

The changing process of public procurement through the integration of circularity in a public organization: a challenge or an opportunity?

Nienke Nijboer

4263251

n.m.a.nijboer@students.uu.nl

Utrecht University

Master thesis Organizations, change and management

Supervisor: Yousra Rahmouni Elidrissi

Second supervisor: Maikel Waardenburg

Ministry of Infrastructure and Water Management

12 July, 2021



“Once you understand the destruction taking place, unless you do something to change it, even if you never intended to cause such destruction, you become involved in a strategy of tragedy. You can continue to be engaged in that strategy of tragedy, or you can design and implement a strategy of change”

-

William McDonough



Rijkswaterstaat
*Ministry of Infrastructure
and Water Management*



Universiteit Utrecht

Abstract

Circular public procurement can help accelerate the transition from a linear to a circular economy. The Dutch public sector is responsible for 18% of the Gross Domestic Product (GDP) (SCP, 2016) which has a significant influence on different parts of society. A circular economy is an economy without waste through the use of three main principles: reuse, recycle and reduction. The transition from a linear to a circular economy is complex and requires changes in the public sector. This study aims to expand the body of knowledge on the organizational change processes, behind the implementation of circular practices into the public procurement process in a public organization. The implementation of organizational change is a considerable challenge for public organizations due to their bureaucratic structures and external complexity (van der Voet, 2014). In particular because of what Veenswijk, (2006) refers to as the so-called ‘innovation paradox’: public organizations are required to continuously change and innovate, but this is contradictory to their role of providing reliable and stable services. This research exposes a gap between policy and practice. The findings show that a hybrid approach between the planned and the emergent change approach is necessary to use public procurement as a powerful policy tool to create circular impact.

Keywords: *circular economy, circular public procurement, organizational change, planned change approach, emergent change approach, public organizations.*

Preface

Moving towards a more circular economy could deliver benefits such as reducing pressure on the environment, improving the security of the supply of raw materials, increasing competitiveness, stimulating innovation, boosting economic growth (an additional 0.5% of gross domestic product) and creating jobs (700,000 jobs in the EU alone by 2030) (EMF, 2020). The raising awareness to the reduce environmental pressure and my passion to try to understand how public organizations are working has formed the basis for the topic of my master thesis. Besides, completion of my master thesis would not have been successful without the help of my supervisor Yousra Rahoumni Elidrissi who really got the best out of my during the process, both on the content and personally support during this research. In addition, I want to thank Maikel Waardenburg for his valuable feedback. Additionally, I would like to thank my respondents for their interesting insights. Lastly, I would like to thank my friends and family, for their support and encouragement over the past months.

I am solely responsible for the content of this research, including statements or mistakes that have been made. Therefore, no one but me can be held responsible for the content of this research.

Content

1. Introduction	5
1.2 Societal relevance	7
1.3 Theoretical relevance	8
2. Context and research setting	10
2.1 Circular policy levels	10
2.3 Dutch Ministry of Infrastructure and Water Management	10
3. Theoretical framework	12
3.1 Public procurement as an impactful policy tool for circularization.....	12
3.2 Towards a circular public procurement process.....	15
4. Methodology	21
4.1 Research philosophy, research design, interviews and respondent selection and data analysis.....	21
4.2 Criteria qualitative research.....	23
5. Findings	26
5.1: The current state of affairs: gap between policy and practice, a lack of norm setting and chaos.....	27
5.2 The challenges and tensions: complexity, responsibility and vertical and horizontal collaboration	30
5.3 The drivers moving forward: hybrid change, trainings, pilots & exemplars	33
6. Discussion & Conclusion	38
6.1 Discussion.....	38
6.2 Conclusion.....	40
Bibliography	43
Appendix A: Topic List	50
Appendix B: Code Scheme	52

1. Introduction

The need for a transition towards a circular economy has in the past decade been advocated by an increasing number of academics, politicians, businesses and international organizations (van Buren, Demmers, van der Heijden & Witlox, 2016). A circular economy is an economy without waste, as opposed to the current linear ‘take-make-dispose’ economy. The government has an important role to facilitate an environment to ease the transition from a linear to circular economy model (Mishra, Chiwenga & Ali, 2019). Building a circular economy will require coherent change in governmental organizations. Such a transition is complex and requires simultaneous changes in various subsystems (van Buren, Demmers, van der Heijden & Witlox, 2016). This transition, in the operations of public organizations, requires internal and external organizational changes. The implementation of organizational change is a considerable challenge for public organizations due to their bureaucratic structures and external complexity (van der Voet, 2014). In particular because of what Veenswijk, (2006) refers to as the so-called ‘innovation paradox’: public organizations are required to continuously change and innovate, but this is contradictory to their role of providing reliable and stable services. But this is not the only tension or paradox that public organizations face when engaging in the circularization of their processes that motivate this research project.

Next to the Innovation Paradox, this research is also motivated by other issues public organisations face when engaging in the circularization of their public procurement processes. Governments are nowadays not only aware but also engaged in implementing the transition from a linear to a circular economy as it offers an answer to the major challenge of the 21st century to deal much more efficiently by the reuse, reduce and recycle of raw materials (Rijksoverheid, 2019). The Dutch government has adopted circularity as an organizational strategy for the transformation of its economy in a landmark program since 2016 and has set a goal to be completely circular in 2050. Indeed, while the public sector is a major contributor to the circular economy transition not only as a policy-maker, it is also as a significant purchaser, consumer, and user of goods and services (Klein, Ramos & Deutz, 2020). Accordingly, public procurement is seen as an impactful policy tool to accelerate the transition towards a circular economy as the Dutch public sector is responsible for 18% of the Dutch GDP (SCP, 2016) which has influence on the different parts of society as well. Public procurement refers to the

acquisition of goods and services by governments or public sector organisations (Kiiver & Kodym, 2014). Circular public procurement is defined as: “the process by which public authorities purchase work, goods or services that seek to contribute to closed energy and material loops within supply chains, whilst minimizing, and in the best case avoiding, negative environmental impacts and waste creation across their whole life-cycle” (Bolton, 2008).

However, the state of research and practice of circular economy implementation at the organizational level shows a clear focus on circular practices in the private sector. In their review of research in this area, Klein, Ramos & Deutz (2020) mentioned the lack of scientific literature on how the circular economy integrates the public procurement process in public organizations.

The policy officers of the directorate The Circular Economy, which is a part of the Dutch Ministry of Infrastructure and Water Management, are responsible for the implementation of the circular economy at government-wide level to facilitate this transition in the Netherlands. From an organizational change perspective, it is therefore interesting to look at how policy officers are experiencing the change processes behind the implementation of circular public procurement by using the Dutch government as a single-case study. The aim of this research is to provide insights into how public administrators of the Ministry of Infrastructure and Water Management deal with the organizational change processes from a linear economy towards a circular economy in their processes of public procurement. As a result, the following research question has been formulated:

How do policy officers of the Ministry of Infrastructure and Water Management experience the integration of circularity into the public procurement process as a process of organizational change in a public organization?

The main question can be divided in three sub-questions. Firstly, the changing process from a public procurement into a circular public procurement process will be considered. Secondly, organizational changes are required for the implementation of the circularity into the public procurement process. Thirdly, the integration of the circular public procurement process will be connected to organizational change in public organizations. To know more about the circularization of the a public organization on

the one hand and circular organizing which involves a change process on the other hand, the following sub-question will be helping to answer the main question:

1. What is changing the process of public procurement by the integration of circularity?
2. How are public organizations adapting change and which change approach is most suitable to integrate circularity in the public procurement process in a public organization, according to policy officers?
3. What are the barriers, successes and challenges to integrate circularity in the public procurement process?

The different parts create synergy between the circular public procurement and organizational change in public sector organizations to better understand the change processes of the circular public procurement in public organizations.

1.2 Societal relevance

The implementation processes in the ministerial organization of the Dutch government has three main societal arguments: the limitation of raw materials, the rising awareness of sustainable practices during the last years and especially now due to the COVID-19 pandemic and the societal functions of ministerial organization.

First, the world's population is growing and with it the demand for raw materials while the supply of crucial raw materials is limited. Decoupling economic growth from resource consumption is therefore necessary (UNEP, 2017). Extracting and using raw materials has a major impact on the environment. Moving towards a more circular economy could deliver benefits such as reducing pressure on the environment, improving the security of the supply of raw materials, increasing competitiveness, stimulating innovation, boosting economic growth and creating jobs (EU, 2017).

Second, this research is taking place during the Corona pandemic which highlights that “the current COVID-19 outbreak is another warning of the unsustainability of infinite growth in a finite world” (Lippe-Biesterfeld, 2020). Besides, scientists see beyond the pandemic a rare opportunity to build a resilient and low-carbon economic recovery (Rowan & Galanakis, 2020). Achieving this goal

requires governments to take critical actions that not only focus on safeguarding national economies during crises, but that also pave the way toward a wider economic transformation that is more resilient against future global risks (EMF, 2020). The critical role of the government into more circular practices are even more highlighted during this time as good organization at governments will facilitate society even more.

