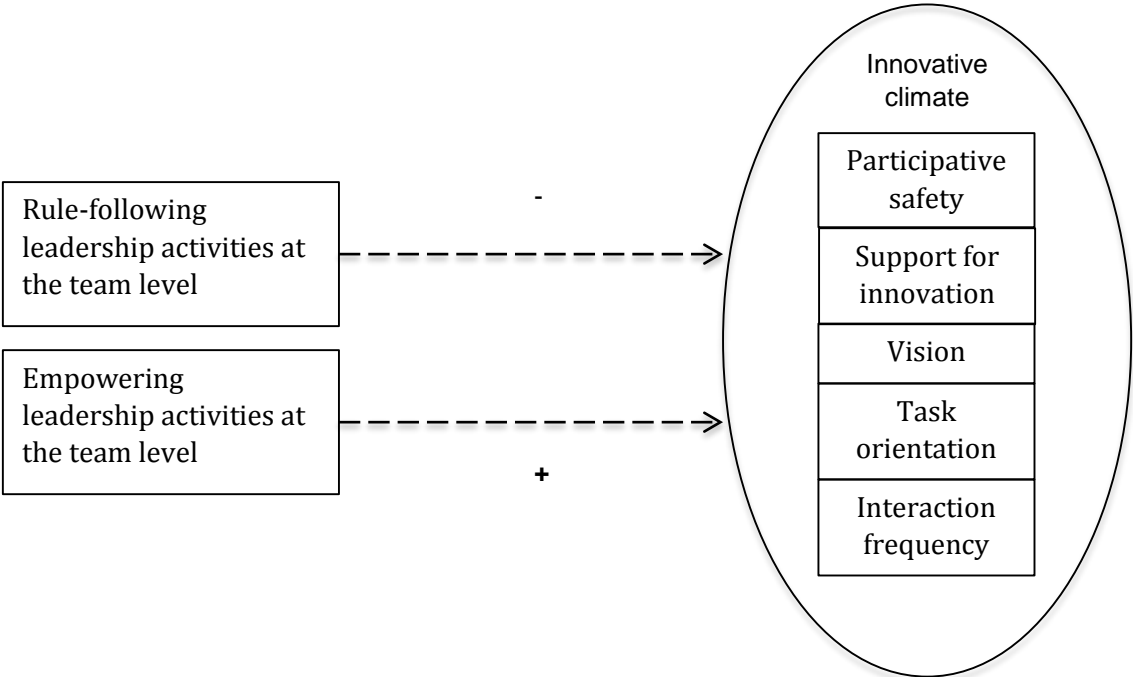
levels of affective commitment also engage in more innovative behaviour (e.g., Thompson and Heron 2006).

Although these findings supports an indirectly positive relationship between empowering leadership activities and an innovative climate, this study hypothesis a direct positive relationship. Empowering leadership activities rely on expressing confidence and giving employees autonomy in their work (Martin, Liao, and Campbell 2013, 1375). As such, empowering leadership activities can provoke employees to take risks and generate new ideas as a result of demonstrating confidence and offering freedom. For instance, employees who experience confidence in their work will be more inclined to do something exceptional. Regarding this, an innovative climate is essentially based on risk-taking behaviour and developing new ideas (West 1990, 313-315). Furthermore, empowering leadership activities facilitate employees to make job-related decisions (Xue, Bradley, and Liang 2011, 302) by giving employees decision-making authority over their work (Martin, Liao, and Campbell 2013, 1375). For instance, empowering leadership activities can delegate important projects to employees and may provide decision-making opportunities with respect to these projects. The dimension participative safety of an innovative climate reflects this sharing of responsibilities, as this dimension is characterized by involvement in decision-making (West 1990, 311). So, this study expects that empowering leadership activities may foster an innovative climate.

**H2: Empowering leadership activities positively influence an innovative climate**

Based on our theoretical framework and formulated hypotheses, we can present the following conceptual model which shows our expected relationships between team level leadership activities and an innovative climate:

Figure 1: Study's conceptual model



## **METHODS**

### ***Case Selection***

The data for this study were collected in the Dutch Employee Insurance Agency (of which the Dutch abbreviation is UWV). UWV is a professional autonomous administrative authority (in Dutch: ZBO). In exchange for autonomy, UWV would be held accountable by its Ministry and parliament for its performance, and sanctioned or rewarded accordingly. UWV can be considered a large public service provider as its core business is to implement each year hundreds of thousands employee insurances and to provide labor market and data services. Consequently, work is standardized and formalized, there are many routines and procedures, and decision-making is centralized within UWV. As such, this study expects to find a high degree of leadership activities which enable employees to act in accordance with rules and procedures.

