



**LIPSE**

## **Innovation capacity in the public sector: What's the link between leadership and innovation?**

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### **Abstract**

Much of the focus on innovation through the lens of New Public Management has been on individual entrepreneurship to drive through change, while the network governance or New Public Governance version emphasizes 'co-creation' as producing innovation through new government-society interactions. Recognizing these important shifts, this paper argues that innovation in the public sector is determined by its innovation capacity. This paper presents early research results from an EU FP7 grant on "Learning from innovation in public sector environments" (LIPSE), where this first component of the project aims to: map, analyse and compare the innovation capacity of public sector environments; and to link formal and informal structures (capacity) with a range of measures of innovation. In this first research step, the focus is on the link between leadership and innovation with the research question being; what is the link between leadership and innovation or what kind of leadership culture fosters innovative public sector environments?

The research involves a comparison of four cities in different countries, with a focus on their local governments, socioeconomic development, and the display of leadership qualities in relation to innovation in each city; Copenhagen, Rotterdam, Edinburgh and Barcelona. This paper presents the findings for the city of Copenhagen as the first to conclude with a profile on its findings in the municipality.

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from Innovation in Public Sector Environments" ([www.lipse.org](http://www.lipse.org)) is a research consortium of 12 institutions in 11 countries, studying the drivers and barriers of successful social innovation in the public sector. This paper is part of the project's workpackage 1, which aims to: map, analyse and compare the innovation capacity of public sector environments; and to link formal and informal structures (capacity) with a range of measures of innovation.

## 1. Introduction

The important link between leadership and innovation in the public sector is weakly conceptualized: Much of the focus on innovation through the lens of New Public Management has been on individual entrepreneurship to drive through change, while the network governance or New Public Governance version emphasizes 'co-creation' as producing innovation through new government-society interactions. Recognizing these important shifts, we are however left with a disconnection between innovation and the resource management perspective. It is the aim of this paper to contribute to filling this gap.

The paper is part of a larger research project on innovation in the public sector, which aims to: map, analyse and compare the innovation capacity of public sector environments; and to link formal and informal structures (capacity) with a range of measures of innovation. It links leadership qualities and innovation: Our ultimate aim is to theorize and test the association between leadership qualities, innovation and formal and informal structure such as network positions.

The research involves a comparison of four cities in different countries, with a focus on their local governments, socioeconomic development, and the display of leadership qualities in relation to innovation in each city; Copenhagen, Rotterdam, Edinburgh and Barcelona. These four cities reflect different geographical area, different state and society traditions, and also different leadership qualities, which are likely to influence the innovation environments.

This paper is one component in the larger research study on innovation capacity, and lays the first brick to a common foundation for a comparative study of what leadership qualities drive innovation in public organizations by comparing four different European cities. This paper presents the investigation and findings for the city of Copenhagen as the first municipality to conclude the survey. The research question for this paper is: What is the link between leadership and innovation?

This paper argues that innovation in the public sector is related to the leadership qualities of both politicians and senior administrators, and to the idea of dynamic capabilities: the *"ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments"*.

The paper is structured as follows; introduction, which includes paper aim and research question, the theoretical framing leading to deducing the 21 variables of leadership qualities from existing

literature; introducing Copenhagen, the capital city of Denmark as our case, methods and data gathering, and finally our analysis and key-findings. The paper ends with a brief conclusion, and perspectives for next step research.

## **2. Innovation capacity**

Innovation in the public sector, has been a topical subject ever since the Lisbon strategy (2000) declared the vision of making the EU: *“The most competitive and dynamic knowledge-based economy in the world by 2010, capable of sustainable economic growth with more and better jobs and greater social cohesion and respect for the environment – Lisbon declaration, 24 March 2000.*

Innovation means producing something new; that is; doing things differently or in a new form. Looking at the concept in a historical perspective it is an economic phenomenon – meaning new ways of producing more for less. It is the process of the invention; being a product, a technology, a service, a new type of production, a new process or a new form of collaboration. It is an economic phenomenon that goes back to Adam Smith even though it is Schumpeter who usually takes credit for the idea of ‘creative destruction’. Here innovation is seen as the process of bringing in something new that breaks with existing practise and routines. Skills that have obtained some type of routine and practise are also what defines capabilities according to Barney (2001), and therefore innovation challenges an organization’s accumulated capabilities according to Osborne and Brown (2011), who call it ‘a transformative discontinuity with existing practices’. This specific feature of innovation has often been referred to as a competency struggle between path creation versus path dependency (Garud and Karnøe, 2001) or as Thelen (2002: 224) says, it is a ‘game changer’ which breaks through path dependencies (Voorberg et al, 2013).

Public organizations are often referred to as institutionalised in the innovation literature, and characterized by having a long history of routines and practice. Furthermore, they usually evolve into a formal and very hierarchical structure of Weber’s ideal-type of bureaucracy, which is famous for having a non-flexible structure which is incapable of adapting to changing environments (Klijn and Koppenjan, 2012).

