

The role of public procurement on the market adoption of innovation

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ABSTRACT,

In 2022, the Dutch government's procurement department spent €15.2 billion on goods and services, influencing how society adopts new and innovative solutions. This thesis examines how Dutch public procurement either helps or hinders the successful adoption of innovative products and services in the market. The main goal is to understand the role of public procurement in promoting or blocking innovation. Public procurement of innovative solutions (PPI) is when the government uses its buying power to support new technologies in their early stages, helping them become more widely available. This study uses the Innovation Systems Theory to look at how government, businesses, and universities work together to improve technological development and economic growth. The research question is: *"In which ways does Dutch public procurement facilitate or hinder the market adoption of innovative solutions?"*. Using a qualitative approach with expert interviews and analysis of secondary data, this thesis identifies key factors that support or hinder innovation roll-out. Supportive factors include strategic partnerships, setting standards, and efficient use of resources. Barriers include risk aversion, complex regulations, and financial limitations. The findings show that while public procurement has great potential to drive innovation, it often faces challenges from institutional and regulatory issues. This study provides practical insights for policymakers, public officials, and businesses, aiming to improve public procurement practices to better support innovation. By addressing the identified challenges and making use of the facilitators, the Dutch government can improve its role in promoting the adoption of innovative solutions.

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Keywords

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1. INTRODUCTION

In 2022, the procurement department of the Dutch government spent €15.2 billion on goods and services ((Rijk), 2023). The way the government decides what or how to procure goods/services has an effect on society and the way it innovates. For example, to increase sustainability, governments have decided to procure buses that run on renewable fuels, which has in turn created a market and increased research into the matter (Aldenius & Khan, 2017). The government is willing to invest extra to pay for the extra fuel costs associated with the decision. This power helps to encourage suppliers to improve their Environmental, Social, and Governance (ESG) score to receive a government contract (Li & Cao, 2023). In the energy sector, sustainability is also becoming more important. This is shown by the increase in reliance on renewable energy sources, which in the USA, has surpassed the use of coal in 2022 (Energy, 2023).

The two examples mentioned before are examples of public procurement of innovative solutions (PPI). This occurs when the public sector decides to use its purchasing power to adopt an innovative solution in its early stage, not yet available on a large basis, to create a large enough demand so that the market can invest in the solution with the goal of making the solution financially viable for all (Commission, 2023). Without PPI, companies would be less incentivized to bring innovation into the market, since the demand has yet to be created and is uncertain. By utilizing PPI, companies are incentivized to create innovative solutions, making it more accessible to the rest of the market afterwards (Commission, 2023). From small to large enterprises, they all benefit from PPI and are able to participate in creating innovation with this new demand from the government.

Public procurement is a powerful tool for driving innovation, which is increasingly recognized as an important factor in coming up with solutions for global challenges such as climate change. By making use of their large purchasing power, governments can create an environment where innovation thrives, leading to the development and adoption of new technologies and sustainable practices. This relationship between public procurement and innovation is crucial in the current global economic climate, where the ability to adapt and innovate can significantly influence a nation's competitiveness and sustainability (*Guidance on Innovation Procurement*, 2021; Schnitzer, 2024).

Public procurement not only influences the dynamics in the market, but also shapes the wider societal and economic landscape (Caimi, 2023; Commission, 2019). The strategy set by government procurement decisions can have far-reaching impacts on different sectors. For example, in healthcare, public procurement has led to the adoption of advanced medical technologies, improving patient outcomes and operational efficiency. Similarly, in education, procurement policies that prioritize innovative learning tools and technologies have changed teaching and learning environments, improving education and outcomes (Commission, 2019).

The importance of public procurement goes further than economic and technological advancements; it also aims to accomplish social objectives. Governments can use procurement as a tool to promote social equity, diversity, and inclusion. By setting specific criteria in procurement contracts, such as minority business participation or fair labour practices, governments can make sure that public spending contributes to broader social goals (McCrudden, 2004; Nyathore, Wainaina, & al., 2023). This approach not only helps with increasing

innovation but also ensures that the benefits of innovation are distributed equitably across society (Nyathore et al., 2023).

In addition, public procurement plays an important role in crisis management and recovery. During the COVID-19 pandemic, governments around the world relied on flexible, quick and innovative procurement strategies to acquire medical supplies, develop vaccines, and support economic recovery in a short period of time (*Guidance on Innovation Procurement*, 2021; OECD, 2023). These practices showed the need for flexible and responsive procurement systems that are capable of adapting to these rare and unknown challenges. The lessons learned from such crises stress the importance of building resilient procurement frameworks that can support both immediate needs and long-term innovation (*Guidance on Innovation Procurement*, 2021).

Environmental sustainability is also of importance for an increasing number of governments worldwide. Public procurement can make significant progress towards green and circular economies. By prioritizing the procurement of eco-friendly products and services, governments can reduce environmental footprints and promote sustainable production and consumption (Aldenius & Khan, 2017; Testa, Annunziata, Iraldo, & Frey, 2016). This approach aligns with global sustainability agendas, such as the United Nations Sustainable Development Goals (SDGs), which emphasize the role of public procurement in achieving SDGs (Aldenius & Khan, 2017).

The relationship between public procurement and innovation is also visible in the defence sector, where government contracts often push the development of new technologies. These technologies, initially developed for defence purposes, often find their way into regular, civilian markets. This leads to economic growth and technological improvement. The history of the internet, GPS, and various other technologies shows the potential of public procurement to speed up innovations (Mowery, 2012).

All these effects, positive and negative, change the way other companies behave in the market. The goal of these public procurement practices is that the market will successfully adopt the innovative solutions. The European commission has created a legal framework for innovation procurement for R&D activities, in a way the projects would survive without state-aid (Tsanidis, 2020). This is an example of how public procurement would facilitate the market adoption of an innovative solution.

1.1 RESEARCH QUESTION

Considering the previously established dual nature public procurement has on the roll-out of innovation, as a catalyst and as a barrier, this paper aims to answer the following question:

“In which ways does Dutch public procurement facilitate or hinder the market adoption of innovative solutions?”

This research question (RQ) addresses different aspects of how public procurement practices influence innovation. The large amount of spending by the Dutch government on procurement shows its potential to shape and change the dynamic in the market. By analysing facilitating and hindering factors of public procurement on innovation roll-out to the market, this research will provide a detailed understanding of the different factors affecting the innovation roll-out.

This research will add to the existing research by specifically looking at the Dutch context. This context is of interest since it provides a unique setting to explore these factors because of its strong legal frameworks, participation in EU guidelines on

procurement, and a focus on sustainability and innovation in public policy.

1.2 ACADEMIC & PRACTICAL RELEVANCE

This paper aims to investigate the ways Dutch public procurement impacts the successful roll-out of innovation, or in what ways it may hinder it, by researching facilitating factors and barriers. Previous studies have largely focused on the positive role that government spending can play in promoting sustainability and innovation, with governments investing in renewable energy and sustainable transport being prime examples (Aldenius & Khan, 2017).

The practical relevance of this study is that by increasing the knowledge in this field, ineffective practices of public procurement that hinder innovation can be identified and possibly altered for a more innovation friendly practice. This thesis offers insights for a range of stakeholders involved in or affected by public procurement, including policymakers, public administrators, and businesses. Ultimately, this thesis aims to contribute to the practical understanding of how public procurement can be optimized to create an environment that helps with creating innovation, thus facilitating the adoption of innovative solutions in the market.

2. THEORETICAL FRAMEWORK

To get a better understanding of the now established dual role of public procurement in facilitating and hindering the adoption of innovation, this thesis will use the Innovation Systems Theory (IST) as its main theoretical lens.

Innovation Systems Theory

The IST provides a comprehensive framework for understanding how different actors within the system, including the government, private sector, and academic institutions, interact to promote technological innovation and economic growth (Lundvall, 2007). According to this theory, public procurement acts as a demand-side innovation policy tool that can significantly influence the direction and pace of technological development (Edquist & Hommen, 1999). By procuring innovative solutions, governments can create market demand for emerging technologies, thereby stimulating private sector investment in research and development (R&D) and facilitating the diffusion of innovation across the market (Georghiou, Edler, Uyerra, & Yeow, 2014).

Applying the IST to the study of public procurement's impact on innovation adoption in The Netherlands is appropriate for several reasons. Firstly, the IST allows for analysing the innovation process as a whole, taking into account the roles and interactions of various actors. This aligns with the research objective of understanding how public procurement influences innovation adoption on the market. Secondly, the IST recognizes the importance of demand-side policies, such as public procurement, in stimulating innovation (Edler & Georghiou, 2007). Examining procurement practices helps with understanding how government demand influences the market itself and the spread of innovation into the market. Lastly, the IST considers the impact of institutional structures and policies on innovation. This is relevant for analysing regulatory barriers and facilitators within the Dutch context.

With the IST as the main framework, the following literature review will inspect the current state of research on public procurement and innovation adoption.

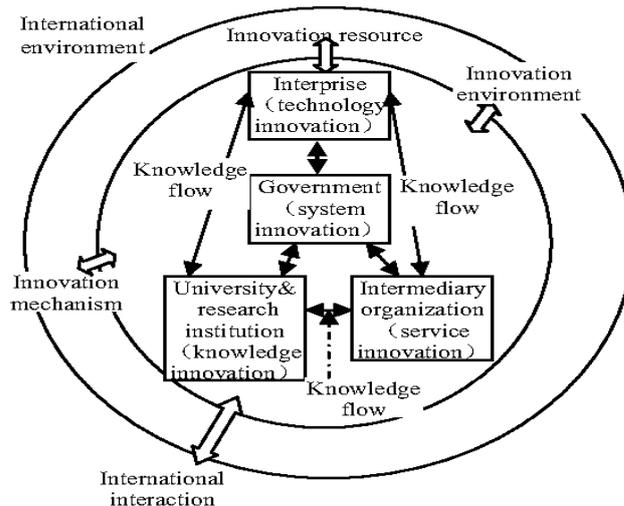


Figure 1: The Network Framework of the National Innovation System at the Core of Government (Qi, 2011).