UWV seems representative for public sector organizations that are considered to be 'machine bureaucracies' as a result of its organizational characteristics. Machine bureaucracies are characterized by high degree of formalization and specialization, and decisions are made at the top level and mechanically carried out at the lower levels (Mintzberg 1992). While it seems very likely that the role of innovation is suppressed in machine bureaucracies as a result of its characteristics, major challenges and current cutbacks in the public sector make it necessary for such organizations to innovate. Therefore, the role of leadership is of great importance to study as this study argues that an important antecedent for an innovative climate, and consequently innovative capacity, is how the leadership of team managers is carried out.

A total of approximately 20,000 employees are working in two line departments and five division of UWV. This study selected the division 'UWV Benefits' of UWV. This division is responsible for the prompt and correct handling of benefit application and the payment of benefits when citizens, or 'clients', apply for it. Responsibilities of UWV Benefits are strongly reflected in the core business of UWV which is implementing each year hundred of thousands employee insurances. As such, the division UWV Benefits seems to provide a proper impression of UWV as a whole. UWV Benefits consists of 4,402 employees in approximately 250 different teams, located at twelve different districts in the Netherlands. A district manager who is responsible for a district consisting of almost 400 employees and 25 team managers lead each district.

### ***Data Collection***

Two surveys were conducted for employees in order to reduce common method bias (Favero and Bullock 2015; Jakobsen and Jensen 2014). This study asked district managers to bring our research to employees' attention as a disadvantage of conducting two surveys for the same population could be a decreasing response rate.

The first survey was launched in January 2015. In this survey, employees had to rate their team manager in terms of rule-following and empowerment leadership activities. 2012 employees (46%) responded to this survey.

The second survey was launched in March 2015 and focuses on a climate for innovation. Only employees who have participated in the first survey were included which means a sample of 2012 employees. At the moment of writing this paper, 309 employees (15%) have responded to the second survey, which were nestled in 171 different teams (the survey was still available when this paper was written). 61,2% of these 309 respondents is female while the average age is 42 years old.

### **Measures**

This study relies on perceptual measures, that means measures based on experiences (Yang and Pandey 2009, 338). Scholars argue that such measures are more appropriate when conducting research on lower levels in an organization (e.g., Carr et al. 2003; Parker et al. 2003; Yang and Pandey 2009). In addition, the study variables were measured using multiple-item measures that have been tested and validated in earlier studies.

Rule-following leadership activities were measured using the four items of Tummors and Knies (2014). To our knowledge, the measurement instrument of Tummors and Knies is the only instrument for rule-following leadership activities which has been validated. An example item is 'my team manager emphasizes to me and my colleagues that it is important to follow the law'. Employees were asked to rate each item on a scale from 1 to 7, defined as strongly disagree (=1) until strongly agree (=7). Since the unit of analysis in this study was the team, we aggregated individual responses with respect to rule-following leadership activities to the team level of analysis. Cronbach's alpha was 0.967.

Empowering leadership activities were measured using the seven items of Van Dierendonck and Nuijten (2011). The instrument of Van Dierendonck and Nuijten originally focuses on servant leadership activities. However, Van Dierendonck and Nuijten argue that a main characteristic of servant leadership is empowerment. As such, they measure empowerment leadership activities in their instrument. This study uses their measurement instrument for empowering leadership activities, because the instrument of Van Dierendonck and Nuijten shows great levels of validity. An example item is 'my team manager offers me abundant opportunities to learn new skills'. Employees were asked to rate each item on a scale from 1 to 7, defined as strongly disagree (=1) until strongly agree (=7). We aggregated individual responses to the team level of analysis. Cronbach's alpha was 0.904.