While socio-economic problems have been a public sector problem for centuries, the term ‘social innovation’ (innovation in the public sector) has only recently become popular, in line with the rise of governmental focus on this as a way to solve intractable problems.

Until now, much of the debate and research have been on the role of government (including municipal government) in boosting the innovation capacity of the private sector; it has been on public procurement, subsidies, taxes (exogenous factors) and less on the formal public organization itself (endogenous factors). Only lately networks as a contrast to formal and hierarchical structure has been the research object as the emergence of the direction of network governance progresses (Osborne, 2010; Lewis et al., 2011).

However, the almost explosive pressure on municipalities ‘to do more with less’ in response to shrinking budgets, yet increasing expectations in the communities to deliver high quality at a much faster pace, has led to a much greater need for a focus upon how the public sector manages change and innovation (Bartlett and Dibben 2002). One of the most visible research focuses have been on public-private partnerships as new types of collaboration, but the problems with the study in these are that they tend over time to become institutionalized by transforming into a governance form that almost simulates the formal structure of the bureaucracy with; mandates, chairman’s, steering committees, taskforces etc. We argue that much talk and research have been on why the public sector should change and what changes should be made; but it is most likely that qualitative changes arise from within the system. As Schumpeter (1934: 63) phrased it when writing about the fundamentals of economic developments: *By “development”, therefore, we shall understand only such changes in economic life as are not forced upon it from without but arise by its own initiative, from within*”. In this perspective our research focus is to understand what builds the innovative capacity in public organizations.

We start our research at the individual level: There is a certain capacity of how much knowledge an individual can absorb, and maybe there is also a certain capacity of how much innovation an organization can absorb. In this study we are focusing on cities as the ‘cases’ in the study, and it is the individuals located in the formal hierarchy (top-three-levels) of the administration that are the focus, in order to understand what is happening at the micro-levels before examining the aggregate level.

## **2.1 Finding the variables: leadership and innovation**

Along with the rapidly emerging New Public Governance literature there is a new focus on leadership skills. That is; from transformational leadership to today’s network governance literature focusing on collaboration, on co-production as the solution to wicked problems. For finding the variables of leadership qualities we briefly review five different concepts that deal with innovation in the public sector and each highlight the leadership skills considered necessary. The concepts are; Transformational leadership, Interpersonal skills, Wicked problems/co-production/collaborative skills, Entrepreneurial skills, and Dynamic capabilities. See Beinicke (2009), Osborne and Brown (2011), and Voorberg et al (2013) for an extensive overview of public sector leadership literature.

New Public Management has since the 1980s entailed the concept of transformational leadership (introduced by Burns, 1978), which leadership qualities focus on the soft side of the manager for leading through change with skills such as; being visioning, managing complex change, and goal setting (Beinicke, 2009). Its emergence was established as it was in contrast to public managers taking on a merely administrative and rule bounded role to a focus on leaders to be inspirational

leaders in helping employees to reach their potential by focusing on their performance, and thought this create efficiency in the public sector (Fitzgerald and Schutte, 2010; Osborne, 2010).

Beinicke (2009) includes an additional concept that he calls interpersonal skills in relation to innovation and change management perspective. These are; Communicating, teamwork, coaching, and negotiating and conflict resolution. Both managerial concepts stand in contrast to the entrepreneur; that of seizing opportunities, and seeing conflicts as opportunities (Teece, 2007).

An entrepreneur is usually a maverick-type, somewhat of a risk taker, and typically driven by a lone rider mentality. However, their charismatic character is usually what attracts followers. Entrepreneurs are more likely to be found in the private sector, but some of these skills are reflected in our variables as there are perceived to be important for innovation (Drucker, 1985; Roberts and King, 1996; Bartlett and Dibben 2002; Windrum, 2008). In summary, all three concepts have in common that they are focusing on the individual, and not the environment, the organizational or institutional context (Osborne et al. 2008; Osborne and Brown, 2011).

New Public Governance emerged out of a criticism to these predominating governance styles of the New Public Management “toolbox” that seem to generate the opposite from the intended e.g. fragmentation and increased bureaucracy. New Public Governance is characterized by changing the focus from the individual to the organization; on the motivational and efficiency forces of the organization, on handling intractable problems (wicked problems in the literature), and on facilitating processes that lead not only the employees, but also external collaborators, e.g. local citizens, community leaders, and volunteers from the informal sector (Storey, 2011; Van Wart, 2013).

