



Request for Tenders webinar

15.1.2021



The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 871914.

AI4Cities - AI accelerating Cities transition to carbon neutrality

Agenda

14:00 - 15:30 (CET)

- 14:00 The project intro, Kaisa Sibelius, Forum Virium Helsinki
- 14:30 The AI4Cities challenges, Petteri Rekoma, Forum Virium Helsinki
- 14:45 Selection process and eligibility criteria, Kaisa Sibelius
- 15:00 Awarding criteria and technology requirements, Petteri Rekoma
- 15:15 Q&A

AI4Cities Project introduction

Kaisa Sibelius

AI4Cities Project Coordinator - Forum Virium Helsinki



The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 871914.

Duration: 36 months
(1.1.2020 – 31.12.2022)

Funding instrument:

Pre-commercial procurement
(PCP)

PCP Budget:

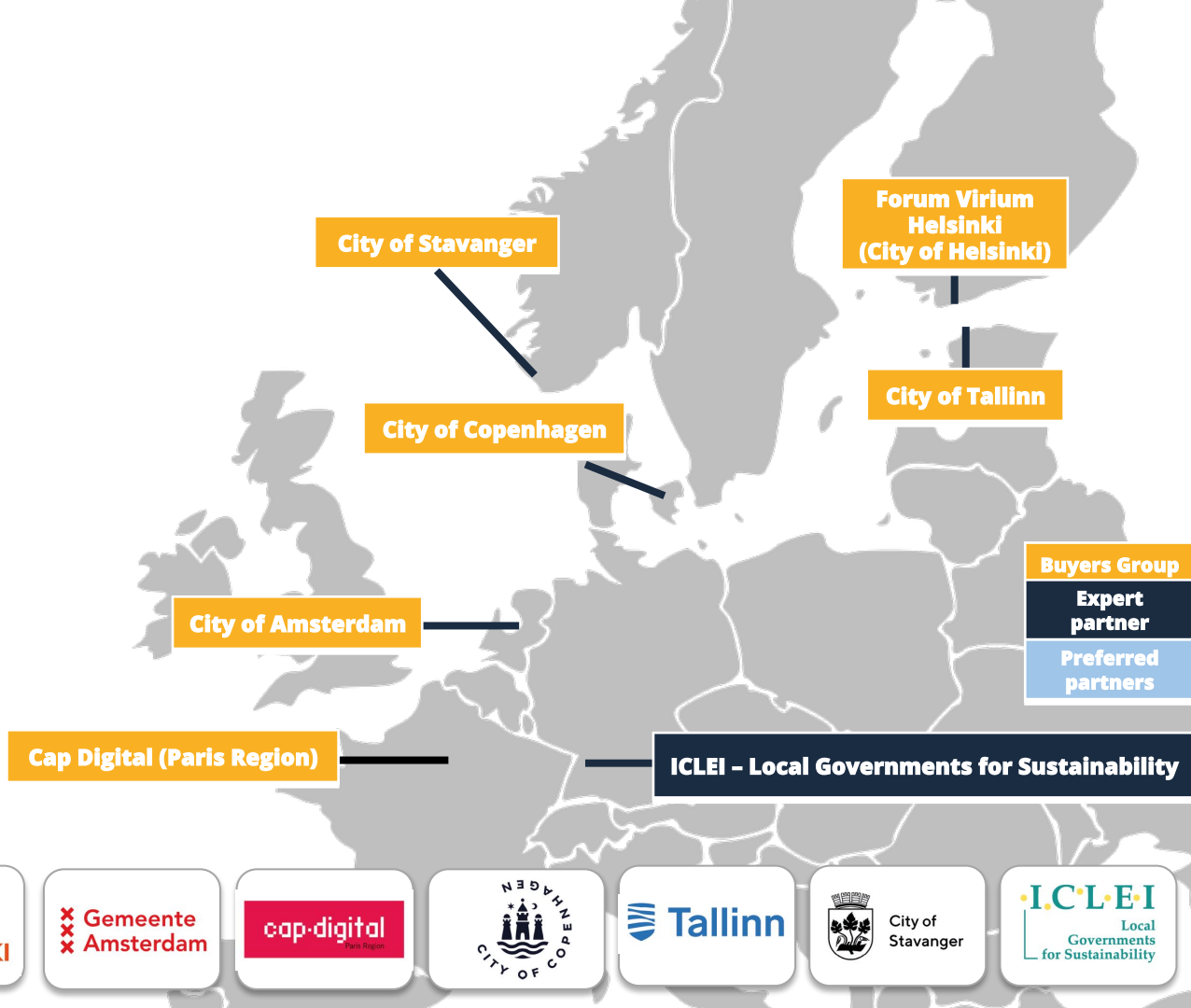
4.670.000€

Total Budget:

6.600.000€



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**FORUM
VIRIUM
HELSINKI**

**Gemeente
Amsterdam**

cap-digital



Tallinn



ICLEI
Local
Governments
for Sustainability

AI4Cities - AI accelerating Cities' transition to carbon neutrality

The purpose of this Pre-Commercial Procurement (PCP) is to support Cities' transition to carbon neutrality, by applying the use of Artificial Intelligence (AI) and related enabling digital technologies to tackle the challenge of reducing the Cities' CO2 and other GHG emissions.

Mobility (Lot 1)



Energy (Lot 2)



AI4Cities challenges are built on highly innovative and not market-ready technologies, to be applied in contexts in two domains: Smart Mobility (Lot 1) and Smart Energy (Lot 2).

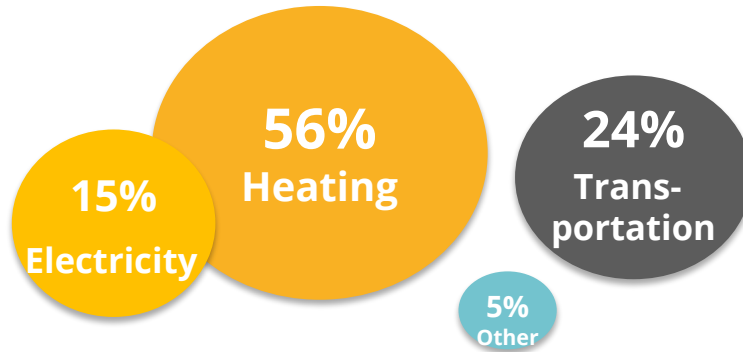
Why AI

- The goals of the cities demand higher scale and volumes of the interventions
- The demand on utilizing data-driven methods on improving the resource-efficiency
- enabling technologies and platforms are becoming easily available and mature,
