BUILD
Building Capacities in Innovation Procurement for Cities

D2.1 BUILD Insights Report

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#	Participant Organisation Name	Short Name	Country
1	PEDAL CONSULTING SRO	PEDAL	SK
2	CIVITTA EESTI AS	CE	EE
3	CITY OF TURKU	Turku	FI
4	VARSINAIS-SUOMENLIITTO	Valonia	FI
5	TARTU LINN	Tartu	EE
6	GEMEENTE ROTTERDAM	ROTTERDAM	NL

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List of Abbreviations and Acronyms	
EC	European Commission
EU	European Union
PCP	Pre-Commercial Procurement
PPI	Public Procurement of Innovation
SMEs	Small and medium-sized enterprises

1. Methodology

The information presented in this report was gathered during the **knowledge exchange webinars** held between the procurement specialists of Rotterdam (The Netherlands), Tartu (Estonia), and Turku (Finland) cities and Valonia, a public expert agency in Southwest Finland. The seminars were conducted online, in December 2022. Participants were asked to share their knowledge and experiences in the following topics:

1) Presentation of the legal framework and the practice of conducting innovation procurements on regional level:
   - The legal basis for conducting innovation procurements in your country.
   - How are the innovation procurements encouraged in your country/region, if applicable?
   - An estimated share of innovation procurements in all procurements in your city and why such a proportion.
   - What are the challenges for conducting innovation procurements in your city and how have you addressed these challenges?
   - Which methods/procedures have been used in your city to conduct innovation procurements and in which areas?

2) Presentation of a case study:
   - The need and reason for conducting innovation procurement.
   - The overall process: timeline, team involved, method used, risk management etc.
   - How was the procurement financed.
   - Challenges and lessons learned.

The presented information is summarized in the following sections:

1.Incentives for innovation procurements

This section describes how the innovation procurements are encouraged in Rotterdam, Tartu, and Turku.

2.Challenges related to the procurement of innovation

This section summarises the challenges that procurement specialists of Rotterdam, Tartu and Turku have experienced.

3. Procedures used to purchase innovative solutions

This section describes which procedures have been used in innovation procurements in Rotterdam, Tartu, and Turku.

4. Case studies

Each participating city presented one innovation procurement case study.

2. The practice of conducting innovation procurements in Tartu, Turku, and Rotterdam

The European Union (EU) has emphasized the importance of innovation procurement for years. Innovation procurements are important as they can modernize public services and optimize its' costs, solve problems and arising needs of the society and support start-ups and innovative SMEs to launch and grow[1]. Innovation procurements are not only about purchasing innovative products, services, or processes but they can be used as a strategic instrument, e.g., to facilitate the implementation of specific policies. Still, member states of the EU are not using to their full extent the possibilities of public procurement.

EC with various partners, have issued several guidance materials on innovation procurement[2]. **The aim of this report is to share insights about the practice of conducting innovation procurements at municipal level by describing the best practices and challenges of Rotterdam, Tartu, and Turku.**

There is no single definition of "innovation procurement". Different terms are used interchangeably – e.g., "public procurement of innovation", "innovation procurement" and "public procurement of innovative solutions". According to the European Commission's Guidance on Innovation Procurement the term "innovation procurement" refers to any procurement that has one of the following aspects[3]:

- buying the process of innovation, namely research and development services, with (partial) outcomes. The public buyer first describes its need, prompting businesses and researchers to develop innovative products, services, or processes, which do not yet exist on the market, to meet the need.
- buying the outcomes of innovation. The public buyer acts as an early adopter and buys a product, service or process that is new to the market and contains substantially novel characteristics.