3. LITERATURE REVIEW

3.1 Definitions and Key Concepts

Public Procurement of Innovation (PPI):

PPI is defined as the process where the public sector uses its purchasing power to acquire innovative goods and services that are not yet available on a large scale. This approach aims to create demand for technologies that are appearing, incentivizing the market to develop and adopt these innovations (Commission, 2023).

Innovation System Theory

As mentioned above, the IST explores the collaboration among key actors such as businesses, universities, and government bodies in encouraging technological development and economic growth (Edquist & Hommen, 1999). This literature review aims to gather information about the effects the different actors have on the market adoption of innovation when public procurement is involved.

After gathering information using desk research, different themes were identified. Desk research was performed using Scopus in addition to Google. Scopus was used to find papers whilst Google was useful for finding broader (news) articles about the subject. Examples of keywords that were used are "Innovation", "PPI", "Public Procurement", "Facilitators" and "Barriers".

Facilitators of Market Adoption of Innovation through Public Procurement:

Strategic collaboration with universities and public research institutes enhances firms' capabilities to develop and offer innovative solutions (Divella & Sterlacchini, 2018). Engaging in standardization activities can provide companies with a competitive edge in public procurement processes (Blind, Pohlisch, & Rainville, 2020). These collaborations and standardization efforts are important for creating a supportive environment for innovation.

Barriers to Market Adoption of Innovation through Public Procurement:

Several barriers hinder the effective use of public procurement for innovation. Institutional constraints, such as local politics and differing priorities, can hinder collaborative efforts (Walker, Schotanus, Bakker, & Harland, 2013). Public entities' risk aversion limits their willingness to adopt innovative procurement practices (Lember, Kalvet, & Kattel, 2011). Furthermore, complex and rigid regulations can delay procurement processes and the adoption of innovative solutions (Uyarra, Edler, García-Estévez, Georgiou, & Yeow, 2014).

Facilitators of Market Adoption of Innovation through Public Procurement	Strategic collaboration with universities and public research institutes enhances firms' capability to offer innovative solutions.	(Divella & Sterlacchini, 2018), (Polonsky & Gupta), (Broström & McKelvey, 2015)
	Engaging in standardization activities gives companies a competitive edge in public procurement.	(Blind et al., 2020), (Morone & D'Amato, 2019)
Barriers to Market Adoption of Innovation through Public Procurement	Institutional constraints such as local politics and differing priorities hinder collaborative public procurement.	(Walker et al., 2013), (Meehan, Ludbrook, & Mason, 2016)
	Public entities' risk aversion limits the willingness to adopt innovative procurement practices.	(Lember et al., 2011), (Uyarra et al., 2014)
	Complex and rigid regulations delay the procurement process and uptake of innovative solutions.	(Uyarra et al., 2014), (Uyarra, Zabala-Iturriagoitia, Flanagan, & Magro, 2020)

Table 1: Literature review table containing key findings with the associated theme.

The lack of literature in the Dutch context shows the need for a focused investigation into the said context. The following methodology section outlines the qualitative approach planned to be used to explore these themes.

4. METHODOLOGY

This thesis makes use of a qualitative research design to investigate the facilitators and barriers to successful innovation adoption through public procurement in the Netherlands. The methodology is centred around expert interviews, with the addition of secondary data to allow for a comprehensive analysis

of innovation projects that did and did not reach market wide adoption within the public sector. The reason a qualitative research method is appropriate for this study is that this complex issue does not have a black or white answer. Qualitative methods are suitable for researching complex issues, as they capture the details of experiences and perspectives of people. This methodology also works well with the IST, since it allows to focus on the interactions between key actors and organizational settings within the innovation system (Bogner, Littig, & Menz, 2009; Bowen, 2009; Cresswell, 2013).

4.1 Research Design

This study uses a qualitative approach, making use of expert interviews as the primary method of data collection. This approach is chosen to gather insights and experiences from individuals from actors in the IST, directly involved in or knowledgeable about public procurement and innovation projects. Expert interviews are a more efficient and concentrated way of gathering data, compared to observation and surveys (Bogner et al., 2009). The data collected from these expert interviews will be supplemented with secondary sources such as project documentation, government reports, academic literature, and media articles. This approach will ensure a complete analysis by reducing potential biases and providing a well-rounded perspective.

4.2 Selection and Sampling

The IST identifies different key market actors: Government, Interprise, University & research institutions and Intermediary organization (Figure 1). Experts from these key actors will be interviewed because they are the main players in the IST ecosystem. Their perspectives and actions are important, since it helps with understanding the interactions in the system and their effects on the diffusion of innovation. Contact information for these experts will be obtained through LinkedIn, official government directories, or organizational websites. Email invitations will be sent, outlining the study's objectives and why their participation is important.

By selecting experts from respected organizations and ensuring a variety of perspectives within the public procurement field by selecting experts from the different IST actors, this study aims to provide a detailed analysis of the main factors influencing the success of innovative procurement projects in the Netherlands.

Despite reaching out to multiple potential experts, only two agreed to participate, due to reasons like limited time and willingness to be interviewed. The two experts interviewed are:

An expert from PIANOo, the Dutch Public Procurement Expertise Centre. PIANOo describes itself as the following: "The Procurement Expertise Centre of the Ministry of Economic Affairs and Climate, has the task of professionalizing purchasing and tendering for governments. With an eye for legality and efficiency. Professional purchasing contributes to your policy and offers value for tax payers money." ("Over PIANOo," 2024). This expert has a unique position in the IST, since PIANOo is a research institution set up by the government for the Ministry of Economic Affairs and Climate, making it difficult to classify as either "Government" or "University and Research Institution". This interesting perspective can provide a different angle on the innovation process.

An expert from the Public Procurement Research Centre (PPRC). PPRC describes itself as the following: "The mission of PPRC is to develop and disseminate knowledge about public procurement. We combine scientific research with practice-

oriented research, advice and education. We disseminate the insights from our research through publications, lectures, training and interviews.” (“Over PPRC,” 2024). This expert is part of the “University and Research Institution” actor from the IST framework.

The interview with the expert from PIANOo was conducted using Microsoft Teams and was one hour long. The other interview, with the expert from PPRC, was around 45 minutes due to time constraints, and was held over the phone.

4.3 Data Collection

4.3.1 Primary Data Collection

Semi-structured interviews with selected experts will be conducted to gather qualitative data. The interview guide will be designed to explore the experts’ views on the effectiveness of public procurement in facilitating innovation, the challenges faced, and the factors contributing to the success or failure of specific projects. Semi-structured interviews provide a great way to combine real-world experience with tested research methods (Ahlin, 2019). The interviews are going to be recorded (with the participants’ consent) and subsequently transcribed using Microsoft Word. To help with the analysis, a Word add-on from DocTools is used to code the interviews. This tool allows for the addition of comments to specific parts of the transcript, which can then be exported into a separate document to create a table of codes and associated quotes (Appendix B). The interview protocol was designed as followed:

Background Information:

Understanding the interviewee's role and experience in public procurement.

General Views on Public Procurement and Innovation:

Assessing the role and impact of public procurement on innovation from the perspective of the interviewee.

Specific Examples and Experiences:

Collecting real-world examples of successful and unsuccessful innovation adoption through public procurement.

Facilitators and Barriers to Innovation Adoption:

Identifying key factors that promote or hinder innovation through public procurement.

Recommendations and Future Prospects:

Gathering expert suggestions for improving public procurement practices and future trends.

The detailed interview questions can be found in Appendix C.

4.3.2 Secondary Data Collection

To complement and validate the information received from interviews, a review of relevant secondary data will be done. This includes project documentation, government reports, academic literature, and media articles related to the selected public procurement projects. These sources will be found by using literature databases like Scopus and publicly available information using Google. By using two sources of data, in this case expert interviews and other relevant documents/reports, it will reduce the impact of potential bias (Bowen, 2009).

4.4 Data analysis

Transcribed interviews and secondary data will undergo thematic analysis. This method was chosen as it is a flexible and accessible method for identifying, analysing and reporting patterns from qualitative data (Braun & Clarke, 2012). Thematic analysis allows to systematically examine the data to answer the RQ. For this thesis, this means that the responses from the interviewees are examined in a way that ensures all of their answers are taken into account with the least amount of bias. This involved familiarization with the data, generating initial codes, searching for themes, and reviewing and defining these themes. Figure 2 illustrates the steps taken, with the detailed description from 4.4.1 onwards.

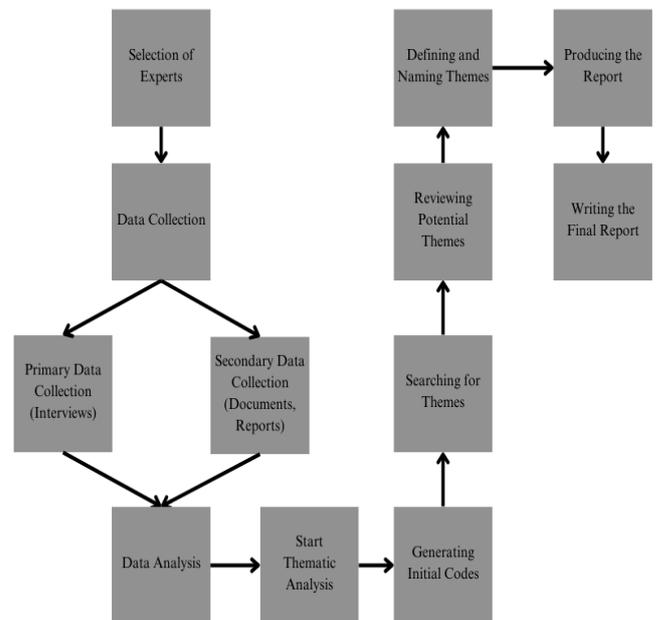


Figure 2: Flowchart of Methodology.