- plenty of data is already available and new data accumulates all the time
- Data based challenges
- The impacts can be measured
- AI can bring new options to predict and optimize decisions more effectively

A successful solution in PCP will go well beyond the state of art and the minimal solution to the stated problem.

The City Partners are all committed to becoming Carbon neutral

Average emission sources in the cities (example City of Helsinki*)



Copenhagen

Helsinki

Stavanger

Tallinn
Paris Region
Amsterdam (95%)

2020

2025

2030

2035

2040

2045

2050

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

Project roles

Buyers Group

- City of Amsterdam, Cap Digital (Ile de France/Paris Region), City of Copenhagen, Forum Virium (City of Helsinki), City of Stavanger, City of Tallinn
- Refined PCP target
- Select suppliers and validate the results
- Provide background information (technical and non-technical) needed for contractors to be able to develop their solutions
- Provide testing sites for prototype solutions fast piloting

Lead procurer

- Forum Virium Helsinki (FVH) is the lead procurer in AI4Cities
- The representative of the Buyers Group doing on their behalf the Framework agreements, specific phase contracts with Suppliers, and payments to Suppliers

Supplier

- A company or a consortium
- Will sign the framework Agreement for all phases (TD 3)
- Specific Contract for Phases 1 -3 (TD 4)

The Pre-Commercial Procurement process

Innovation Procurement in H2020

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

- [Pre-Commercial Procurement \(PCP\)](#) addresses the development and testing of innovative solutions
- [Public Procurement of Innovative solutions \(PPI\)](#) focuses on the deployment of innovative solutions

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.