Beside the societal relevance of the circular economy itself, the public sector has societal functions for the circular economy as well. First, the public sector is the importance as a role model for the transition towards the circular economy (Reike, Vermeulen & Witjes, 2018). Therefore, Ball & Grubnic (2014) argue that the public sector has to serve as an example because it has influence over all other sectors. Secondly, the public sector is a big employer and has thug significant sustainability-related impacts on environment, social, and economic issues that need managing (Nogueiro & Ramos, 2014). Given the significance and potential of the public sector on the implementation of the circular economy, it is imperative that the public sector embraces circular economy principles into their management of resources at the organizational level (Klein, Ramos & Deutz, 2020).

1.3 Theoretical relevance

This research will contribute to the literature for different reasons. Firstly, most of the literature on organizational change (Armenakis & Bedeian, 1999; Sashkin & Buke, 1987; van der Ven & Poole, 1995) and on management of organizational change (Burnes, 2006) is focused on the private sector. Moreover, change management in the public sector is gaining more attention in the literature and more scientists are convinced about the difference between change management within private or public organizations (Fernandez & Rainey, 2006; Pettigrew, Woodman & Cameron, 2001). This research will contribute to the knowledge about organizational change and management of organizational change in public organizations, specified on ministerial organizations. Secondly, the studies on change management are more focused on the content and context of change rather than the change process itself (Van der Voet, 2014). For example, change management literature in public organizations are mainly focussing on the implementation of New Public Management (NPM).

Focussing on the circular economy literature, the same observations can be made: The circular economy literature has a main focus on circular practices in the private sector (Govindan & Hasanagic, 2018; Rizos, Vasileios, Behrens, van der Gaast, Hofman, Loannou & Kafyeke & Topi, 2016; Stahel, 2013; Zhu, Geng & Lai, 2010). In addition, most of the circular economy in public organizations has the focus on the content and context of the circular economy. Klein, Ramos & Deutz (2020) mentioned that there is no study reviewing the literature on the implementation of circular economy practices and strategies in public sector organizations.. Therefore, this research provides to fill the gap between change management in public organizations and the processes behind the implementation of the circular economy of public administrators. The public administrators of the Dutch Ministry of Infrastructure and Water management is the single-case study since the implementation of the circular economy is a responsibility from that ministerial organization.

2. Context and research setting

To understand the implementation change processes of the circular economy of public administrators within the Ministry of Infrastructure and Water Management, the policy levels of the circular economy and the organization of the Dutch Ministry and Infrastructure will be discussed in this section.

2.1 Circular policy levels

The UN is promoting the circular economy international as part of the 17 Sustainable Development Goals (SDG's) (UNEP, 2017). In response, governments and institutions are calling for a new economic model. The European Commission has adopted a new Circular Economy Action Plan as an Europe's agenda for sustainable growth. The member states of the European Union need to adopt the Circular Economy Action Plan (EC, 2015).

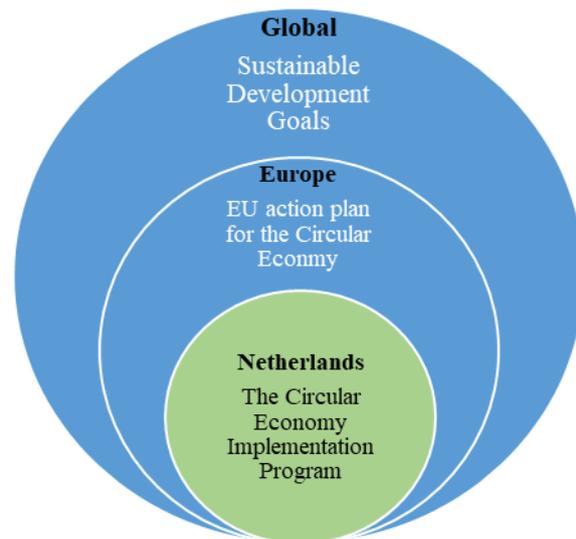


Figure 1: Overview circular economy policy levels

The Netherlands itself created a Circular Economy Implementation Program developed as a responsibility of the Ministry of Infrastructure and Water management. Figure 1 gives an overview of the policy making and implementing levels of the circular economy as mentioned as above: global due the United Nations and in Europe through the EU action plan for the circular economy and in the Netherlands due to The Circular Economy Implementation Program. This research focuses on organizational change processes behind the implementation of the circular economy by public administrators at the Dutch ministerial organizations.

2.3 Dutch Ministry of Infrastructure and Water Management

The Dutch central government is working together with business communities, civil organizations, universities and other authorities towards a circular economy. The circular economy is a government-wide responsibility. Nevertheless, the policy core of the circular economy belongs to the

responsibility of the Ministry of Infrastructure and Water Management. This Ministry consists eight different so-called policy cores. The circular economy belongs to the directorate of the Living Environment and Circular Economy which is a part of the Environment & International policy core as can be seen in figure 2. This directorate is main responsible for the implementation of the circular economy into the Dutch ministerial organizations. The policy core collaborates for example with other ministries such as Economic Affairs and Climate Policy, the Interior and Kingdom Relations, Agriculture, Food and Food Quality and Social affairs and Employment to implement the circular economy in the organization of the whole Dutch central government (Rijksoverheid, 2019).

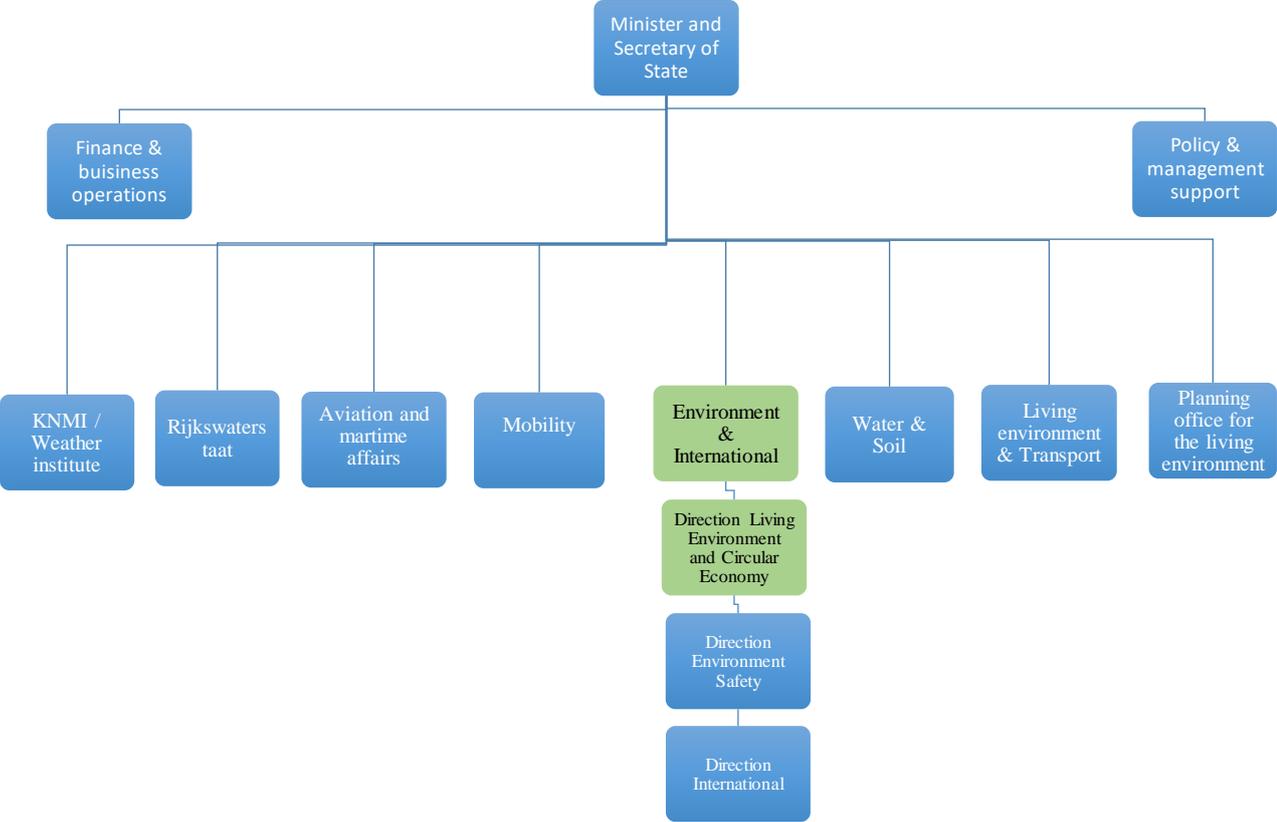


Figure 2: Organization chart of the Ministry of Infrastructure and Water Management

3. Theoretical framework

This chapter provides an overview of current theoretical knowledge with regard to the relationship between circular public procurement and organizational change in public organizations. To this end, section 3.1 will address public procurement as an impactful policy tool for circularization, followed by a discussion of organizational change in public organizations, organizational change approaches and circular public procurement and organizational change in section 3.2