An innovative climate was measured using the full 38-item scale of Anderson and West (1998). This measurement instrument of Anderson and West is commonly regarded as the best one for measuring an innovative climate (Somech and Drach-Zahavy 2013, 687) and is, consequently, often used. These items capture the five dimensions: participative safety (8 items, an example item is 'people feel understood and accepted by each other'), support for innovation (8 items, an example item is 'people in this team are always searching for fresh, new ways of looking at problems'), vision (11 items, an example item is 'how clear are you about what your team's objectives are?'), task orientation (7 items, an example item is 'do you and your colleagues monitor each other so as to maintain a higher stand of work?'), and interaction frequency (4 items, an example item is 'members of the team meet frequently to talk both formally and informally'). Employees were asked to rate each item on a scale from 1 to 7, defined as strongly disagree (=1) until strongly agree (=7). Since an innovative

climate is particularly a team level concept (Anderson and West 1998), we aggregated individual responses to the team level of analysis. Only two or more responses of employees within the same team were aggregated, which results in aggregated data of 217 employees nestled in 80 different teams. Subsequent cronbach's alpha's of the five dimensions of an innovative climate were 0.913, 0.948, 0.953, 0.917 and 0.891.

Control variables are educational level and tenure. We aggregated individual responses with respect to these control variables to the team level of analysis. Teams score a 3,44 on a scale from one to six for educational level, which implies between intermediate vocational education and higher education. Finally, the average of tenure is 3,07 that means between eleven and fifteen years.

## RESULTS

### *Descriptives*

The mean, standard deviations, minimums and maximums, and correlations between the central variables are presented in table 1 and table 2. Descriptive results with respect to rule-following leadership activities show an average score of 4.98 on a seven-point scale. That is, on average, employees in the selected public-sector organization experience a reasonable amount of these rule-following leadership activities. With respect to empowering leadership activities, the average score of these leadership activities is 5.32 on a seven-point scale which indicates that employees experience more empowering leadership activities than rule-following leadership activities. Furthermore, according to employees, an innovative climate in the selected public organization is particularly based on interaction frequency and participative safety, as the average score of these two dimensions is 5.42 and 5.34 on a seven-point scale which are the two highest scores compared to the other dimensions. Moreover, an innovative climate is less reflected in the dimension support for innovation since the average score of this dimension is 4.79 on a seven-point scale which is the lowest score compared to the other dimensions measured of an innovative climate.

**Table 1: Descriptive statistics**

Variable	<i>M</i>	<i>SD</i>	Min	Max
Rule-following leadership activities	4.98	1.09	1.00	7.00
Empowering leadership activities	5.32	0.89	2.64	7.00
Innovative climate: participative safety	5.34	0.62	3.44	6.75
Innovative climate: support for innovation	4.79	0.71	3.00	6.50
Innovative climate: vision	5.17	0.66	3.18	6.45
Innovative climate: task orientation	5.00	0.67	3.00	6.93
Innovative climate: interaction frequency	5.42	0.76	2.63	7.00

**Table 2: Bivariate Correlations**

0	1	2	3	4	5	6	7
1 Rule-following leadership activities	1						
2 Empowering leadership activities	.453**	1					
3 IC: participative safety	-.045	.242**	1				
4 IC: support for innovation	.136*	.259**	.746**	1			
5 IC: vision	.091	.293**	.615**	.595**	1		
6 IC: task orientation	.117	.248**	.697**	.767**	.586**	1	
7 IC: interaction frequency	-.025	.249**	.704**	.572**	.463**	.668**	1

\*p &lt; .05

\*\* p &lt; .01

The correlation analysis in table 2 show that rule-following leadership activities significantly positively correlate with empowering leadership activities. In addition, the five dimensions of an innovative climate demonstrate a strong positive correlation towards each other as it can be expected. Furthermore, the results of the analysis show a positive correlation between rule-following leadership activities and the dimension support for innovation of an innovative climate. This supposes that this dimension seems to be positively affected by rule-following leadership activities. However, there appears to be no correlation between rule-following leadership activities, and participative safety, vision, task orientation, and interaction frequency. This implies that the extent of these dimensions is not associated with rule-following leadership activities. Moreover, empowering leadership activities have a positive correlation with all five dimensions of an innovative climate, which assumes that empowering leadership activities may foster an innovative climate.