In the article “Strategy as a Wicked Problem” by Camillus (2008, 100) he defined wicked problems: *“Wicked problems often crop up when organizations have to face constant change or unprecedented challenges. They occur in a social context; the greater the disagreement among stakeholders, the more wicked the problem. In fact, it is the social complexity of wicked problems as much as their technical difficulties that make them tough to manage.*

To play the devil’s advocate; dealing with people is complex, but perhaps taking this into consideration in aspects of implementation at the early stage of the innovation process may contribute to the creation of more ‘robust’ solutions. New Public Governance stands in contrast to New Public Management as it entails a new perspective on citizens as associates in the innovation process, rather than service-receivers. It introduces the word “co-production” as the creation of solutions occurs in collaboration with the users/ citizens (Osborne, 2010; Sørensen & Torfing, 2011; Voorberg et al., 2013). The New Public Governance literature view co-production with the citizens as a necessary condition to development new public services that meet the citizens’ needs, and relates this to the term “social innovation” (Bekkers et al, 2013). Social innovation focusses on the social and political values, on creating new services that have societal value in terms of the social and political outcomes which they produce. The term social innovation implies

that the innovation is trying to respond to the needs of relevant stakeholders, such as citizens. The social innovation literature therefore refer to innovations that addresses the challenges with which societies are wrestling, such as the fight against crime, the quality of city living, or the fight against unemployment.

### **Throwing in a wild card: dynamic capabilities**

It has been said many times that public sector environments are rapidly changing. Most recently it has even been said that public sectors are more exposed to changes than private sectors due to frequent changes in policy (Pablo et al., 2007; Salge and Vera, 2011; Piening, 2013). This naturally opens a door to the resource based view of the organization; to how organizations adapt to these rapidly changing environments.

The dynamic capability framework is new to the public sector (Pienings, 2013). The concept has been applied to private organizations (theory of the firm-type of analysis) to understand how firms stay competitive by adapting to the changing environment. Dynamic capabilities are the 'ability to integrate, build and reconfigure internal and external competences to address rapidly changing environments' (Teece et al., 1997: 516). In order for a company to ensure economic growth and sustain its business for the long-term it needs to be capable of dynamically adapting to the changing environment it is surrounded by (Teece, 1996: 258). Such capabilities within a company are meant to be an add-on to the resource-based view of the firm. Dynamic capabilities deal with the processes that allow companies to sustain a competitive advantage over time. Dynamic capabilities are distinctive processes that facilitate not only the ability to recognize the changes in the strategic environment, but also the processes of changing and shaping the company's asset positions in its adaptation to its environment (Teece, 2007).

Dynamic capabilities are therefore closely related to a company's "performance", which according to Teece (1996) is to create, deploy, and protect the intangible assets that support the business in the long run. Naturally, their purpose (to protect their business) is not the same as the public sector's; they are to provide the services that markets otherwise would not fulfill satisfactorily or govern those areas considered necessary as public goods (e.g. welfare).

Despite the great differences, we argue that the dynamic capability framework still provides some useful concepts when it comes to investigating the link between innovation and leadership qualities in the public sector: The innovation capacity of public sector organizations is related to capabilities of adapting to changing environments. The question is: What sorts of leadership qualities are supportive of innovation in the public sector?

Table 1 summarizes the leadership qualities provided by five relevant concepts – transformational leadership, interpersonal skills, entrepreneurship, collaborative skills, and dynamic capabilities. On the basis of these concepts; 21 sub-questions was created, also in the following referred to as the 21 variables.

**Table 1: The 21 leadership variables inspired by the theoretical concepts**

Variables	Transformational leadership	Interpersonal skills	Entrepreneurship	Wicked problems/ collaborative skills	Dynamic capabilities
A. Good communication skills		X			
B. Visionary	X				X
C. Takes initiative			X		X
D. Authoritative		X	(-X)	(-X)	
E. Visible leadership	X	X			X
F. Displays a long term perspective (+)					X
G. Displays a short term perspective (-)					X
H. Good at gathering information		X	X	X	
I. Problem-oriented	X	X	X	X	X
J. Results-oriented	X	X			X
K. Inspirational		X	X		
L. Provides intellectual stimulation	X	X			
M. Committed to colleagues and organisation	X	X		X	
N. Willing to sacrifice self-interest	X	X		X	
O. Good at mobilising the resources needed	X		X		X
P. Worked collaboratively	X	X	X	X	X
Q. Knowledgeable		X	X		X
R. Good at learning from mistakes			X		
S. Willing to risk mistakes from employees			X		
T. Open towards new ideas	X	X	X	X	X
U. Takes all decisions alone (-)		X	X		
V. Involves others in key decisions (+)				X	
W. Always follows procedures		X	(-X)	X	