3.1 Public procurement as an impactful policy tool for circularization

Why the integration of circularity is necessary in public procurement processes

The circular economy, as opposed to the current linear economy, is seen as a sustainable economic system to reduce environmental pressure and to provide the demand of raw materials of the growing world populations. A circular economy is an economy where economic growth is decoupled from resources use, through the reduction and recirculation of natural resources (Corona, Reike, Carreón & Worrell, 2019). Kircherr, Reike & Hekkert (2017) conclude after the analysis of more than 100 articles, that definitions often focus on three main 3R principles of the circular economy: reduce, to minimize resource use, reuse to maximise the reuse of products and parts and recycle to the reuse of raw materials in high-quality. These 3R principles are broadly used by scholars and scientists. The EMF (2020) states that governments, and thereby policymakers, play a crucial role in creating and enabling conditions for a circular economy. Although, the complete circularization of public organizations has to be on different areas, public procurement is seen as a key element of the main impactful policy instruments to speed up the circular economy transition (Lindgreen, Swaen, Brammer & Walker, 2009; Klein, Ramos & Deutz, 2020). Klein, Ramos & Deutz (2020) added circular public procurement into their holistic framework of circular economy practices and strategies in public organizations because it represents an internal process serving the public administration sector in the purchase of products and services, which corresponds to 14% of EU's annual GDP. Therefore, including circular economy criteria or technical specifications for those products, or alternatively buying performance and innovative services, is a considerable advancement in the transformation of the public sector and, more largely, of the economy and society to more circularity. Interestingly, all the publications from the literature sample

examining the integration of circularity into the public procurement process pointed out that there is still a slow implementation of such practices generally (Klein, Ramos & Deutz, 2020).

Public procurement and circular public procurement

According to Kiiver & Kodym (2014), public procurement refers to the acquisition of goods and services by governments or public sector organisations. Circular public procurement is defined as: “the process by which public authorities purchase works, goods or services that seek to contribute to closed energy and material loops within supply chains, whilst minimizing, and in the best case avoiding, negative environmental impacts and waste creation across their whole life-cycle” (Bolton, 2008). Witjes & Lozano (2016) developed two figures to show the changing contact between the procurer and supplier during the public procurement process based on the public procurement stages of the UNEP (2017). The public procurement process consist in four stages: during the first stage, the preparation stage, the problem is being defined and the procurer makes an inventory of the demands of related internal and external stakeholders, resulting in a first set of specifications. This set is integrated into the first concept of a product or service that will be procured. The specification stage is the second stage, where the first concepts are further analysed and developed, leading to the definite specifications of the product or service. The third, sourcing stage, where the product or service specifications are made public to potential suppliers, and where the selection of the supplier and their signature on the contract finishes the tender. The last and fourth stage, where, after signing the contract, the product or service is supplied (Witjes & Lozano, 2016; UNEP, 2014). Figure 3 shows the public procurement process including the four stages.

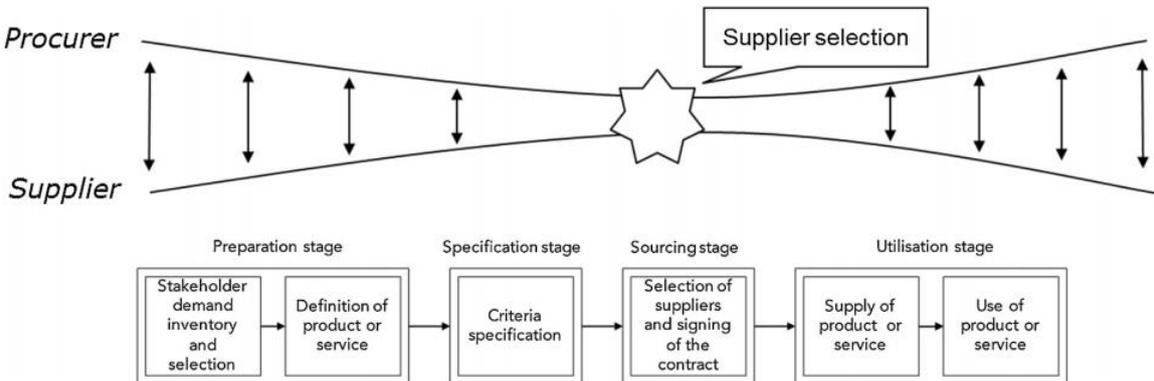


Figure 3: the four stages of the public procurement process (Witjens & Lozano, 2018; UNEP, 2014).

The integration of circular public procurement changes the public procurement process. Collaboration between the procurer and potential supplier changes to the beginning of the tender, in the preparation stage, as illustrated in figure 2. During collaboration in the process between procurement and business models for circular economy, a company can gain experience in defining product or services specifications to close loops and optimise the use of resources at product or service level (Mont, Dalhammar, Jacobsson, 2006). Such collaboration can provide experience for further partnerships between suppliers and producers (Witjens & Lozano, 2016). The successful outcome of the process depends on the procurer and the supplier collaborating to establish the technical and non-technical specification, and a shared ownership of producer supplier selection. The collaboration starts to take place in the preparation stage of the tender, rather than at the sourcing stage (Witjens & Lozano, 2016). The integration of circular public procurement/sustainable public procurement shows thus a different collaboration process between the public procurer and the supplier, as showed in figure 4.

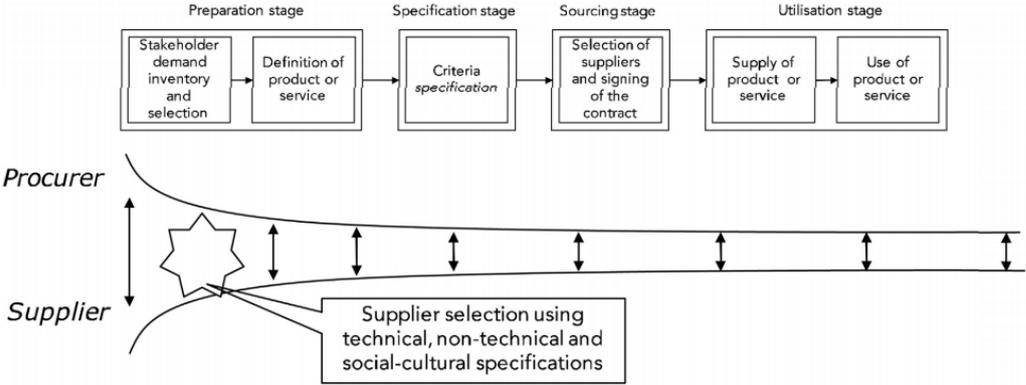


Figure 4: Producer/supplier selection during sustainable public procurement process (Witjens & Lozano, 2016; UNEP, 2014).

The integration of circularity in the public procurement process seems to have large potency in public organizations (Klein, Ramos & Deutz, 2020). Examples of circular public procurement are fore example found in the ICT-sector through procurement of remanufactured and/or reused electronic equipment and reusable furniture. As well, the construction and infrastructure sector seems to have several cases requiring the use of recycled material in the construction of public buildings (Klein, Ramos & Deutz, 2020). To understand how public organizations can move towards a circular public procurement process, it's interesting to in the context of organizational change necessary to know how organizational change is considered in public organizations and which change approaches exist in the literature.

3.2 Towards a circular public procurement process

This sub-section will contribute to the theoretical knowledge about organizational change in public organizations, organizational change approaches, change approaches in public organizations and circular public procurement and organizational change.

Organizational change in public organizations

Organizational change is a comprehensive and interrelated process involving planning, goals setting, training and developing employees and stakeholders, obtaining sufficient resources, selecting intervention strategies, and monitoring and communicating outcomes (Rusaw, 2007). Organizational change in public organizations seems difficult, due to their bureaucratic structure. Veenswijk (2006) refers to this as the so-called ‘innovation paradox’: public organizations are required to continuously change and innovate, but this is contradictory to their traditional role of providing reliable and stable services. Stackebrandt, Rainey & Ward-Rainey (1997) and Rainey & Chun (2005) also recognized the difference between the sectors as it has important consequences for the change process in public organizations. The main difference between organizational change in the private and public sector are the internal and external context of public organizations. This has impact on the way which change processes are adapted in public organizations.

The internal context of public organizations refers to the way in which public organizations are organized, generally to be more bureaucratic than private organizations (Boyne, 2002). This refers to the classic Weberian bureaucracy, which promotes routines, stability and continuity instead of flexibility, adaptive capacity and change (Burns & Stalker, 1961; Farnham & Horton, 1996 & Mintzberg, 1989). Public organizations are therefore using more standardization, legislation, rules and procedures which implies slower decision-making procedures (Farnham & Horton, 1996). Several authors recognized the bureaucratic structure makes successful organizational change more difficult (Robertson & Seneviratne, 1995; van der Voet, 2013).

The external context of public organizations refers to context complexity as the first difference between public and private organization. Public organizations differ from private organizations because they operate in a more complex environment (By & MacLeod, 2009; Rainey & Chun, 2005). Public

organizations are characterized through an environment by check and balances, shared power, conflicting interests and political influences which makes the implementation of organizational change in public organizations distinct or even more difficult (van Heffen, Kickert & Thomassen 2013; Isett, Glied, Sparer & Brown, 2013). As well, public organizations are dealing with more stricter supervision by the media (By & MacLeod, 2009). These insights of public organizations are not new, but the difference between the public and private sector in the change management literature is gaining more attention as the literature on organizational change in the public administration is increasing. According to the organizational change literature, there is a main focus on two change approaches: the planned and emergent change approach..