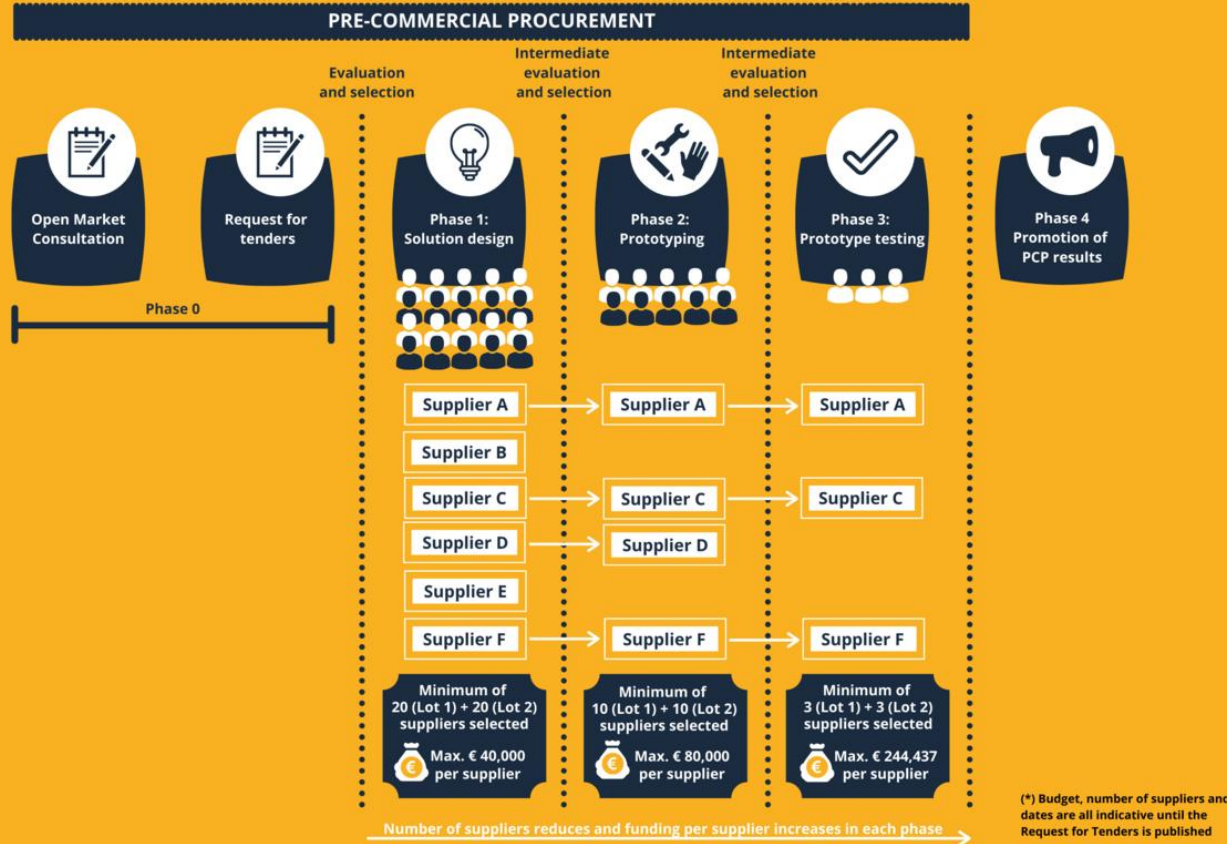
PCP enables public procurers **to compare alternative potential solution approaches** and filter out the best possible solutions that the market can deliver to address the public need.