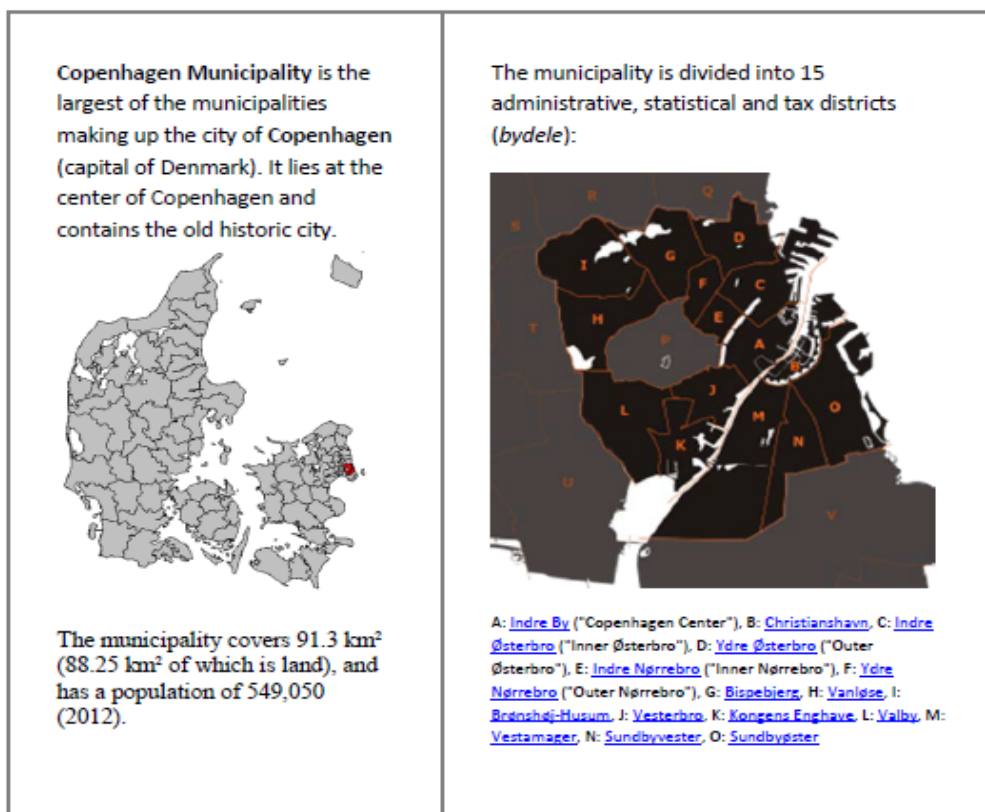
### 3. The city of Copenhagen

The city of Copenhagen was recently nominated to be among the 33 finalist to earn the title as “Earth hour capital” by WWF. With this nomination follows recognition of its innovative work on combating climate change, and the vision of becoming a CO<sub>2</sub> neutral capital by 2025. The nomination builds on the city's already impressive reputation for sustainability, which comes from successes like the district heating system and biking culture (website. [www.welovecities.org/copenhagen](http://www.welovecities.org/copenhagen), accessed 12 March, 2014).

Copenhagen is the capital city, and also the largest municipality in Denmark with a population of 549,050 people (2012) (figure 1). It is a country characterised by having relatively strong local governments (Loughlin and Peters 1997; Pollitt and Bouckaert 2004). But it is also a city with strong traditions, for instance, the political leader (the Lord Mayor) has been a Social Democrat since 1903. Copenhagen is (as many big cities are) challenged by its socio-demographics. It is a city that attracts many young people, while the families move to the suburbs. It is also a city with a visionary political leader that is well-aware of the socio-economic challenges it faces. The vision he recently expressed for the city is; *“The city we want to create is an open, tolerant and secure city. A diverse metropolis that is the most important gateway for foreign business investments and international events. And a natural centre for the Sound and Baltic Sea regions. Copenhagen is a city worth visiting, living in and investing in. Furthermore, Copenhagen must be the City of the citizens now and in the future”* (website.www.kk.dk, accessed 10<sup>th</sup> June 2013)

Copenhagen is facing major socio-economic challenges, and for these, social innovations are needed. Some of the biggest challenges are; the unemployment among the young people, ghettos, affordable apartment for average income people, the fight against crime, and the challenging inequity in citizens health and economic profiles, which is concentrated to a few specific geographical areas. To meet these challenges, there is not only a need for creating jobs, but also a need for creating better inclusion and diversity in the city, say the Lord Mayor.

