



AI4CITIES

Open Market Consultation – Amsterdam webinar



Anja Reimann

Project lead *AI4CITIES*
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

P: +31 (0) 614825085
E: a.reimann@amsterdam.nl



Jan Duffhues

Innovation Manager, Sustainability and City
Development
City of Amsterdam

- Working on innovation for a sustainable and livable city
- Working together with citizens, knowledge institutions and businesses to experiment with new solutions
- Learning from successes and mistakes

P: +31 (0) 619280562
E: j.duffhues@amsterdam.nl

What is the project?

AI4CITIES



What is AI4Cities about?



EU-funded project for AI solutions to accelerate carbon neutrality



Challenge-based Pre-Commercial Procurement (PCP) approach



AI solutions, not market ready - mobility and energy challenge



Based on AI and related key enabling technologies including big data applications, 5G, edge computing and IoT



Total funding amount is 4.6 million euros

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€



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

City of Stavanger

Forum Virium Helsinki

City of Tallinn

City of Copenhagen

City of Amsterdam

Cap Digital
(Paris Region)

ICLEI GmbH

FORUM
VIRIUM
HELSINKIX Gemeente
X Amsterdam

cap-digital

Tallinn

Stavanger
kommuneICLEI
Local
Governments
for Sustainability

Pre-Commercial Procurement (PCP)

- challenges industry from the demand side
- provides a first customer reference that enables companies to create competitive advantage
- enables public procurers to compare alternative potential solution approaches
- filter out the best possible solutions to address the public need



*The Pre-Commercial Procurement tool presents a huge potential as an **innovation instrument** capable of helping cities to modernise public sector services and solve key societal challenges.*



What are we looking for?

Mobility



Energy



- ✓ Unique and innovative digital solutions
- ✓ Utilizing AI + enabling technologies
- ✓ Help Cities reduce their CO2 emissions
- ✓ Not market-ready technologies

Who are we addressing?

1



Companies, developers and consortiums

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

2



Cities and other public procurement organisations

interested in potential take up of the solutions developed within the PCP process.

