Anniken Salvesen
Julie Eriksen Berg

Preliminary Master Thesis Report

COLLABORATIVE STRATEGIES FOR OVERCOMING INSTITUTIONAL BARRIERS FOR CLIMATE ADAPTATION

The Case of Torshovbekken – Stormwater Management in Oslo

Hand-in date:
15.01.2018

Campus:
BI Oslo

Examination code and name:
GRA 19502 Master Thesis

Programme:
Master of Science in Business – Major Strategy

Thesis Supervisor:
Ragnhild Kvålshaugen

TABLE OF CONTENT

EXECUTIVE SUMMARY

This preliminary report will be the initial research and work of a final master thesis by two students at MSc in Business with major in Strategy, at BI Norwegian Business School. The chosen research topic concerns the investigation of how climate adaptation evolve in the built environment. Due to climate changes and increasing amounts of heavy raining, urban areas have been experiencing challenges with stormwater management. This study looks at a specific case within the Municipality of Oslo, as they have initiated a project to solve the problem of stormwater in the area of Torshovbekken. The organization of the municipal agencies involved in the project will serve as our field of study.

There are already reasonable amounts of research that identifies institutional barriers for climate adaptation, but few has emphasized solutions for how to overcome these barriers. The aim of this master thesis will therefore be to develop recommendations for strategies that can be adopted when encountering climate challenges. Considering the barriers addressed in previous literature we have developed a research question that seeks to answer the yet unexplored sides of this topic:

Which collaborative strategies and practices do organizations in the built environment need to develop in order to overcome institutional barriers for climate adaptation?

In this paper we will first introduce the background of the topic, the case of study, research question and propositions that will guide our work. An extensive literature review is then presented with a focus on institutional theory and barriers for climate adaptation. We then lay out how the study's methodology is planned and proposed. A single-case study design is chosen with qualitative interviews as the main source for primary data to be gathered. The last part of this paper describes the project organization of how the work of our master thesis will be executed.

INTRODUCTION

Intergovernmental Panel on Climate Change reported, with more than 95 percent certainty, that human impact has contributed to more than half of temperature changes since 1951 (State of the Environment Norway, 2017). In Norway as of 2016, it rains 20 percent more than it did 100 years ago, and extreme weather and heavy rainfall will only continue to increase (Time, 2017). In an report conducted by the Norwegian Government Security and Service Organisation, it is published that the frequency for rainfall intensity/durability has increased by a fivefold, stating that in hundred years, what is today considered an episode of intense rainfall with a frequency of 50 years will then be frequencing every ten years (NOU 2015: 16, 2015). Moisture is the cause of about 75 percent of damage to buildings (Time, 2017), and Finance Norway report that in the last three years, an annual average of NOK 2.1 billion is being paid out in insurance due to natural damages, stormwater and setbacks (Bartnes et al., 2017).

Literature on stormwater management is in consensus; transformative change is required in order to address the current and future uncertainties and complexities of climate change, as urban water management measures of today is unsatisfactory (Ashley et al., 2003; Milly et al., 2008; Newman, 2001; Pahl-Wostl, 2008; Wolff and Gleick, 2002; Wong and Brown, 2009). Brown and Farrelly have identified indications from literature that institutional barriers is to a large degree responsible for the slow pace of change, and the lack of comprehension of the overall scope and inter-relatedness between the barriers further contribute to the lack of adaptation (2009). Many studies have researched institutional barriers to climate adaptation and recommendations for how to overcome them, but Biesbroek, Termeer, Klostermann and Kabat suggest a gap in literature with regards to more conceptual clarification and precise definition of barriers to climate adaptation (2014). Our study aims to track the "how" and "why" institutional barriers emerge rather than just identification and confirmation of barriers, and consequently provide insight into strategies for overcoming institutional barriers. We therefore propose a set of barriers from our literary research, and study the phenomenon in the qualitative case setting of the Municipality of Oslo and their project of Torshovbekken.

RESEARCH TOPIC

Setting

Stormwater challenges has been of prominent matter in Oslo during the last years as results of heavier and more frequent rain. Increasing density of population and buildings has made it challenging to deal with such flows of water in the urban areas (Oslo Kommune, 2016). One of the suggested solutions by the Municipality of Oslo is a project concerning the opening of Torshovbekken, an underground stream as part of the sewage system. As of January 2018 the project is in the initial phase for investigating the potentials for execution. Their aim for the project is to develop a strategy on how to adapt robust and sustainable solutions for urban environments through stormwater management (Stormwater, 2017). Our thesis is included in Project Torshovbekken and its interdisciplinary work for MSc theses ranging from our behavioural economic perspective, to water engineers and landscape architects. Thus, we are provided with resources of more technical knowledge in order for us to fully grasp the implementation challenges in such a project.

This study intends to examine the decision processes regarding climate adaptation strategies for Project Torshovbekken of four agencies within the Municipality of Oslo; The Agency for Water and Wastewater Services, The Agency for Urban Environment, The Agency for Planning and Building Services, and The Sagene District Administration. The agencies are chosen due to their responsibility for stormwater management in the Municipality of Oslo, and Sagene District Administration is directly involved with the infrastructure of the area of Torshovbekken. Hence, these agencies are all central in the decision processes that we want to study.

Research Question

The foundation of this thesis is embedded in the research question following below. In our study we aim to answer this question and analyse the findings of it in the light of existing theory and observations from our research.

Which collaborative strategies and practices do organizations in the built environment need to develop in order to overcome institutional barriers for climate adaptation?

This question is developed with a set of certain beliefs, as we propose that there exist institutional barriers for climate adaptation in the four agencies. The purpose of this thesis is to identify the specific barriers within the Municipality of Oslo, investigate their nature, and suggest strategies for how to overcome these barriers. We further hope our work can provide insight into the processes of climate adaptation in the built environment, in order to encourage efficiency and inspire to change.

Propositions

Based on our observations from meetings with the Municipality of Oslo and initial research, we have developed three propositions connected to the institutions of regulative, normative and cultural-cognitive barriers:

P1: Climate adaptation is challenged by systems of bureaucracy, and processes of unclear role allocation.

P2: Climate adaptation is challenged by misaligned priorities and lack of routines for knowledge-sharing.

P3: Climate adaptation is challenged by high degree of change aversion and predisposed cognitive processing.

These propositions will be providing helpful guidelines to our work towards an answer for the research question, ans the connections and interdependencies between the three is something that will be considered in the research. The content of the propositions and mentioned barriers will be explored in the following sections of theoretical foundation.