**Figure 1: The city of Copenhagen**





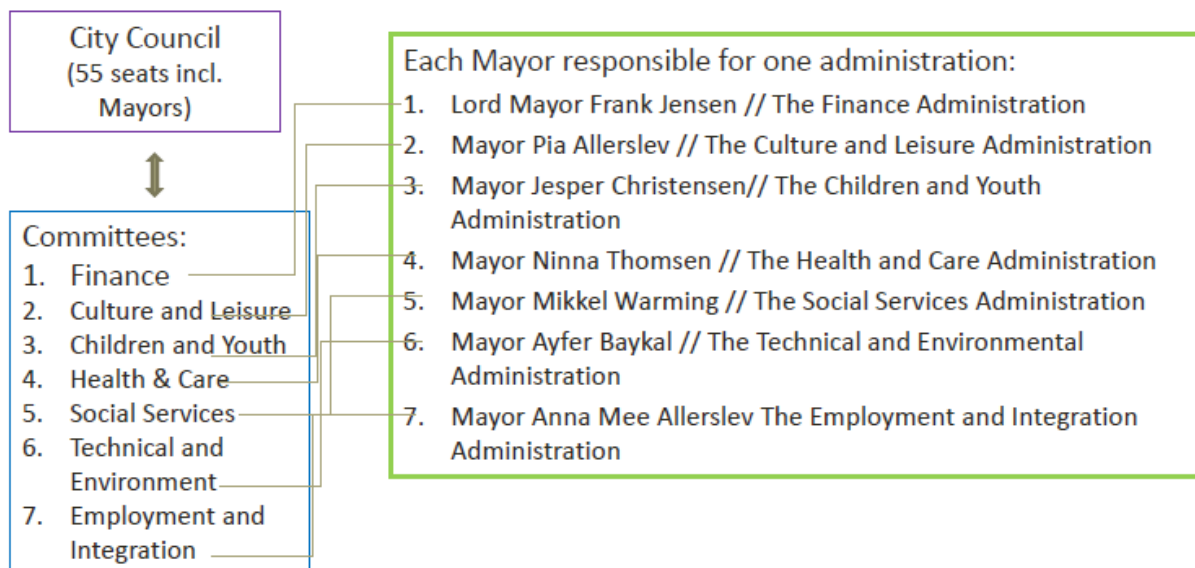
The City Council is the supreme political authority in the City of Copenhagen. Its 55 members outline the framework for the responsibilities and duties of the committees. The Lord Mayor is the Chairman of the City Council, convening the meetings and setting the agenda.

In the municipality of Copenhagen there are seven mayors (the Lord Mayor and six Mayors each covering a specialised field of responsibility). The responsibilities of the administrative branches are divided by the seven mayors, creating seven administrations and seven committees. The mayors are all elected politicians, and are working full-time in the municipality. The remaining politicians (48) in the city council are regarded as part-time politicians, and usually they follow the practice of keeping their day-time job as a school-teacher, student or consultant. Politicians do, however, receive fees from the standing committees, as board members or from their seats in the external companies owned (or partly owned) by the municipality like the metro, harbour, water, central heating and renovation companies etc. Some of these seating are quite prestige and lucrative. The seats are divided among the parties after the local election, which is held every fourth year in November.

#### 4. Method and data

We were given permission to approach the senior managers within the following six areas: Healthcare, Employment and Integration, Culture and Leisure, Social Services, Technical and Environmental, and Children and Youth Departments. Figure 2 shows the formal structure of the municipality; the seven committees, the seven mayors, and the seven departments.

**Figure 2: Sampling**



In November 2013 - February 2014, 175 responses were gathered through invitations to an online questionnaire. From a selected list of the whole population of 464 senior managers (the top-three levels) and mayors, we managed to collect answers on the leadership qualities from 173 senior managers and 1 politician, and 1 mayor that was interviewed face to face (table 2). The data is

based on their perceptions and opinions and the responses do not represent the whole population of senior managers in the city of Copenhagen.

**Table 2: Numbers of staff in divisions and estimated response rates<sup>1</sup>**

Division	Number of staff at senior levels	Number of responses <sup>2</sup>	Number of responses <sup>3</sup>	Response rate <sup>4</sup> (%)
Mayors	6	1	1	16.6
Politicians (not mayors)	16	3	1	6.3
<b>Total politicians</b>	<b>22</b>	<b>4</b>	<b>2</b>	<b>9.1</b>
Health and care	118	70	52	44.1
Children and youth	21	10	7	33.3
Employment and integration *	29	7	3	10.3
Culture and leisure	88	70	53	60.2
Technical and environmental *	106	27	17	16.0
Social services	102	52	41	40.1
<b>Total administrators</b>	<b>442</b>	<b>236</b>	<b>173</b>	<b>39.1</b>
<b>Total</b>	<b>464</b>	<b>240</b>	<b>175</b>	

1. NB: These are 'worst case' estimates – there were significant numbers of email bounce-backs that have not yet been factored into the response rates, and people who did not complete the survey but indicated they were in relatively junior positions and should not have been in our sampling frame (particularly the case in divisions marked \*). When these are excluded, the actual response rate is likely to be around 50 per cent.
2. The first number of responses indicates everyone who opened the survey and answered the first two questions about their division and their job title.
3. The second column of responses indicates those who answered questions beyond the initial two.
4. Based on numbers who answered more than the first two questions.

## 5. Leadership and innovation

The analysis follows three steps; the first was to find the leadership profiles of Copenhagen and calculate the individual scores for the 175 respondents. The next was to calculate individual scores of the innovation measurements; self-rated innovativeness (internal and total, which includes an external comparison) and innovation procedures (what helps and hinders innovation). The resulting individual scores for each factor/components were then used in a series of analysis of correlation coefficients (Pearson) to determine whether there were significant correlations between any of these three types of leadership and the perception of innovativeness of the municipality.