Also, in the knowledge exchange webinars it became apparent that the term might be understood differently from one EU country/city to another. For instance, Tartu has considered procurements to be innovative mostly when "negotiated procurement" or "innovation partnership" have been used as a procurement procedure. In Finland it foremost refers to purchasing a new or a significantly improved product or a service. The representatives of Turku also indicated that sometimes innovative procurements are not marked down as innovative due to the lack of knowledge or self-criticism. Therefore, it is difficult to measure the exact share of innovation procurements as it depends on what is considered as an "innovation procurement". **However, Tartu and Turku representatives estimate that the share of innovation procurements is around 2% to 3% out of all public procurements in their cities.** Rotterdam is monitoring the share of sustainable procurements as the city government

[1] Guidance on Innovation Procurement. Brussels, 18.06.2021. C (2021) 4320 final. European Commission. <Link>

[2] Major sources of the EU level guidance on innovation procurement include:

- European Assistance for Innovation Procurement (EAFIP) toolkit (2018), <Link>
- Public procurement as a driver of innovation in SMEs and public services (2015), <Link>
- Guidance on Innovation Procurement. Brussels, 18.06.2021. C (2021) 4320 final. European Commission. <Link>

[3] Guidance on Innovation Procurement. Brussels, 18.06.2021. C (2021) 4320 final. European Commission. <Link>

has set sustainability goals, but they do not measure the share of innovation procurements. However, they conduct innovation procurement whenever it is possible and lead to a good change.

2.1 Incentives for innovation procurement

"Incentives" in this context are considered as something that encourages innovation procurements at a country or municipal level. It can be a variety of different actions, such as an established centre of expertise to advise public bodies in conducting innovation procurements, a financial grant to cover the costs of innovation procurements, competence development activities etc. This section describes the incentives applied in Rotterdam, Tartu, and Turku and are compiled in Table 1.

In general, incentives can be grouped as national level incentives that are available or applicable to all public authorities in the country or local level incentives that are used only in a particular municipality. The national level incentives that either the Netherlands, Estonia or Finland have introduced are the following: **measurable target for innovation procurements; action plans to increase the amount of innovation procurements; practical guides for public procurers; national competence centres for innovation procurements and funding of innovation procurements.** The local level incentives that either Turku or Rotterdam have introduced are **strategic goals that put focus also on innovation procurements as means to achieve strategic goals and scouting for innovation procurements beforehand.**

Finland has set an objective to be known as a front runner in technological advances, innovative procurement, and the culture of experimentation. Also, the goal is to increase **the share of innovative procurements to 10% of all public procurements** by 2023.The Netherlands and Finland have created **Action Plans** to increase the number of innovation procurements. The Finnish Action Plan implements the objectives of the Government Programme and the National Procurement Strategy. The key cross-cutting themes in it are low carbon solutions, digitalisation of services and processes as well as utilisation of data. Estonia does not yet have a separate Action Plan for innovation procurements, but continuing to support preparation and execution of public procurements that promote innovation in included in "Knowledge transfer program" of "Estonian Research and Development, Innovation and Entrepreneurship Strategy 2021—2035".

All three countries have established **national competence centres for innovation procurements**:

- Dutch Public Procurement Expertise Centre PianOo[4]. The centre aims to stimulate innovation procurement in the Netherlands and advises public procurement practitioners.
- KEINO Competence Centre for Sustainable and Innovative Public Procurements in Finland[5]. The centre supports and helps Finnish public procurement experts and authorities with the development of sustainable and innovative procurement (Ibid.).
- Estonian Innovation Procurement Competence Centre[6]. It is a supporting partner for the public sector to help identify innovative ideas and bring these ideas to life through innovative procurement (Ibid.). It is based in Estonian Business and Innovation Agency.

The services offered by competence centres vary but the general aim is to encourage and increase the number of innovation procurements.

All three countries have issued practical guides and materials that explain how innovation procurements can be conducted practically. For instance, the Dutch Public Procurement Expertise Centre PianOo has created a "metro map" that helps organisations with practical advice on innovation

[4] Dutch Public Procurement Expertise Centre PianOo. <Link>
[5] KEINO Competence Centre for Sustainable and Innovative Public Procurements. <Link>
[6] Estonian Innovation Procurement Competence Centre. <Link>

procurements[7], Estonia has issued a practical guide „Innovatsioonihangete juhis[8], the Finnish Competence Centre for Sustainable and Innovative Public Procurements has created a material bank[9] that includes studies and reports related to the topic.