Change approaches: planned and emergent change

Planned organizational change has long dominated the change management literature and involves consecutively steps of organizational change and views organizational change as a process that moves from a current state into a future state through a series of pre-planned steps (Burnes, 1996; Lewin, 1958; Weick, 2000). The planned organizational change approach is based on the work of Lewin (1958) and developed on the three-step model: unfreeze – change – refreeze as shown in figure 5.

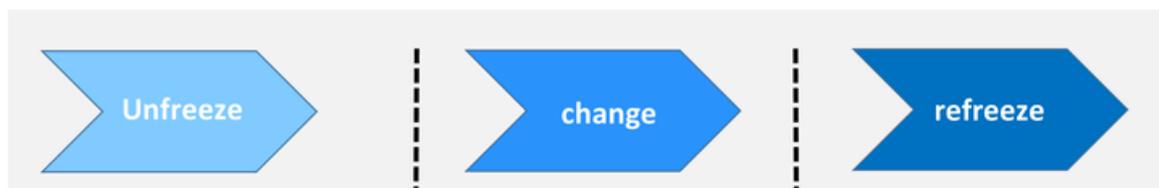


Figure 5: schematic view of the planned change approach (Lewin, 1958)

During the first phase, unfreeze, concrete change need to be identified where the current behaviour have to be made explicit and disconfirmed. The second phase, change, is the phase where the change is being identified and implemented. The refreeze stage requires behaviours to be normalised in the daily behaviour, routines and environment of the employees (Schein, 2004). The planned organizational change approach sees change as a linear process with given steps and suggests to have an end stage. The assumption is that organizational change can be fixed, with a “top-down” approach (Weber & Manning, 2001). The approach recognises that, before any new behaviour can be adopted

successfully, the old one has to be discarded: only then can the new behaviour be fully accepted (Bamford & Forrester, 2003).

The planned change approach has many followers, but scientists also challenge the appropriateness of this approach. First argument is the increasingly rapidly changing environment of organizations. McAleese, Creed & Zutshi (2013) argue that the planned change approach is developed in a time of relative more stability compared to developments as globalising and digitalising. Second argument is the critical view of Burnes (1996) and Weick (2000) who argue organizational change as a non-fixable process with an open-ended character, instead of given identified steps. The last argument focuses on the traditional top-down management. Organizations nowadays have adapted to organizational cultures whereby bottom-up approaches are encouraged (Burnes, 2006). Due to these arguments, the emergent change approach arises.

Emergent change sees organizational change as an emerging process and suggests change as continuous, unpredictable and spontaneous (Bamford & Forrester, 2003). The emergent approach is less reliant on defined goals and action plans. It prefers to work with emerging strategies and develops the priorities for change as they arise (Esain, Williams & Massy, 2008). The emergent change approach emphasizes on “bottom-up” action, rather than “top-down” control in implementing organizational change. Argument is the pace of change is so constantly emerging and complex that it seems impossible for managers to identify, plan and implement every action which is required (Esain, Williams, Massey, 2008). The emergent approach suggests there are no “fixed” or planned steps, and sees change as unpredictable and open-ended (Burns, 2006). Mintzberg et al. (1998) made a schematic view of the emergent change approach as shown in figure 6.

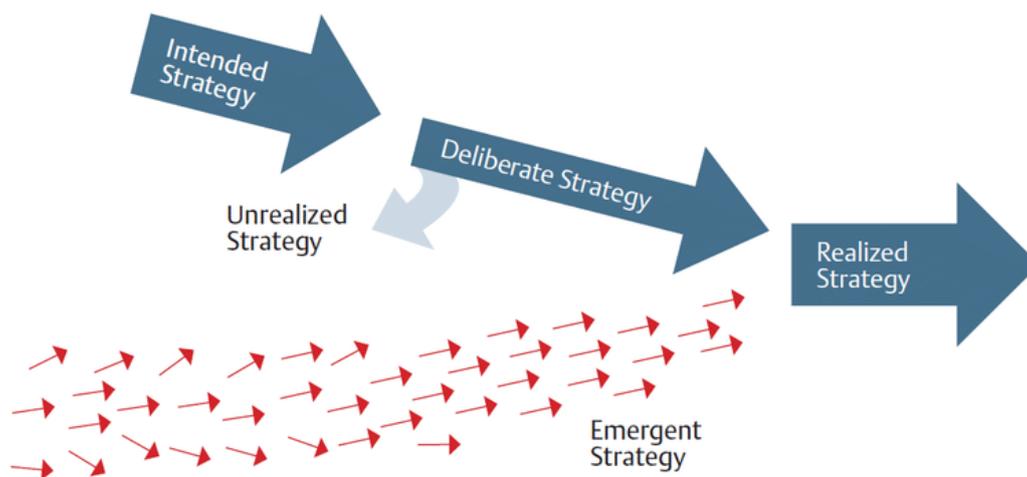


Figure 6: schematic view of the emergent change approach (Mintzberg et al., 1998)

The two change approaches are different for some reasons. In the planned approach, the change is being defined in its present and of the desired present situation. The period in between is being planned in different steps. In contrast, the emergent change approach's steps are not previously determined. Change appears during the process of the change through the formulation of an intended strategy and deliberate strategy with internal and external stakeholders as a bottom-up process.

Change approaches in public organizations

Public organizations are according to van der Voet (2013) more disposed to adapt the planned organizational change approach. The arguments refers to the internal and external complexity of public organizations. Van der Voet (2013) refers to the presence of rules and procedures due to the bureaucratic structure of public organizations, which have a restrictive effect. This will prevent an emergent approach. As well, through administrative and political dependencies, it is necessary for public organizations to have detailed and planned change goals and formulate implementation plans (Burnes, 1996; Roberston & Seneviratne, 1995). This makes a detailed planned organizational change plan more probably in public organizations rather than emergent change which refers to a more spontaneously change process (van der Voet, 2013). To know by which approach circularization is being integrated in public organizations, it is first necessary to describe the literature on circularization of the public procurement process in public organizations.

Circular public procurement and organizational change

According to the circular public procurement and organizational change literature, Grandia, Steijn & Kuipers (2015) identified three important factors as potentially influencing the degree of circularity into the public procurement process in organizations. The factors are: commitment to change, top-management support and expertise. These factors are highlighted in this sub-section.

First, organizational change typically requires ongoing support from employees (Stevens, 2013), and their commitment to change fundamentally alters their change-related behaviours, thus promoting organizational change effectiveness (Michaelis, Segmaier & Sonntag, 2010). Herscovitch & Meyer (2002) defines commitment to change as “a force (mind-set) that binds an individual to a course of action deemed necessary for the successful implementation of a change initiative” and identified three different types of commitment: affective commitment, continuance commitment and normative commitment. Affective commitment refers to the support for change based on a belief in its inherent benefits. Continuance commitment is the recognition that there are costs associated with failure to provide the support for change. Normative change refers to the sense of obligation to provide support for the change (Meyer et al., 2002; Grandia et al., 2015). Grandia, Steijn & Kuipers (2015) argue that commitment to change is expected to positively impact circular procurement behaviour. This refers to the individual behavioural aspects such as human agency, motivation, and beliefs which also have been identified by Sönnichsen & Clement (2020) as key element in implementing circular public procurement in organizations.

Second, top management support is identified as an important factor to integrate circularity into the procurement process. Leadership and top-management support are considered as crucial factors in the implementation of circular procurement (Brammer & Walker, 2011; Fernandez & Rainey, 2006, Grandia et al., 2015). The study of Brammer & Walker (2011) found leadership and management support to be critical if managers are supportive and incorporate circular procurement in their strategies, goals setting, teams will indeed integrate circular procurement. Fernandez & Rainey (2006) highlight the support of the political top in public organizations which is needed as well. The support of top management could be explained by the fact that top managers facilitate, ensure and deploy

organisational resources to meet the goals of the organisation and individual department (Grandia et al., 2015). As well, this can be seen as a barrier of a structural kind related to responsibilities and task division in the organizations: a circular economy responsibility is often unclear and it need to be managed in a good way. Ritzén & Sandström (2017) conclude that the lack of integration between different functions, circularity as a responsibility in every function and between hierarchical levels is a clear barrier to the circular economy transition.

Third, expertise and thereby skills and knowledge have been identified as a crucial factor for the implementation of circular procurement. Sönnichsen & Clement (2020) highlighted the awareness and knowledge as success factors, which “through education, training and clear political goals are all crucial to enhance circular public procurement and to support effectiveness in the tender process (p. 9)”. Besides, lacking awareness and/or willingness to engage with the circular economy can be a barrier motivate people to choose circular (de Jesus & Mendonca, 2018). Referring to issues dealing with the lack of employee knowledge and the need for appropriate skills and innovative training and education initiatives to bring awareness and build the capabilities of individuals in organizations to take on circular economy practices, change their daily behaviours, and change the organizational culture thereafter (Sönnichsen & Clement, 2020; Mendoza et al., 2019). In this context, several authors highlighted the need for investments in education and training initiatives. This, to enable procurees to identify more easily opportunities for circularity in for example public procurement to identify more opportunities for circularity and emphasized the need for more cooperation, dialogue and exchange of experiences among public (Öhgren, Milios, Dalhammar & Lindahl, 2019; Thiebault & Tonda, 2018).

