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SMART CITY CHALLENGE 2024

City Challenge

Max 3 pages

send to smartcity@taltech.ee by May 15, 2024

Challenge Title – Database of Pärnu`s urban data

City/county and country – Pärnu City, Estonia

Main contact from your city/county – Elen Kuningas, Pärnu City Government, environmental projects coordinator, elen.kuningas@parnu.ee, +372 508 6812

1. What is the future urban challenge that would need a solution to?

- **Please describe the challenge of your city / county neighboring a city?**

  A common database of Pärnu's urban space data - There is no common system and environment to map all possible data for the whole urban space. We need all possible data related to the urban space to be used later, e.g. materials, heights, volumes, road surface, landscaping (how landscaping changes throughout the year; e.g. to see if the landscaping to be installed will obscure traffic signs), building material, tree types, etc. We need an easy, cheap and quick solution to get all possible data quickly. Previously done data mapping etc.

  For example, we would need roof material data to find out if the roof material absorbs or radiates heat. This would provide an opportunity to analyse, for example, the impact of heat islands in the area.

  The pavement material in terms of heat island effect. What kind of road surface is it, whether it absorbs or radiates heat.

  Demonstration of planning using virtual reality. Demonstration of new planning, if something is being built next to someone's home, then a citizen can be shown how e.g. the building being built etc will look next to their home. A citizen could put glasses on their head and be able to take a virtual walk to see what the situation will be.

- **Why is it important for your city to solve it? How big priority it is for you and why?**

  This is important to our city because Pärnu would like to start developing city Digital Twin for better city planning and be more efficient in the future. Data is a very big factor in developing digital twins and that's why we need some cheap and easy way to collect the city environment data. Currently the data is not available from one source and is scattered around and in some cases still not even in digital form. The priority is big because city planning is going more technical and we need to include as much data as possible to make better decisions in city planning.

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- **Is this a unique challenge/problem of your city, why or is this by your knowledge a challenge/problem that many cities have – which kind of other cities?**
  It is not a problem only to city of Pärnu. Smaller citys don't have the resources to develop individual data collecting systems, specially from the environment directly and all city's need planning. As the city's need to go greener they need as much data as possible to make the right decisions. So the problem is bigger and most of the city's should need data from the city environment as the current data is segregated and not in one place. Similar data could come into use in city's like Viljandi, Rakvere, Võru, Kuressaare, Haapsalu, Paide, Narva, Valga.

2. Innovation.

- **How have you solved that issue so far? Why aren't the present solutions good enough? Are there legal obstacles, which ones?**
  Currently, city is using some data from Estonian building registry, some data from Estonian land board and some data from city archives which are on paper. This kind of usage of the data takes a lot of time to analyze and most part of it is unusable to start developing city digital twin.

  No solutions has yet been introduced, presented or tested. No studies or surveys were made either, so the topic remains uncovered. Some bigger cities like Tallinn or Tartu have collected the data manually for a long time and they have some elements covered but not all.

- **What should be the main features, characteristics of the future solution to be potentially best for that challenge or problem?**
  Good solution would consist of: Data collection directly from the city environment itself via drones or some other solution.

3. Expected impact of your pilot solution.

- **What is the expected impact to your city environment you expect to see if the challenge gets solved?**
  City can make better and greener decisions in city planning and urban environment. This is a huge role as city is a living space and it needs to be in very high quality for its citizens. City will have better environment in heat islands, city will have more green spaces, minimized wind corridors, city will have knowledge of sea and river rises and can plan activities better to help minimize the risks. Overall city environment will improve and will be more sustainable as the planning process is better.

- **What is the expected impact to your citizens you expect to see if the challenge gets solved?**
  Citizens have a better understanding of city and urban planning – how and why things are being planned. Important part here is that the planning is more based on data. The process becomes more open and clearer and arguments during the decision-making process should be minimized as there is more data. The data can

also be more visualized to create a better understanding of the environment. So thanks to better planning decisions urban environments become better for the citizens.

- **What is the expected impact to your city governance you expect to see if the challenge gets solved?**
  City can gain effectiveness in planning process. Also planning process becomes more clearer for officials and they have more data to analyze and make the better decisions. City will be more effective in argument processes between neighbors and have more arguments to defend opposition arguments.

4. Piloting

- **Why would you be interested to become a piloting partner of a proposed solution to the challenge you are describing here? Describe shortly your capability to participate.**
  Pärnu is not a big City, but it is a perfect sized City to be a sandbox for this kind of project. Citys have similar problems, and Pärnus geographical position gives advantage to analyze river or sea Impact on the City. We have four diferent seasons in our climate and we have many active building and reconstructing projects in private and public sectors. So the city has a big potential to be a test bed for building up scalable solutions for ohter cities.