### Leadership types

In the research that this paper draws upon, we have defined the principal characteristic of the innovation process as: *“the process from ideas to successful implementation of these, which makes a substantial difference to an organization’s understanding of the needs it is addressing, and the*

*services it delivers.”* The definition served as a guideline in the questionnaire to help participants to go beyond innovation as a buzzword, and to indicate that innovation was about processes specific to their work context.

In the survey, participants were asked to rate a set of leadership skills on a five point Likert scale, in relation to their importance to innovation (the results from this are shown in appendix 1). In the survey the order of these was randomised, so that the order of the items was different for each person answering. Table 3 show the results of the factor loadings using principal component analysis (explorative factor analysis).

**Table 3: Leadership qualities factor loadings**

(n=175)	Component		
	1	2	3
A. Good communication skills	.45		.38
B. Visionary	.40		.71
C. Takes initiative	.43	.47	.43
D. Authoritative		-.66	
E. Visible leadership	.38		.56
F. Displays a long term perspective			.81
G. Displays a short term perspective			-.68
H. Good at gathering information	.56	.	.36
I. Problem-oriented	.47		
J. Results-oriented	.53		
K. Inspirational	.48	.43	.31
L. Provides intellectual stimulation	.59		.35
M. Committed to colleagues and organisation	.60		
N. Willing to sacrifice self-interest	.62		
O. Good at mobilising the resources needed	.60	.39	
P. Worked collaboratively	.52	.48	
Q. Knowledgeable	.53		
R. Good at learning from mistakes	.35	.62	
S. Willing to risk mistakes from employees		.57	.37
T. Open towards new ideas	.39	.50	.34
U. Takes all decisions alone		-.50	
V. Involves others in key decisions	.52	.36	
W. Always follows procedures		-.51	

1. Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization<sup>2</sup>.
2. Only factor loadings with magnitude of .30 and greater are included for ease of interpretation.

<sup>2</sup> Total Variance Explained as with 3 components that explains 48 % of the data-set with a rotation sum of 3.218 (% variance = 13.992), which is higher than average using the Kaiser Normalization test.

Three principal components were found in the exploratory factor analysis. The three types extracted are shown in box 1 with a summary statement that encapsulates the clustering variables. We labelled them motivator, entrepreneur and futurist after the strongest variables for each components (and set of variables).

**Box 1: The three types of leadership**

Factor 1: Motivator =	Willing to sacrifice self-interest, committed to colleagues and organization, inspirational, good at mobilising the resources needed, involves others in key decisions, works collaboratively, somewhat open to new ideas, and is knowledgeable.
Factor 2: Entrepreneur =	Good at learning from mistakes, is willing to risk mistakes from employees, and only infrequently follows procedure. Is generally open towards new ideas and is the opposite of authoritative leadership.
Factor 3: Futurist =	Is visionary, displays a long-term perspective, and visible leadership

**Leadership and self-rated innovativeness**

In our questionnaire the respondents were also asked to rate the level of innovativeness of the municipality on 7 point Likert scales from not innovative at all (1) to extremely innovative (7). They were asked to rate the municipality, their department and their colleagues (internal) and in comparison to other municipalities in Denmark and within the EU (external). The questions and the results are shown in table 4.

**Table 4: Self-rated innovativeness of municipality**

(n=155)	Percentage						
	not innovative at all (1)	2	3	4	5	6	extremely innovative (7)
1. This municipality is	.6	2.6	20.6	36.8	29.7	9.7	0
2. My immediate colleagues are	.6	1.9	14.8	36.8	27.1	17.4	1.4
3. The division I work in is	.6	5.8	14.2	34.8	29.7	13.5	1.3
4. In comparison to	1.3	6.5	21.4	43.5	22.7	3.2	1.3

Copenhagen, other municipalities in Denmark are:							
5. In comparison to Copenhagen, municipalities (within my work area) in other European countries are	1.9	7.1	21.4	48.1	16.9	2.6	1.9

Two innovation measures were constructed from these items – the first is a measure of internal innovativeness (the first three items summed), and the second is a measure of innovativeness overall (summation of internal innovativeness plus the two comparative items reversed). These two new measures can vary between a minimum of 3 (internal only) or 5, to a maximum of 21 or 35. The internal innovativeness rating had a mean score of 13.0 (SD=2.66) and the overall rating had a mean of 21.2 (SD=2.55) (See Lewis and Ricard, 2014 for further details on the construction of these variables). We next examined the correlations between these three types of leadership and innovativeness in the municipality:

Analysis showed that innovativeness (internal) was strongly and positively associated with regarding that motivator-leaders are important to innovation (Pearson’s correlation coefficient = .421,  $p < .01$ ) and likewise for futurist-leaders (.311,  $p < .01$ ). Analysis including the comparison measurements to other municipalities (total innovativeness, which includes an external comparison) was only strongly and positively associated with the motivator-leaders being regarded as important (.363,  $p < .01$ ). However there was no significant correlation between innovativeness and seeing the entrepreneur as important. No significant difference was found for the three leadership types across gender, education or departments.