4.4.1 Familiarization with Data:

The initial step involved thoroughly reading and re-reading the transcribed interviews from the PIANOo expert and the PPRC expert to gain an in-depth understanding of their content. This step also included listening to the audio recordings multiple times to ensure no important details were overlooked. In addition, supplementary information was gathered from relevant literature and research papers, which were also read thoroughly to align interview insights with existing research. For example, information about projects the experts have mentioned to have a more complete image of the project itself.

4.4.2 Generating Initial Codes:

Each relevant segment of the interviews was coded, meaning relevant text was highlighted and labelled with descriptive codes. These codes represented basic elements of the data, such as "role of public procurement," "innovation inductive practice," "risk aversion," "barrier," etc. This was done in Word by adding codes using the comment function to the transcribed interview to the relevant quote with the aforementioned tool from DocTools. The

comments were exported to a separate document to create a clear overview of all that was said (Appendix B). Afterwards, codes were compared with the findings from relevant literature to ensure consistency and comprehensiveness. For example, “risk aversion” was mentioned in both interviews, but also in multiple other sources after comparing, making it a relevant code.

4.4.3 Searching for Themes:

Similar codes were grouped into broader themes. For example, codes related to the advantages of public procurement (such as “facilitator” and “innovation inducive practice”) were grouped into the theme “Advantages of Public Procurement for Innovation.”

By looking at the codes (Appendix B), there were three more themes to be identified by combining similar codes into one.

The code “Role of public procurement” created the theme: “Role and Impact of Public Procurement on Innovation.”

The codes “barrier”, “Innovation non-inducive practice” and “risk aversion” created the theme: “Barriers of Public Procurement for Innovation”.

The code “Effective policy” created the theme: “Effectiveness of Policies and Frameworks.”

Codes like “project” and “example” were not assigned to one theme, since they support multiple themes at once. The other codes that are assigned to one theme, can also be attached to another theme, but have the strongest connection with the theme they are assigned.

These themes were cross-referenced with secondary data from literature to check if the theme was of importance for public procurement and innovation adoption.

4.4.4 Reviewing Themes:

This involved reviewing the themes to ensure they accurately captured the meaning of the data. Some themes were refined or combined to better represent the data.

The identified themes were verified against existing research to ensure they were supported by other academics. This step involved checking if the themes like “Effectiveness of Policies and Frameworks” aligned with findings from studies on public procurement policies (Lember et al., 2011; Uyarra et al., 2014).

4.4.5 Defining and Naming Themes:

Each theme was clearly defined and named to ensure it was clearly fitting a specific aspect of the data. For example, “Role and Impact of Public Procurement on Innovation” was defined to explain how procurement influences innovation beyond just the economic factors.

Detailed descriptions of each theme were written to explain what each theme represents and how it contributes to understanding the RQ.

4.4.6 Producing the Report:

The final step involved integrating the themes into a coherent part that addressed the RQ. Each theme was linked back to the RQ and supported with direct quotes from the interviews and references to relevant literature.

4.4.7 Example of Quote-Code-Theme structure

Quote	Code	Theme
"Public procurement has a leading role in initiating new solutions that can later be adopted by private sectors" (PPRC, 2024).	Role of public procurement	Role and Impact of Public Procurement on Innovation
"Of course, governments do not always have the best reputation in this area as being super innovative or ahead of the curve. That is not always correct. It is not a law" (PPRC, 2024).	Barrier	Barriers of Public Procurement for Innovation
"Integrated contracts, which means that you do not instruct one agency to draw a road, and then another to do the maintenance." (PPRC, 2024).	Facilitator	Facilitators of Public Procurement for Innovation

Table 2: Various examples of how the interviews went from quotes, to codes, to themes (translated)

4.5 Report of the Thematic Analysis

This section presents the report of the thematic analysis of the interviews. The report further elaborates on the identified themes by quoting the interviewee and complimenting said theme with secondary data when found needed. Any quotes from the interviews used were translated from the original language, which is Dutch.

4.5.1 Main Themes Identified

4.5.1.1 Role and Impact of Public Procurement on Innovation

The respondents highlighted that public procurement plays a large role in driving innovation. They emphasized that innovation is often viewed not as an end goal but as a means to achieve broader objectives such as sustainability, inclusivity, and social responsibility. This aligns with the findings from studies showing that public procurement can create significant market demand for innovative solutions, and by that stimulating private sector investment and facilitating market-wide adoption (Aldenius & Khan, 2017).

For instance, the PIANOo expert noted:

"Innovation is a means to achieve market transformation towards more circular procurement and social goals such as diversity and inclusion" (PIANOo, 2024).

Similarly, the PPRC expert indicated that innovation procurement allows the government to leverage its purchasing power to influence the market positively:

"Public procurement has a leading role in initiating new solutions that can later be adopted by private sectors" (PPRC, 2024).

4.5.1.2 Facilitators of Public Procurement for Innovation

Several advantages of using public procurement to facilitate innovation were identified:

Market Demand Creation: When the government uses its purchasing power to request new solutions that aren't yet available, it creates a market demand that didn't exist before. This encourages companies to invest in developing these innovations because they know there is a buyer. As the PIANOo expert explained: *"The government has other questions. The government can challenge the market to create new things."* (PIANOo, 2024). For example, the Erasmus Medical Centre needed a new system to wash hospital beds efficiently. By procuring this innovative solution, they not only met their own needs but also encouraged the development of this technology for the wider healthcare sector. This demonstrates how government demand can drive innovation, as suggested by the IST.

Risk Mitigation: Developing new technologies involves risks, especially for smaller companies. The government can reduce these risks by being the initial buyer of an innovative product or service. This provides companies with a guaranteed market, making it less risky to invest in innovation. The PPRC expert noted: *"These are projects initiated by the government that are so risky that no private company would actually undertake them themselves."* (PPRC, 2024). By sharing the risk, the government supports companies in bringing new innovations to market. This aligns with IST's idea that supportive institutions are crucial for fostering innovation.

Resource Utilization: Governments have significant budgets for procurement, and by allocating part of these budgets to innovation, they can have a big impact. For instance, the Dutch government's procurement spending is €15.2 billion. If a small percentage of large projects is dedicated to innovation, as suggested by the PIANOo expert, it can promote significant advancements: *"For projects that are over €1 million, allocate 5% to an innovation budget to promote this."* (PIANOo, 2024). This strategic use of resources supports the development and scaling up of innovative solutions, which is important in the IST.

These points are verified by research indicating that public procurement can significantly influence the direction and pace of technological development, creating market demand for emerging technologies (Edler & Georghiou, 2007).

4.5.1.3 Barriers of Public Procurement for Innovation

Despite its advantages, public procurement faces several barriers in developing innovation:

Risk Aversion: Government entities often have a cautious approach, preferring safe, known solutions over new, untested ones. This risk aversion comes from concerns about potential failure, disapproval from the public, and the responsibility to use public funds wisely. The PIANOo expert pointed out: *"That is really quite a few steps too far for governments and that is in turn related to risk aversion."* (PIANOo, 2024).

Similarly, the PPRC expert noted that governments lack the market incentives that drive companies to innovate: *"Governments are often not as innovative as start-ups. Companies have a market incentive to innovate, which is lacking in governments."* (PPRC, 2024).

This reluctance to adopt new technologies limits opportunities for innovation to be tested and implemented. According to the Innovation Systems Theory, risk aversion disrupts the interactions and learning processes among actors in the innovation system, which are essential for innovation to spread (Edquist & Hommen, 1999; Lundvall, 2007). When government entities are risk-averse, they may be less likely to engage with innovative firms, share knowledge, or participate in collaborative projects. This disruption hinders the dynamic exchanges that drive innovation within the system.

Regulatory Constraints: Procurement regulations are often complex and rigid, creating obstacles for adopting innovative solutions. The bureaucratic procedures can be time-consuming and inflexible, discouraging both government agencies and suppliers from pursuing innovative projects. The PPRC expert commented:

"The percentage of assignments that come from outside the country's borders is very low. These rules have a bad reputation due to a lot of bureaucracy." (PPRC, 2024).

An example is the innovative noise barrier mentioned by the PIANOo expert. Its curved design did not fit the existing measurement standards, making it difficult to adopt:

"Due to the curved nature of this screen, it could not be measured properly." (PIANOo, 2024).

These regulatory constraints act as institutional barriers within the innovation system. IST suggests that for innovation to flourish, institutions need to be adaptable and supportive of new technologies.

Financial Limitations: Innovation projects often require long-term investment, but government budgeting cycles are usually short-term. This mismatch means that innovative projects may not receive the sustained funding they need to succeed. The PIANOo expert explained:

"You only know after years whether it can work out... Innovations last longer than this term." (PIANOo, 2024).

Without enough financial support over the necessary timeframe, innovative solutions may not reach the market or achieve their full potential. IST emphasizes that sufficient and sustained resources are essential for the innovation system to function effectively (Lundvall, 2007).

4.5.1.4 Effectiveness of Policies and Frameworks

The current policies and frameworks supporting public procurement were viewed as both enabling and restrictive:

Enabling: The legal frameworks contain various mechanisms, such as innovation partnerships and pre-commercial procurement, which can be effectively used to drive innovation.

Restrictive: Internal government policies and the vagueness of innovation agendas can delay the successful implementation of these frameworks.

Interview insights include:

"The procurement law offers many possibilities, but internal policies often fail to support these effectively" (PIANOo, 2024).

"Successful innovation procurement requires clear and actionable innovation agendas within governmental bodies" (PIANOo, 2024)

"The European-wide guidelines on how to procure can involve too much bureaucratic work, this can cause an innovative solution to not be chosen." (PPRC, 2024).

4.6 Secondary Research

Following the interviews, the secondary research phase was conducted to complement the data gathered from expert interviews. This is also known as desk research. This method gives more context and deeper understanding by comparing the data gathered by the interviews with existing data to find similarities. The desk research phase focused on analysing reports, academic articles, policy documents, and other relevant publications to complement and confirm the information received from the interviews. This was done using sites as Scopus for academic articles, and Google was used to find recent (news) publications as planned.