LITERATURE REVIEW

Definition and Development of Theory

Institutions is defined by Douglass C. North as "the humanly devised constraints that structure political, economic and social interaction" (1991, p. 97). Furthermore, he diverge the constraints into two sections; formal rules and informal constraints. The formal rules consist of constitutions, laws, or property rights whereas the informal constraints could be sanctions, customs, or traditions. North explains that institutions serve the purpose of creating order and reducing uncertainty in engagement in economic activity. They determine transaction and production cost, and thus define the profitability and feasibility of exchange.

Tolbert and Zucker discuss the development of institutionalized theory as an issue of rationality (1999). They criticize previous theory for looking at individuals as either purely rational or "oversocialized", meaning they either constantly calculate for maximizing their utility or they mindlessly follow social norms. The authors try to "institutionalize institutional theory", by looking at institutionalization as a process. They propose that the rational actor and the social actor should not be regarded as oppositional, but rather as two ends of a continuum of bounded rationality.

This approach is also present in W. Richard Scott's book *Institutions and organizations: Ideas, Interests and Identities* (1995). Scott reviews previous literature on institutionalization, and try to organize the different theoretical approaches into three pillars of institutionalization; The Regulative Pillar, The Normative Pillar, and The Cultural-cognitive Pillar.

Scott compares his regulative pillar to the formal rules of North, as the pillar is based on laws, rules and regulations that are put in place to regulate and constrain behavior in an institution. This approach comes from neoinstitutionalism and the work of institutional economists like DiMaggio and Powell (1983), Weber (1924/1968), and Williamson (1979). Scott argue that regulatory systems exhibit high value on obligations, precision and delegation. Authority is an important aspect of the regulative pillar, as coercion is the primary mechanism for compliance, and the pillar is most reliant on rational agents. The pillar presents a logic for human

behavior as such: "Individuals craft laws and rules that they believe will advance their interests, and individuals conform to laws and rules because they seek the attendant rewards or wish to avoid sanctions" (p. 62).

The normative pillar is less reliant on rational agents than the regulative pillar. Scott here relies on literature from sociologists such as Parson (1956/1960), Selznick (1957) and March and Olsen (1989). The pillar is based on value and norms. Scott explains value as the understanding of preferred behavior together with the established routines of which existing structures or behaviors can be compared. Norms define appropriate ways of achieving valued ends, how things should be done. The normative pillar place importance on roles, which are either socially constructed or arise informally through interactions, and give directions for expected behavior. Goals and objectives are also imperative; both definition of, and the designed implementation of. Normative institutions are governed by moral and social obligations. The feeling of shame and disgrace or respect and honor, and the predisposition towards compliance with norms.

The cultural-cognitive pillar concern the conception of common beliefs and shared understandings, action that is taken for granted and a common framework of meanings. This pillar is explained in a more anthropological and sociological institutional view, looking to authors such as Douglas (1982), Goffman (1974; 1983), and Meyer and Rowan (1977). The tacit routines and behavior arise in interaction, and is the internalized symbolic representation of the environment of an individual (Scott, 1995). According to Hofstede, culture provide patterns of thinking, feeling and acting (1991). Culture-cognitive systems are reciprocal in the sense that the culture define and frame individual beliefs, while at the same time is constructed by the shared logics of individuals. The regulation of behavior is in this sense constricted by the feelings of conviction and confidence or confusion and disorientation towards own behavior and competence in shared patterns with others.

Scott urges the notion that, while the three pillars are distinctive in their definition, they also seldom operate in isolated practice. When the pillars are aligned, meaning that routines and behavior is taken for granted, normatively endorsed, and backed by authorized powers, their combination can be powerful for framing behavior. On the other hand, they may also be misaligned, and thus create opportunities for a less

constrained structure of behavior, giving room for more individual interpretation of the correct action (1995).

Institutional Logics

As a reaction to the development of institutional analysis, Alford and Friedland (1985) was the first to introduce the term "institutional logics". They used capitalism, political democracy and state bureaucracy to describe how such institutional orders entail different perceptions and practices when dealing with political challenges. The theoretical importance of institutional logics is especially apparent when explaining how a sense of common purpose and unity in an organizational field is created (Reay and Hinings, 2009).

Great amounts of the research done on institutional logics have addressed it as the meaning and content of institutions (Thornton et al., 2015). It differs in the way it is not focused on isomorphism, but placing instead the effects of institutional logics in more varied types of contexts, typically markets, industries and populations as forms of organisations. By thus moving away from the thought of institutions to occur as homogeneous routines, the assumption is that individual and organizational actors possess the ability to shape and change the institutional logics in a certain setting (Thornton, 2004). The potential of acting influential is viewed at as a logic from not just one source of rationality, but multiple societal sectors (Thornton et al., 2015).

Institutional logics is accordingly providing sources of change and agency in order for society, organizations and identities to transform through cultural resources. This is managed through the distinct variations of institutional logics and their contradictions. However, the approach of institutions is also addressing constraints in behaviour. (Thornton et al., 2015). This notion is stated to be particularly prominent in the setting of public bureaucracies, where institutions serve as the role for the creation and change of internal rules.

Institutional Logics: Rivalry and Collaboration

Institutional logics are dependent on historical development, and an organizational field is typically representing several logics at the same time (Greenwood, Díaz, Li and Lorente, 2010). These logics are often conflicting, meaning that organizations are unlikely to respond to their different contexts in a uniform manner, and often referred to as 'coexisting logics'. An assumption is that they are solved through competition (Hoffman, 1999), by considering organizational fields as spheres of power relations in which certain actors hold a stronger position than others (Brint and Karabel, 1991). One dominant logic emerges as a set of beliefs, and values from the most powerful actors set the field's structure (Fligstein, 1993). When a new logic is introduced and thus pushing the old logic away it has been found that such a rivalry often is solved by covering behaviours (Reay and Hinings, 2009). Although it may seem as if the field's new dominant logic is the one acknowledged by its actors, the reality is often that the old logic still exists and direct the behaviour in a less transparent way than earlier. This notion is emphasizing how crucial it is to understand the power of individual actors when acknowledging present competing logics (Reay and Hinings, 2009).