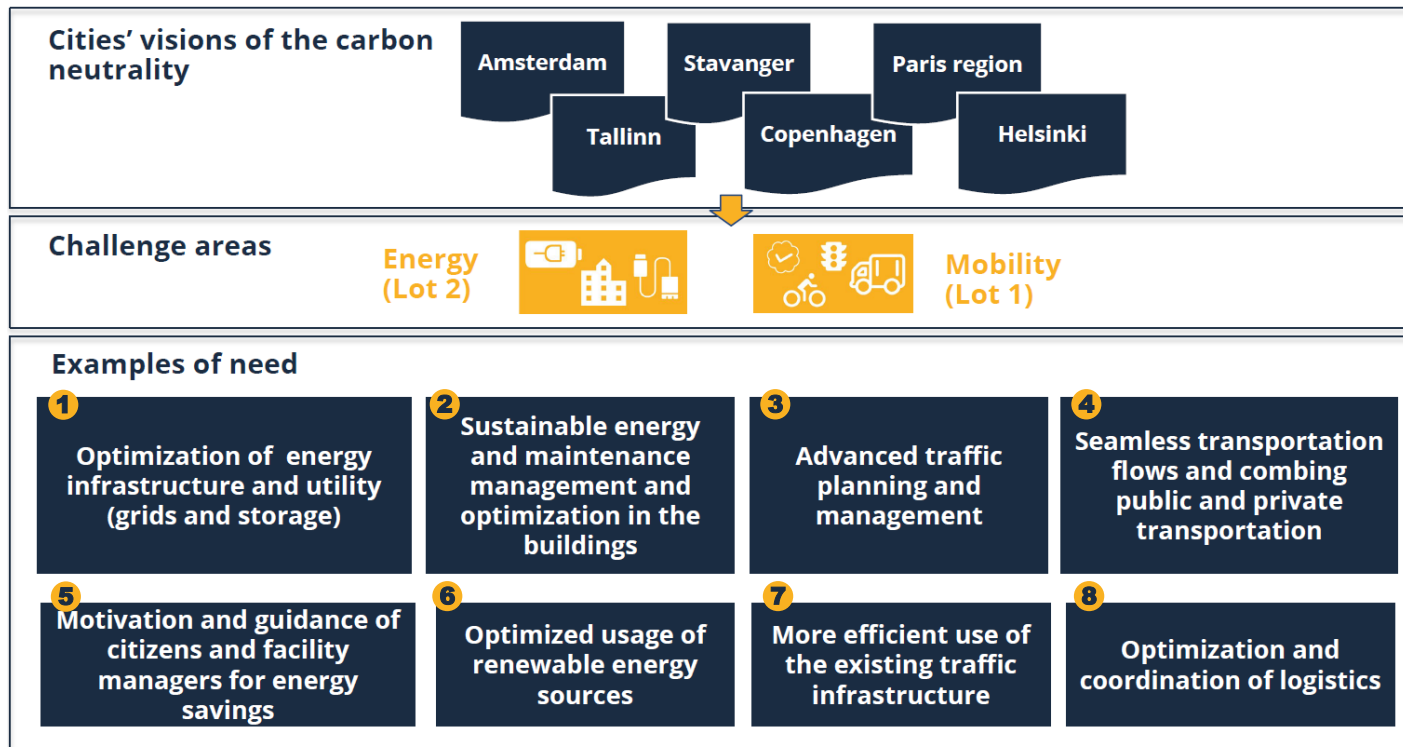
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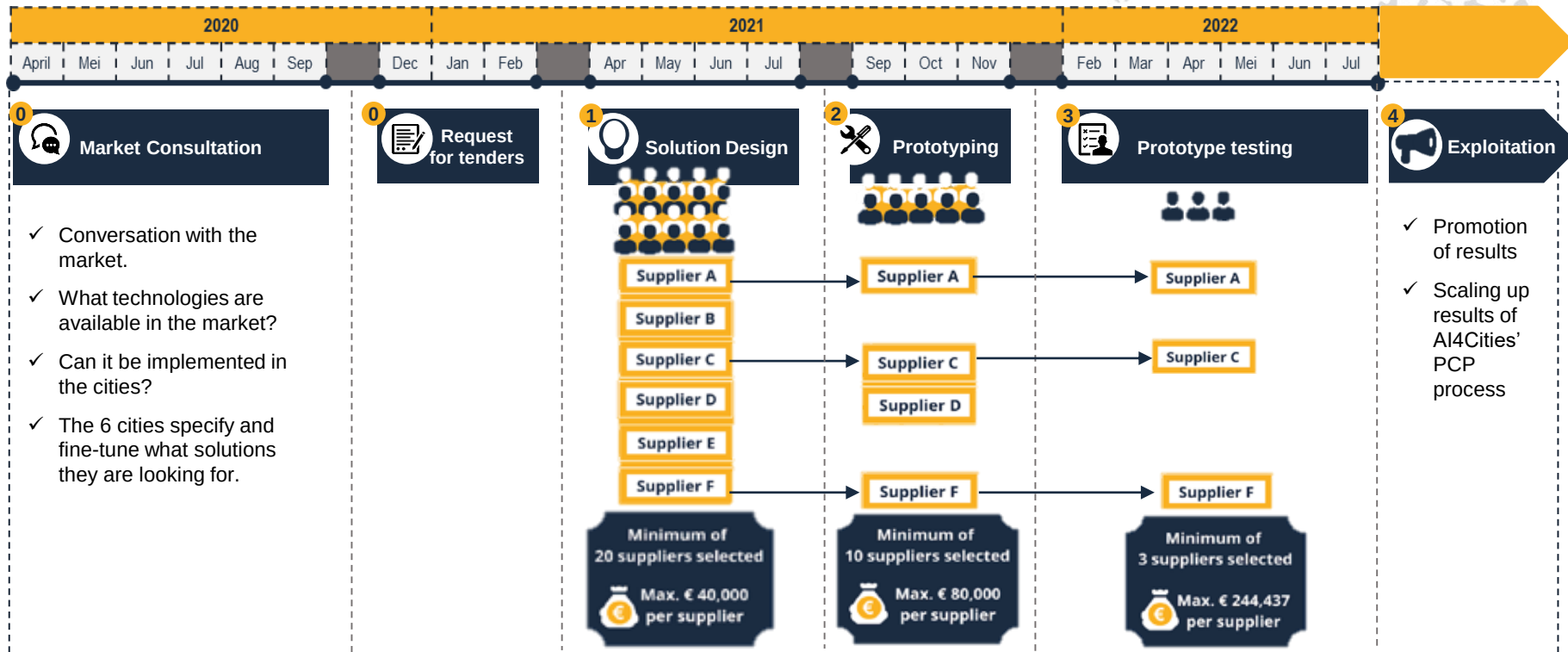
Others

