

An aerial, high-angle photograph of a city grid, likely Helsinki, showing a dense arrangement of buildings in various colors (blue, green, red, brown) and a network of streets. The image is slightly blurred, creating a sense of depth and movement.

FORUM VIRIUM HELSINKI



Forum Virium Helsinki

- An innovation company established in 2005, which co-creates urban futures.
- Three main focus areas: smart city, smart mobility and open data & IoT.
- A non-profit limited liability company fully owned by the City of Helsinki.
- Employs 60 top experts.
- The company operations are funded by the City of Helsinki and different EU projects with about EUR 8–10 million project portfolio a year.



Forum Virium as partner

- Companies' new solutions and business models
- Experiments, pilots and innovation competitions
- The city as a test bed for new services and technologies
- Living labs and resident cooperation

- The digital twin of movement
- Using data in planning
- Opening up data as a basis for companies' innovations

Stara



Helsinki City Construction Services, Stara, is a versatile expert in the fields of construction, environmental management and logistics. Our approximately 1,400 professionals take care of Helsinki. Our goal is to be the most desired employer and service provider in our sector – a responsible and competitive pioneer.

Stara's services for Helsinki



Stara Public Enterprise reliably and flexibly provides all urban construction and maintenance services to Helsinki – from large construction projects to small repairs and from long-term landscaping contracts to condition surveys of individual trees. The City's internal operators can order services from Stara easily and quickly. Stara also offers the expertise of its extensive subcontractor network as well as superior local knowledge in Helsinki.

Our challenges

in the Digital Twins Hackathon 2022



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Overcome winter conditions to improve equal urban mobility

Winter maintenance & mobile equity



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Challenge background

- **Winter conditions can be challenging in the urban environment for those travelling by foot, bike or scooter; those with reduced mobility**, as an elderly or injured person; or anyone slowed down by equipment such as strollers, walkers, wheelchairs
- The City of Helsinki is divided into maintenance areas and within these areas the streets and allies further into maintenance classes (I-III for driveways, A-C for sidewalk). The priority in winter maintenance, such as snow removal (ploughing) depends on these classifications
- The maintenance plans are currently quite static - the problem with this is, that the street areas are ploughed in the same order and prioritisation throughout the winter
- In a workshop done in LiDi2 project in the spring 2022 companies and data consumers recognised the need to have real-time data on road infrastructure, surfaces, and maintenance operations **to create better and equal accessibility of traffic routes for everyone**
- Also Stara is interested in developing the maintenance work planning and execution **with help of data** available



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Challenge objectives

- Stara's current workflow is based on static work plans and service level plans that ensure effective lead times and stable quality. However, the plans do not react in an agile manner to respond to condition changes. In addition, fleet routing currently distributes the effects of maintenance work unevenly to residents living in different service level areas.
- We challenge participants to think of solutions that enhance Stara's ability to proactively respond to winter maintenance needs as they change, in order to improve the accessibility of street space (making it possible to travel to critical destinations like hospitals, schools and to the public transport line) and to provide services more equally.
- Could your team find solutions that help both Stara, subcontractors, and residents?



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Possible outcomes

- We offer the contestants data from all the three mobility aspects - infrastructure, traffic, conditions.
- Datasets offered include e.g. geospatial data, other data on the maintenance vehicles, routes and work they have executed, routes the residents use and weather information
- Possible outcomes could be e.g.:
 - Alternative work plans for Stara crews / the means to generate them
 - Ways for citizens and subcontractors to view updated condition information
 - A method to facilitate updated plans between Stara and subcontractors in response to changes in conditions
- We do appreciate innovative ideas, please give your best!



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Reboot logistics: Optimising for sustainable supply chains

City logistics, carriage sharing, operational liability



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Challenge background

- During the Covid-19 pandemic Stara Logistics delivered during the busiest two weeks of the peak pandemic protective masks corresponding a normal consumption of 12 years to various locations in the city of Helsinki
- As shown there Stara's fleet capacity is enormous and they serve the City of Helsinki with various logistical transportation on a daily bases
- Currently Stara Logistics' work and route planning is based solely on-demand, and the supply chain utilises subcontractors using hourly billing - carriages that deliver goods throughout the city travel empty back



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Challenge objectives

- Could Stara Logistics Centre provide transportation capacity for other service providers within the city as well, with the same volume of fleet on the streets? If so, would the City Logistics be in need of a new kind of operational model approach?
- How would this affect the utilisation rate of the Stara Logistics fleet - could it bring cost savings within the City of Helsinki's organisation as a whole?
- What about the overall traffic load on the streets? How to keep the delivery capacity constant during all conditions while serving wider audiences?
- **We are looking for innovative, data-utilising, scalable solutions to develop reliability and efficiency of deliveries**, be it during exceptional times such as during a pandemic or just everyday logistics in summer and winter conditions in a ever evolving urban environment such as Helsinki.



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Possible outcomes

- We offer the contestants logistical operational data from Stara's systems
- Datasets offered include e.g. vehicle route information, delivery and pick-up points, work order status data
- We challenge participants to think of ways that Stara Logistics could, with the help of operational data available, predict, plan, and optimise its operations as well as innovate on new operational models as the biggest logistical hub of the City of Helsinki.
- Solutions may vary e.g from:
 - calculation models to
 - fleet usage optimising solutions to
 - capacity sharing marketplace concepts



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Digital Twins Hackathon

25. - 27.11.2022

Register by 13.11.



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