Thus, commitment to change, top-management support and expertise are important factors which could influence the degree of circularity into the procurement process. To integrate those factors successfully in public organizations, it’s necessary to have a look at the nature of public organizations: the internal and external context which will be explain in the next sub-section.

4. Methodology

4.1 Research philosophy, research design, interviews and respondent selection and data analysis

The aim of this research is to understand the processes behind the implementation of the circularity into the public procurement within the ministerial organization of the Ministry of Infrastructure and Water Management. This research seeks answers in the social world, and to investigate the social construct, the interpretivist approach is the most suited. Therefore, this research is positioned in the interpretative approach of scientific philosophy (Creswell, 2007). The purpose of an interpretative research is to uncover social realities and works inductively. Interpretative research is based on the idea that reality cannot be seen as a system of natural laws. Reality is rather a result of people's capacity of interpretation, language use, reflection and conscious action (Bryman, 2012, p. 24). The goal is to investigate the complexity behind organizational change processes within public organizations, specified to the ministerial organization of the Dutch government and look further than the categorization of social constructs. The current economic system can be seen as a social construct that we have created as humans. What we perceive as reality is merely a product of social interaction (Bryman, 2012).

Several aspects from the interpretative philosophy are important for this research to take into account. First, it is important to enter the interviews objectively and openly. The task of the researcher is to eliminate their own opinion and try to interpret and understand what the respondent wants to make clear. Therefore, the researcher has to take an objective attitude towards the respondents. In addition, this is important for the considering of the analysing the data.

Research design

As discussed in the introduction, this study makes use of a single-case study with a qualitative approach. Qualitative research is suitable for '*understanding the processes by which events and actions take place*' (Maxwell, 2008). A single-case study entails the detailed and intensive analysis of a single case in their natural situation. As Stake (1995) observes, case study research is concerned with the complexity and particular nature of the case in question. Due to the complexity of organizational change

processes and the specific implementation of the circularity into the public procurement process within the ministerial organization of the Ministry of Infrastructure and Water Management, it is necessary to take an intensive analysis of this case.

Interviews and respondent selection

Data will be gathered qualitatively by semi-structured interviews. Due to the use of semi-structured topic list, it maintains an adequate level of reliability whilst allowing the researcher room to incorporate spontaneous and unforeseen questions and answers (Leech, 2002). Different topics ranging from organizational change within a public organizations to the specific way of working through the implementation of the circular economy will be discussed. The topic list of the interviews is attached in appendix A.

The respondents were selected through two different types: purposive sampling and snowball sampling (Bryman, 2012). Therefore, the selection of the respondents are focused on the governmental officials of the Ministry of Infrastructure and Water Management and involved in the circular economy. This research first approaches a relatively small number of respondents, and used snowball sampling to increase the data (Bryman, 2012). For the collecting of the data, the goals it to interview at least 12 respondents which are involved into the public procurement process and are dealing with the implementation of circularity. Due to privacy reasons, their names will be anonymized by taking a number on each respondent.

1	Senior Policymaker Program team Circular Economy	Ministry of I&W
2	Junior Policymaker Program team Circular Economy	Ministry of I&W
3	Senior Policymaker Public Procurement	Ministry of I&W
4	Senior Advisor public Procurement	Ministry of I&W
5	Senior Advisor Circular Procurement and Sustainability	Ministry of I&W
6	Senior Advisor Public Procurement / Sustainability Coordinator	Ministry of I&W
7	Senior policymaker Public Procurement	Ministry of I&W

8	Senior Advisor Public Procurement	Ministry of I&W
9	Category manager sustainable I&W	Ministry of I&W
10	Senior Advisor International Public Procurement	Ministry of I&W
11	Senior Policymaker Public Procurement	Ministry of I&W

Data analysis

The data analysis is elaborated on the base of all the data obtained from the interviews. First, all the interviews are being recorded and all the interviews are transcribed and translated. Afterwards, the data was coded by the use of NVivo. The data-analysis is into three phases. During the first phase, the open codes has been used to have a first look at the data-set (Richardsd, 1999; Bryman, 2012). The second phase was axial coding to search for connections between the different parts, with the open codes used as basis. During the last phase, selective coding has been used to analyse the data on the basis of the theoretical framework from chapter 3. The code scheme, which shows the different phases is attached in Appendix B. Right after the first interviews, the interview was being translated and coded. Data of later interviews has let to new codes. As a result of, the interaction between the data analysis and data collection was going on. Therefore, the analysis process has not been a linear process, but an iterative process (Bryman, 2012).

4.2 Criteria qualitative research

A qualitative research approach has to deal with the social world and interpretation of data of the respondents. The four qualitative research criteria credibility, transferability, dependability and confirmability are important research criteria for qualitative research (Guba & Lincoln, 1994, Shenton, 2004, Bryman, 2012) as they will be described below.

Credibility

Credibility says something about the trustworthiness of the research. The social reality is the centre of qualitative research and therefore, it's important to ensuring that research is carried out according to the canons of good practice and submitting research findings to member of the social world who were

studied for confirmation that the investigator has correctly understood that social world (Bryman, 2012). According to Shenton (2004), credibility can be a tricky point because qualitative research is conducted through assumptions and interpretations. Credibility is taken into account in this research through the number of interviews . The number of respondents will contribute to an increasing dataset and will increase the internal validity of this research. Besides, the selection of the respondents has been taken into account through selection of public administrators who are working on the topic of the circular economy within a ministerial organization.

Transferability

The research is focused on the experience of public administrators of one ministry which has consequences for the transferability of the research. Qualitative research typically entails the intensive study of a small group which is oriented to contextual uniqueness and significance of the aspect of the social world being studied (Bryman, 2012). Though the use of a qualitative approach and the intensive data collection of one ministerial department of the Dutch government, it's good to acknowledge that this study must be seen as knowledge for circular economy implementation of a specific ministerial organization. The thick description of Geertz (1973) has been used which implies that this research uses detailed description about the culture and details of the Ministry of Infrastructure and Water Management. This helps others to judge about the possible transferability of the findings to other researches. In addition, the distinction between the public and private organizations that has been made in research is important for the transferability of the findings: public organizations differ from private organizations which makes the transferability of the findings to the private sector less likely. Public organizations are operating in a complex world of check and balances, shared power, conflicting interests and political influences which

Dependability

The repeatability of this research is limited to the specific organizational change in a ministerial organization. The repeatability can be problematic because qualitative research focuses on findings and opinions of individuals on one moment in time. The same context cannot be created twice and the

participants are already influenced by the first study if the same respondents will be researched twice. As well, the external complexity of public organizations has impact on organizational change processes as mentioned in the theoretical framework. For instance, the COVID-19 pandemic of nowadays can influence the implementation processes of public administrators working on the circular economy within the Ministry of Infrastructure and Water Management. For that reason, it is essential to document the findings from the qualitative research in detail (Guba & Lincoln, 1994). The dependability will therefore be taken into account in a several ways. First, the research will be clearly documented. Second, the interviews will take place with the same topic list. Using a topic list will provide the same topics to the different interviews. The semi-structured interviews will contribute to the reliability of this research to discuss the same topics in different interviews.

Confirmability

Confirmability is an important qualitative research criteria and is concerned with ensuring that, while recognizing that complete objectivity is impossible in social research, the researcher can be shown to have acted in good faith (Bryman, 2012). Reflection and feedback is therefore important to minimize the subjectivity of the researcher (Shenton, 2004). The confirmability has been taken into account in this research through two different ways. First, the topic list of the interview helped to select objective subjects which I discussed several times with my supervisor. Through reflection and feedback, the topic list tried to be as objective as possible. Second, for the interpretation of the data, I analysed all the parts in the same way to give every example the same attention instead of picking some subjects that would have been the most interesting for me as a person. Nevertheless, it's impossible to be total objective through the subjective reality of the research, but to keep this qualitative research criteria in mind, I tried to be as much as possible aware of this.

5. Findings

This chapter will present the findings of this research which will answer the question: *How do policy officers of the Ministry of Infrastructure and Water Management experience the integration of circularity into the public procurement process as a process of organizational change in a public organization?* The idealistic goal to be fully circular in 2050 has a clear vision of what the changes should imply, but the analysis from experiences of policy officers' shows that there are several tensions about how to integrate circularity within the public procurement process.

The first finding discusses the current state of affairs, about the gap between policy and practice: the policies can describe what circularity can contribute into the public procurement process, but it doesn't describe how the public administration should be organized and managed in a way whereby circularity within the public procurement process should be optimally integrated. The respondents' utterances show that policy officers are struggling with the translation from policy to practice. As well, the current state of affairs describes that the policy officers are in the middle of the transition from public procurement into circular public procurement.