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

From the cities visions to results



Process and timeline



Additional and upcoming activities

1 Website



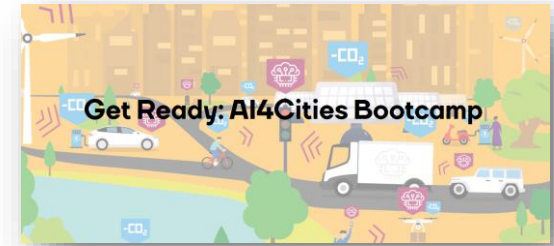
<https://ai4cities.eu/>

2 Matchmaking



<https://ai4cities.eu/matchmaking>

3 Bootcamp



<http://industryhack.com/ai4cities-bootcamp/>

Bootcamp

! coach motivated participants to write their **best applications** for upcoming tender

! coach and **spar** with participating teams about their preliminary solution ideas and application process

! participants will have unique opportunity to **impact on the contents of the tender**

Participation requests to **Get ready:**
AI4Cities Bootcamp will open on
24.8.2020.

Timeline

24.8. – 11.9. Participation requests are accepted

3.9. 9 – 12 CET Info Webinar

8.9. CET 2h OMC Matchmaking Event

Week 38 Team selections and announcing participating teams

23.- 24.9. Co-Creation Days (1 day for each track, days TBC)

December PCP Matchmaking event

Mid January 2021 Coaching Webinar

December – January PCP Application period

**Why did Amsterdam join and what
are our challenges?**

AI4CITIES



↑ More rainfall with heavier, more frequent downpours. Increasingly wet due to 6% more rainfall