Finland provides **funding** for innovation procurements. It is available mostly for the preparation and planning of innovative public procurements, but funding can also be applied for the development and piloting work and investment costs of innovative procurement[10]. The amount of funding is 40% or 50% of the total costs of the preparation and development phase, depending on the content of the project (Ibid.). Estonia has a grant that supports public sector innovation capabilities[11]. The goal is to support public sector projects that aim to find, develop and test solutions to the Estonian development needs that are laid out in the national long-term development strategy „Estonia 2035". Such solutions are preferably procured through innovation procurements. In addition, there is in development a support scheme to provide public sector with counseling and information to raise awareness and competence about innovation procurement.[12]

Turku and Rotterdam have both set **environmental goals that encourage innovation procurements:**

- Turku aims to have all municipalities' worksites fossil free by 2025 as part of the green deal agreement[13].
- Rotterdam aims to have zero emission deliveries of goods and services by 2025.

These goals can be achieved by procuring innovative solutions (see section 1.4 Case studies).

Rotterdam city government has separate innovation and procurement departments. The innovation department aims to stimulate innovation and innovation procurements in Rotterdam. There are no regular meetings between the innovation department and the procurement department, but the innovation department informs the procurement department with the relevant information. Also, the procurement department is large and thus procurement specialists can also learn from each other's experience.

Turku is putting effort into creating a system that would enable it to scout **for innovation procurements** beforehand. This far they have held systematic meetings to discuss the ongoing and upcoming projects and their procurement needs. However, the innovation potential of a procurement is mostly left to be noticed by the team working on it. Therefore, the procurement specialist has a remarkable role in enhancing innovation procurements. Turku has conducted multiple training sessions to increase the knowledge and capacity of procurement specialists in innovation procurements. Also, recently Turku's procurement team created a **web tool (app) that helps to detect an innovation potential** within procurement projects. The app includes a set of questions about the idea, market, end-users etc. of the procurement item. The answers are awarded with credits. Based on the total score the application gives an assessment of whether the project has an innovation potential or not. The app has a potential to be scaled up. During the knowledge sharing webinars also participants from Rotterdam and Tartu were interested in it. Therefore, Turku representatives plan to translate the app into English.

[7] In het kort - metrokaart innovatie. The Dutch Public Procurement Expertise Centre PianOo. <Link>

[8] Innovatsioonihangete juhend. Tallinn 2016. Ettevõtluse Arendamise Sihtasutus. <Link>

[9] Material bank (hankintakeino.fi). KEINO Competence Centre for Sustainable and Innovative Public Procurements. <Link>

[10] Funding opportunities. KEINO Competence Centre for Sustainable and Innovative Public Procurements. <Link>

[11] Uus meede avaliku sektori innovatsioonivõimekuse tõstmiseks. Riigikantselei. <Link>

[12] https://eelnoud.valitsus.ee/main#zBTf4vGX

[13] Read more about the Green Deal Agreement for Public Procurement here. KEINO Competence Centre for Sustainable and Innovative Public Procurements. <Link>

Table 1. Incentives used in Rotterdam, Tartu and Turku

Tools	National		
	The Netherlands	**Estonia**	**Finland**
Innovation Procurement Guides	X	X	X
National Action Plan to support innovation procurement	X	-	X
KPI for innovation procurements	?	?	X
National Public Procurement Expertise Centre	X	X	X
	Local Government		
	Rotterdam	**Tartu**	**Turku**
Strategic goals that encourage innovation procurements	X	_	X
Systematic scouting for innovation procurements	–	–	X (Planned to be implemented in 2023)

Source: Information gathered through the knowledge exchange seminars held in December 2022 as part of this project. Participants of the seminars were the procurement specialists of the Rotterdam, Tartu, and Turku cities. "X" marks that the tool is implemented; "- "marks that it is not; "?" marks missing information.