### ***Relationships between Leadership Activities and an Innovative Climate***

To test our hypotheses, we conducted regression analysis on the data by using SPSS version 22. The results are presented in table 3.

First, we tested our hypothesis that rule-following leadership activities negatively influence an innovative climate in the public organization studied. The analysis found two negative relationships, namely between rule-following leadership activities, and participative safety ( $\beta = -.126$ ,  $p < .05$ ) and interaction frequency ( $\beta = -.145$ ,  $p < .05$ ). This means that a high level of rule-following leadership activities disturbs participative safety and interaction frequency, and, consequently, the innovative capacity of the public organization studied. However, rule-following leadership activities do not influence support for innovation ( $\beta = .019$ ,  $p = ns$ ), vision ( $\beta = -.024$ ,  $p = ns$ ) and task orientation ( $\beta = .000$ ,  $p = ns$ ). Based on these results, our first hypothesis is only partly supported.

Second, we test our hypothesis that empowering leadership activities positively influence an innovative climate. As it was already suggested by the results of the correlation analysis, the regression analysis shows statistically significant relationships between empowering leadership activities and all five dimensions of an innovative climate (participative safety:  $\beta = .257$ ,  $p < .01$ ;

**Table 3: Regression analysis**

<i>Predictor:</i>	IC: participative safety	IC: support for innovation	IC: vision	IC: task orientation	IC: interaction frequency
Constant	4.215**	3.195**	3.143**	3.789**	4.313**
Rule-following leadership activities	<b>-.126*</b>	.019	-.024	.000	<b>-.145*</b>
Empowering leadership activities	<b>.257**</b>	<b>.215**</b>	<b>.254**</b>	<b>.207**</b>	<b>.325**</b>
Educational level	.095	.086	.119	.034	-.001
Tenure	.022	.025	<b>.137**</b>	.002	.039
R <sup>2</sup>	.097	.070	.138	.062	.094

\*p &lt; .05

\*\* p &lt; .01

support for innovation:  $\beta = .215$ ,  $p < .01$ ; vision:  $\beta = .254$ ,  $p < .01$ ; task orientation:  $\beta = .207$ ,  $p < .01$ ; interaction frequency:  $\beta = .325$ ,  $p < .01$ ). This indicates that a high level of empowering leadership activities fosters an innovative climate and, consequently, the innovative capacity of the public organization studied. As such, our second hypothesis is supported.

Finally, the regression analysis demonstrates only one effect related to the control variables. Tenure positively influences the dimension vision of an innovative climate ( $\beta = .137$ ,  $p < .01$ ), which means that this dimension is being fostered if employees' tenure increases. No significant relationships are found between tenure and participative safety ( $\beta = .022$ ,  $p = ns$ ), support for innovation ( $\beta = .025$ ,  $p = ns$ ), task orientation ( $\beta = .002$ ,  $p = ns$ ) and interaction frequency ( $\beta = .039$ ,  $p = ns$ ). Moreover, educational level does not significantly affect an innovative climate (participative safety:  $\beta = .095$ ,  $p = ns$ ; support for innovation:  $\beta = .086$ ,  $p = ns$ ; vision:  $\beta = .119$ ,  $p = ns$ ; task orientation:  $\beta = .034$ ,  $p = ns$ ; interaction frequency:  $\beta = -.001$ ,  $p = ns$ ).

## **CONCLUSION, IMPLICATIONS AND LIMITATIONS**

Although innovations are proposed to be crucial for the success of public organizations (Bekkers, Edelenbos, and Steijn 2011), it is not a foregone conclusion that public organizations are innovative. In this study, we have drawn on the leadership and innovation literature to consider whether team level leadership activities could be associated to an innovative climate in a public sector organization which, consequently, enhance organization's innovative capacity. This study analysed how rule-following and empowering leadership activities may affect an innovative climate. On the one hand, we expected that rule-following leadership activities negatively influenced an innovative climate. On the other hand, we hypothesized that empowering leadership activities positively affected an innovative climate. With these aims, the main research question in this study was formulated as: how do team level leadership activities affect an innovative climate in a public sector organization?