↑ Since 1950, the average temperature has risen by 1.6°C



↑ An increase to 40 summer days is expected by 2085



↑ Heat-related stress and sleep disturbance



↑ 21 tropical nights per year (in 2050), compared to 7 at present



↑ Rising demand for electricity. Shortage of electricity and heat

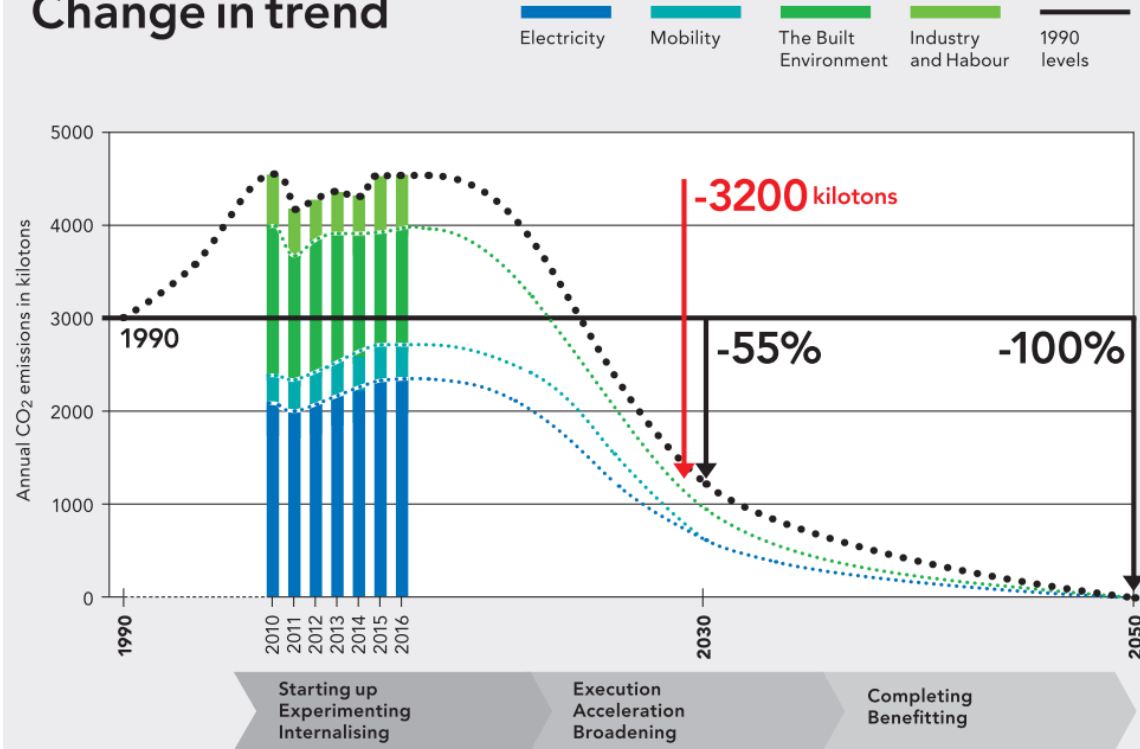


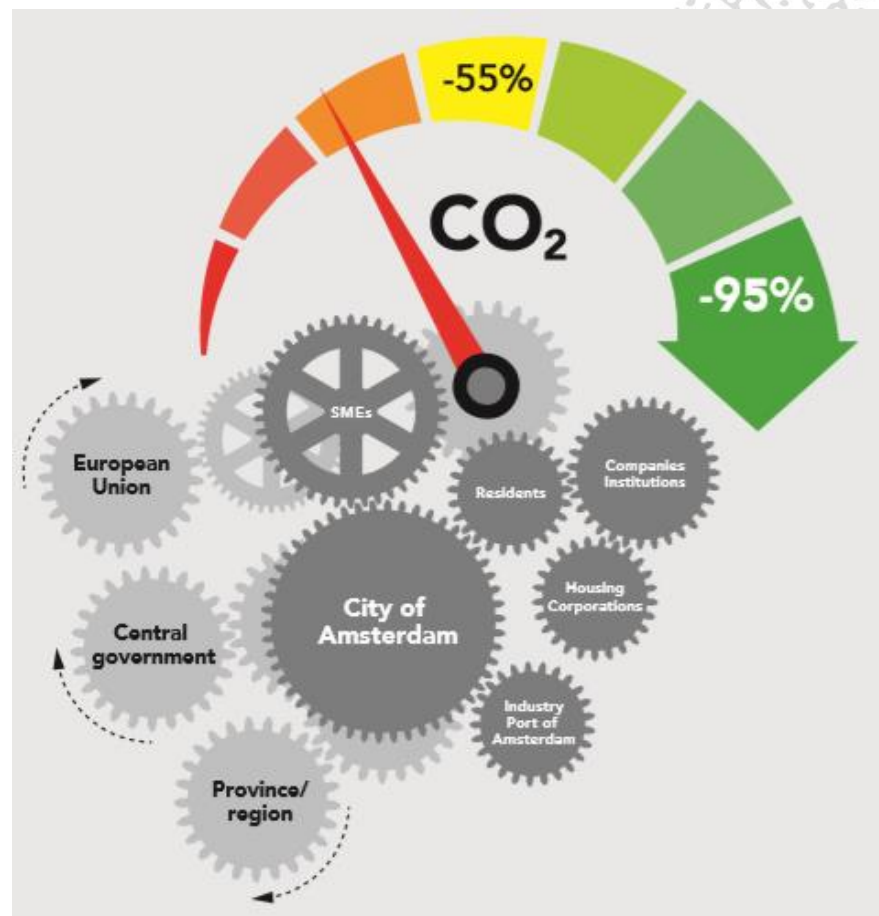
↓ Fall in the number of frosts



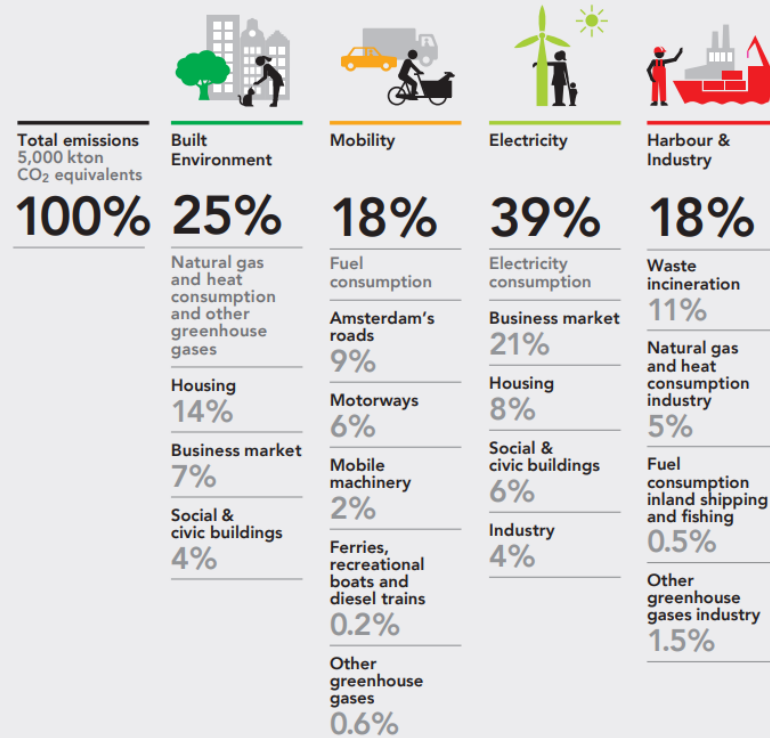
↑ 85 cm rise in the sea level this century

Change in trend





Current greenhouse gas emissions in Amsterdam



MOBILITY (Lot 1)



use-cases and examples from
the

City of Amsterdam



Low-car City



1 What is the challenge?

- Shared bikes,
- How does the hub network need to be structured? Where do we still have space? Who are the users?

2 What is the potential impact?

- Increasing the share of carbon-neutral transport modes (walking, cycling)

3 How can we use AI here?

- Analyzing possibilities for space
- Determine where to place the hubs

Mobility as a Service



1 What is the challenge?

- Amsterdam is participating in a national project on Mobility as a Service
- Different solutions are still needed to complete the MaaS network

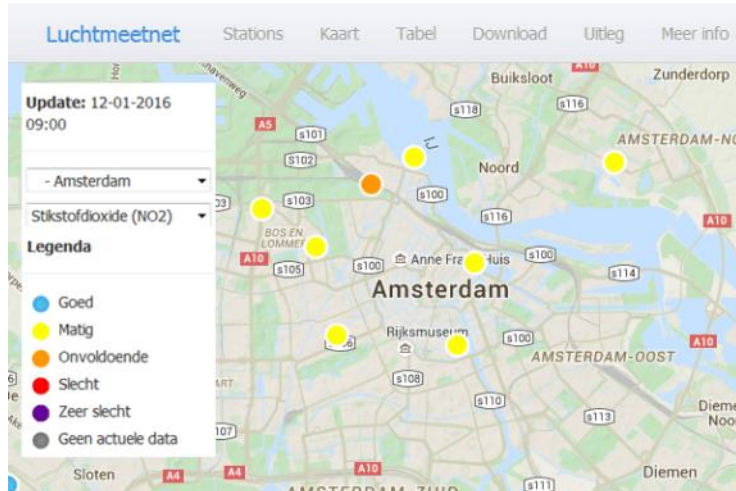
2 What is the potential impact?

- Increase the options for mobility users so they can easier choose the carbon neutral option

3 How can we use AI here?

- Showing all transport options and connecting them in a user friendly environment
- Making certain transport options such as tram or bike more attractive for users

Advising a route based on air quality and/or CO2-emissions



1 What is the challenge?

- Amsterdam already has an advanced traffic flow system
- Traffic flow management is based on congestion not on air quality

2 What is the potential impact?

- Causing less carbon emissions and keeping air quality at acceptable levels

3 How can we use AI here?

- Develop a smart route planning including the real time results of the air quality
- Geo-fencing

ENERGY (Lot 2)



use-cases and examples from
the

City of Amsterdam



Smart Charging



1 What is the challenge?

- Where to place charging stations or batteries?
- How to coordinate different usage moments?

2 What is the potential impact?

- Improving efficiency and balancing of the electricity grid
- Increase the % of cars and homes with no carbon emissions

3 How can we use AI here?

- Planning and coordinating charging moments in the city

BRAKE!