To summarize, high scores on motivation (willingness to sacrifice self-interest, dedication and inspirational leadership) and futurist (long-term perspective, visions and visible leadership) are positively associated with a high innovativeness internal.

### **Leadership and innovation procedures**

The third measurement generated from our questionnaire was based on innovation procedures. Respondents were asked what procedures they consider helping or hindering innovation using a five point Likert scale (where 3 means neither helps nor hinders). The questions had 18 variables phrased as sub questions (The results for this are shown in appendix 2).

Table 5 shows the questions and the results of the factor loadings.

**Table 5: Factor loadings for innovation procedures**

(n=143)	Percentage of variance explained = 43.2			
	Context	Electoral values	Managerial structures	External relations
1. The annual budget process		.49		.37
2. The municipality's corporate plan				.54
3. The municipality's statutory committee meetings		.38	.57	
4. The municipality's advisory committee meetings			.67	
5. The municipality's public meetings			.63	
6. Pay and promotion system		.36		
7. Values and culture of Executive management (not politicians)	-.30	.45		
8. Organisational structure of the municipal government		.30	.36	.37
9. Quality of proposals coming from officers/administrators (not politicians)			-.50	
10. Municipal election campaigns		.53		
11. Values and culture of elected politicians (including Mayors)		.78		
12. Quality of policy proposals coming from local politicians (including Mayors)	.42	.34	.31	
13. National government pressure on municipalities	.81			
14. Directives from the EU	.81			
15. The current economic crisis	.69			
16. The business elite of the city				
17. Media attention		.36		.46
18. Contact with and involvement of citizens and community groups				.66

Based on principle components analysis with varimax (orthogonal) rotation, 4 factor solution. Only factor loadings with magnitude of .30 and greater are included for ease of interpretation.

Four factors emerged using principal component analysis (See Lewis and Ricard, 2014 for further details). These are summarised in box 2.

**Box 2: The four dimensions of innovation procedures**

Factor 1: Context =	Environmental pressures and politicians' proposals
Factor 2: Electoral values=	Elections, culture and values, and municipal processes
Factor 3: Managerial structures =	Meetings and structures
Factor 4: External relations =	External relations such as citizens, the media and planning.

The individual scores for each of the four factors were added to the analysis with the purpose of testing if there was any association between the three types of leadership and the four factors related to what helps innovation. The most remarkable finding was that the impact of managerial structures (meetings and structure) on innovation was extremely negatively associated with futurist-leaders (-.919,  $P < .05$ ).

We noticed the factor matrix's variable no 9. Quality of proposals coming from officers/administrators (not politicians) being negatively associated with managerial structures (-.50), while no 12. Quality of policy proposals coming from local politicians (including Mayors) was positively associated. This can be only interpreted as visions and 'creative destruction-type' of ideas are more accepted to be coming from the politicians and not from the officers/administrators. No significant associations were found between futurist-leaders and the effect of context, electoral values or external relations on innovation. Nor did we find any association between entrepreneur and motivator-leaders in regards to these four factors of innovation procedures. The findings are a key to further analysis on understanding formal and informal structures in regard to innovation capacity. Our findings show that regarding formal managerial structures as helping innovation is diametrically opposed to thinking that futurist-leaders are what is needed for innovation. This indicates that the more informal network structures might provide a better environment for long-term perspectives and visions to prosper. More analysis is needed to understand the relationships that this preliminary work has uncovered.

## **6. Findings**

This paper presented the findings for the city of Copenhagen to the research question: what is the link between leadership and innovation in public organizations? The link between leadership qualities and innovation was analysed using the results from an online survey. In reducing the many variables rated by the respondents we used factor analysis/principal component analysis to look for patterns of variables that indicate latent dimensions; three factors/components came out strongly in the case of Copenhagen - the motivator, the entrepreneurial leader and the futurist.

We also found strong correlations between the motivator skills and level of innovativeness within Copenhagen municipality; indicating that if one perceives that a high level of motivator-skills are needed for innovation, this is linked to a perception of the municipality being highly innovative. The same thing applies to the futurist skills of long-term perspectives and clear visions. Surprisingly the entrepreneur had no impact on the innovativeness score (strongly related to the entrepreneurial leadership skills from theory), and we postulate that this might point to a difference between the public and private sectors in regard to innovation. In addition comparison measurements such as; the municipality being innovative in relation to colleagues, other departments and other municipalities were added to the analysis. As a result, motivator skills came out strongly in the analysis, showing that dedication to colleagues and organisation plus the

sacrifice of self-interest correlates with a perception of one's colleague as more innovative than those in other municipalities.

A third innovation measurement was added to the analysis being that of procedures that either help or hinder innovation. Using factor analysis/principal component analysis four factors (as helping innovation) emerged: Context, electoral values, managerial structures, and external relations. One key finding was the negative association between the futurist-leader (long-term perspective and visions) and the managerial structures (meetings and structures), which points to the importance of informal structures such as networks for these skills (which have been shown to be strongly associated with innovativeness – see Lewis et al 2011).