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

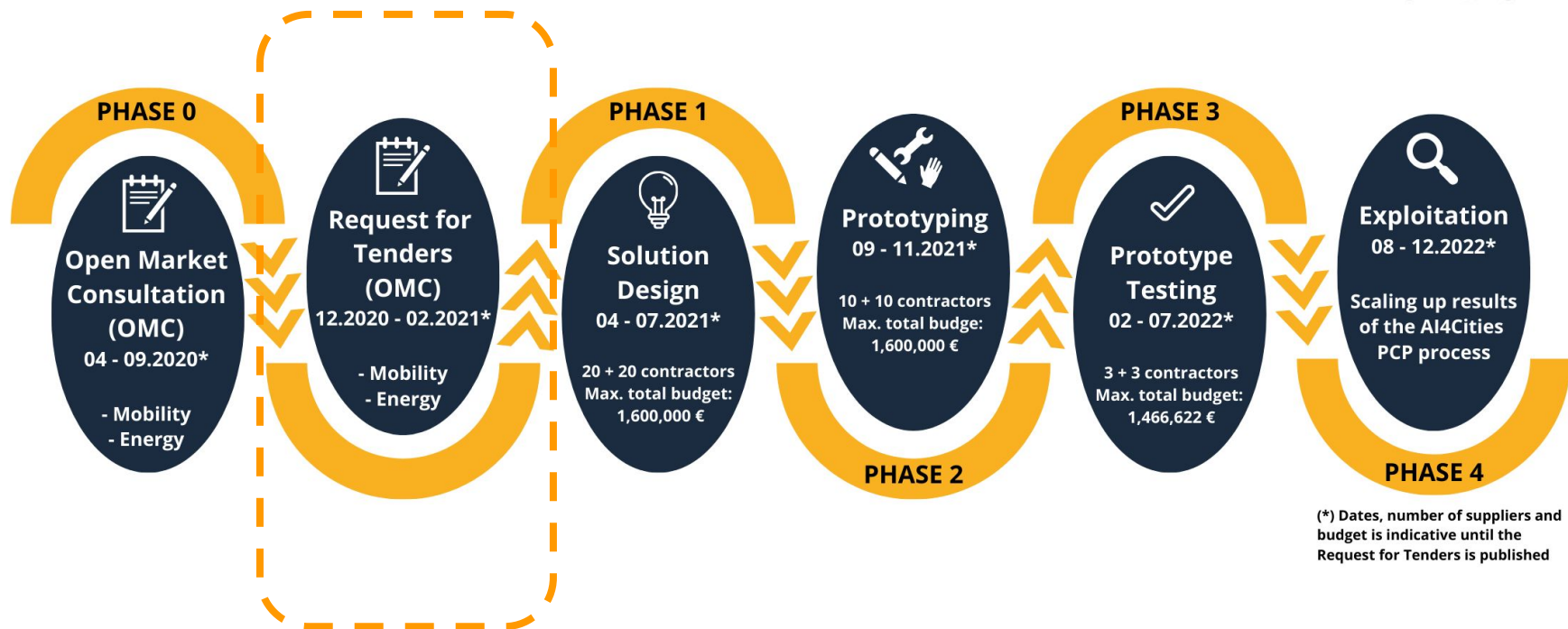
PCP vs. Traditional Public Procurement

PCP	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

MOBILITY CHALLENGE (Lot 1) & ENERGY CHALLENGE (Lot 2)



The AI4Cities PCP timeline



(*) Dates, number of suppliers and budget is indicative until the Request for Tenders is published

Phase 1: Solution Design – overview and expected outcomes

Duration: 3 months. Estimated procurement budget: 1.600.000 Euro in total, and 40.000 Euro maximum per Supplier (Expected minimum of 40 funded Suppliers and 20 per Lot).

Phase 1 is a feasibility study of the proposed solutions and technologies. The supplier will refine the solution design and the perform. It aims to verify the conceptual, technological, organisational, regulatory, safety and budgetary feasibility of each proposal.

Expected Phase 1 results:

- A report with a concept design, a description of the results of the feasibility studies and conclusions for the continuation of the development activities
- Fully developed Solution concept design,
- Prototype development plan
- A sustainability and/or business model for its future large scale usage.

Phase 2: Prototyping – overview and expected outcomes

Duration: 4 months. Estimated procurement budget: 1.600.000 Euro in total, and 80.000 Euro maximum per Supplier (Expected minimum of 20 funded Suppliers from Phase 1, 10 per Lot).

Suppliers will Develop, demonstrate and validate prototypes in lab conditions and they will produce working prototypes which allows the Buyers Group to understand how the solutions can be implemented in their cities.

Expected Phase 2 results:

- the delivering of a working prototype,
- a lab demonstration,
- a plan for the original development of a limited volume of first solutions,
- a roadmap for piloting, and
- an updated cost/benefits evaluation including a refined business and/or sustainability plan.