4.6.1 Key Findings from Secondary Research

4.6.1.1 Policy Frameworks and Guidelines

Different policy frameworks and guidelines at both the national and European levels support PPI. These frameworks provide clear and executable steps for integrating innovation into procurement processes. For example, the European Commission's guidelines on innovation procurement emphasize the importance of early market engagement and the use of pre-commercial procurement. This confirms the effectiveness of current policies as discussed by the PPRC expert (OECD, 2017; Semple, 2015; Tsanidis, 2020).

Effective policy frameworks can help innovation by providing a structured approach to procurement, ensuring that new technologies are adopted efficiently and effectively.

4.6.1.2 Barriers to Innovation Adoption

Despite the potential benefits, several barriers hinder the effective use of public procurement for innovation. These include risk aversion existing in public sector entities, complex regulatory environments, and financial constraints that limit long-term investment in innovative projects. This is consistent with the challenges identified in the interviews, particularly regarding the conservative mindset and strict regulations that can delay innovative projects (Georghiou et al., 2014; Marin, Marzucchi, & Zoboli, 2015).

Identifying these barriers helps understand how public procurement can hinder innovation. Addressing these barriers is necessary for improving procurement practices to better support the adoption of innovative solutions.

4.6.1.3 Case Studies and Examples

Case studies from various sectors illustrate how public procurement can successfully drive innovation. For instance, the procurement of renewable energy solutions by the Dutch government has not only enhanced sustainability but also stimulated market growth and technological advancements. This was also mentioned in the interviews, such as the example of the bed-washing system procured by the Erasmus Medical Centre, highlighted by the PPRC expert (OECD, 2017).

These examples show instances of how public procurement can facilitate the adoption of innovative solutions. Real-world cases provide evidence of successful strategies and outcomes, showing how specific procurement actions have led to the market adoption of new technologies. This directly answers the RQ showing effective practices and the conditions under which innovation grows through public procurement.

4.6.1.4 Role of Collaboration

Collaboration between government agencies, private companies, and research institutions is crucial for successful innovation procurement. Strategic partnerships and the integration of diverse expertise can improve the development and adoption of innovative solutions. This finding aligns with the PIANOo interview, which stressed the importance of involving all parts of the government and consulting the market (Uyarra et al., 2020).

Collaboration is a key facilitator because it brings together different stakeholders who can pool resources, knowledge, and expertise to overcome challenges and promote the adoption of new technologies.

4.6.1.5 Economic and Social Impacts

The economic and social impacts of public procurement are significant. By prioritizing innovative solutions, public procurement can increase economic growth, improve public services, and address societal challenges such as climate change. This was also highlighted in the interviews, where the role of public procurement in achieving broader societal goals like sustainability was discussed (Rolfstam, 2015; Uyarra et al., 2020).

This finding shows the broader impacts of public procurement on innovation adoption, showing its role in achieving economic and social goals. Understanding these impacts helps outline the ways in which public procurement can facilitate or hinder innovation.

The secondary research phase confirms and supplements the findings from the expert interviews, showing the great potential of public procurement to create innovation. It emphasizes the important role of strategic policy frameworks, collaborative work, and the need to address regulatory and financial challenges.

5. RESULTS

This section presents the findings of the study on how Dutch public procurement facilitates or hinders the market adoption of innovative solutions. Through the analysis of expert interviews and supporting documents, several key themes were discovered that found several facilitators and barriers within the Dutch public procurement system.

5.1 Facilitators of Innovation Adoption

5.1.1 Market Demand Creation

One of the primary ways public procurement facilitates innovation adoption is by creating market demand for new technologies. Government agencies, through their purchasing power, can stimulate innovation by requesting solutions that are not yet widely available. This demand encourages private companies to invest in research and development to meet these needs.

5.1.2 Risk Mitigation

Public procurement can reduce the risks associated with developing and introducing innovative products. By acting as an initial customer, the government provides a secure market for companies, particularly small and medium-sized enterprises (SMEs), allowing them to innovate with reduced financial uncertainty.

5.1.3 Resource Utilization

Allocating specific budgets within large procurement projects for innovation encourages the development of new solutions. By setting aside funds dedicated to innovative initiatives, the government shows its commitment to helping innovation grow and provides the necessary resources for it.

5.2 Barriers to Innovation Adoption

5.2.1 Risk Aversion

A significant barrier identified is the risk-averse nature of government entities. There is often a preference for established solutions over new, untested ones due to concerns about potential failures and accountability for public funds. This limits the adoption of innovative products and services.

5.2.2 Regulatory Constraints

Complex and rigid procurement regulations present challenges to innovation adoption. The bureaucratic nature of procurement processes can hinder both government agencies from looking for innovative solutions and suppliers from participating in public tenders due to the administrative work it comes with.

5.2.3 Financial Limitations

Financial limitations and the focus on short-term budgeting cycles hinder long-term investment in innovation. Innovative projects often require constant funding beyond typical budget periods, and the lack of financial mechanisms to support this can hinder the development and implementation of new solutions.

5.3 Effectiveness of Policies and Frameworks

While there are existing legal frameworks and policies intended to support innovation through public procurement, their effectiveness is mixed. The availability of mechanisms like innovation partnerships indicates a willingness to promote innovation. However, implementation gaps can hinder this. This occurs when there is a disconnect between the intent of a policy and the practical execution, often due to a lack of clear innovation agendas within governmental bodies. Another hindering factor is when the internal policy is not aligned with broader innovation goals, limiting the use of available procurement mechanisms designed to help grow innovation.

The study reveals that Dutch public procurement has the potential to significantly influence innovation adoption through market demand creation, risk mitigation, and resource utilization. However, barriers such as risk aversion, regulatory constraints, and financial limitations hinder this potential. The effectiveness of policies and frameworks depends largely on their implementation and alignment with internal governmental practices.

6. DISCUSSION

This research aimed to answer the question: "In which ways does Dutch public procurement facilitate or hinder the successful market adoption of innovative solutions?" The findings indicate that while public procurement in the Netherlands has large potential to drive innovation by creating market demand and reducing risks, several barriers such as risk aversion, regulatory constraints, and financial limitations hinder its effectiveness.

On the one hand, public procurement has significant potential to drive innovation. By leveraging their large purchasing power, government agencies can create market demand for new technologies. This demand encourages private companies to invest in research and development, knowing there is a willing customer for innovative solutions. Such actions align with the IST, which shows the importance of demand-side policies and the interactions between government, businesses, and research institutions in fostering innovation (Edler & Georghiou, 2007; Lundvall, 2007).

Furthermore, public procurement can reduce risks for private firms, especially SMEs. When the government acts as an initial customer, it provides a secure market, reducing the financial uncertainty associated with developing new products. This risk-sharing fosters an environment where companies are more willing to pursue innovative projects, enhancing the overall innovation system.

Allocating resources specifically for innovation is another way public procurement facilitates the adoption of new solutions. By setting aside dedicated budgets within large procurement projects, the government demonstrates its commitment to supporting innovation. This strategic allocation not only provides the necessary financial resources but also signals to the market the importance placed on developing and implementing innovative technologies.

However, despite these facilitating factors, there also are significant barriers that hinder innovation adoption through public procurement. A major obstacle is the risk-averse nature of government entities. There is often a preference for established proven solutions over new and untested ones due to concerns about potential failures and accountability for public funds. This cautious approach limits the willingness to explore innovative options and can slow down the introduction of new important technologies.

Regulatory constraints slow down the procurement process. Complex and rigid regulations create bureaucratic hurdles that can discourage both government agencies and suppliers from joining in innovative projects. The administrative burden that comes with these regulations can deter suppliers from participating in public tenders and can slow down the procurement process, making it less responsive to innovation.

Financial limitations and a focus on short-term budgeting cycles also deter long-term investment in innovation. Innovative projects often require constant funding beyond typical budget periods. Without financial mechanisms that support long-term commitments, promising projects may not receive the necessary resources to reach completion. This misalignment between the financial structures of government agencies and the needs of innovative projects hinders the development and implementation of new solutions.

The effectiveness of existing policies and frameworks made to support innovation through public procurement is mixed. While mechanisms like innovation partnerships exist and show a will to promote innovation, their impact is limited when there is a disconnect between the intent of the policy and the way it is

executed in practice. A lack of clear innovation agendas within governmental bodies and misalignment with larger innovation goals can prevent these policies from being effectively implemented. This shows the importance of not only having supportive policies in place but also making sure that they are aligned with internal practices and priorities.

These findings suggest that while Dutch public procurement has the potential to significantly influence innovation adoption, realising this potential requires addressing internal challenges. The risk-averse culture and complex regulations disrupt the effective interactions among actors within the innovation system, as shown in IST. Trust and open communication between government agencies and private companies are important for innovation growth, and these barriers can weaken that trust.

Comparing these results with existing literature reveals that the challenges identified are not unique to the Netherlands. Studies in other contexts have reported similar obstacles, such as risk aversion and regulatory constraints hindering innovation in public procurement (Lember et al., 2011; Uyarra et al., 2014). This indicates that the issues may be found in public procurement processes globally, showing the need for overall reforms to better support innovation.

Addressing these barriers involves several strategic actions. Encouraging a culture within government agencies that is more accepting of calculated risks can make them more open to adopting innovative solutions. Simplifying procurement regulations and reducing bureaucratic complexity can lower the barriers for both public entities and suppliers, helping with smoother cooperation in innovation procurement. Adjusting financial planning with the long-term nature of innovative projects is also important. Creating financial mechanisms that support constant investment can ensure that promising innovations receive the necessary resources over time.

Moreover, the alignment of internal governmental practices with larger innovation objectives is important. Clear and actionable innovation agendas within government bodies can fix the gap that now exists sometimes between policy intent and execution. When internal policies are consistent with innovation goals, it increases the use of procurement mechanisms designed to grow innovation and ensures that initiatives are carried out effectively.