2.2 Challenges related to the procurement of innovation

Although Rotterdam, Turku and Tartu are different cities in many aspects, including the scale of activities, the challenges identified in conducting innovation procurements are similar. Innovation procurements are often time-consuming, high cost and have a high risk of failure; also, the suppliers might not be ready for innovation and willing to provide innovative solutions. Finally, the lack of practical knowledge of procurement specialists/the whole buyer organisation might reduce the number of innovation procurements. The challenges are summarised in Table 2 and some of the possible solutions are also described.

Table 2. Challenges of conducting innovation procurements and possible solutions

Challenge	Description	Possible solutions
Time commit-ment	Innovation procurements are often more time-consuming than regular procedures. This might be due to the	If a public procurer needs to buy an innovative solution that is already on the market, it may be possible to use

	longer and more complex procurement processes (e.g., competitive dialogue, innovation partnership); if there is a need for R&D works etc. Public procurers might avoid participating in time-consuming projects if it takes more effort from them than regular tenders. Innovation potential is noticed too late.	regular tendering procedures which usually take less time. More time should be allocated for the preparatory phase. Scouting for innovation procurement beforehand so they would not be *ad hoc*.
High cost	Innovation procurements are often high cost. This might be due to the longer and more complex procurement processes; if there is a need for R&D works; high-cost innovations etc.	In Finland and Estonia there are funds available to support public innovation procurements.
High risk of failure	Innovation procurements have a higher risk of failure due to the nature of innovation and possible reclaims of bidders.	Finnish government is preparing a risk financing instrument for municipalities so that the government would share the risk of innovation procurement with the municipalities.
Market	Not all suppliers are ready for the innovation.	-
Lack of knowledge	Lack of knowledge/willingness of internal clients might reduce the amount of innovation procurements.	It is important to increase the knowledge about innovation procurements among the whole public organisation.
	Procurement specialists mostly have theoretical knowledge about how to conduct innovation procurements but lack practical experience.	National competence centres for innovation procurements provide counselling for public procurers.
	Innovation procurements require very good initial task, but it is challenging for public procurers to create them as they might lack technical/specific knowledge.	Engaging external experts to the procurement process brings in technical/specific knowledge of the product/service being procured.

Source: Information gathered through the knowledge exchange seminars held in December 2022 as part of this project. Participants of the seminars where the procurement specialists of the Rotterdam, Tartu, and Turku cities.

2.3 Procedures used to purchase innovative solutions

The legal basis of innovation procurements in EU countries is framed with the European public procurement law. All EU member states have had to transpose EU public procurement directives into their national law. Therefore, the procedures used to carry out procurements are largely the same in all EU countries.

There are specific methods designed for public buyers to purchase innovative solutions:

- **Pre-Commercial Procurement (PCP)** is an approach to public procurement of R&D services to develop innovative solutions[14]. Public buyers purchase R&D from several competing suppliers in parallel to compare alternative solution approaches (Ibid.). After each R&D phase, the number of competing providers is reduced. This way the public buyer can finally find the best value for money solution that the market can deliver to address its needs (Ibid). Within this framework public buyers may exceptionally buy R&D without conducting public procurements (see Article 14, Directive 2014/24/EU).
- **Public Procurement of Innovation (PPI)** enables to buy innovative products that are already on the market but not yet available on large scale commercial basis[15]. Public buyers may thus facilitate wide diffusion of innovative solutions on the market (Ibid.). Within this framework, public buyers may purchase innovative solutions through one of the existing public procurement procedures (e.g., open/negotiated procedure, competitive dialogue etc) (Ibid).
- **Innovation partnership** combines both components, buying the R&D and the outcome of innovation[16]. It allows public buyers to establish a partnership to develop and subsequently purchase a new, innovative solution[17]. It is a specific public procurement procedure (see Article 31, Directive 2014/24/EU).

Table 3 lists different procedures/methods that have been used in innovation procurements by the procurement specialists of Rotterdam, Tartu, and Turku.