Aside from the focus on rivalry between competing institutional logics is also the recognition of collaboration as a prominent element in institutionalization. Collaboration "occurs when a group of autonomous stakeholders of a problem domain engage in an interactive process, using shared rules, norms, and structures, to act or decide on issues related to that domain" (Wood and Gray 1991: 146). It is suggested that collaboration, rather than rivalry, is strongly beneficial for solving contradictions between coexisting logics within an organizational field (Phillips, Lawrence and Hardy, 2000). While most research have focused on how one dominant logic is replaced by a new as a source for change in the organizational field, Reay and Hinings (2009) addresses how collaboration may emerge from actors' developed mechanisms and thus supporting coexisting logics that otherwise would encounter in competition. They further found that if actors are encouraged to keep their distinct identities while also developing a common set of goals, new institutions can be constructed and thus facilitating for more than one logic guiding the actors' behaviour.

Institutional Change

The approach of logics is further important when addressing institutional change, as the institutional change is often a result of a change in the dominant logic of an organizational field (Reay and Hinings, 2009). Institutional change can thus be explained as an evolving process from one dominant logic to another (Hoffman, 1999), as well as pointing at a restructuring of organizational fields (DiMaggio, 1991). The challenges of institutional change has been holistically summarized and phrased in this way; "How can actors change institutions if their actions, intentions, and, rationality are all conditioned by the very institution they wish to change?" (Holm, 1995:398).

Thornton (2015) presents four mechanisms that affects change; institutional entrepreneurs, event sequencing, structural overlap, and competing logics. Institutional entrepreneurs are the actors that holds the opportunity of creating new, while changing old, institutions, since they are the ones with access to the resources that favour their own self-interests (DiMaggio, 1988). The main challenge for such an actor is then how to pass on a new common logic successfully by the creation of a suited environment (Thornton, 2015). Structural overlap occurs in the happening when previously separated roles, structures and functions are forced into association with each other (Thornton, 2004). Another element to influence change is event sequencing in which an unique event modify institutions, often accelerating several changes as a result of overlapping structures. Although competing logics do not have the same direct effect as the three mechanisms mentioned above, it is recognized as a consequence or antecedent, in addition to often serving as a resistant facilitator for institutional change. (Thornton, 2015).

The complexity of what composition the institutional change evolves in is addressed by Dacin, Goodstein and Scott (2002). It can range from being in a micro individual level to a macro global level, over a short time period or a measure over centuries. The changes differs also in level of how incremental or radical it is, providing implications for how aware the actors are of their patterns and routines being transformed.

Dacin et al. (2002) investigates further the research done on institutional change regarding three topics; the drivers of change, how organizations respond to change,

and change as a process. One type of pressure that drives institutional change has been suggested by Oliver (1992) as the political pressures, being mostly results of changed power distributions and interests. In such a case the legitimacy of a practice is being questioned, stemming from environmental changes or crises in performance. Dacin et al. (2002) links the pressures with how legitimacy is needed as an element for influencing how institutional changes are being responded to, making alternative institutional logics to appear less wanted, feasible and suited. Their paper is then addressing the research done on the processes of institutional change, mostly focused towards how existing norms fail and new norms being justified as pragmatic or moral concerns, resulting in institutionalization of the new norms and practices.

Barriers to climate adaptation

Brown and Farrelly have identified indications from literature that institutional barriers is to a large degree responsible for the slow pace of change in climate adaptation, and the lack of comprehension of the overall scope and inter-relatedness between the barriers further contribute to the lack of adaptation (2009). The systems for stormwater management have been present for decades, and routines, norms, culture and infrastructure are persistent and highly interwoven (Brown, Farrelly & Loorbach, 2013). To further explore this aspect of institutional theory, this study present potential barriers for climate adaptation by structuring after the framework of Scott's institutional pillars (1995).

Regulative Barriers

Bureaucracy. Alford and Friedland (1985) presents how a complex structure within the bureaucracy is developed with the purpose to manage its internal operations, though deviating from its democratic responsiveness. They further elaborate on this by stating that this structure of developed mechanisms "sets up significant institutionalized barriers to transforming the bureaucratic organizations of the state except through channels that themselves are controlled by state bureaucrats." (Alford and Friedland, 1985:430). Another connected possible barrier is identified by Seo and Creed (2002) as the process of sedimentation. This is described as when a new institutional logic is simply added on top of an already existing one, instead

of a distinction where the new logic replaces the other. They further emphasize the contexts in which the old logic is rooted in bureaucracy, creating layered structures where the institutionalized processes entail competing interests.

An approach to solve the barriers for constraining bureaucracy systems is addressed by Townley (2002) as aiming for substantive rationality, by moving from the political rationality to the planning based rationality. Such a transformation is shown by the replacement of an input-based, bureaucratic government with a more outcome-oriented and decentralized government system.

Roles and responsibilities. Public organizations and horizontal coordinations between its departments can serve as a foundation for barriers concerning allocation of role and responsibility (Rainey, 1989). A role is defined as specific behaviour of expectations in a given situation, and a bureaucratic actor should fulfill the aspects of the 'social role' (Reissman, 1949). The social role is explained by how the bureaucracy "must include the formal structure, the interpersonal relationships within it, and the effects of the surrounding social milieu." (Reissman, 1949:305). A local government is functioning in a vacuum of institutions, in which the governance is so complex and thus creating challenges for defining institutional roles and responsibilities (Mesham et al., 2011).

A study by Walton and Dutton (1969) found that the level of symmetries of tasks and responsibility between entities influence the degree of collaboration opportunities. Their implications showed that when the interdependence and initiation of responsibility was symmetrical, collaboration was promoted. In contrast, asymmetrical interdependence between departments lead to conflicts. In particular, it is found that the capacity to adapt to climate changes is affected negatively when the responsibility is unclear between municipal departments (Hjerpe and Glaas, 2012).

Another difficulty with allocating responsibility and roles is noted by Rainey (1989) as how public managers are experiencing less decision-making flexibility and autonomy, as a result of complex institutional restrictions and external political power. Compared to managers in other private organizations, the public managers are thus facing the challenge to govern both the internal leading functions as well

as the external political relations. A focus on the local government serving as an implementation agent for a higher level government is addressed by Mesham et al. (2011), suggesting that this link of authority is constraining the opportunities to create the needed institutional arrangements when developing new practices. They emphasize that such vertical task structure is challenging how local governments engage in the actions that are justified by existing responsibilities, and even when connecting with the broader government network, such as other departments.