In conclusion, this study shows that Dutch public procurement plays a dual role in facilitating and hindering the market adoption of innovative solutions. The government's ability to create market demand, mitigate risks, and allocate resources positions it as a powerful driver of innovation. However, internal challenges such as risk aversion, regulatory constraints, and financial limitations bring serious obstacles. By addressing these barriers and aligning procurement practices with innovation objectives, the Netherlands can improve the effectiveness of public procurement as a way to spread innovation, contributing to economic growth and social goals.

6.1 PRACTICAL IMPLICATIONS

The findings from this study give insights that can help improve public procurement processes and support the adoption of innovative solutions. One of the largest challenges identified is the government's tendency to avoid risks. Public procurement officials and policymakers should work on creating a more open environment where trying out new ideas is encouraged. A useful way to achieve this could be by starting with small pilot projects, allowing public agencies to test new solutions on a smaller scale before fully adopting them. This would reduce the risks and allow the government to learn from these trials before committing to larger investments.

Another issue that slows down innovation that was identified is the complexity of current regulations. Public agencies should simplify these processes, making it easier for innovative products and services to be procured. Revising procurement laws to include more innovation-friendly options, such as pre-commercial procurement or partnerships, could help. This would reduce the amount of bureaucracy and make it easier for both the public sector and suppliers to work together, speeding up the adoption of new technologies.

Financial limitations are the last identified key barrier to using public procurement to promote innovation. Currently, procurement cycles often do not match the longer timeframes needed for developing and scaling innovative projects (PIANOo, 2024). To fix this, governments should change their financial planning to better support long-term investments in innovation. One way to do this is by setting aside specific budgets within procurement contracts that are dedicated to innovation. This would ensure that there are funds available to support these projects beyond just the current budget cycle.

Collaboration between public agencies, businesses, and universities also plays an important role in making public procurement effective in driving innovation. Governments should focus on building strong partnerships and should consult with businesses and experts in the market before starting new procurement initiatives. By doing this, public agencies can make sure they are up to date with the latest developments in technology, and their procurement strategies can be better aligned with the needs of the market.

Once an innovative solution is proven successful, it is important for the government to scale it up. Often, small pilot projects do not grow because there isn't a clear strategy for expanding them. By scaling successful projects, governments can send a strong signal to the market, encouraging businesses to continue investing in innovation. Scaling up can also help make these solutions more affordable and accessible by creating economies of scale.

In addition to promoting technological advancements, public procurement should also focus on broader social goals, like sustainability and social inclusion. Governments have the power to shape markets by prioritizing sustainable and socially responsible products. For example, by focusing on green technologies, public procurement can support the global fight against climate change and promote social equity. This approach makes sure that public spending is used not just for economic growth, but also for addressing larger challenges in society.

6.2 THEORETICAL IMPLICATIONS

This study contributes to the IST as well as existing literature on facilitators and barriers to innovation adoption through public procurement.

Firstly, the study supports the IST view that market demand creation and resource utilization are important facilitators of innovation. These findings align with Edler and Georghiou (2007), who argue that demand-side policies like public procurement stimulate innovation by creating market demand. This study extends this understanding by showing how, within the Dutch context, government actions to generate demand encourage private companies to invest in research and development, helping innovation throughout the economy grow. This finding also adds on to Divella & Sterlacchini (2018), Polonsky & Gupta, and Broström & McKelvey (2015), who point out that strategic collaboration with universities and research institutes improves companies' capabilities to offer innovative solutions. By highlighting government-initiated

demand, this study shows that procurement can act as a bridge for collaboration between public and private sectors.

Secondly, this study adds new insights into barriers by focusing on the roles of risk aversion and regulatory constraints within public entities. The IST suggests that successful innovation relies on effective interactions among government bodies, private companies, and research institutions (Lundvall, 2007). The findings here are in line with Walker et al. (2013) and Meehan, Ludbrook, & Mason (2016), who noted that institutional constraints, such as differing priorities and local politics, hinder collaborative public procurement. This study builds on these insights by showing that risk aversion within Dutch government agencies not only limits collaboration but also creates an environment resistant to innovation. Risk aversion among public officials can prevent the adoption of innovative solutions, especially when projects appear costly or experimental. This is consistent with Lember et al. (2011) and Uyarra et al. (2014), who describe how reluctance to take risks can limit the willingness to adopt new procurement practices.

Furthermore, this study builds onto the findings from Uyarra et al. (2014) and Uyarra, Zabala-Iturriagoitia, Flanagan, & Magro (2020) about complex and rigid regulations as a barrier. Although previous studies indicate that strict regulations delay procurement processes and hinder innovation uptake, this study goes further by showing how, within the Dutch procurement system, these regulations not only slow innovation adoption but also discourage private companies from bidding due to added complexity and administrative burdens. This insight supports the argument that changing the regulations is essential to make public procurement more innovation-friendly.

Lastly, the theme of effectiveness of policies and frameworks indicates that existing policies can indeed support innovation procurement but often lack proper implementation. This aligns with the IST emphasis on supportive institutional frameworks (Edquist & Hommen, 1999). This study adds on to this understanding by highlighting the importance of having clear innovation agendas within government departments to ensure policies can be fully realized. Without these clear agendas, policies that theoretically support innovation may remain ineffective, as internal inconsistencies and misaligned priorities prevent them from fostering innovation adoption.

In conclusion, this study supports and expands on the IST, showing that demand-side policies are important for promoting innovation through public procurement. It also adds on to existing literature by showing how internal government barriers, like risk aversion and complex regulations, limit the effectiveness of these policies. Addressing these internal barriers and aligning procurement practices with strategic innovation goals are necessary steps for successful adoption of innovative solutions, providing both practical and theoretical insights that refine and advance the understanding of how public procurement can facilitate or hinder innovation.

6.3 LIMITATIONS

One limitation of this study is its reliance on qualitative data from a limited number of expert interviews. A more well-connected researcher may be able to access more experts and get them to agree for an interview. While the information gained is valuable, it is difficult to account for the diverse perspectives of all stakeholders involved in public procurement with the limited number of interviews. Additionally, the focus on the Netherlands may limit in how far one can apply the findings of this study to

other contexts and countries with different procurement practices and regulations.

6.4 FUTURE RESEARCH

Future research could address these limitations by using quantitative methods to validate the findings and extend the analysis to a broader range of stakeholders by increasing the number of interviews. Comparative studies across different countries could also help with providing a better understanding of how different regulatory and cultural contexts influence the effectiveness of public procurement in driving innovation. Further research on the impact of specific policy measures and frameworks on public procurement outcomes would also be valuable.

By addressing these areas, future studies can provide more complete insights into how public procurement can be optimized to facilitate the successful market adoption of innovative solutions.

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APPENDIX A

Interview PPRC (Dutch to English)

Part 1: Background information

Can you describe your current role and responsibilities?

[REDACTED]

How long have you been involved in public procurement or related areas?

[REDACTED]

Organizational background

Can you briefly describe your organization's involvement in public procurement?

Founded by the university.

What types of projects does your organization typically deal with?

Commissioned by public clients, ministry of health, municipalities, defence. How they can best purchase, how purchasing takes place, legal feasibility.

Part 2: General views on public procurement and innovation

Public procurement and innovation

How do you see the role of public procurement in promoting innovation?

We know that public organizations can play a very important role in terms of examples of major important innovations that come from this. Americans and Russians want to land on the moon, and these programs have been implemented by public agencies that no normal company could afford. Governments have an important role to initiate innovations without necessarily having a commercial promise. A completely different aspect is the method of purchasing innovations. Functional specification. In construction you have integrated contracts, which means that 1 company takes care of the entire process, including the maintenance afterwards. The way in which you tender an assignment.

What do you see as the key benefits and challenges associated with using public procurement to promote innovative solutions?

Functioning as an example, pursuing social objectives. Normal companies are all about profit and this is reflected in purchasing. Public purchasers have the responsibility to spend the money responsibly, but also to purchase so that no natural damage or human rights are violated. This also makes them more likely to stimulate innovation. Large purchasing volume.

Challenge: Governments are often not as innovative as start-ups. Companies have a certain market incentive to innovate, which is lacking in governments. Lack of knowledge of individuals in government who work in the private sector. Governments encourage fundamental research that does not immediately earn money. Government cannot take too many gambles because this can damage its reputation.

For companies, it is mainly about reputation and responsible purchasing, while for governments this must be demonstrated much better.

Policy and frameworks

How effective do you think current policies and frameworks (e.g. the European Commission's legal framework) are in facilitating innovative public procurement?

There are certain guidelines, i.e. laws, across Europe that state how member states must purchase. You must publish assignments with a certain volume so that entrepreneurs from other Member States can also bid with the idea that you will get the best clients. Hopefully also the most innovative. The percentage of assignments that come from outside the country's borders is very low. These rules have a bad reputation due to a lot of bureaucracy. These types of procedures are rarely used, you hear very good examples in lectures, but they are often the same. You buy into what you are familiar with, and you are reluctant to buy into what you are not familiar with.

Part 3: Specific examples and experiences

Successful projects

Can you give an example of a case where public procurement policies successfully promoted market acceptance of an innovative solution?

Erasmus medical centre has challenged the market to wash hospital beds. Beds were centrally located here. City Hall municipality set up circularly. Results-oriented financing in healthcare.

What factors contributed to the success of this project?

Spending a lot of time and discussing the needs and possibilities, a lot of coordination. To have the space as a buyer to do your thing. A lot of confidence, ability to adjust.

Challenges and barriers

Can you give an example of a project where public procurement hindered the adoption of an innovative solution?

Municipalities write many contracts stating what the market must deliver. They then write assignments as detailed as possible so that it is always good. But this hinders the possibilities for innovations. Excessive demands hinder this. Purchasing documents are full of requirements that are sometimes ill-considered and therefore not possible. Variants are not allowed, i.e. if something is offered that is slightly different it will not be accepted.