Phase 3: Piloting – overview and expected outcomes

Duration: 6 months. Estimated procurement budget: 1.466.622 Euro in total, and 244 437 Euro maximum per Supplier (Expected Minimum of 6 funded Suppliers from Phase 2, 3 per Lot).

The target is a working prototype in real-life environment, successful completion of piloting periods at least in two Buyers Group cities and realistic understanding of potential use cases and future markets.

Expected Phase 3 results:

- A specification of the final solution and other related technical documentation
- An updated cost/benefit evaluation
- The stable solution works on a technical level, has been tested in real-life urban settings, and validated with stakeholders, such as end users and authorities, for different use cases in each city.
- The Buyers Group have sufficient insight into the capabilities of the supplier to provide a solution that can work in a real-life environment.

AI4Cities CHALLENGES

Petteri Rekoma

Technical Expert - Forum Virium Helsinki



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Lot 1 - Mobility Sub-Challenges

Cities present: Amsterdam, Helsinki, Paris, Stavanger, Tallinn

Depicts current needs in the cities

Sub-Challenge 1: Mobility-as-a-service

Sub-Challenge 2: Traffic Flow Optimization

Sub-Challenge 3: Optimization of Logistics

Sub-Challenge 4: Wild Card



1 - Mobility-as-a-Service (MaaS)

Increasing the use of low emission forms of mobility (public transportation, active mobility etc.) by providing better service.

Examples of addressable problem areas:

- The usage of private vehicles within city boundaries is too high
- The attractiveness of public transportation is relatively low
- The engagement in active mobility activities is relatively low
- Lack of real-time multimodal information for citizens, integrating public transport, user-specific routing, on-demand parking, active mobility and unified payment systems

2 - Traffic Flow Optimization

Decreasing emissions by making traffic more fluent and making the infrastructure to support low emissions modes of transport.

Examples of addressable problem areas:

- Sub-optimal usage of existing road infrastructure
- Lack of predictive traffic planning (e.g. taking into account the effect of major public events)
- Under-utilization of existing data sources
- EV charging stations are often located in places where there is little demand, absent in locations where they are required the most and are often used inappropriately (i.e. by non-EVs or by exceeding necessary charging time).

3 - Optimization of Logistics

Streamlining and better coordination of commercial transport and urban logistics.

Examples of addressable problem areas:

- Too many logistics deliveries are being made by half-empty vehicles
- Very little or no task coordination between transport suppliers (all optimization happens within a fleet)
- Too many deliveries are made during peak traffic hours leading to increases in congestion
- Maritime and river transportation is used and coordinated inefficiently
- People still often use their private cars for shopping trips, when coordinated and efficient logistics solution would cause less CO2 emissions and save time.

Lot 2 - Energy Sub-Challenges

Cities present: Amsterdam, Copenhagen, Helsinki, Paris, Stavanger

Sub-Challenge 1: Flexible Energy Consumption

- Flattening peak loads and using more renewable energy to decrease emissions

Sub-Challenge 2: Energy Efficiency

- Finding ways to use less energy by using energy more efficiently

Sub-Challenge 3: Development of Renewable Energy

- Finding way to increase the use of renewable energy

Sub-Challenge 4: Wild Card

Sub-challenge 1: Flexible Energy Use

With increasing fluctuation in energy production flexible energy consumption can be a key.

Solutions can revolve around:

- Flexible supply and usage
- Flexibility in buildings
- Flexible Charging of EV
- Creating a market for flex.



Sub-Challenge 2: Energy Efficiency

“The best energy is the one you don’t use”

Solutions can revolve around:

- Optimizing energy usage of buildings
 - Better use of BMS data
 - Predictive maintenance
- Raise awareness of private businesses and people.



Sub-challenge 3: Development of RE

Support development of renewable energy and local city wide scale

Solutions can revolve around:

- Storage of energy produced from RE
- Mapping local RE resources
- Strategies for city level RE integration
- Lack of opportunities for local RE trading



Sub-challenge 4: Wildcard

Your best idea we missed?



