



Al4Cities webinar Open Market Consultation 28.5.2020



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AI4Cities - AI accelerating Cities' transition to carbon neutrality

This webinar is part of the Open Market Consultation phase. The aim is to refine the scope of the Request for Tenders as well as check with the market on state-of-the-art and innovativeness. The webinar will be recorded.

Agenda

- 10:00 Introduction to the Al4Cities project Kaisa Sibelius, Coordinator Al4Cities, Forum Virium Helsinki
- 10:15 **The Pre-Commercial Procurement process** Hugo Tamagnini Gonçalves, PCP Specialist, Forum Virium Helsinki
- 10:30 **Mobility City of Stavanger** Nils Henrik Haaland, Project Lead Al4Cities for Stavanger
- 10:40 **Energy City of Amsterdam** Anja Reimann, Project Lead Al4Cities & Mimi Eelman, Strategy on Energy transition for Amsterdam
- 10:50 **Open AI for agile cities** Timo Ruohomäki, Programme Director, Forum Virium Helsinki
- 11:05 Al4Cities next steps Kaisa Sibelius
- 11:15 **Questions & Answers**
- 11:30 Webinar ends



The City Partners are all committed to becoming Carbon neutral



*) Source: Helsinki Region Environmental Services Authority HSY, 2019



What do we look for?

Unique and innovative digital solutions utilizing AI to able to **help Cities to reduce their CO2 emissions** in two domains: energy and mobility via a challenge-based PCP competition.



Al4Cities challenges build on **highly innovative and not market-ready technologies** to bring **added value** for cities' management and decision making.



Goals of the challenges

Strategic goals

- Effective usage of energy
- Support climate goals of the cities
- Support digitalisation and data strategies of cities

Objectives

- Better living and working conditions
- Reduced carbon footprint
- Reduced costs by optimization



Who are we addressing?

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Companies, developers and consortiums with innovative ideas for innovative or disruptive new digital-based solutions, based on AI & other Emerging Technologies.



Cities and other public procurement organisations, interested in potential take up of the solutions developed within the PCP process.



Others with an interest in promoting entrepreneurship, climate change, reduction of greenhouse gas emissions, etc.

Duration: 36 months



Union's Horizon 2020 research and innovation programme under grant agreement No 871914.

Expert partner Preferred partners **ICLEI – Local Governments for Sustainability** N = D & ATTO ·I.C.F.I Tallinn X Gemeente X Amsterdam cap-digital City of Local Stavanger Governments HELSINKI _ for Sustainability

Buyers Group

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The Preferred Partners

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- To be kept informed about all aspects of the PCP and afforded access to all information concerning the PCP results.
- To contribute wherever possible to validate the PCP goal by providing background information regarding the specific needs of the cities.
- To collaborate with the consortium's public procurers and to meaningfully support the project's objectives.

Municipality of Egaleo, GR Municipality of Milan, IT Municipality of Bergen, NO Municipality of Lamia, GR Municipality of Porto, POR Open & Agile Smart Cities

Accelerating CO2 reduction of the cities

ALGEITIES







The Pre-Commercial Procurement process

Hugo Tamagnini Gonçalves, PCP Specialist, Forum Virium Helsinki



www.ai4cities.eu



Innovation Procurement in H2020

Through innovation procurement the public sector can drive innovation from the demand side.

- <u>Pre-Commercial Procurement (PCP)</u> addresses the development and testing of innovative solutions
- <u>Public Procurement of Innovative solutions (PPI)</u> focuses on the deployment of innovative solutions

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Pre-commercial procurement

Pre-Commercial Procurement (PCP) **challenges industry from the demand side to develop innovative solutions for public sector needs** and it provides a first customer reference that enables companies to create competitive advantage on the market.