Secondly, the current tension and challenges are elaborated. Circularity is complex to integrate into the public procurement process, since several changes in vertical responsibilities and horizontal collaboration processes are required. The role of managers are highlighted as important for redefining vertical responsibility towards the integration of circularity within the public procurement process of policy officers. For example, the evaluation systems for policy officers should be changed into evaluation on circular pillars instead on only time and money. As well, horizontal collaboration between policy officers as internal stakeholders are changing due to the integration of circularity into the public procurement process because it has to be integrated at an early stage. In addition, horizontal collaboration with external stakeholders are changing by the need for sharing knowledge.

In contrast to the tensions, there are also some drivers of circularity which can enforce the integration of circularity within the public procurement process. This will be elaborated in the third subsection. In the light of change management, a combination between planned and emergent change is required: the so-called hybrid change approach. Besides, policy officers are, according to this research,

doing trainings on how to integrate circularity within the public procurement process to get inspired about circular solutions. As well, pilots have started with policy officers in which they are experimenting to integrate circularity within the public procurement process. Scaling-up towards ‘real’ projects is the a challenge since this is hardly happening due to the nature of public organizations where tax money has to be accounted and may not be spend on project failures. But, if this will work, then it would drive other circular public procurements as well. Over the past few years, several circular public procurement processes are being carried out. The successful outcomes are, according to the findings of this research, important exemplarities for policy officers that shows that circular public procurements can be done successfully. The exemplarities are seen as drivers for the change processes to integrate circularity into the public procurement process. The current state of affairs, the challenges and tensions and driver to moving forward are elaborated on in the next sub-sections.

5.1: The current state of affairs: gap between policy and practice, a lack of norm setting and chaos

The first finding of this research is that there’s a tension between policy and practice: the policies states that the public administration of the Ministry of Infrastructure and Water Management should adapt circularity into every public procurement process to accelerate the transition towards a completely circular economy in 2050. The respondents of this research are explaining that the circular program started in 2016¹ and that since that time, policy officers have to apply circularity in their public procurement process. But, in practice, policy officers are experiencing that circularity is often not integrated yet. Respondent 6 explains the current state of affairs:

R6: “Everyone is saying: circularity is a very important. But in practice, I’m experiencing that colleagues are saying: yes circularity is important, but not for this project.”

In other words, there is a gap between the policy or political discourse affirming how “important” circular public procurement is and the lack of implementation in practice. Indeed, policy officers experience this tension in light of their knowledge about the necessity of responding to the broader issue

¹ <https://www.rijksoverheid.nl/onderwerpen/circulaire-economie/documenten/rapporten/2016/09/14/bijlage-1-nederland-circulair-in-2050>

of climate change and the opening opportunity to be part of this response. The policies imply to integrate circularity into the public procurement process, but the practice in public administrations experiencing that there's a lack of the integration of circularity within the public procurement process, as well as lack of support from the political top. A finding is the importance of the circular economy, emphasized at the political top. The political top is the highest management position of the public administration and several respondents state that if there's political support to integrate circularity in their work, more policy officers will integrate circularity into their public procurement process. Respondent 5 explains how the political support affects the integration of circularity in the public procurement process:

R5: "You can be very eager to make a public procurement circular, but you will never make it without political support at the top of the organization."

By way of contrast, policy officers are mentioning the absence of actual integration in the processes as a lack of institutionalized norms of circularity, as the next respondent explains:

R3: "Circular public procurement is not institutionalized yet. You especially need enthusiasm of policy officers and their positive drive like: 'We can make something really cool and circular out of this!' When this is obtained, really nice and circular procurements can happen. If not, then it's left behind."

Several respondents states that one of the reasons why people are not integrating circularity within the public procurement is due to the missing norm to do so in the public administration: it's not a common purpose to integrate circularity within every procurement process. One of the respondents made a comparison between the integration of circularity within public procurement and safety norms, as a way forward to making circularity a required abiding of their work process:

R6: "I often make the comparison with safety: when circularity is integrated as safety, then we're getting there. It has to become a norm to work on circularity. Nobody will ask questions on the theme of safety within the projects and with circularity, it's completely different. Why? It should be a norm to include it in the process."

The findings of this research show that the integration of circular public procurement is still person-oriented and needs to become a norm so what we can speak of integration, as respondent 7 explains:

R7: “It is often still personal whether someone is integrating circularity in their public procurement process. If someone feels the responsibility and the opportunities it has, or having parties or policy officers around them which are highlighting it, then it’s integrated. But so many changes are left behind because It’s not mandatory yet to integrate circularity within the public procurement process. So, there is a shortage of time, a shortage of money and a shortage of enthusiasm.”

Following the experiences of policy officers within the change process itself, a finding of this research is the struggling experiences of the respondents to letting go of the old system and the implementation of the new system as policy officers are struggling with the new way of working. Respondent 2 highlights this situation on the basis of the X-theory which is used as an explanation of this situation by policy officers of the Ministry of Infrastructure and Water Management:

R2: “We are using the X-theory. The two different lines of the X are symbolic for the different systems. At the initial phase, the old system is used (line left above) and the new system is coming up (line left under). At a certain point, the old system is going to be broken down, and the new system is going up. At the middle point, there is going to be a lot of chaos because the systems are meeting each other. Thereafter, at a crucial turning point, the new system is taking over. We are now in the middle of the chaos, before the new, circular system is taking it over. It’s understandable that people don’t know how or what they have to do at this stage, but we have to do something about it.”

The theory tells us what the change process causes and how people are dealing with it. The chaos which respondent 2 is describing refers to a state whereby policy officers don’t know what to do, how to do it and with whom to collaborate in the new (circular) system. It reflects uncertainty on the one hand and resistance on the other hand. Several circular pilots have been developed to inspire people to use circularity into their public procurement process.

If circularity is not the norm in the organization yet, the question is how it can become a norm in the organization to get circularity integrated in the public procurement process. Respondent 8 asked themselves this question, and answered it as well:

R8: “The big question is: how do you create responsibility for everyone and how do you make it a part of everyone’s job? Make it a norm instead of making it incidental and person-oriented. I think this is the responsibility of the managers to manage this in a good way.”

According to the findings of this first argument, it seems that the policies by themselves are not strong enough for the integration of circularity within the public procurement process. Policy officers are aware of the opportunities which are left behind and are mentioning that circularity is taking place when a policy officer is enthusiastic about the integration of circularity within the public procurement process. The need for a clear definition of responsibilities among managers and policy officers is required. The next section will elaborate on the challenges and tensions of the integration of circularity as a complex system in vertical responsibilities and horizontal collaboration.

5.2 The challenges and tensions: complexity, responsibility and vertical and horizontal collaboration

Circularity as a complex issue

The findings of this research show that circularity is a complex issue within the integration of the public procurement process. Policy officers who are willing to integrate circularity within their public procurement process, are not only depending on themselves, but they are dependent of other internal stakeholders. Respondents 5 explains the dependency of others in the public procurement process which is needed due to the complexity of the integration of circularity:

R5: “What you see is that there is at the very beginning of the process, when there’s not even a procurer, but there only a policy intention, no money has been requested yet, you actually have to make all the circular considerations there. All the important decisions are made there, such as financial and capacity of the project. Questions like: can we handle a certain degree of complexity over time? And do you have enough people to handle the complexity? Do you have enough financing and applications? That is such a complex issue.”

Due to the complexity, the findings shows two important changes which are required: vertical responsibilities and horizontal collaboration.

Redefining vertical responsibilities: the role of the manager

The analysis of interviews shows that policy officers are dealing and struggling with the shared responsibility of integrating circularity within the public procurement process. This means that managers are saying that everyone has to integrate circularity within the circular public procurement process, but today, it's not something what they are personally accounted for. Several respondents mentioning that there is a short of responsibility and/or guidelines at individual levels of policy officers. This is causing a 'pointing to each other' culture and where people are looking to each other where some policy officers feel the responsibility to integrate circularity within the public procurement process and other not. Respondents are telling that they are accounted on time and money, but not on a circular pillar, as respondent 9 explains:

R9: "We can all be very enthusiastic about circularity but in fact, if we are all still only responsible for the time and money spend on procurements, then people will make considerations on time and money and not on circularity."

The shortage of time and capacity to make a procurement circular is a recurring theme according to the interviewees. It explains why not every policy officer is integrating circularity into the public procurement. In particular, this says something about the way policy officers are evaluated: if they are not accountable for the degree of circularity within the public procurement process, but the policies say that they have to do it, than something contradictory is happening. Several respondents mentioning capacity, time and money as important indicators who will, when there are enough of them, influence the degree of circularity within the public procurement process. Respondent 6 explains how resources of public procurement processes are established now, and how it should be if circularity is integrated:

R6: "Nowadays, the case is: we have to build a bridge from location A to location B and we have an X amount of money and an X month of time to deliver the bridge as a successful project. However, to find circular solutions, we have to think the other way around and asks ourselves the question like: we want to go from location A to location B, how can we make it work in a circular way? That's a whole different kind of starting position and it's not asking questions about money and time directly."

The findings show that policy officers are calling for more defined guidelines on circularity in their work, which will redefine responsibilities for the integration of circularity within the public procurement process.