Normative Barriers

Priorities. Another barrier for adaptation can be found in the lack of coordinated priorities. Tversky and Kahneman introduce the concept of framing, which can be used to explain conflict in priorities between actors or organizations (1981). They define framing as the individual's "conception of the acts, outcomes and contingencies associated with a particular choice" (p. 453). Different frames can lead to fundamentally different definitions of a problem and possible solutions. Conflict may arise due to strategic efforts to protect one's own values and interests, misaligned understanding of each others behavior and power play (Eisenhardt and Zbaracki 1992; March 1994).

The concept of social dilemmas further explore this notion. A social dilemma is a situation where personal interests are unaligned with collective interest (Dawes, 1980). Furthermore, Dawes suggest that most pressing societal problems originate from such dilemmas and identify that they are characterized by two properties: "each individual receives a higher payoff for a socially defecting choice (...) than for a socially cooperative choice, no matter what the other individuals in society do, but all individuals are better off if all cooperate than if all defect" (p. 169). Wit and Kerr build on this theory, and further specify that the conflict of interest often arise between private, subgroup, and collective interests (2002). Furthermore, they also identify subgroups within a collective as the primary group of most individuals. Kramer argue that such incompatible priorities come from the contest for control and resources across subgroups in an organization (1991).

Routines for knowledge-sharing. Brown and Farrelly identify uncoordinated institutional framework, lack of information, knowledge and understanding in

applying integrated, adaptive forms of management, and poor communication as barriers for climate adaptation (2009). In knowledge management literature, Argote, Ingram, Levine and Moreland look into the issues of subgroups within an organization, and find that departmentalization is a barrier to sharing of knowledge, preventing departments from learning from each others experiences (2000), However, Mintzberg argue that the degree of which people identify with the standardization of values in an organizational culture can enable knowledge-sharing across departments (1989). Furthermore, Miller propose that the lack of knowledge of one another's work is a determinant of conflict across departments (1959). This is also supported by Riege, who propose, among other things, that shortage of appropriate infrastructure supporting knowledge sharing practices, competitiveness between departments in an organization, and lack of sharing culture in the organization is potential organizational barriers for knowledge sharing (2005).

Cultural-cognitive barriers

Predisposed Cognitive Processing. Per E. Stoknes introduce five main psychological defence barriers, that hinder adaptation and response to issues of climate change; Distance, Doom, Dissonance, Denial, and iDentity (2015). The barriers are interrelated, but distinctive features of an individual's psychology, and are of substantial nature. iDentity is the most internal force, whereas Distance is the most external defense.

Distance describe the concept of individuals being unable to legitimize climate changes due to the lack of presence in one's sphere. If the climate crisis does not visibly interfere with everyday life and business, the threat of future challenges is too distant to solicit action. Doom is more semantically oriented. The concept concern how we tend to block out negative connotations, due to aversion towards severe subjects. Climate change is often connected to disaster, loss and cost, thus charged with negative value.

Dissonance explain how knowledge of a subject and attitudes conflict with actual behavior. If we know something is not optimal, for instance related to the environment, but do it anyways due to convenience or necessity - dissonance is activated and we attribute less importance to our initial attitudes to legitimize our

actions. The concept of Denial is based on ignorance or avoidance of knowledge that makes us feel fear or guilt. It's an active mechanism for self-defence, and is not due to ignorance or lack of information. As explained in regards to doom, climate change is often associated with disaster, loss and costs, which are subjects we typically want to avoid acknowledging.

Lastly, the barrier of iDentity is presented. This concept concern how we culturally and professionally identify with certain existing values and norms that we protect by filtering out opposing or challenging information. This can manifest itself through controversial information in itself, or information exchange with people or organizations with beliefs that we find controversial. Cultural identity is resilient, and it requires a lot to achieve change in self-identity for new information.

Change Aversion. Tushman and O'Reilly have also identified an issue with change aversion as a barrier for adaptation (1996). They have looked to evolutionary theory to explain the issue, and propose that pace of change disrupt congruence in an institution. If the process of change is gradual, then the institution adapt to the environment through variation, selection and retention. Variation occurs through competitive advantage, having resources or capabilities that are unique and different from others. Selection is then the survival and endurance of those inheriting such advantages, and retention is the concept of adapting to a changing environment over time and generations. The issue arises when change is not gradual, but disruptive and rapid. The ability to exploit such changing environments would then be the competitive advantage, and thus ambidexterity becomes important for success.

The ability to align strategy, structure, culture and people is difficult, and furthermore require continuous incremental and gradual change. If managed well, it is a source to short-term success. However, the issue of change aversion arise with success over time. Tushman and O'Reilly define this as cultural and structural inertia (1996). Structural inertia is the change aversion embedded in "the size, complexity and interdependence in the organization's structures, systems, procedures, and processes" (p. 18). Cultural inertia concern the tacitness of knowledge and routines that arise over time. The more institutionalized the routines are, the more cultural inertia. When confronted with disruptive change, this inertia

becomes a barrier for change. The inertia invites for arrogance and complacency in the organization, and the organizational culture that initially contributed to success thus may be hindering the organization from making necessary changes in order to remain competitive.

METHODOLOGY

Research Design

A research design is a part of the methodology that "represents a structure that guides the execution of a research method and the analysis of the subsequent data." (Bryman and Bell, 2015:48). When selecting the design for this thesis, we wanted to be certain that we chose the most appropriate design that can answer to the purpose of the research we are going to conduct.

It is necessary to do a choice of whether to do a quantitative or qualitative research design, or a mix of both. Whereas a quantitative method concerns the collection and analysis of numbers, the qualitative approach emphasizes words, processes and behaviour (Bryman and Bell, 2015). We found it to be most appropriate for our study with a qualitative approach, in order to best explore the interactions between specific actors and entities. We will perform our research in a single-case study of the specific project of Torshovbekken, within the organization of the Municipality of Oslo. Case studies are often used as a preferred method in business research as it is a useful approach for intensive examination of a context. For our study, a case approach is the most beneficial and chosen with the concern that the case of Torshovbekken is an event of which the ability to generate learnings are great (Bryman and Bell, 2015).

Through an inductive reasoning of our research we aim to look for patterns in observations, resulting in propositions for theory in the final parts of our paper. By using a descriptive method, we will observe the contexts without any affecting behaviour. We believe the choice of a qualitative case design can be justified by the research question. As the research question is driven by theory, this thesis will aim to frame the research in the context of the coherent theory and thus showing how it is necessary with inductive theory building. Since the research question is in close connection with the existing theory and dependent on social processes of complex

degree, it is greater opportunities for gaining such insights through a qualitative method rather than a quantitative one. (Eisenhardt and Graebner, 2007).