What were the main barriers or challenges in this case?

Demands that are too high, demands that are unnecessary. Apply procedure too strictly. Prescribing something too specific.

PIANoo Interview (Dutch to English)

Part 1: Background information

Can you describe your current role and responsibilities?

[REDACTED]

How long have you been involved in public procurement or related areas?

[REDACTED]

Organizational background

Can you briefly describe your organization's involvement in public procurement?

PIANoo is part of the Ministry of Economic Affairs, founded at the time of the construction fraud. Other governments must have a central point where other governments can gain access to procurement projects.

What types of projects does your organization typically deal with?

Provide information. Organize conference. Advice/network function. Create manuals.

Part 2: General views on public procurement and innovation

Public procurement and innovation

How do you see the role of public procurement in promoting innovation?

Innovation is not a goal but a means, transforming the market, circular purchasing. Achieving social goals. Diversity and inclusion. I see it as a triangle. The government has a social task, an exemplary function and has power through purchasing volume.

What do you see as the key benefits and challenges associated with using public procurement to promote innovative solutions?

Purchasing volume, achieving your legal duties as a government if there were no existing ones. The government has other questions. The government can challenge the market to create new things.

Challenge: risk aversion. How we are set up as a government, with annual instalments, and innovations last longer than this term. So, you only know after years whether it can work out.

Small business innovation research: government challenges companies to come up with innovation and business plans. You have to do market research to see who else is purchasing it besides the government. Example: anti-drone measures were purchased by more customers.

Policy and frameworks

How effective do you think current policies and frameworks (e.g. the European Commission's legal framework) are in facilitating innovative public procurement?

You can do a lot with the current purchasing frameworks, including what is stated in the procurement law or SBER or competition or living lab. The procurement law gives many possibilities. Many governments draw up an innovation agenda, if your agenda is too vague you cannot make a good make/buy decision. The problem often lies internally.

Section 4: Facilitators and barriers to innovation adoption

Facilitators

What factors do you believe are crucial in facilitating the successful market adoption of innovation through government procurement/public procurement?

Need someone in the project team who ensures that all parts of the government are involved, form an organization, and take an integrated approach. Get everyone involved. Sometimes someone is given a budget to do something and it falls apart. There are often more bottlenecks than it would not be legally possible to do. It is very important to know your market, do market consultation well, good buyers who know that market, if you know what is there you also know what needs to be purchased.

Barriers

What do you consider to be the biggest obstacles to the successful application of innovative solutions in public procurement?

The power of innovation-oriented purchasing is not seen enough and people still know too little about it. The municipality of Amsterdam is very good at innovative purchasing. Often too risk averse. Innovation agenda often vague and impossible to implement. Compartmentalization, budget

How do institutional constraints, risk aversion and regulatory complexity impact the process?

Complexity of the regulations: innovative noise barrier, all standards to record decibels. A few years ago, a company came up with an innovative noise barrier. Due to the curved nature of this screen, it could not be measured properly.

In healthcare white coats, more sustainable solutions cannot be solved due to the strict requirements.

Start the conversation and look for possibilities.

Section 5: Recommendations and future prospects

Improving public procurement

Based on your experience, what recommendations would you make to improve public procurement practices and better support innovation?

Of projects that are >\$1,000,000, give 5% to innovation budget to promote this.

How can policymakers and practitioners address the barriers you identified?

Start a conversation with each other and look for solutions, internally and externally, stakeholder analysis. If you are looking for innovation that will not be ready for another 3 years, make sure that the rules have been adjusted and that it is possible.

Future trends

What future trends do you foresee in the field of public procurement and innovation?

More towards strategic purchasing, greener, innovation to achieve those goals. Many sector-oriented regulations from the EU, which also say a lot about government procurement. More collaboration.

How should public procurement adapt to these trends to remain effective in promoting innovation?

Smaller contracts are often awarded, but scaling up is often lacking. Go further, because then other market parties can really see the effect and be convinced of the effect sooner. You should do much more to utilize your purchasing power, so that you can purchase them yourself. Use the budget you now have for subsidies for purchasing, companies are more interested in an assignment than a subsidy.

Conclusion

Final thoughts

Is there anything else you'd like to add that we haven't covered?

Innovation in large projects, concrete innovation agendas. separation, both internally and externally. More generally, ensure focus, by which I mean the top sector policy in the Netherlands, we consider these sectors important, then ensure that these sectors receive tenders instead of subsidies.

APPENDIX B

Coded PPRC interview

Page	Line	Comment scope	Code	Theme
9	23	Allerlei innovaties uit voortkomen of de opzet van het internet hè? Dat zijn projecten die gewoon door de door de overheid gestart worden die zo risicovol zijn dat eigenlijk geen private onderneming daar zich zelf zomaar aan zou aan zou wagen. Uitzonderingen daargelaten Als je de idel buskes van de wereld bent.	Role of public procurement	Role and Impact of Public Procurement on Innovation
9	32	Nou ja, zeg maar innovaties het scheren en soms ook dus in te kopen Zonder dat er gelijk in 1 grote hè? Dat dat het gelijk in grote commercieel de grote commerciële belofte in zich heeft.	Role of public procurement	Role and Impact of Public Procurement on Innovation
10	22	Geïntegreerde contracten, dat wil zeggen dat je niet het ene bureau de opdracht geeft om een weg te laten tekenen.	Facilitator	Advantages of Public Procurement for Innovation
10	29	Volgende opdracht geeft om de weg te Laten bouwen en het derde bouwbedrijf opdrachtgever op de weg te onderhouden. Maar Als je dat nou allemaal in een hand geeft in een opdracht stond, dan gaat de ontwerper Misschien al nadenken, hè? Als de ontwerper ook op bouwen?	Facilitator	Advantages of Public Procurement for Innovation
12	13	Ook een voorbeeldfunctie, en.	Role of public procurement	Role and Impact of Public Procurement on Innovation
13	15	Overheidsgeld zo efficiënt mogelijk uitgeven, belastinggeld zo efficiënt mogelijk uit te geven. Maar daarnaast mag je van een overheid ook verwachten dat ze aan geen dingen doet waar	Role of public procurement	Role and Impact of Public Procurement on Innovation

Page	Line	Comment scope	Code	Theme
		het milieu onevenredig door geschaald wordt of waar de de mensenrechten door worden overtreden. Nou, vanuit die rol liggen er meer verantwoordelijkheden.		
13	26	Er zullen dus Misschien ook sneller geneigd zijn om om daarin ook ook innovatie te stimuleren, Omdat innovaties niet Alleen precies niet meer winst opleveren, maar ook wel andere doelstellingen dichterbij brengen.	Facilitator	Advantages of Public Procurement for Innovation
14	1	Je denkt dat dat een vooroordeel is? Ja, je overheden hebben Natuurlijk 1 grote inkoopvolume, dus ze hebben ook. Ze kunnen ook het verschil maken. Dat geldt voor hele grote ondernemingen Natuurlijk ook, maar Misschien wel minder voor ja. Gemiddelde midden en klein bedrijf.	Facilitator	Advantages of Public Procurement for Innovation
14	16	Voor het risicoavers zijn	Barrier	Barriers of Public Procurement for Innovation
14	19	Overheden hebben op dat vlak Natuurlijk ook niet altijd de beste reputatie als als in dat super innovatief zijn of voorlopen. Dat is niet altijd terecht. Het is geen wetmatigheid.	Barrier	Barriers of Public Procurement for Innovation
15	14	Als we dit gaan uitgeven en we weten niet zo goed of het wel gaat opleveren hè, kunnen we dat wel maken? De ene kant heb je.	Barrier	Barriers of Public Procurement for Innovation
15	18	Zie je dat overheden heel veel fundamenteel onderzoek stimuleren waar niet gelijk bij die niet gelijk terugverdient? Dat zijn, dat zijn vaak midden In de grond. Dat kun je ook In de grote projecten zijn en de projecten die zich ook niet per se gelijk hoeven terug te vertalen	Facilitator	Advantages of Public Procurement for Innovation
15	31	Ja zou je zou je Misschien zeggen dat de overheid, Omdat ze Natuurlijk ook goed met het geld van Natuurlijk wat belastinggeld om moeten	Barrier	Barriers of Public Procurement for Innovation

Page	Line	Comment scope	Code	Theme
		gaan, dat ze het ook niet helemaal altijd kunnen permitteren om Alleen innovatieve dingen te doen, Omdat anders Als het misgaat.		
16	15	Er gaan nog wel eens dingen mis met de overheid. Dat kan ook een reputatie schalen en daar kunnen ze ook op worden afgerekend, hebben we inderdaad de overheid? Nou ja, zeg maar, gaat speculeren of of teveel risico's neemt. Daar worden ze.	Barrier	Barriers of Public Procurement for Innovation
17	11	Dat ze de koers oploopt mooier voorspiegelen dan het echt is. Maar ja, bij overheden die die daar wordt toch wel voorbeeldgedrag op allerlei vlakken ballen verwacht dus, die hebben ook al wel heel veel. 00:14:58 Speaker 1 En dat kan zowel het driver als een als een Barrier als voor innovatie zijn dat ze al zoveel. 00:15:08 Speaker 1 Zaken moeten meewegen en meenemen als ze gaan inkopen.	Facilitator/barrier	Advantages of Public Procurement for Innovation
20	8	Die aanbestedingsregels hebben in die zin ook wel een slechte reputatie.	Barrier	Barriers of Public Procurement for Innovation
21	8	Het innovatiepartnerschap allerlei dingen rondom public procurement of Innovation, allerlei zeg maar mogelijkheden om binnen de regelgeving toch innovatieve zaken in te kopen. Ook zaken die toch nog niet eens op de markt beschikbaar zijn, die dus in het kader van een inkoop Misschien wel ontwikkeld moeten worden. Dus dus ene kant voorziet het beleid wel in.	Facilitator	Advantages of Public Procurement for Innovation
21	17	Tegelijkertijd zien we dat dat dat soort procedures heel erg weinig worden ingezet, hè? Als je daar lezing gaat over publieke inkoop van innovatie, dan krijg je een paar	Barrier	Barriers of Public Procurement for Innovation