Table 3. List of procurement procedures/methods that have been used for innovation procurements by BUILD project partner cities

Procurement procedure/method	Comments given by procurement specialists
Open procedure with an innovative award criteria	Award criteria always delivers. It is a simple procedure for both sides, the supplier, and the procurer. It is not possible to use it in all cases. Usually, the solution to be purchased must already exist in the market. It is important to have a very good description of the needs as it is not possible to have negotiations with the bidders.
Reverse bidding	The tenderers will compete solely on quality related grounds. The procurer fixes the price.
Competitive procedure with negotiation	No comments were given by procurers
Negotiation procedure without prior publication	It is a good procedure in case the procurer needs to develop a solution without including quantity production of it. It might be possible to give an assignment to 1 supplier only.
Competitive dialogue	Takes a lot of effort from both sides, the supplier, and the procurer. It might not deliver the expected result. Time-consuming procedure.

[14] Pre - Commercial Procurement. European Commission. <Link>

[15] Public Procurement of Innovative Solutions. European Commission. <Link>

[16] Article 31. Innovation Partnership. Directive 214/24/EU of the European Parliament and of the Council of 26 February 2014 on public procurement and repealing Directive 2004/18/EC.

[17] Guidance on Innovation Procurement. Brussels, 18.06.2021. C (2021) 4320 final. European Commission. <Link>

Innovation partnership	Probably the most complicated and time-consuming procedure, it is costly. Takes a lot of effort from both sides, the supplier, and the procurer. It might not deliver the expected result.
Dynamic purchasing system and Framework agreements	Limited experience with these instruments; not sure if these are the best methods for innovation procurements.

Source: Information gathered through the knowledge exchange seminars held in December 2022 as part of this project. Participants of the seminars where the representatives of the Rotterdam, Tartu, and Turku cities.

2.4. Case studies

Three innovation procurement case studies are presented in Tables 4, 5 and 6.

Table 4. The procurement of "Infra maintenance of the east side of Turku"

Purchased service/ product	**Infra maintenance of the East side of Turku**
Procurer	Turku Urban Environment Division and Sports Services, Finland
The need for the innovation procurement	In 2020 Turku signed a green deal that demands all worksites to be fossil free by 2025. All the appliances including machinery used in sites must not operate with fossil fuel. Also, buyers wanted the new solution to provide accurate information about the maintenance of the worksites.
Procedure used	Open tendering procedure with market consultation. The aim of the market consultation was to scout whether service providers have more ecological machinery options and to discuss potential bonus and sanction models in the contract. Open tendering included environmental criteria.
Overall process	Timeline: Most of the time was used for the preparation of the procurement and then tendering. The procurement was innovative, but it did not take longer than regular tenders. Risk management: Alternatives were defined in case there is no service provider owning or willing to invest in more ecological machinery. One of the alternatives discussed by the team was whether the city should own the machinery and rent it and how would that affect the tendering? The contract started in 2021. Contract time is 3 years+2 extra years (optional to buyer and to be decided separately).
Results	The machinery complied with Euro 6 and Stage III B emissions categories. The winner of the procurement invested in more ecological machinery that also included a tracking system. The latter informs the buyer which sites are already done, when and where. Info is given in real time.

	The bonus and sanction model were based on the results of the customer feedback survey (residents of Turku). The results of the survey impacted the paid bonus or charged sanctions. Service providers were granted an additional bonus (max 20 000€ /year) in case they adopt innovations and procedures that improve the carbon neutrality on the sites and enhance the protection of the Baltic Sea.
Cost and finances	1,5 million euros per year
Challenges and lessons learned	Argued benefits of biofuels. The machinery used renewable diesel, but are there more environmentally friendly solutions available? If there are, then is it possible to use them in all weather conditions? Is there enough new machinery compared to the need of sites? The effect of the green deal in future. If the sights need new machinery, the criteria must be filled, is there machinery available and is the service provider able to invest in them?

Source: The case study was presented by the representatives of Turku city in December 2022 as part of this project.