Research method

Data collection

According to Bryman and Bell, data collection is the key point of any research project (2015). They further propose five main research methods in qualitative research for gathering data; Ethnography/participant observation, qualitative interviewing, focus groups, language-based approaches, and the collection and qualitative analysis of texts and documents. They argue that the connection between theory and research of qualitative research is more ambiguous than of quantitative research, and thus data collection consist of greater variability. Therefore, we believe in an approach of triangulation, meaning we will use more than one method of data collection (Bryman & Bell, 2015). Altrichter, Feldman, Posch and Somekh argue that triangulation provides a more detailed and balanced understanding of the situation (2008). We therefore want to analyse the combination of interviews, observations and documents. Interviews and observations will contribute to insight into institutional barriers in the agencies of the Municipality of Oslo, while documents can illustrate the formal structures of strategy and management in the organization.

Interviews. The main source of data will be interviews in order to gain in-depth knowledge of the institutional barriers to climate adaptation in the Municipality of Oslo. According to Bryman and Bell, there are two main types of qualitative interviews; unstructured and semi-structured (2015). Unstructured interviews are characterized by informal style of questioning, and provide more freely interpreted answers from the interviewee. Semi-structured interviews have a more set direction than unstructured interviews, but still benefit from the freedom of flexibility in order to achieve insight into the world view of the interviewee. Semi-structured interviews should contain some degree of consistency from interviewee to interviewee. We have chosen to conduct semi-structured interviews in order to hopefully extract all the information we are in need of, but also in order to possibly receive additional information and aspects of the case that we have not accounted for beforehand. We will ask questions that are open-ended and allow for follow-up

questions, but will follow the proposed interview guide attached in the exhibits (Exhibit ii).

We will be interviewing key personnel in the agencies within the Municipality of Oslo. Typically, it will be project managers, managers or those involved with strategic decision making concerning climate adaptation and stormwater management. Preferably employees directly involved with the planning and management of Project Torshovbekken. Due to the fact that the project is in its initial discussion phase, and little collaboration has taken place between the agencies, we will need to be flexible on this account. We will, however, make sure all interviewees are involved with climate adaptation processes and stormwater management. We are estimating a need for in between three or four interviews in each agency, providing us a total of 12-16 interviews to conduct. We are planning to spend approximately 30 minutes to one hour on each interview, limited by the time constraint of our paper, as well as predicted and forewarned unavailability of spare time of the workers in the municipality.

The interviews will preferably be done in person, but if necessary we can conduct them over phone or skype. We have access to personnel through our collaboration with both project Klima 2050 and Project Torshovbekken. Both authors of this study will be present in all interviews in order to assure quality of the data and reduce interview biases. Bryman and Bell urge the benefits of recording and transcribing all interviews in order to ensure complete rendition of the content extracted, but also to ensure full concentration and free speech not interrupted by having to write notes down during the interview (2015). Therefore, All interviews will be recorded and transcribed.

Observations. Due to the time constraint and the scope of the paper, we will use a limited amount of observations, so called micro-ethnography (Bryman & Bell, 2015). A full scale ethnographic study would require spending considerable time within the organization. We therefore limit our observational study to participant observations in meetings with the Municipality of Oslo. As of January 2018, we have already attended two meetings where we observed indications of some of the barriers introduced in the literature review, and intend to continue such observations for future attendings.

Documents. The use documents will be complementary to the interviews and observations in order to further increase our conception of the organizational structure of the Municipality of Oslo. The most relevant documents for our paper, will be strategic planning documents, organizational charts, and agency information. In order to ensure quality of the information we gather, we will need to evaluate the documents according to their credibility, authenticity, representativeness and meaning (Scott, 2014).

Data analysis

Our work with data analysis will mostly be concerning the interviews, which we will have to transcribe before content analysis can begin proper. We also have to structure our field notes from observations and insights from documents in order to make sense of their content. Because the source of data in qualitative methods are embedded in interviews and observations, the procedures for analysis are not constrained by strict rules or procedures on how to do it (Bryman and Bell, 2015).

According to Bryman and Bell (2015) there are two strategies of data analysis that are most common to use; analytic induction and grounded theory. We will now explain how we plan to use these in our analytic work. An inductive analytical approach will be used somewhat as we can assume that we will encounter interesting findings that lie outside the field of examined literature to some degree. This is in particular a regularity when the data collection involves semi-structured interviews, which is our case in this research, as a result of encouraging the interview objects to open up on thoughts on a broad level. It will however be most appropriate for our research to follow an analysis strategy of grounded theory. This approach entails how the theory is developed out from data, and that one goes back and forth between the data collection and analysis by referring to each other. Our work will then evolve by first off investigating the data in order to identify repeated concepts, which we will tagg with a set of different defined codes. Next, through the review of more data, the concepts that are coded can be grouped into categories through the technique of constant comparison. As these categories are revealed and made sense of, they may become the basis for building of new theory.

Research Quality

Due to the inconclusive nature of qualitative research, the concepts of reliability and validity is considered of questionable relevance (Bryman & Bell, 2015). Lincoln and Guba propose two more appropriate criteria for evaluating the quality of qualitative research; trustworthiness and authenticity (1985; 1994).

Trustworthiness. Trustworthiness is made up of four criteria; credibility, transferability, dependability and confirmability. Credibility concern whether the study can be deemed in correct understanding of the social world it investigates, and can be solidified through respondent validation or triangulation. As previously mentioned, this study will use an approach of triangulation to ensure proper insight from multiple angles. Furthermore, this study is in continuous dialogue with Project Torshovbekken, and will present our prospective findings for the project group in May. Feedback will then contribute to the respondent validation of our study.

Transferability is the potential for study findings to hold in other context. Although we believe our study could be representative for more than one setting, we do not seek to generalize our findings. We leave it to future studies to explore our findings further, but aim to provide as rich an account of the phenomena of study as possible in order to ease future judgement on the subject. Dependability propose researchers should allow for auditing of their data in order to ensure trustworthiness. As previously mentioned, we will record and transcribe all interviews to ensure as much accountability and transparency as possible, but cannot include all due to the estimated extensive amount of information we will gather. To ensure confirmability, we will, to the best of our ability, conduct our research without interference from personal values and theoretical inclinations. This will be especially important when we design our interview guide, as our study aims to include unexpected findings and interviewee interpretations.