Horizontal collaboration with internal and external stakeholders

The respondents unanimously agree that more internal collaboration between internal and external stakeholders is needed to make the procurement process circular. In the first few years when circularity gained attention and it had to be integrated into the public procurement process, the main focus of circular public procurement was laid down by the policy officer who was responsible for the procurements of the Ministry of Infrastructure and Water Management. Now, several years later, policy officers from the Ministry are recognizing that it is not only the procurer who has to deal with circularity in the public procurement process: the choices that are made to make a public procurement circular are being made at the policymaking stage. This insight that the policy officer who deals with procurement has to collaborate with the policy officer who makes the policy about public procurement at an earlier stage. The policy officer who makes the policy about procurement is now working together with different actors in the Ministry, such as the policy officers who are working on the financial, sustainable and the legal parts of the procurement. Respondent 3 explains the necessity of this collaboration among internal stakeholders of the Ministry:

R3: “For a long time we have focused on that the procurer must be able to do things with circularity within the public procurement process. We now see that you actually have to include the procurer’s entire environment if you want to achieve a circular effect: from policy making to the financial and legal policy officers.”

Therefore, it is necessary that circularity is integrated at the earliest stages of the public procurement process when the policy is being made. Several respondents are mentioning that when a policy is being made and one of the focus points is circularity that it is clear to everyone that all those who are involved in the public procurement process thereafter are thinking about and integrates the principles of circularity into their practices, instead of just the procurer.

In addition, collaboration with external stakeholders, like market parties, are also changing by the integration of circularity within the public procurement process. The main argument is the complexity of circular solutions, which requires more than a standard solution and that circular solutions are not always existing yet. That makes it difficult because the path to circular solutions is unknown, for both governmental and market parties. Several respondents state that collaboration between governmental and market parties are therefore important by sharing knowledge and to co-create solutions. Respondent 12 explains the different function of private and public organizations in this situation:

R12: “I think we can never reach the level of knowledge of the market, because we provide services and they provide products. We should much more collaborate in a co-creation way where we can stimulate the market to come up with circular solutions and where the market can build knowledge.”

Thus, internal and external collaboration is needed to integrate circularity at an early stage when policy is being made internally and externally to share knowledge to co-create circular solutions. The next subsection will elaborate on the drivers which can move the integration of circularity forward which are: hybrid change, trainings pilots & exemplars.

5.3 The drivers moving forward: hybrid change, trainings, pilots & exemplars

Hybrid change

In the light of change management, several respondents state that a hybrid change approach is needed to integrate circularity within the public procurement process. This implies the planned approach on the one hand, and the bottom-up initiatives from the emergent change approach on the other hand. For that reason, the respondents unanimously agree that a hybrid change approach is expedient at this stage of the integration of circularity within the public procurement process. Respondent 10 explains why both approaches are needed:

R10: “You need both approaches: bottom-up to show that things are possible, how things work in practice and to show how it can contribute to the organization. At the same time, you also need the top-down support which says: this is really important! Otherwise, it will be stuck somewhere in the middle.”

At this moment, circular initiatives are created from the bottom-up due to a lack of top-down instructions. A driver of the integration of circularity within the public procurement process can thus be the combination of both approaches, as respondents 12 explains why bottom-up initiatives only are not working:

R12: “In particular, I think we are working too much from bottom-up. So that initiatives are being developed from the workplace, but we need more guidance tools from the management. We need more top-down instruction with a timeline from 2021 to 2030 so we can work more concretely together with all the colleagues. More pressure is needed, I think this is an important issue.”

Thus, if a mix of both approaches are needed, how can you successfully adapt the change strategies by policy officers? The next sub-section will go into some handles which can help policy officers to the adaption process: trainings, pilots & exemplars.

Training, pilots & exemplars

To strengthen the grip on the integration of circularity within the public procurement process, policy officers are being offered on how to integrate circularity within the public procurement process. Nowadays, several trainings already have been developed. Respondents 5 and 12 are explaining the essence of the trainings:

R5: “In the implementation, you have to get people ready and develop instruments which they can use. Nowadays, I see people struggling with the integration of circular solutions because a lot of people don’t know what circular solutions are. So, you have to set up pilots to ensure that people get used to it and that’s a good starting point.”

R12: “I’m organizing trainings and courses to create awareness of the possibilities of circularity in the public procurement process. For example, there’s an introduction training for the CO₂ performance ladder, in order to apply it in more public procurement processes. What I experience is that policy officers don’t know yet how they can adapt circularity within the process and I’m trying to share knowledge about how to do so. If people have more knowledge about the application, they starting to get enthusiast.”

Besides the trainings, several respondents are telling that pilots are taking place in order to experiment with circular solutions in a safe manner. 'In a safe manner' means that pilots are held to discover solutions and thereby, that the money and time within the pilots are taking place for a space whereby the policy officers don't have to be accountable for any mistakes because: that's why a pilot is made for. Respondent 8 states that pilots are needed since it's not always clear what policy officers have to do to integrate circularity:

R8: "It's a transition, not all answers are already there. It's important to set up pilots, so people get familiar with circular solutions. Thereafter, it's important to scale up and integrate circularity within the public procurement process."

An important finding of this research is that, after the pilots, policy officers are struggling to scale up the pilots to real situations. It's stuck somewhere afterwards. Respondent 10 is especially frustrated about this situation:

R10: "We are doing several pilots, everyone is enthusiastic about it during the pilot but afterwards, nothing is changing. It seems like throwing the experiences away. It's frustrating."

The main reason why pilots are stuck in the organization can, according to the findings of this research, be explained by the very nature of public organizations. Public organizations are spending tax money which always has to be accountable. That's the reason why policy officers in the public administration of, in this case, the Ministry of Infrastructure and Water Management, are not taking (big) risks to experiment with circular solution into the public procurement process. A few respondents mentioning the tension between the chariness to spend tax money and the innovations and creativity which are needed to accelerate the transition towards a circular economy. This is an important discrepancy between public and private organizations. Respondent 6 highlights this situation from practice:

R6: "In private organizations, it's completely okay if things go wrong when you start working with innovations. It's fully accepted and things are allowed to go wrong. This is completely different within the government, besides doing pilot because there it is allowed, because you are spending tax money

and it has to be sped accountable. This is leading to all kinds of risk avoiding behaviour which is not helping the circular economy at all.”

Another argument which drives the integration of circularity within the public procurement process is that the findings of this research show that some circular public procurements are already successful which causes energy for policy officers because they are starting to believe that circular solutions can succeed. The findings of this research show that almost every respondent mentioned the example of the circular viaduct which was launched in 2019². Respondent 11 tells us more about the circular viaduct and the organization behind:

R11: “A good example is the circular viaduct. A few policy officers have said: we want to make a circular viaduct and they just started sketching and there it started. At a certain point, it took a few steps to go through the entire organization and you need budget. But then, someone from the top said: let’s collaborate and make it happen. That was very exciting but it could easily have been cancelled. But it worked because people felt the responsibility and made it work.”

The circular viaduct is an successful exemplar which causes that policy officers, and other stakeholders outside the Ministry, started to believe in circular solutions since the viaduct was one of the first big projects where policy officers, managers of the Ministry of Infrastructure and Water Management and external market parties have showed that it’s possible to integrate circularity within the public procurement process. A finding of this research is that policy officers are getting energy to work on circular solutions because of exemplars which are working. Respondent 8 highlights this:

R8: “You need to have circular examples which are symbolic for other projects that circularity in the public procurement process can succeed. People have to believe that it is possible and those projects are stimulating this idea. It gives the organization energy like: when they are able to do it, we can do it as well.”

At last, policy officers are struggling with the change processes, caused by the integration of circularity within the public procurement process. By means of trainings, the policy officers are getting some tools

² <https://www.rijkswaterstaat.nl/en/environment/circular-economy/construction-of-circular-bridge>

reached to integrate circularity in their daily work. As well, pilots have started, but the challenge is to scale-up. The nature of public organization, bureaucratic structures and risk avoiding behaviour, is an extra tension which is, at this stage, not supportive for the integration of circularity within the public procurement process. But, this can be turned into a driver of circularity within the public procurement process since policy officers are gaining knowledge on circular solution and are starting to believe in their successes if more exemplars of circular public procurement are working.

6. Discussion & Conclusion

The goal of this research was to answer the main question: *How do policy officers of the Ministry of Infrastructure and Water Management experience the integration of circularity into the public procurement process as a process of organizational change in a public organization?* This chapter starts with the discussion of this research followed by conclusion where the main question has been answered.

6.1 Discussion

Most prior research is focused on how circularity is integrated in the procurement processes of private organizations (Klein, Ramos & Deutz, 2020). This research provide to fill the gap between organizational change management in public organizations and the processes behind the implementation of the circular economy. This case-study provides an organizational change perspective, focused on the experiences of Dutch policy officers of the Ministry of Infrastructure and Water Management.

The theoretical contribution of this research is threefold. Firstly, the findings of this research confirms the findings of Grandia, Steijn & Kuijpers (2015) who identified commitment to change, top-management support and expertise as important factors as potentially influencing the degree of circularity into the public procurement process in organizations. The study of Brammer & Walker (2011) found leadership and management support to be critical if managers are supportive and incorporate circular procurement in their strategies, goals setting, teams will indeed integrate circular procurement. The findings of this research will add that clear guidelines and defined responsibilities from managers to policy officers are needed as the policy officers' of this research are calling for this. Fernandez & Rainey (2006) highlight the support of the political top in public organizations which is needed as well. The findings of this research confirms this argument as well. Besides, normative change, which refers to the sense of obligation to provide support for change (Meyer et al., 2002; Grandia et al., 2015), is important towards the integration of circularity into the public procurement process as the findings of this research shows that the norm to integrate circularity into the public procurement process is lacking at this stage.