Page	Line	Comment scope	Code	Theme
		hele goede voorbeelden te horen. Maar Als je naar naar nog 9 lezing die gaat, dan krijg je wel 9 keer dezelfde voorbeelden weer dus zijn een paar goede bekende voorbeelden. Maar volgens mij Als je gaat optellen, dan is het dan zijn het er uiteindelijk niet zo heel veel.		
22	11	Waar waar je bekend mee bent dat dat gebruik je en waar je niet bekend mee bent, hè? Dat dat vinden we toch maar maar lastig.	Barrier	Barriers of Public Procurement for Innovation
24	24	Gans dat Erasmus Medisch Centrum of in ieder geval een ziekenhuis op een gegeven moment keer een innovatieve manier aan de markt heeft uitgedaagd problemen voor ze op te lossen. Namelijk het wassen en weer hygiënisch maken van ziekenhuisbedden, hè? Als iemand in een ziekenhuis heeft gelegen op een bed.	Project	/
25	23	Ja, de andere was volgens mij dat het stadhuis van een kleine gemeente in het Oosten of het midden van het land, die heel sterk circulair opnieuw werd opgezet. Heel, nou ja, zolang het weinig impact voor het milieu...	Example	/
26	27	Dat iets gaat opleveren en dat wordt dan met veel tantam gepresenteerd, hè? Dan dat dat bepaalde manier van zorg financieren, bijvoorbeeld. Nou ja, efficiëntie zou zouden stimuleren. Zorgen gebruiken zou moeten afnemen, meer naar de groep van preventie van problemen en ziektes gaat gaat veroorzaken over gaat zorgen. Maar dat zijn heel vaak dingen die meer theoretisch worden verondersteld dat ze graag gebeuren en In de praktijk.	Barrier	Barriers of Public Procurement for Innovation
27	22	Vaak zie je dat Als je echt wat wil innoveren dat dat veel tijd uit te trekken om tussen opdrachtgever en opdrachtnemer.	Facilitator	Advantages of Public Procurement for Innovation

Page	Line	Comment scope	Code	Theme
27	26	Heel uitvoerig overleggen en vast te leggen en te bepalen, wat is de behoefte, wanneer is het een succes, hè, wat wat, wat zijn de mogelijkheden? Ik denk dat dat dit zijn als er echte innovatie voor Duitsland een lijst van inkoop, dan dan is er veel overleg nodig. Veel afstemming tussen de de betrokken partijen om de ruimte te krijgen om de ruimte te bieden als inlopen en of dat een goede ruimte te nemen. En wat topmodel.	Facilitator	Advantages of Public Procurement for Innovation
28	3	Dat vraagt vertrouwen ook in elkaar, dat vraagt.	Facilitator	Effectiveness of Policies and Frameworks
28	21	Het vergt een bepaald vertrouwen in elkaar dat je met je gaat. Allebei grote investeringen waarden als als overheid. Je weet niet zo goed Als je echt heel innovatief trainen gaat. Je weet niet zo goed wat er uitkomt. Je kunt niet helemaal specificeren, want wat je precies krijgt want, want het moet voor een deel nog ontwikkeld of uitgewerkt worden en dan dan heb je. Dan moet je er een partij bij zoeken waar je wel het vertrouwen van hebt van nou die die gaat dit wel aankunnen en je, Je kunt niet alles.	Innovation inducive practice	Advantages of Public Procurement for Innovation
28	32	Uitwerken en uitschrijven dus. Je moet ook vooral de processen zo inrichten dat je tussentijds met elkaar kan bijsturen. Als er onverwachte dingen gebeuren. Ja, dat zal mijn eigenschappen, die ook In de zorg, maar ook daarbuiten dat dat maakt dat je elkaar moet vertrouwen. En Als je daar ook een proces moet inricht waarin dit ook mogelijk is, hè, Je kunt, Je kunt zo een zo een aanbesteding of zo een.	Innovation inducive practice	Advantages of Public Procurement for Innovation
29	8	Niet simpelweg in een standaardprocedure gieten waarin je eigenlijk Alleen nog maar via offertes en en schriftelijke vragen met elkaar communiceert.	Innovation non-inducive practice	Barriers of Public Procurement for Innovation

Page	Line	Comment scope	Code	Theme
29	24	Zeg maar van projecten waar inderdaad ook waar gebeurd is, maar een hele bekende is wel kijk gemeentes schrijven veel en die gaan heel vaak zelf bedenken en opschrijven wat ze willen hebben. Dus dan schrijven ze een opdracht of AC niet uit. Dat beschrijven ze wat wat de de markt moet leveren en daar schrijven ze. Daar zijn ze vaak een beetje zo van, nou ja, Laten we maar zo uitvoerig mogelijk eisen opstellen.	Barrier	Barriers of Public Procurement for Innovation
29	32	Baat het niet, dan schaadt het ook niet en dat gaat niet door heel vaak. Dan moet je maar eens nota's van inlichtingen van de aanbesteed door doorspitten. Heel vaak staan daar eisen in die soms helemaal niet goed doordacht zijn. Dan worden ze dan soms ook door marktpartijen nog wel in het proces van de aanbesteding om gewezen, maar die de mogelijkheden voor een innovatieve oplossing echt In de weg kunnen.	Barrier	Barriers of Public Procurement for Innovation
30	15	Door Mensen met dit opleidingsniveau in deze en deze dit diploma. Nou, soms zijn er ervaringsdeskundigen die zelf iets hebben meegemaakt die een hele waardevolle rol kunnen spelen bij het leven geval. Ondersteuning en zorg die uitgesloten worden door zo'n eis. Nou, Dat is terwijl dat er Misschien ook wel een hele innovatieve manier van zorg.	Barrier	Barriers of Public Procurement for Innovation
31	5	Ja dus in In de opdracht voor staat ook heel vaak in een inkoopdocument. Varianten zijn niet toegestaan, dus dat wil zeggen dat dat als een aanbieder net iets anders aanlevert dan strikt gevraagd wordt, hè wat wat in het?	Barrier	Barriers of Public Procurement for Innovation
31	10	Ja opinie van de leverancier mogelijk veel veel betere oplossingen zou zijn of een goedkopere oplossing. Waar staat heel vaak varianten te zijn. Niet toegestaan ja, dan dan. Dan kun je dus ook, dan	Barrier	Barriers of Public Procurement for Innovation

Page	Line	Comment scope	Code	Theme
		kun je dus hè. Dan dan kun je Alleen maar leveren, want de schrift gevraagd wordt terwijl de variant Misschien wel net.		
33	15	Of dan gaan ze niet het merk voorschrijven, maar dan gaan ze de specificaties van een bepaald merk uit de treure voorschrijven, wat eigenlijk niet meer anders kan dan dat specifieke merk.	Innovation non-inducive practice	Barriers of Public Procurement for Innovation
34	9	Kanaal graven boot inleggen waar met een veerpont. Dan ontstaan er veel meer mogelijkheden. Nou en dat dat functioneel specificeren dat dat dat maakt dus innovaties mogelijk, Maar dat vinden aanbidders of dat vinden de gemeentes ook wel weer heel lastig. Dat is ook wel heel lastig, maar dus technisch specificeren en specificaties te specifiek zijn is ook wel een factor.	Innovation-non-inducive practice	Barriers of Public Procurement for Innovation
36	12	Nou, Ik denk dat het begint bij kennisvergroting, dus zorg dat je bewust wordt van de mogelijkheden doet inkoop biedt ook de instrumenten hè? Er was heel vaak gedacht dat dat dat.	Recommendation	Effectiveness of Policies and Frameworks

Coded PIANOo interview

Page	Line	Comment scope	Code	Theme
7	10	Dat is een van de belemmeringen dat het risicoloos heid	Barrier	Barriers of Public Procurement for Innovation
9	26	inkoopvolume.	Benefit	Advantages of Public Procurement for Innovation
9	32	behalen van je wettelijke taak als overheid.	Role of public procurement	Role and Impact of Public Procurement on Innovation
10	3	Omdat soms Er zijn geen soms zijn er dingen niet voorhanden In de markt, dan heb je jouw marktonderzoek gedaan en dan is het er gewoon niet, maar	Role of public procurement	Role and Impact of Public Procurement on Innovation

Page	Line	Comment scope	Code	Theme
		je bent het wel inkopen. En dan?		
11	18	voortrekkersrol	Role of public procurement	Role and Impact of Public Procurement on Innovation
13	15	Small business Innovation Research	Facilitator	Advantages of Public Procurement for Innovation
14	6	overheid kan vaak maar wat wat breder kijken dan dan voor een eigen organisatie Alleen	Facilitator	Advantages of Public Procurement for Innovation
14	30	risicoaversie.	Risk aversion	Barriers of Public Procurement for Innovation
15	1	opgezet zijn qua financiën werken heel vaak met met jaars schrijven en innovaties duren gewoon een paar jaar en je weet niet of je ook over 3 jaar nog geld hebt om iets in te kopen wat je kan Laten ontwikkelen. Dat, Dat is een probleem,	Barrier	Barriers of Public Procurement for Innovation
15	9	Dat is risicoaversiteit,	Risk aversion	Barriers of Public Procurement for Innovation
16	19	Andere dingen die Ik kan kan gebruiken, zoals prijsvraag Natuurlijk of living labs daar functioneel specificeren. Daar biedt de de de aanbestedingswet en.	Effective policy	Effectiveness of Policies and Frameworks
16	33	Als je dat niet goed verwoord hebt in je innovatieagenda Als je innovatieagenda de vraag is, dan kon. 0:19:5.490 --> 0:19:26.410 Broekhuizen, mr. drs. R.C. (René) En die die vraag heel vaak vooruit schuift dan dan komt het niet. Komt het niet van de grond, dus Ik denk dat het vooral meer in interne regels zit en intern beleid dan dat ja noem iets radicaals dat je de aanbestedingswet erop moet aanpassen. Eigenlijk zouden overheden vooral.	Barrier	Barriers of Public Procurement for Innovation
17	12	Als je als gaat over meer dan dan een miljoen, had je daar 5% of voor aan innovaties uitgeeft bijvoorbeeld.	Recommendation	Effectiveness of Policies and Frameworks
21	16	Nou, dan heb je in ieder geval iemand nodig in je projectteam	Necessity	Effectiveness of Policies and Frameworks