Authenticity. Guba and Lincoln also propose the criteria of authenticity in order to ensure research quality. This paper will aim to conduct research that provide better understanding of the institutional barriers that are present between the agencies of the Municipality of Oslo, and hopefully help the agencies better understand the perspectives of each other. Ultimately, our paper should aim to stimulate engagement and action for change in the organization to better adapt to climate

change. The study will be equally engaged in all the four agencies, and will be objective in its approach in order to strive for fairness.

Research Challenges and Limitations

Our research project is constrained by a strict deadline including separate internal deadlines for the different parts of our work within the timeframe we have available. This issues challenges regarding certain crucial parts, in particular the time needed for the data collection. Our progression is reliant on the interviews with specific wanted decision makers in the Municipality of Oslo. We know that these are busy key players in the public sector, and it might be challenging to book interviews within the preferred time frame. It is important that we therefore take this into account when we enter the phase of data gathering. Another risk we have to be aware of as a possible challenge is that we might not get access to all documents we initially visioned. In a heavy bureaucratic system as The Municipality of Oslo it could be difficult to trace the specific documents we ask for by the actors we are in contact with, as their archival system can be assumed to be of complex and massive character.

The chosen research design of a single-case study may create some challenges regarding the lack of control and the dynamic possibilities of unexpected change in certain aspects of the project organization during the study. We seek to take advantage of the opportunities that may arise instead of explicitly seeing them as challenges. This research design is lastly functioning as a limitation that concerns the possibility for our research to make generalisable findings and conclusions to other industries. Our aim is rather to present implications that can encourage future research on this topic.

Project Organization

This study will be conducted by two students from the MSc in Business program at BI Norwegian Business School, with a major in Strategy. The thesis is part of two greater projects on climate adaptation; Project Torshovbekken in collaboration with the Municipality of Oslo, and Klima 2050 in interaction with the Department of Strategy and Entrepreneurship at BI Norwegian Business School. Professor Chair

Ragnhild Kvålshaugen is our chosen thesis supervisor. Here we have conducted a Gantt chart in order to structure and visualize our intended progress.

Phase	Activity/Week	Scheduled period (Jan–Sep, by week)
Research	Thesis seminar 3	Jan wk 1
	Workshop Torshovbekken	Jan wk 2
	Preliminary thesis	Jan wk 3
	Booking of interviews	Feb
	Restructure literature review	Feb
Data Collection and Analysis	Conducting interviews	Mar–Apr
	Transcription	Mar
	Code data	Mar–Apr
	Structure and explore data	Apr
	Develop initial findings	Apr–May
	Conduct additional interviews	Apr
	Finish first draft	May
	Present initial findings OK	May wk 4
Restructuring and Finalization	Incorporate feedback	Jun
	Finalizing literature review	Jun
	Restructure findings	Jun
	Restructure conclusions	Jun
	Finish second draft	Jun–Jul
	Final feedback	Jul
	Intended hand-in	Jul
	Flexibility	Aug
	Final hand-in	Sep wk 1

REFERENCES

Alford, R. R. and Friedland, R. (1985). Powers of Theory: Capitalism, the State, and Democracy. Cambridge University Press.

Altrichter, H., Feldman, A., Posch, P. & Somekh, B. (2008). *Teachers investigate their work; An introduction to action research across the professions*, 2nd ed. Routledge.

Argote, L., Ingram, P., Levine, J. M., & Moreland, R. L. (2000). Knowledge transfer in organizations: Learning from the experience of others. *Organizational behavior and human decision processes, 82*(1), 1-8.

Ashley, R., Blackwood, D., Butler, D., Davies, J., Jowitt, P., & Smith, H. (2003, March). Sustainable decision making for the UK water industry. In *Proceedings of the Institution of Civil Engineers-Engineering Sustainability* (Vol. 156, No. 1, pp. 41-49). Thomas Telford Ltd.

Bartnes, L. P., Hatløy, D. S., Vinje, T., Hansteen, L. K. S., Helgesen, G. M., Kreutzer, I. & Brodtkorb, J. (2017). *Flomsikring må prioriteres i årets Statsbudsjett*. Finance Norway. Retrieved from: https://www.finansnorge.no/contentassets/7fc7f9ca51984aa4ab09a7bcdad95cd8/fl omsikring---brev-til-stortinget.pdf

Biesbroek, G. R., Termeer, C. J., Klostermann, J. E., & Kabat, P. (2014). Analytical lenses on barriers in the governance of climate change adaptation. *Mitigation and adaptation strategies for global change, 19*(7), 1011-1032.

Brint, S. and Karabel, J. (1991). Institutional origins and transformations: The case of American community colleges. *The new institutionalism in organizational analysis*. 337(360). 283-298.

Brown, R. R., & Farrelly, M. A. (2009). Delivering sustainable urban water management: a review of the hurdles we face. *Water Science and Technology, 59*(5), 839-846.

Brown, R. R., Farrelly, M. A., & Loorbach, D. A. (2013). Actors working the institutions in sustainability transitions: The case of Melbourne's stormwater management. *Global Environmental Change, 23*(4), 701-718.

Bryman, A., & Bell, E. (2015). *Business research methods*. Oxford University Press, USA.

Dacin, M. T., Goodstein, J., & Scott, W. R. (2002). Institutional theory and institutional change: Introduction to the special research forum. *Academy of Management Journal*. 45(1). 45-56.

Dawes, R. M. (1980). Social dilemmas. *Annual review of psychology, 31*(1), 169-193.

DiMaggio, P. J. (1988). Interest and agency in institutional theory. *Institutional Patterns and Organizations Cambridge*. 1-21. Ballinger Publishing Company.

DiMaggio, P. J. (1991). Constructing an organizational field as a professional project: US art museums, 1920-1940. *The new institutionalism in organizational analysis*. *267*-292. Chicago: University of Chicago Press.

DiMaggio, P., & Powell, W. W. (1983). The iron cage revisited: Collective rationality and institutional isomorphism in organizational fields. *American Sociological Review, 48*(2), 147-160.

Douglas, M. (1982). The Effects of Modernization on Religious Change. *Daedalus* (Winter): 1-19.

Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *Academy of management journal*. 50(1). 25-32.

Eisenhardt, K. M., & Zbaracki, M. J. (1992). Strategic decision making. *Strategic management journal, 13*(S2), 17-37.

Fligstein, N. (1993). *The transformation of corporate control*. Harvard University Press.