SELECTION PROCESS AND ELIGIBILITY

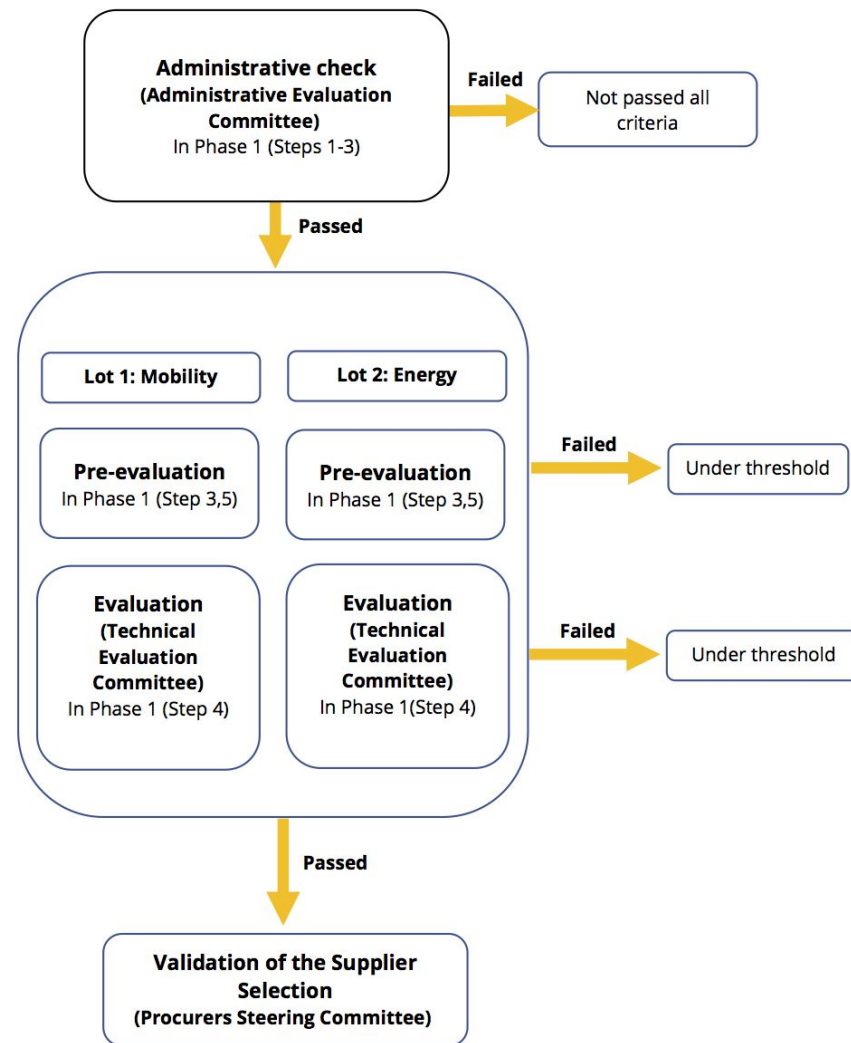
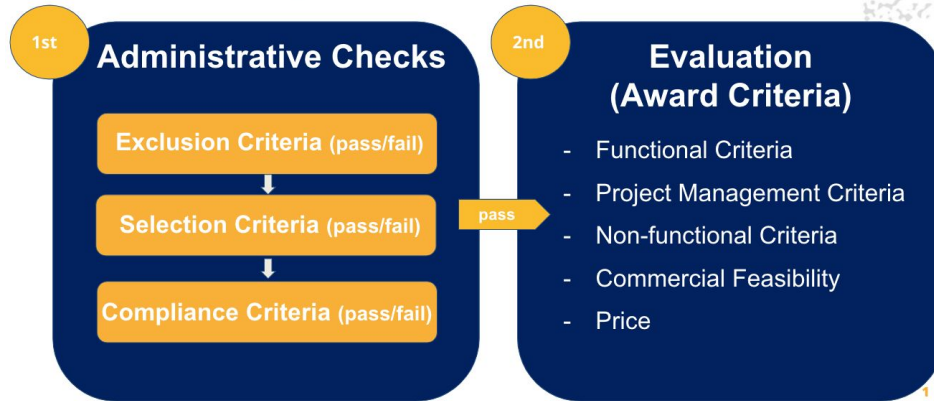
Kaisa Sibelius