The first of our findings concerned the relationship between rule-following leadership activities and an innovative climate. With respect to these first findings, the results demonstrated that rule-following leadership activities limited significantly negatively related to an innovative climate in the selected public organization as only the dimensions participative safety and interaction frequency interfered with rule-following leadership activities. So, a conclusion is that rule-following leadership activities to some extent reduce innovative capacity as these activities hinder only two dimensions of an innovative climate. This conclusion contradicts with our hypothesis, which supposed a negative relationship between rule-following leadership activities and all five dimensions of innovative climate. Therefore, in future research, explanations for this surprising conclusion should be investigated. For instance, moderating and mediating variables can be included (e.g., public service motivation, prosocial motivation) to explain our results.

With respect to our second variable, empowering leadership activities, the results showed statistically significant relationships with an innovative climate. All five dimensions were positively influenced by empowering leadership activities in the public organization studied. So, a second conclusion is that empowering leadership activities foster innovative capacity since these activities

strongly increase all dimension of an innovative climate. This conclusion matches with our hypothesis that expected a positive effect of empowering leadership activities on an innovative climate. The next step is that future research provides explanations why and how these empirically grounded effects appear. For instance, explanations could be sought in contextual variables as scholars (see, e.g., Boyne 2002; Rainey 2009; Van Slyke and Alexander 2006) argue that the public context have distinctive characteristics compared to the private context such as more goal ambiguity and high levels of red tape.

Based on our conclusions, this study has an important implication. Theories about the relationship between leadership and innovation generally assume that innovations are predominantly a result of bottom-up initiatives of employees rather than top-down leadership initiatives (see, e.g., Borins 2002; Walker 2008). Regarding to this, it seems that the negative role of rule-following leadership activities for an innovative climate refers to top-down leadership initiatives. Rule-following leadership activities facilitate employees to act in accordance with rules and procedures (Tummers and Knies 2014). As such, these activities put attention to top-down initiatives, as these initiatives particularly rely on developing regulations and control incentives for employees in stability-seeking public sector organizations (Borins 2002, 468). In addition, the positive role of empowering leadership activities can be related to bottom-up initiatives. Empowering leadership activities share power with employees and provide the support employees needed to handle the additional responsibility effectively (Martin, Liao, and Campbell 2013, 1375). Subsequently, empowering leadership activities enable bottom-up initiatives of employees as these leadership activities give employees confidence and autonomy, and increases employees' capabilities (Yukl and Lepsinger 2004). So, regarding to our conclusions, it means that not only innovations themselves benefit from bottom-up initiatives or thus empowering leadership activities in public organizations, but also an organization climate where innovations can flourish. This can hence be considered an important contribution to what is generally known with respect to the relationship between leadership and innovation in the public sector.

Despite the contributions made by this study, the results should be interpreted with caution given several limitations. First, this study empirically examined relationships between rule-following and empowering leadership activities, and an innovative climate in a public sector organization. By investigating only these two different types of leadership activities, it can be considered a limitation of this study. For instance, it seems reasonable to test whether servant leadership activities affect an innovative climate (Walumbwa, Hartnell, and Oke 2010). Therefore, we recommend to future research to include other types of leadership activities which may influence an innovative climate in public organizations.

Next, scholars are starting to pay more attention to common method bias (Favero and Bullock 2015; Jakobsen and Jensen 2014) which is a biasing of results that is caused by a common method. In order to reduce common method bias, this study conducted two different surveys. Although conducting two different surveys can be considered an important advantage, we cannot fully exclude common method bias, because the time period between the two surveys seems relatively short. As such, causal interpretations of relationships between leadership activities and an innovative climate are questionable. In order to improve causality, future research should extend the time period between



different surveys. For instance, in some private management studies the measurement period is almost one year (see, e.g., Somech and Drach-Zahavy 2013).

The final limitation pertains to the uniqueness of the sampled organization, namely, a professional autonomous administrative authority. While theory cuts across organizational types, the question arises as to whether an administrative authority is sufficiently similar to other organizational types, or if it is so distinct as to require different ways of viewing and measuring leadership activities and an innovative climate. Regarding this, as a result of its core businesses, we have argued that work is standardized and formalized within the selected public organization, there are many routines and procedures, and decision-making is centralized. As such, future research may focus on other organizational types than so-called machine bureaucracies (Mintzberg 1992) in order to increase the generalizability of the present findings to other types of organizations.

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