Goffman, E. (1974). *Frame Analysis*. Cambridge, MA: Harvard University Press.

Goffman, E. (1983). The Interaction Order. *American Sociological Review, 48*(1), 1-17.

Greenwood, R., Díaz, A. M., Li, S. X., Lorente, J. C. (2010). The Multiplicity of Institutional Logics and the Heterogeneity of Organizational Responses. *Organization Science*. 21(2). 521-539.

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. *Handbook of qualitative research, 2*(163-194), 105.

Hjerpe, M., and Glaas, E. (2012). Evolving local climate adaptation strategies: incorporating influences of socio–economic stress. *Mitigation and adaptation strategies for global change*. 17(5). 471-486.

Hoffman, A. J. (1999). Institutional Evolution and Change: Environmentalism and the U.S. Chemical Industry. *The Academy of Management Journal*. 42(4). 351-371.

Hofstede, G. (1991). *Culture and Organizations: Software of the Mind*. New York: McGraw-Hill.

Holm, P. (1995). The dynamics of institutionalization: Transformation processes in Norwegian fisheries. *Administrative science quarterly*. 40(3). 398-422.

Kramer, R. M. (1991). Intergroup Relations and Organizational Dilemmas: The Role of Categorization. *Processes Research in Organizational Behavior, 13*, 191-228.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*, Vol. 75. Sage.

March, J. G. (1994). *Primer on decision making: How decisions happen*. Simon and Schuster.

March, J. G. & Olsen, J. P. (1989). *Rediscovering Institutions: The Organizational Basis of Politics*. New York: New Press.

Measham, T. G., Preston, B. L., Smith, T. F., Brooke, C., Gorddard, R., Withycombe, G., and Morrison, C. (2011). Adapting to climate change through local municipal planning: barriers and challenges. *Mitigation and adaptation strategies for global change*. 16(8). 889-909.

Meyer, J. W. & Rowan, B. (1977). Institutionalized Organizations: Formal Structure as Myth and Ceremony. *American Journal of Sociology, 83*(2), 340-363.

Miller, E. J. (1959). Technology, Territory and Time. *Human Relations*, 12, 243-272.

Milly, P. C., Betancourt, J., Falkenmark, M., Hirsch, R. M., Kundzewicz, Z. W., Lettenmaier, D. P., & Stouffer, R. J. (2008). Stationarity is dead: Whither water management?. *Science, 319*(5863), 573-574.

Mintzberg, H. (1989). *Mintzberg on management: Inside our strange world of organizations*. 1st ed. New York: The Free Press

Newman, P. (2001). Sustainable urban water systems in rich and poor cities-steps towards a new approach. *Water Science and Technology, 43*(4), 93-99.

North, D. C. (1991). Institutions. *Journal of economic perspectives, 5*(1), 97-112.

NOU 2015: 16. (2015). *Overvann i byer og tettsteder*. Retrieved from: https://www.regjeringen.no/contentassets/e6db8ef3623e4b41bcb81fb23393092b/no/pdfs/nou201520150016000dddpdfs.pdf

Oliver, C. (1992). The antecedents of deinstitutionalization. *Organization studies*. 13(4). 563-588.

Oslo Kommune. (2016). Handlingsplan for overvannshåndtering i Oslo Kommune. Retrieved from: https://www.oslo.kommune.no/politikk-og-administrasjon/miljo-og-klima/vannmiljo-og-overvann/overvann/#gref

Pahl-Wostl, C. (2008). Requirements for adaptive management. In: Pahl-Wostl, C., Kabat P. & Moltgen, J. (eds). *Adaptive and integrated water management. Coping with complexity and uncertainty*. Springer.

Parson, T. (1956/1960). A Sociological Approach to the Theory of Organizations. In *Structure and Process in Modern Societies* (p. 16-58). Glencoe, IL: Free Press.

Phillips, N., Lawrence, T. B. and Hardy, C. (2000). Inter-organizational collaboration and the dynamics of institutional fields. *Journal of management studies*. 37(1).

Purdy, J. M. and Gray, B. (2009). Conflicting Logics, Mechanisms of Diffusion, and Multilevel Dynamics in Emerging Institutional Fields. *The Academy of Management Journal*. 52(2). 355-380.

Rainey, H. G. (1989). Public management: Recent research on the political context and managerial roles, structures, and behaviors. *Journal of Management*. 15(2). 229-250.

Reay, T. and Hinings, C. R. (2009). Managing the Rivalry of Competing Institutional Logics. *Organization Studies*. 30. 629-652.

Reissman, L. (1949). A study of role conceptions in bureaucracy. *Social Forces*. 305-310.

Riege, A. (2005). Three-dozen knowledge-sharing barriers managers must consider. *Journal of knowledge management, 9*(3), 18-35.

Scott, J. (2014). *A matter of record: Documentary sources in social research*.
John Wiley & Sons.

Scott, W. R. (1995). *Institutions and organizations: Ideas, Interests and Identities* (4th edition). Thousand Oaks, CA: Sage.

Selznick, P. (1957). *Leadership in Administration*. New York: Harper & Row.

Seo, M. G. and Creed, W. E. D. (2002). Institutional Contradictions, Praxis, and Institutional Change: A Dialectical Perspective. *The Academy of Management Review*. 27(2). 222-247.

State of the Environment Norway. (2017, 15th of May). Intergovernmental Panel on Climate Change. Retrieved 2018, January 13th from: http://www.miljostatus.no/tema/klima/fns-klimapanel-ipcc/

Stoknes, P. E. (2015). *What We Think About When We Try Not To Think About Global Warming: Toward a New Psychology of Climate Action*. UK: Chelsea Green Publishing.

Stormwater. (2017). Project description for interdisciplinary MSc thesis in Oslo 2018. Retrieved from: http://stormwaterweb.azurewebsites.net/wp-content/uploads/2017/11/Project-descripton-for-interdisciplinary-MSc-thesis-in-Oslo-2018.pdf

Thornton, P. H. (2004). Markets from Culture: Institutional Logics and Organizational Decisions in Higher Education Publishing. Stanford, California.

Thornton, P. H., Ocasio, W., Lounsbury, M. (2015). The Institutional Logics Perspective.

Time, B (Ed.). (2017). Annual Report 2016. Klima 2050 Report 1. Retrieved from:
https://www.sintefbok.no/book/index/1115/klima_2050_annual_report_2016

Tolbert, P. S., & Zucker, L. G. (1999). The institutionalization of institutional theory. *Studying Organization. Theory & Method. London, Thousand Oaks, New Delhi*, 169-184.