AI4Cities Project Coordinator - Forum Virium Helsinki



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Selection and Evaluation of Tenders in Phase 1



TENDER DOCUMENTS OVERVIEW

Tender Document 1

Tender Document 2

Tender Document 3

Tender Document 4

Guidelines and general conditions

Technical Specifications

Framework agreement

Agreement for Phase 1

A Tender consists of forms A - H

Form A - General Tender Submission Form

Form B - Exclusion Criteria (declaration)

Form C - Selection Criteria

Form D - Compliance Criteria (declaration)

Form E - Technical Offer

Form F - Financial Offer and Cost Breakdown

Form G - Financial Offer Phase 1

Form H - Executive summary

Legal information and signatures of the consortium and subcontractors

Rules of exclusion criteria

Clarification of the tender's/consortium's capabilities to execute the solution.

Declaration of compliance with EU's financial and ethical rules

The main tender document, the description of execution

Description of financial offer covering Phases 1 - 3

Confirmation for Phase 1

For pre-evaluation

DATA SETS

Data Sources

Potential suppliers working on AI4Cities mobility-related solutions can make use of the data sources listed below. This is a non-exhaustive list of the freely available **open source data** in each AI4Cities city. The list will be updated throughout the project, as more data becomes available.

For any questions about these data sources, email: tech@ai4cities.eu. Please specify in your email to which city/cities your question relates.

Amsterdam



Copenhagen



Helsinki



Paris Region



Stavanger



Tallinn



ELIGIBILITY

Conditions of Tender - who can apply

- Participation in the tendering procedure is open on equal terms to all types of operators from any country, regardless of their geographic location, size or governance structure. However 50% of the R&D services needs to take place in the EU (for consortium in total).
- Tenders may be submitted by a single entity or in collaboration with others. The latter can involve either submitting a joint Tender or by means of subcontracting, or a combination of the two approaches.
- One Tenderer can submit multiple Tenders, as long as the solutions are different, but can be selected only once.
- A company can be a partner in several consortiums, if the other consortiums accept it too. A company can be selected as a Lead Tenderer only once though.
- For phases 2 and 3, participation is limited to Tenderers that successfully completed the preceding phase.

Exclusion Criteria (Form B)

- Conflict of interest
 - personal or professional
- Criminal offences
 - Corruption
 - Fraud
 - Money Laundry
 - Terroristic offences
 - Child labour or any other exploitation of human beings
 - Serious misrepresentation of information
- Bankruptcy and professional misconduct
- Passed or Failed

Selection Criteria (Form C)

- Confirmation of the financial, economic, technical and professional capacity to carry out and perform the work
- Description of relevant references and project
- Risk management plan
- Insurances
- Passed or Failed

Compliance criteria (Form D)

To ensure that the tender is compliant with

- the Principles of PCP
- Public financing
- Places of performance
- Ethics and research integrity
- Information security
- Passed or Failed

PCP Budget

Expected minimum number of suppliers (LOT 1 & LOT 2)	Max. budget per phase, excl. 24% VAT	Max. budget per supplier, excl. 24% VAT	Maximum duration of phase
Phase 1:40 (20+20)	1.600.000€	40.000€	3 months
Phase 2: 20 (10+10)	1.600.000€	80.000€	4 months
Phase 3: 6 (3+3)	1.466.622€	244.437€	6 months
Total	4.666.622€	364.437€	

Evaluation Outcome End-of-Phases

- On the end date of each Phase, the Suppliers submit their 'End of Phase Reports', including all the listed deliverables and Results.
- The End of Phase reports will be assessed by the Technical Evaluation Committee in order to determine whether Suppliers have **satisfactorily** or **unsatisfactorily** completed a Phase.
- The satisfactory/unsatisfactory completion will determine whether the Supplier shall be paid or not.
- The Technical Evaluation Committee will also evaluate if the Suppliers have **successfully** completed a particular Phase, and consequently, if their offer for the next Phase will be evaluated.