Page	Line	Comment scope	Code	Theme
		die zorgt dat alle partijen nee alle onderdelen van Van de overheid dat die betrokken worden. Weet je, iemand hebt bij bestuursdienst.		
22	10	En dan gaat die dingen uitwerken en uiteindelijk zegt, zegt een wethouder of een andere bestuurder van, ja, maar dit gaan we helemaal niet doen. Of het komt uiteindelijk bij een bij de inkoop afdeling die zeggen, ja, maar wij kunnen dit helemaal niet.	Barrier	Barriers of Public Procurement for Innovation
22	15	Dus Het is belangrijk om ja, dat integraal aan te pakken.	Necessity	Effectiveness of Policies and Frameworks
23	31	tweede punt wat ik aan het toevoeg is dat het heel belangrijk is om ook je markt te kennen.	Necessity	Effectiveness of Policies and Frameworks
24	34	Het belangrijkste is dat de kracht van innovatiegericht inkopen. 0:27:5.420 --> 0:27:9.450 Broekhuizen, mr. drs. R.C. (René) Dat die te weinig wordt gezien, te weinig wordt onderkend.	Barrier	Barriers of Public Procurement for Innovation
25	9	En dan zowel ambtelijk bestuurlijk als politiek daar nog gewoon te weinig van Van weten.	Barrier	Barriers of Public Procurement for Innovation
26	20	Overheden hebben vaak in een innovatieagenda, maar die is dan vaak de abstracte vraag.	Barrier	Barriers of Public Procurement for Innovation
27	6	Maar wat je wat je zelf doet aan innovaties en niet zozeer wat je wat je inkoopt en waar je de markt voor uitdaagt en derde stap is, wat er dan op de markt gebracht wordt, zodat andere marktpartijen dat ook weer in kunnen kopen? Dat is echt best wel best wel een paar stappen te ver voor overheden en dat hangt dan weer Samen met die risico aversie en Misschien ook wel met de verkokering en.	Barrier	Barriers of Public Procurement for Innovation
29	32	Maar een jaar of 8 geleden of zo kwam een bedrijf met meer innovatie, innovatieve vorm en Het was, dan weet niet hoe	Barrier	Barriers of Public Procurement for Innovation

Page	Line	Comment scope	Code	Theme
		<p>dat precies heet, maar dan is dat het geluid afgebogen werd.</p> <p>0:33:10.570 --> 0:33:15.130 Broekhuizen, mr. drs. R.C. (René)</p> <p>Maar ja, daar waren dus helemaal geen voorschriften voor, dus die past helemaal niet in.</p>		
30	20	<p>Dat soort jassen kunt leveren die op een innovatieve manier meneer vriendelijker zijn, het duurzamer zijn.</p> <p>0:33:54.110 --> 0:33:55.660 Broekhuizen, mr. drs. R.C. (René)</p> <p>En die voldoen niet aan alle eisen.</p> <p>0:33:57.470 --> 0:33:57.860 Broekhuizen, mr. drs. R.C. (René)</p> <p>Dan.</p> <p>0:33:59.220 --> 0:34:1.350 Broekhuizen, mr. drs. R.C. (René)</p> <p>Ja dan worden ze dus ook bijvoorbeeld niet ingekocht.</p>	Barrier	Barriers of Public Procurement for Innovation
32	18	<p>Ja gewoon gewoon gewoon het gesprek aangaan het met dat soort clubs.</p>	Recommendation	Effectiveness of Policies and Frameworks
34	6	<p>Ja en dat hangt dan ook weer Samen met wat ik hier zei Van ja, Je moet dan in intern die samenwerking goed opzoeken, maar ook weten wie er allemaal gewoon je stakeholderanalyse goed te maken van tevoren met wie je denkt te maken te krijgen en daar ook vast het gesprek mee aangaan van wat is er mogelijk en wat is er niet mogelijk? Want Als je nou nadenkt over een innovatie en dan komt over 3 jaar pas op de markt, zorg dan ook dat dat je ja regelgeving daarvoor ook.</p>	Necessity	Effectiveness of Policies and Frameworks
34	34	<p>Meer gaan naar strategisch inkopen, dus dat de groene de sociale Thema's bij elkaar komen en Iedereen ondersteund worden door innovaties dat. En Dat is ook wel de kracht ervan dat niet innoveren om te innoveren, maar innoveren om juist ja, die andere.</p>	Recommendation	Effectiveness of Policies and Frameworks

Page	Line	Comment scope	Code	Theme
36	22	Ook ja, Misschien om iets anders aan te stippen. Vaak worden er kleinere opdrachten gegund van. Nou We zijn lekker bezig met innovaties, maar Als je er echt wat mee wil, moet je als overheid gewoon opschalen.	Recommendation	Effectiveness of Policies and Frameworks
37	16	Meer doorpakken, want dan heb je als aanbiedende innovatiegerichte marktpartij. Heb je daar nou? Je heb je ook een perspectief, want je kan er heel veel r en D doen en dan iets iets ontwikkelen en dan maar afwachten wat de overheid ermee gaat doen Als je als overheid meer stellig bent van Als het werkt, dan gaan we het ook groter inkopen dan.	Recommendation	Effectiveness of Policies and Frameworks
38	5	Hebben het voor je inkoopkracht, want het voordeel daarvan is dat Als je innovaties op de markt Als je innovaties uitloopt, dat je dus ook zelf kan kan inkopen en dat je dan noem, maar wat wat.	Facilitator	Advantages of Public Procurement for Innovation
38	13	Weet je dat veel beter kan gebruiken voor voor voor inkoop subsidies? Ja, Als je nuttige In de lagere the RL levels om dingen te te ontwikkelen, maar. 0:42:15.330 --> 0:42:19.360 Broekhuizen, mr. drs. R.C. (René) Bedrijven zitten meer te wachten op een opdracht van op een subsidie of het algemeen.	Recommendation	Effectiveness of Policies and Frameworks
39	17	Er gezegd, ja, in ieder geval dat dat dat innovatiebudget dat je dat bij grote grote grote projecten zou moeten doen. Dat vind ik het belangrijke en dat de concrete innovatieagenda 's komen. Dat vind ik ook dat je als overheden goed.	Recommendation	Effectiveness of Policies and Frameworks
39	22	Goed intern extern samenwerkt en ja, en ook die ontschotting daarin.	Recommendation	Effectiveness of Policies and Frameworks
40	9	Als je als als bijvoorbeeld als AZK zegt vanuit het zeg je dan van deze sectoren vinden we belangrijk, zorg dan er ook voor dat je zelf een andere	Recommendation	Effectiveness of Policies and Frameworks

Page	Line	Comment scope	Code	Theme
		overheden daar ook overheidsopdrachten voor geeft.		

APPENDIX C

Interview questions

1. Interview Questions

The interviews aimed to gather insights on the role of public procurement in promoting innovation, the challenges encountered, and the effectiveness of current policies and frameworks. Below are the questions asked during the interviews and why they were chosen:

2. Background Information

Can you describe your current role and responsibilities?

This helps with understanding what the interviewee does and their involvement in public procurement, which shows from what perspective their insights are.

How long have you been involved in public procurement or related areas?

Knowing the interviewee's experience helps assess their knowledge and perspective. This extra information may explain a difference in opinion between experts that are newer in the field and experts that have worked longer.

Can you briefly describe your organization's involvement in public procurement?

This clarifies what the organization does in public procurement, providing context for the interviewee's answers.

3. General Views on Public Procurement and Innovation

How do you see the role of public procurement in promoting innovation?

This explores the interviewee's view on how important public procurement is for encouraging innovation.

What do you see as the key benefits and challenges of using public procurement to promote innovative solutions?

This identifies both the positive aspects and the obstacles in using public procurement to drive innovation into the market.

How effective do you think current policies and frameworks (e.g., the European Commission's legal framework) are in supporting innovative public procurement?

This evaluates how well current rules and policies help public procurement encourage innovation roll-out.

4. Specific Examples and Experiences

Can you give an example of a successful project where public procurement helped an innovative solution become widely used?

This gathers real examples showing how public procurement effectively promoted innovation.

What factors contributed to the success of this project?

This follow-up question identifies specific reasons why the project succeeded, giving practical insights.

Can you give an example of a project where public procurement hindered the adoption of an innovative solution?

This asks for instances where influence of public procurement blocked innovation.

What were the main barriers or challenges in this case?

This follow-up question explores the specific problems that caused the failure or blockage, helping identify areas for improvement.

5. Facilitators and Barriers to Innovation Adoption

What factors do you believe are crucial for the successful adoption of innovation through public procurement?

This question tries to identify key elements that promote innovation adoption, giving insights into best practices.

How do institutional constraints, risk aversion, and regulatory complexity impact the process?

This explores how rules and organizational behaviors affect the success of public procurement in encouraging innovation.

6. Recommendations and Future Prospects

Based on your experience, what recommendations would you make to improve public procurement practices and better support innovation?

This question collects expert suggestions on how to make public procurement more supportive of innovation roll-out.

What future trends do you foresee in the field of public procurement and innovation?

This identifies new trends and future directions that could affect public procurement strategies.

How should public procurement adapt to these trends to remain effective in promoting innovation?

This follow-up question focuses on practical steps to align public procurement with upcoming trends and challenges.

These questions were designed to get detailed and useful responses, helping to understand how public procurement can better promote innovation roll-out.