PCP enables public procurers **to compare alternative potential solution approaches** and filter out the best possible solutions that the market can deliver to address the public need.

https://ec.europa.eu/digital-single-market/en/pre-commercial-procurement



PCP vs. Traditional Public Procurement

РСР	Traditional procurement		
Joint procurement tool: a Buyers group launches the RfT	Individual procurement tool - RfT is launched normally by a single department or unit inside the a City		
High risk: high degree of innovation and R&D effort required	Low risk: Low degree of innovation focused on solutions on (or close to) the market		
Functional specifications for prototypes development - focus on medium-/long-term	Technical specifications for mature product/ service - addresses immediate/ short-term needs		
Competitive development with several contracts to several suppliers	Single contract: 1 contract to 1 supplier awarded		
IPR – Risk/Benefit-sharing	IPR generated		
Exemption for R&D services under EU Directives and WTO rules: special legal framework (H2020)	Tendering procedures and legal framework: national public procurement rules apply		
Development in multiple phases	Development in 1 phase		

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Key requirements and guidelines

- Joint Procurement Agreement between group of Procurers/Buyers
- Risks and Benefits of the R&D are shared between the procurers and the Suppliers
 - **IPR** retained by suppliers must be exploited after PCP completion
 - Procurers can use the solutions royalties free and exploit learnings
- Focus on Innovation: R&D is at least 50% of the total contract value
- **Tool to foster EU competitiveness**: at least 50% in EU Member States and/or Associated Countries to Horizon 2020.
- **Increase Cities capacity** in leading the market to create impact based and innovative solutions















PCP Budget*

Expected number of suppliers (Lot 1 & Lot 2)	Max budget per supplier (inc. VAT)	Total available budget per phase (inc. VAT)	Duration of each phase	
Phase 1: 40 (20+20)	40.000€	1.600.000€	4 months	
Phase 2: 20 (10+10)	€0.000€	1.600.000€	3 months	
Phase 3: 6 (3+3)	244.437€	1.466.622€	6 months	
Totals	364.437€	4.666.622€		

*the budget breakdown and number of suppliers are indicative until the Request for Tenders is published.

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Contract procedure

- **One Joint Request for Tenders** published on *1.12.2020 (tentative date)*
 - N.B. Two (2) Lots each lot must be applied separately!
- Lead procurer (Forum Virium Helsinki) awarding all contracts acting on behalf of all procurers in the Buyers Group
 - Single Framework Agreement per winning tenderer covering all PCP phases, plus a
 - Specific Phase contract per PCP phase (depending on subsequent evaluations and offers).
 - Payments done per phase upon satisfactory phase completion



Reference websites for information on PCP

- European Commission framework on Innovation Procurement
- EU policy initiatives on Innovation Procurement
- EU funded projects implementing PCPs or PPIs
 Innovation Procurement Platform
- Procurement forum

See 'What is a PCP' tutorial from our "*older sister*" <u>SELECT4CITIES.EU</u> project: <u>https://www.select4cities.eu/what-is-pcp</u>



MOBILITY (Lot 1)



use-cases and examples from the

City of Stavanger



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Nils Henrik Haaland

Project Lead Al4Cities *City of Stavanger*

- helping Stavanger reach its ambitions of innovation
- working in the department of innovation and digitalization in the City of Stavanger
- focusing on linking innovation, methodology and procurement



EU - emissions

2017





Stavanger - emissions 2018



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The two cases – an invitation



1 Mobility as a challenge - area

- People flow
- Logistics
- Traffic flows
- 2
- Looking for the best solutions
- Open for suggestions
- 3
- Identified two cases with a clear potential
- Fits Stavanger's needs
- Could also fit other cities

AI4CITIES Powerpoint Template



Optimized and coordinated transport of goods and parcels



What is the challenge?

- Make coordination of transport an option by creating an ecosystem for procuring transport
- Using this a base for a local marketplace
- Today cars are half empty. Local trade is difficult
- Several transport alternatives available not coordinated and less used

2 What is the potential impact?

- Substantial reduction of local CO2 emissions by better use of transport capacity
- Lowering cost of production for local trade
- Increase local production
- Replacing some of the need for long distance transport

3 How can we use AI here?

- Using AI to optimize trips
- Using AI to connect producers and consumers

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Company ad-on for travel planning



1 What is the challenge?

- Today there is no integration between public transport and company travel solutions making it difficult to plan journeys
- Difficult to navigate (finding bikes, bus stops etc.)

2 What is the potential impact?

- Boosting the potential of companies own travel solutions by making them easy to use.
- Making it easier to use sustainable solutions by introducing digital wayfinding (finding bikes, bus stops etc.)