The findings are important in enhancing our limited understanding of what builds innovation capacity in public organizations. Based on these findings, the paper concludes that formal structures are likely to be important in hindering innovation capacity, and motivational skills might be more important than entrepreneurial skills in a public sector context.

## **7. Conclusion**

In conclusion, based on our preliminary results from the city of Copenhagen, it seems that; it is the informal structures (opposite to the formal managerial structures) that may be “the game changer” that breaks through path dependency, and creates the space for innovation. As for meta-level considerations, the theoretical concept of the dynamic capability perspective offers great potential for the field of innovation management in public organizations as an underlying theory; being supportive in renewing those capabilities needed - e.g. fostering informal structures.

## **8. Next step: A comparative research of 4 cities**

This paper's research presented results for only one city. It does however, include a framework that is currently being applied to three other European cities so that we will be able to compare how different these are in regard to leadership and innovation. The next step in this research component focusing on innovation capacity is the mapping of the key actors in each community (community leaders) determining how local governments relate to local organizations in civil society, and thus provides a comparison based on these various measurements.

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## Appendix 1: Leadership qualities - frequencies

(N=175)	Percentage				
	very little	some	Average	more than average	a lot
A. Good communication skills	1.1	10.3	44.0	38.3	6.3
B. Visions and is visionary	1.7	13.1	32.0	37.1	16.0
C. Takes initiative	3.4	16.0	34.9	35.4	10.3
D. Authoritative	28.2	25.3	33.3	9.8	3.4
E. Visible leadership	.6	13.8	33.9	46.0	5.7
F. Displays a long term perspective	1.1	14.9	32.8	37.9	13.2
G. Displays a short term perspective	14.9	28.2	35.6	18.4	2.9
H. Good at gathering information	2.9	20.1	46.6	28.2	2.3
I. Problem-oriented	.6	15.5	43.1	33.3	7.5
J. Results-oriented	.6	9.8	28.2	47.7	13.8
K. Inspirational	4.0	9.8	35.6	42.5	8.0
L. Provides intellectual stimulation	5.2	14.9	33.9	40.2	5.7
M. Committed to colleagues and organisation	0.6	12.1	27.0	46.0	14.4
N. Willing to sacrifice self-interest	10.9	20.7	46.6	20.1	1.7
O. Mobilising the resources needed	8.0	20.6	46.3	22.9	2.3
P. Worked collaboratively	2.9	14.4	36.8	37.9	8.0
Q. Knowledgeable	1.7	6.3	37.4	46.0	8.6
R. Good at learning from mistakes	6.3	23.4	39.4	24.6	6.3
S. Willing to risk mistakes from employees	8.0	20.0	34.3	28.6	9.1
T. Open towards new ideas	.6	12.6	34.9	41.7	10.3
U. Takes all decisions alone	19.5	36.8	33.9	6.9	2.9
V. Involves others in key decisions	5.2	13.8	37.9	38.5	4.6
W. Always follows procedures	6.9	28.7	48.3	11.5	4.6

## Appendix 2: Innovation procedures - what helps/hinders innovation?

(n=143)	Percentage				
	Mostly hinders	Hinders more than helps	Neither helps nor hinders	Helps more than hinders	Mostly helps
1. The annual budget process	5.6	34.3	37.8	5.6	16.8
2. The municipality's corporate plan	.7	18.9	62.2	5.6	12.6
3. The municipality's statutory committee meetings	2.8	19.1	22.7	2.8	52.5
4. The municipality's advisory committee meetings	1.4	10.6	36.9	3.5	47.5
5. The municipality's public meetings	2.8	9.2	41.5	2.8	43.7
6. Pay and promotion system	5.0	20.6	26.2	2.1	46.1
7. Values and culture of Executive management (not politicians)	1.4	9.9	52.5	23.2	12.0
8. Organisational structure of the municipal government	11.3	23.4	26.2	1.4	37.6
9. Quality of proposals coming from officers/administrators (not politicians)	.7	2.8	56.0	20.6	19.9
10. Municipal election campaigns	7.1	20.6	9.2	.7	62.4
11. Values and culture of elected politicians (including Mayors)	3.6	19.3	50.7	5.0	21.4
12. Quality of policy proposals coming from local politicians (including Mayors)	6.4	25.0	32.9	2.1	33.6
13. National government pressure on municipalities	12.1	42.1	15.7	2.1	27.9
14. Directives from the EU	13.6	35.0	10.0	1.4	40.0
15. The current economic crisis	13.6	20.7	30.7	3.6	31.4
16. The business elite of the city	1.4	3.6	43.6	7.1	44.3
17. Media attention	8.5	26.2	31.9	7.1	26.2
18. Contact with and involvement of citizens and community groups	0	2.8	57.4	25.5	14.2