Secondly, the literature suggested that public organizations are disposed to adapt a planned organizational change approach due to the nature of public organizations and their internal and external

complexity. Van der Voet (2013) refers to the presence of rules and procedures due to the bureaucratic structure of public organizations, which have a restrictive effect and will prevent an emergent approach. The findings of this research shows that the integration of circularity into the public procurement process, over the past years, have arisen with a emergent change approach which is not in line with organizational change approach in the literature of Van der Voet (2013). This suggests that public organizations are also able to enhance an emergent change approach, besides their bureaucratic structures. Veenswijk (2006), referred to the so-called ‘innovation paradox’ of public organizations which required to continuously change and innovate, but this is contradictory to their role of providing reliable and stable services. The findings of this research state that innovation is possible in public organizations, but their flexibilities around the accountability of spending tax money should be enlarged to experiment with circular solutions which can be a driver for the integration of circularity into the public procurement process. As well, the responsibilities of the integration of circularity within the public procurement process of policy officers have to be clearly defined. Otherwise, a ‘pointing to each other’ culture will exist which leads to risk avoiding behaviour, and less change in the integration of circularity within the public procurement process.

This research recognizes several limitations. Firstly, this research is a case-study of the Dutch Ministry of Infrastructure and Water Management which makes the conclusions of this research not generalizable for all public procurement processes in other ministries or public organizations. A suggestion for future research is to compare the Dutch circular public procurement process with other Ministries or other countries to have more generalizable data. Second, to integrate circularity into the public procurement process, a collaboration with private parties is needed. A suggestion for future research will be to include private parties into the research as well to have a more complete insights of how private organizations experience the collaboration process of the public procurement process as well. Future research could either create hypotheses and empirically test the findings of this research to create a more objective view or use triangulation to enhance the credibility (Bryman, 2012).

6.2 Conclusion

This study has, through a single-case study at the Ministry of Infrastructure and Water Management, investigated the following research question: *How do policy officers of the Ministry of Infrastructure and Water Management experience the integration of circularity into the public procurement process as a process of organizational change in a public organization?* The answer of the research question can be found in this sub-section.

The current state of affairs of the integration of circularity within the public procurement process shows a gap between policy and practice. The policies implies that circularity is already integrated in a lot of public procurement processes, but in practice, policy officers are not integrating circularity. Therefore, many opportunities to the integration of circularity within the public procurement process are left behind nowadays. The reason, according to the findings of this research is, the lack of circular institutionalized norms in the Ministry of Infrastructure and Water Management. Due to the lack of institutionalized norms, the integration of circularity within the public procurement process is now person-oriented: if someone is enthusiastic about circularity, then it's sometimes integrated. But, if not, then changes are left behind. The respondents are mentioning that they are in the middle of the transition from public procurement towards a circular public procurement which causes uncertainty because policy officers have to work in other ways which are not clearly defined yet. In addition, political support is lacking to enforce circularity within the public procurement process.

Circularity is a complex issue which requires multiple changes in vertical responsibilities and horizontal collaboration. Vertical responsibilities have to be redefined since policy officers are nowadays accounted on time and money, and not on circularity. Accordingly, this causes a system whereby policy officers are not integration circularity because they are not evaluated on circularity which is contradictory to the circular economy policies. More defined guidelines on circularity are needed which should redefine the responsibilities of policy officers. As well, horizontal collaboration is changing due to the integration of circularity. Several years ago, within the internal stakeholders, only the policy officers who had to deal with the procurement had to integrate circularity. Nowadays, policy officers from different departments such as the financial department, legal department and strategic

department have to work together to strengthen the integration of circularity into the public procurement process. Therefore, it's necessary to integrate circularity at the earliest stage of the public procurement process when the choices of finances, capacity and time are being made to have enough resources to handle the complex process of circularity within the public procurement process. The external stakeholder collaboration is changing as well since market parties and the Ministry of Infrastructure and Water Management have to collaborate more intensively to share knowledge and to co-create circular solutions. The need for more capacity, time and money are therefore important factors which should be considered by managers from policy officers as well.

Besides, moving forward to the integration of circularity within the public procurement process in the light of change management strategies, the so-called hybrid approach with both, the planned and emergent change approaches are needed. Top-down management is required to define clear guidelines and underline the importance of the integration of circularity. Besides, bottom-up initiatives are needed in practice since not all circular solutions are yet there and policy officers need to experiment from bottom-up to know what will work in practice or not. Therefore, policy officers need trainings to enlarge policy officers' knowledge about circularity as well. In addition, pilots are required to get familiar with circular solutions. The challenge to raise the number of circular public procurements is to scale-up from pilots to 'real' projects. Pilots are now a safe manner where policy officers can experiment with circular solutions, but this is hard 'real' situations since public organizations are organized in a way whereby risk taking projects are avoided due to the accountability to spend tax money in a useful way. Other drivers for the integration of circularity within the public procurement process is the exemplars of successful circular public procurement processes in the past. The successful outcomes, as for example the circular viaduct, are symbolic for other policy officers that circularity can work. Policy officers are motivated about the integration of circularity within the public procurement process by those exemplars. If more circular public procurement processes are working from pilots and trainings: then policy officers can adapt the way their work is changing.

The overall conclusion of this research is that policy officers experiencing unclear guidelines from their managers to integrate circularity which seems contradictory to the policies which are

promoting the integration of circularity within the public procurement process. Circularity is experienced as a complex concept and requires changes in vertical responsibilities and horizontal collaborations. The so-called hybrid change approach is the most suitable change approach to adapt circularity into the public procurement process which is a mix of the planned and the emergent change approach, according to the findings of this research. Policy officers are often unfamiliar with the integrations of circular solutions within the process of public procurement. Therefore, trainings, pilots and circular exemplars are important to drive the acceleration towards a circular economy in 2050. Organizational change is not easy, but not impossible, not even in public organizations.

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Appendix A: Topic List

Section 1: introduction

+/- 5 minutes

- Introduction
- Recording, consent and privacy/confidentiality
- Introducing the topics: organizational process of circularization of public procurement and organizational change approaches.
- Structure of the interview

Section 2: Job and function

+/- 10 minutes

- What is your current function? And what does it consist of?
- How long have you been working here?
- What are your main missions?
- Are you in charge of a team?
- Who are you working closely with? Within and outside the ministry? Other ministries or government agencies? Other external stakeholders?

Section 3: Circular Public Procurement

+/- 20 minutes

- Circular public procurement process the integration of circular principles in public procurement seems to ask for a different way of collaboration with internal and external stakeholders. Can you explain/give examples of the difference between the public procurement process as you used to and the circular procurement process? How do you experience the collaboration with suppliers, before and after the signing of the contract? Can you give examples?
- Rethink: the circular economy asks for a rethinking of the system. For example, end-of-the pipe solutions are not desirable, but rethinking of the whole value-chain where you can focus on the begin of the chain to reduce waste and minimize resources from the beginning on. How is this integrated in the organization? Do you have examples?
- How are the following principles of the circular economy integrated in the public procurement process? Can you give examples of circular public procurement projects in term of:
 - Recycling: (for example recycling waste)
 - Reuse: (for example reusable furniture)
 - Reduce: (for example reducing ICT-devices or car-sharing)
- Commitment to change: how are you motivated to integrate circular procurement in your work? Are you motivated by yourself? Is it a norm? Are you formal motivated by the obligation to integrate circular procurement in your work?
- Top-management: Is the circular procurement promoted by managers? If yes, how do they promote it? What is the effect of this on your work?
- Expertise and circular Public Procurement: As a manager, how do you think employees are motivated to enhance circularity in the organization? How are you as an employee being motivated to implement circular procurement? Do you for example have sustainable trainings? If yes, what do they consist of? How useful are they?
-

Section 4: Organizational change and circular procurement in public organizations

- Innovation paradox: Do you think some of the bureaucratic structures, rules and/or procedures make it harder to implement circularity into the public procurement process? Can you give examples of which ones and explain how? Or maybe make it easier when you have rules/procedures which support the integration of circularity?

- Planned approach: The circular economy is the result of first a EU level, then a national government planned strategy. How do you experience the circular economy plans in your work? Do you follow the plans step by step? Is it managed top-down?
- Emergent approach: How do you experience the implementation of the circularity into the public procurement process as an emergent process? Can you give concrete examples? How are you creating bottom-up changes?
- Challenges: What do you see as the challenges, in the context of change management, of implementing the circular public procurement within the ministry?
- Barriers: What do you see as a barrier, in the context of change management, of the implementation of the circular public procurement? Can you give a concrete example?
- Success: What do you consider as the main success factors of circular public procurement, in the context of change management? Why? Can you explain?

Section 5: Closing

+/- 5 min

- Questions?
- Mail address to send the research

Appendix B: Code Scheme