3 How can we use AI here?

• Using AI to plan best routes based on all relevant transport solutions

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Local Market consultation - webinar

- This was just a teaser!
- Local event 17th of June
- Information and registration coming soon <u>here</u>



ENERGY (Lot 2)



use-cases and examples from the

City of Amsterdam



AI4CITIES Powerpoint Template





Anja Reimann

Project Lead Al4Cities City of Amsterdam

- working to bring innovation to Amsterdam
- working in the Chief Technology Office of Amsterdam
- working where technology meets business meets the city

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Mimi Eelman

Strategy on Energy transition for Amsterdam *City of Amsterdam*

- working to promote co-creation in innovation driven sustainable energy projects
- working in engineering department of Amsterdam
- working where public, commercial and social interests meet to create a comfortable sustainable living environment

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AI4CITIES Powerpoint Template



Total emissions 5.000 kton

CO₂ equivalents

100%

Built

Mobility



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Quay walls as an 'Energy Factory'



1 What is the challenge?

- 200 km of quay and 850 bridges must be renovated
- Install heat poles in the quay walls to win aqua thermal energy from surface water
- Upscaling from pilot to large roll-out

2 What is the potential impact?

- 200km of quay wall to be replaced, potential amount of ca.
 0.45GJ / m² of water surface
- Providing around 12.000 houses with energy in the historical canal area

3 How can we use AI here?

- Smart sharing and integration of energy
- optimization of the energy system based on the requested use and the available heat + the load on the local electricity grid

04/05/2020

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What is the challenge?

- extract (brake) energy from the overhead line via a battery pack
- absorb and reuse energy that is otherwise lost

2 What is the potential impact?

- 7,3 million kWh / year
- 3.500ton CO2 / year

3 How can we use AI here?

- dealing smartly with large fluctuating energy flows
- e.g. at stations, where significant energy demand arises

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Rethinking the Harbor



Amsterdam

1 What is the challenge?

- Transforming the harbor into a sustainable battery
- Rethinking the usage of former Hemweg (STEG) industrial energy plant

2 What is the potential impact?

- Multi-usage of the area with fun and coolness factor
- Innovative energy systems

3 How can we use AI here?

• How do you get the Amsterdammer to adopt the area for themselves?



From spaghetti to fast track cable system



Het Parool

Snakken naar regen: 'Grootste droogte in ruim 40 jaar'

Alle waterbeheerders in Nederland snakken naar flinke regenbuien in juni, want het is veel en veel te droog. Beken en sloten vallen droog, het grondwater zakt ver weg en de waterkwaliteit neemt af. En de zomer moet nog beginnen.

Maarten van Ast 24 mei 2020, 16:57



What is the challenge?

- Amsterdam is a historical city and a leading data center hub (glas-fiber network) → vast amounts of cables and vulnerable network
- Smart use of the existing cable infrastructure

2 What is the potential impact?

• 500 million EUR per year spent on fighting the drought

3 How can we use AI here?

- Connecting the different systems and "usage moments"
- Weather predictions in relation to network capacity
- Smart monitoring and managing the assets

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Open Al for Agile Cities

Al4Cities General Webinar 28.5.2020 Timo Ruohomäki, Forum Virium Helsinki Oy

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Topics

- How to be agile?
- How can AI be open?
- From raw data to predictive indicators
- AI Governance
- AI4EU



How to be agile?

market development

technology trends product offerings cost effectiveness standards platforms

city internal development

backlogstrategy worksdeveloping skillsambitious climate goalsservice level expectationspolitical vision (=€)common services



How to be agile?



Also note: There is no one voice of the city.

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How can Al be open?

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System Type Deselect All	<u>wer7843u</u>	Motion appears to be restricted	Detected	Medium	Air Distribution System	OZ/DMPR M	\$1 100,034	
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Glycol Mixture	039klasd	Simultaneous Cooling and Humidification	Detected	Medium	Air Distribution System	<u>SA</u>	\$337,932	
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HELSINKI

From raw data to predictive indicators



FORUM VIRIUM HELSINKI

Adopt existing infrastructures





Al Governance with MyData







www.ai4eu.eu





Thank you!





vimeo



Linked in

forumvirium.fi





Next steps

Kaisa Sibelius, AI4Cities Coordinator, Forum Virium Helsinki



www.ai4cities.eu



The AI4Cities PCP timeline



www.ai4cities.eu





What's next?

- Dates of the upcoming Open Market Consultation events will be annouced on the project's website <u>www.ai4cities.eu</u>
- Questions & Answers section website (+ a form for questions)
- **Open Market Consultation surveys** will be published on the website
- Matchmaking tool for suppliers online will be made available later





KEEP IN TOUCH!

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