Table 5. The procurement of "Zero emission deliveries of goods and services"

Purchased service/ product	**Zero emission deliveries of goods and services in Rotterdam**
Procurer	Gemeente Rotterdam. Cooperation between the Procurement Department and the Department of Sustainability and Mobility
The need for the innovation procurement	Goal of the municipality of Rotterdam is zero emission deliveries of goods and services in 2025. Therefore, they try to stimulate innovation in transport by procuring zero emission deliveries of goods and services.
Procedure used	Award criteria used in tenders. They ask bidders how much emission-free transport they can provide and compare offers based on that.
Challenges and lessons learned	Zero-emission tenders require contract management. It must be verified whether the service provider delivers goods and services emission-free as agreed on. It is possible to control it by having access to the supplier's fleet management system. Early on the aim was to stimulate the use of other alternatives to the usual fossil fuels, like the CNG (the compressed gas) or LNG (liquid natural gas) but nowadays they only require hydrogen fuel, bike, or foot transportation or zero emission by electricity.

Source: The case study was presented by the representatives of Rotterdam in December 2022 as part of this project.

Rotterdam has also conducted several other innovation procurements in the following topics.

- Zero emission, regular open public tender
- Electric garbage trucks, negotiation procedure without prior publication
- Digital City (procurement of an innovative service), regular open public tender
- Hydrogen vacuum cleaner, negotiation procedure without prior publication
- Vegetable, fruits, and eating parts waste, innovation partnership with Utrecht
- Pruning and garden waste, regular open public tender with award criteria to stimulate innovation)
- Traffic signs, innovative lot

Table 6. The procurement of MaaS solution

Purchased service/ product	**Mobility- implementation of MaaS solution (ongoing as of December 2022)**
Procurer	Tartu and Tallinn
The need for the innovation procurement	There was no appropriate solution in the market available. The outcome will not be subsidised by municipalities, it will be a business case. There are not so many solutions in the world working properly and usually local municipalities support such systems.
Procedure used	Competitive dialogue. It was necessary to use this procedure due to the technical complexity of the project. Also, the procurers aimed to have as many companies as possible participating.
Overall process	The procurement is ongoing, the overall process will take 1,5-2 years. It started at the end of 2021 and is estimated to conclude in August 2023. The preparatory work took 8-9 months. The procurement team includes project manager, lawyer, designer of public services, procurement specialist, data manager, mobility expert. The project is very technical and has many legal and GDPR issues to be solved. Risks involved: 1) They will only get the support from the state when the outcome is ready. If the procurement fails, they will not get the support. 2) Expected results might not be achieved or the product might have technical issues.
Results	The procurement is ongoing and estimated to conclude in August 2023.
Cost and finances	Support from state (50%) + self-financing from Tartu and Tallinn cities.
Challenges and lessons learned	The initial task must be very comprehensive and described in the “technical language”. The process of creating the initial task was the following: 1) The procurer described the imagined functionality. 2) Going deeper with details, the procurer did market research around the world, to collect best examples. 3) The procurer involved different specialists, internal and external, e.g., IoT & mobility specialists.

Source: The case study was presented by the representatives of Tartu in December 2022 as part of this project.

3. Dissemination

The findings emanating from the series of insightful buddy pairing sessions were disseminated according to the procedures set out in the dissemination plan of the BUILD project and were being effectively communicated to ensure their widespread availability and impact. This was done through two methods: knowledge pills and a seminar (Task force meeting on June 28th).

Three distinct knowledge pills have been formulated, each encapsulating key findings and recommendations from the report in a concise and accessible format. These knowledge pills cater to different target audiences, ranging from policymakers and public procurers to researchers and industry stakeholders, ensuring the widest possible reach. To demonstrate the innovative nature of the BUILD project, the knowledge pills themselves have been created using AI tools (namely ChatGPT and Synthesia).

Additionally, a highly anticipated seminar has been organized, gathering experts and practitioners in the field to present and discuss the report's findings in depth. The seminar provides a platform for fruitful exchanges of ideas and best practices, fostering collaborative efforts and paving the way for further advancements in innovation procurement.