Payment schedule

For Phase 1

100% when the Phase 1 has been completed satisfactory

For Phase 2

25% after signing the contract for Phase 2

75% when Phase 2 has been completed satisfactory

For Phase 3

25% after signing the contract for Phase 3

25% when mid-term follow-up is completed satisfactory (M3.3. and D3.3)

50% when Phase 3 has been completed satisfactory

IPR and commercial exploitation

IPR

- The Suppliers will keep the ownership of the IPRs attached to the results
- The Buyers Group have the right to:
 - the access for they own use, on a royalty-free basis
 - grant non-exclusive licences to third parties under reasonable conditions

COMMERCIALIZATION

- The Suppliers need to make a business model and the implementation plan
- The Suppliers need to exploit the solutions within a period of four years after the end of the Framework agreement
- The Buyers Group will promote the R&D results via Preferred Partners and on the final event

Tender Submission

- Tenders will be submitted electronically via the AI4Cities website <https://ai4cities.eu>
- Tenderers need to choose for which Lot the tender is submitted
- In the consortiums the Lead Tenderer submits the tender documents and is the main contact point during the PCP
- **NO SCANNED PDFs!**

Monitoring of the Suppliers

- Each Supplier will be assigned a main contact person (their supervisor) from the project team. The supervisor of each Supplier will be communicated after the award of the Contract.
- During each Phase, contract implementation will be monitored periodically and reviewed against the expected outcomes (milestones, deliverables and output or Results) for the Phase.
- The supervisor will provide regular feedback to contractors after meetings or visits.

Recap of 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

TECHNICAL REQUIREMENTS AND AWARDING CRITERIA for Phase 1

Petteri Rekoma
Technical Expert - Forum Virium Helsinki



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Award criteria (weighted)

Phase 1:

1. Functional Criteria (40%)
 - CO2 emission reduction, Use of AI, Technical innovativeness
2. Project Management criteria (20%)
 - Project plan, Composition of the project team
3. Non-functional criteria (20%)
 - Impacts on city and citizens, Disruptiveness
4. Commercial Feasibility (10%)
5. Price (10%)

The threshold for each criteria is around 60%.

→ A supplier needs to get at least 60% of the points in each criteria to advance to the next Phase.

FUNCTIONAL SPECIFICATIONS

- Tender Document 2

Same requirements for both Mobility (Lot 1) and Energy (Lot 2)

Goals for requirements:

- Represent the most important functions for solutions.
- General enough to be applicable to all possible solutions, but specific enough to allow meaningful evaluation.

Phase 1 Functional Requirements

FR1: CO2 Emissions Reduction

- Does it reduce CO2 emissions, how and how much?

FR2: Use of AI

- Does it use real AI that provides added value to the solution?

FR3: Technical Innovativeness

- Does it go beyond the current state-of-the-art?

Phase 1 Non-Functional Requirements

NFR1: Impacts on City and Citizens

- Other benefits for Cities or Citizens?
- Are there any risks or negative side effects related to the solution and how you are going to address them?

NFR2: Disruptiveness (nice to have)

- Does the solution change the status quo in business or market on some level?

Form E: Technical offer

Tenders must include a detailed Technical Offer (Form E), containing:

- A short summary of their idea
- A project management plan. This must include an explanation of the method, a work plan including time schedule, description of composition of the team
- The Tender must describe how they will achieve the must haves and the nice to haves in the functional and non-functional specifications.
- A draft business/commercialisation plan, incl. risk assessment and risk mitigation strategy
- A list of the pre-existing rights (Background) relevant to the Tenderer's proposed solution

An abstract pattern of small, light gray circles of varying sizes, arranged in a way that suggests a map of the world or a network of connections. This pattern is located in the top right corner of the slide.

QUESTIONS?

MORE INFORMATION

- **How to write a good tender webinar** on 26.1.
Registration: <https://ai4cities.eu/events?c=search&uid=h3WMXnZ8>
- <https://ai4cities.eu>
- A Tendering Guide <https://fvh.io/ai4cities-tendering-guide>
- Send questions by email
 - info@ai4cities.eu
 - tech@ai4cities.eu

A faint, light gray world map is visible in the top right corner of the slide, serving as a background element.

Thank you for you attention!

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