1 What is the challenge?

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

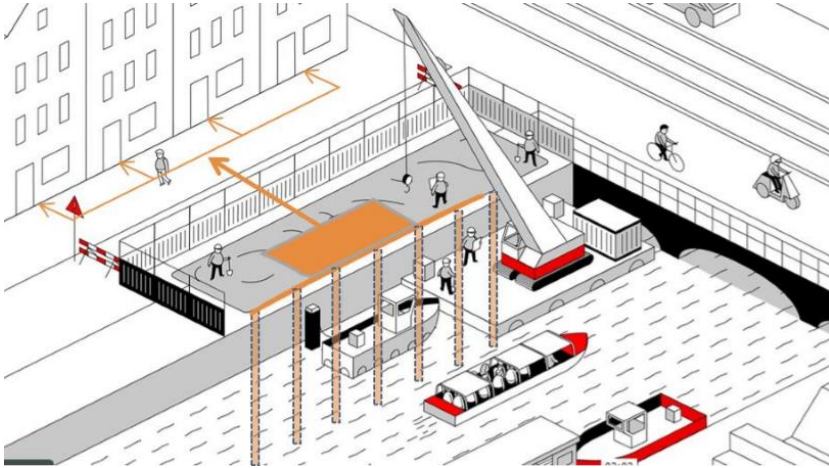
2 What is the potential impact?

- 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

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

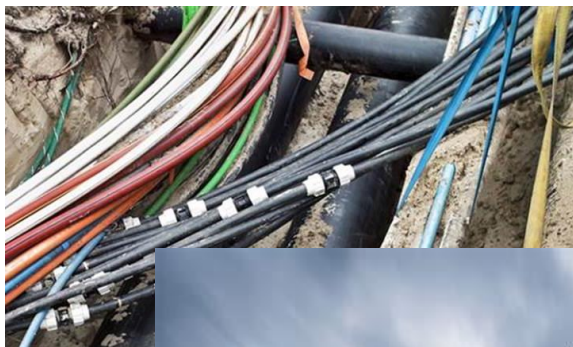
2 What is the potential impact?

- 200km of quay wall to be replaced, potential amount of ca. $0.45\text{GJ} / \text{m}^2$ 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

From spaghetti to Internet-of-Energy



1 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?

- Improving energy efficiency of data use
- Grid optimization for Internet of Energy

3 How can we use AI here?

- Connecting the different systems and “usage moments”
- Peak predictions in relation to network capacity (weather for energy, data peaks)
- Smart monitoring and managing the assets

Questions & Answers

AI4CITIES



- 1 Have a look on our website. It is constantly updated.
- 2 Send in your questions via the website (<https://ai4cities.eu/the-pcp/questions-and-answers>)

Received questions

1

What TRL level is expected?

There is no strict rule for Technical Readiness Levels (TRL) but the solution can be up to TRL 7 (System prototype demonstration in operational environment) in the end of Phase 3. The idea of PCP is not to commercialise the solutions (TRL 8 or TRL 9).

2

Consortium & Funding

The funding is for the consortium and the members of the consortium will share the budget.

3

Is there a maximum hourly rate?

There is no maximum hourly rate, but the buyers group will consider how they will get the best value for the money and the price is one of the evaluation criteria.

4

DATA

The data sources can vary between the cities. The members of the buyers group will help the suppliers to find the information from the cities.

Received questions

5

How many tenders can one company hand in?

One suppliers can make multiple tenders as long as the solutions are different and they have capacity to execute multiple solutions in the same time. If a company is a partner in several consortium, the consortiums have to accept it too.

6

Tender requirements / types of documents

The documents will be published when the request for tenders is published in December, but we will publish the list of tender documents on the site to give companies an overview of the required documents.

7

Define “AI technology”



The solutions have to be base on AI with other enabling digital technologies (including big data applications, 5G, edge computing and IoT)

8

What is in scope?

We are working on making the challenges more specific giving examples and use-cases per city or jointly. However, we will also include a wildcard which essentially allows everyone to come with a good idea.



Received questions

9

Current AI applications contributing to CO2 reduction



10

Please specify your needs

RfT

11

Off the shelf product vs concept/idea

Concept/ idea which needs to have to capacity to be worked out further

12

IP

website

13

Joined brainstorm with Amsterdam

Bootcamp

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× Amsterdam**

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Stavanger**

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CONTACT

Anja Reimann

a.reimann@amsterdam.nl

+31(0)6 14 82 50 85

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E info@ai4cities.eu

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