Townley, B. (2002). The role of competing rationalities in institutional change. *Academy of Management Journal.* 45(1). 163-179.

Tushman, M. L. and O Reilly, C. A. III. (1996). Ambidextrous organizations: Managing evolutionary and revolutionary change. *California Management Review. 38*(4). 8-30.

Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science, 211*(4481), 453-458.

Walton, R. E. and Dutton, J. M. (1969). The Management of Interdepartmental Conflict: A Model and Review. *Administrative Science Quarterly*. 14(1). 73-84.

Weber, M. (1924). *Economy and Society: An Interpretive Sociology*, vols. 1-3, ed. A. M. Henderson and Talcott Parsons. New York: Oxford University Press.

Williamson, O. E. (1979). Transaction-cost economics: the governance of contractual relations. *The journal of Law and Economics, 22*(2), 233-261.

Wit, A. P., & Kerr, N. L. (2002). " Me versus just us versus us all" categorization and cooperation in nested social dilemmas. *Journal of personality and social psychology, 83*(3), 616.

Wolff, G. & Gleick, P. H. (2002). The soft path for water. In: Gleick, P.H. (ed). *The world's water: 2002–2003*. Island: Washington.

Wong, T. H. F., & Brown, R. R. (2009). The water sensitive city: principles for practice. *Water science and technology, 60*(3), 673-682.

Wood, D. J. and Gray, B. (1991). Toward a comprehensive theory of collaboration. *The Journal of Applied Behavioral Science. 27*(2). 139-162.

EXHIBITS

Exhibit i: Organizational Chart of the Municipality of Oslo
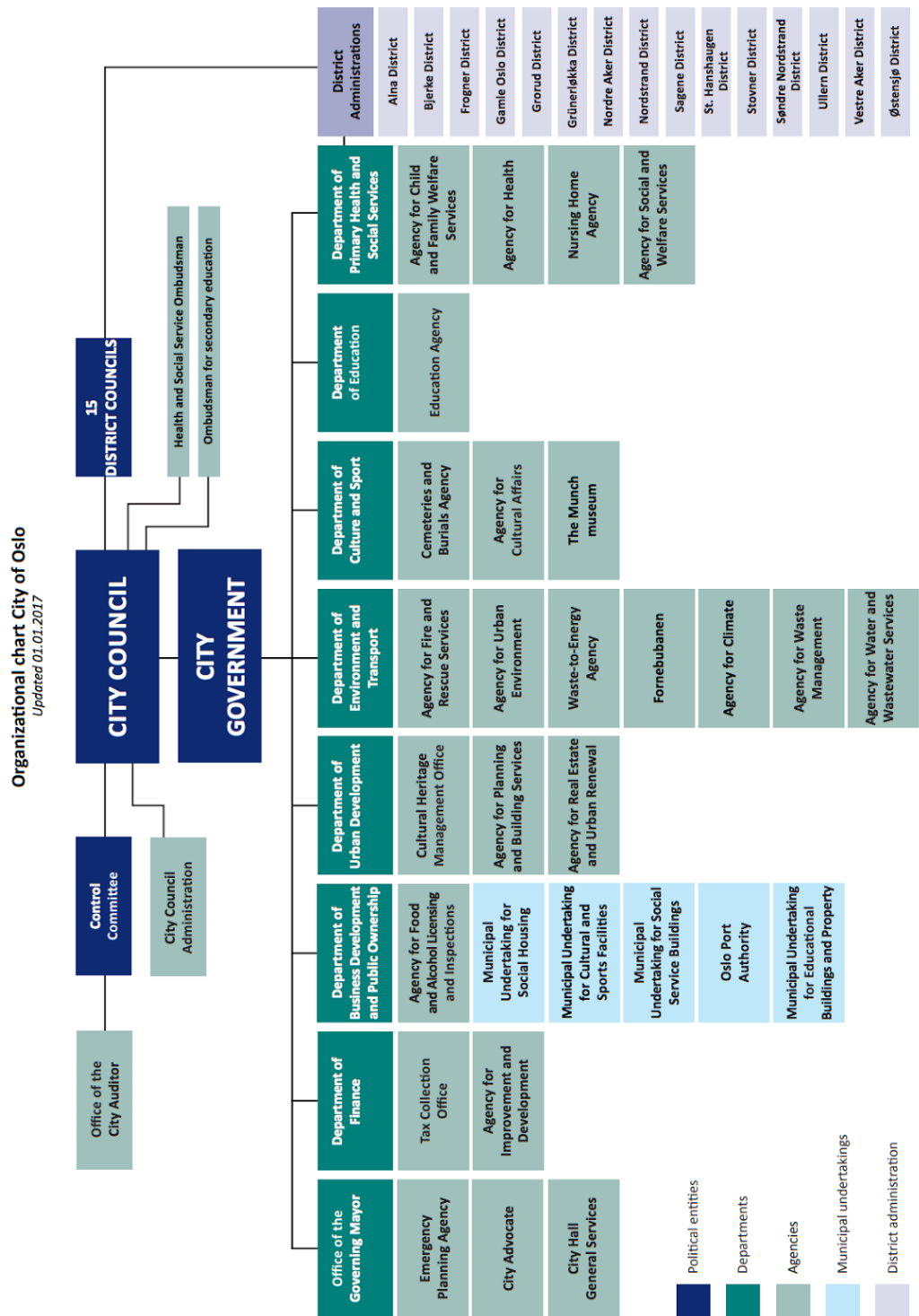
Source: The Municipality of Oslo. (2017). Organizational Chart City of Oslo. Retrieved 2017, 13th of January from: https://www.oslo.kommune.no/english/politics-and-administration/politics/city-governance/#toc-3

Exhibit ii: Proposed Interview Guide

1: Describe your role in the organization.

2: What stormwater management projects have your department been involved with, the last five years?

3: What agencies were involved in the process, and how did the collaboration occur?

4: What were the challenges of the project?

5: What did you learn, that can be transferred to another similar project?

6: Did any conflicts occur? At what point in the process?

7: Can you explain the structure of the project? How did it initiate, evolve and conclude?

8: How did you experience the execution in comparison to the plans made? Did everything go as planned? If not, what went different and how did it affect the process? How was the process documented?

9: Torshovbekken: What do you consider necessary for success of the project?

10: Torshovbekken: What could be challenging with the project?