



Ministerie van Infrastructuur  
en Waterstaat

MaaS Congres 3 maart  
2020

Blockchain challenge  
Maas NL

Preliminary outcome

[Ruud.mollema@minienw.nl](mailto:Ruud.mollema@minienw.nl)





# MaaS NL & Blockchain

Blockchain,  
?

## MaaS NL:

- › Based on offers from the industry:
- › Process MaaS datastring in blockchain.
- › Ministry announced blockchain challenge for MaaS:
- › 3 companies applied for the challenge
- › 2 resigned
- › 1 is finishing the challenge and reported intermediate results

**MaaS Singapore:** Blockchain therefore presents endless opportunities for all stakeholders in the connected vehicle and electric vehicle space — from vehicle owners to manufacturers to service providers. While blockchain technology remains at its infancy, it is increasingly evident that blockchain can serve as a powerful catalyst for urban mobility innovation.



# Table of Contents

- 1. Blockchain Challenge Program Overview**
- 2. Outcomes of Blockchain Challenge Program from Sony as applicant of Blockchain Challenge Program**
  - Blockchain Common DB Overview
  - Feasibility Test Result Overview
- 3. What Blockchain means for trustworthy solution**
- 4. The plan of Blockchain Challenge Program from now**



# Blockchain Challenge Program Overview 1/3

## MaaS-pilots in the Netherlands

- The main purpose of the pilots is to learn. It is expected that during the course of the pilots more insights will be gained into what a suitable form of governance is for the MaaS ecosystem. If the conceptual promises of MaaS are fulfilled in practice, there will be many opportunities for more data-driven mobility policy, more efficient utilization and the achievement of other policy goals, such as those concerning target group-oriented transport.
- At this stage, however, the Ministry fully acknowledges that these are pilots and, in pilots, things may also go wrong in order to learn from them. This concerns the emergence of a new platform economy, as platforms can lead to (positive and negative) effects. The MaaS program will monitor the situation and impacts closely.



# Blockchain Challenge Program Overview 2/3

## Goal of the Blockchain Challenge

- Learning by doing is clearly a central goal in the MaaS pilots of the Ministry, this philosophy is extended to other fields that will relate to MaaS implementation in the future.
- Blockchain may be one of the potential disrupting technologies that can contribute to the successful (future) operation of a MaaS ecosystem. Especially for those functions which require trust to be established in transactions between different (competing) stakeholders, Blockchain could offer a trustworthy solution.
- Transactions that are considered privacy- or financially sensitive normally require complex arrangements to be in place between stakeholders before any data exchange can take place. The Ministry encourages companies to do experiments with Blockchain solutions that would standardize the conditions and facilitate the exchange of this kind of data between stakeholders in the MaaS ecosystem. Also, the technological challenge of processing high transaction volumes at very low latencies is a subject of interest, for MaaS-related transactions for the Netherlands.
- The Blockchain Challenge offers a platform for companies willing to run feasibility tests in the MaaS ecosystem and to present their Blockchain solutions to the Ministry of Infrastructure and Water Management.



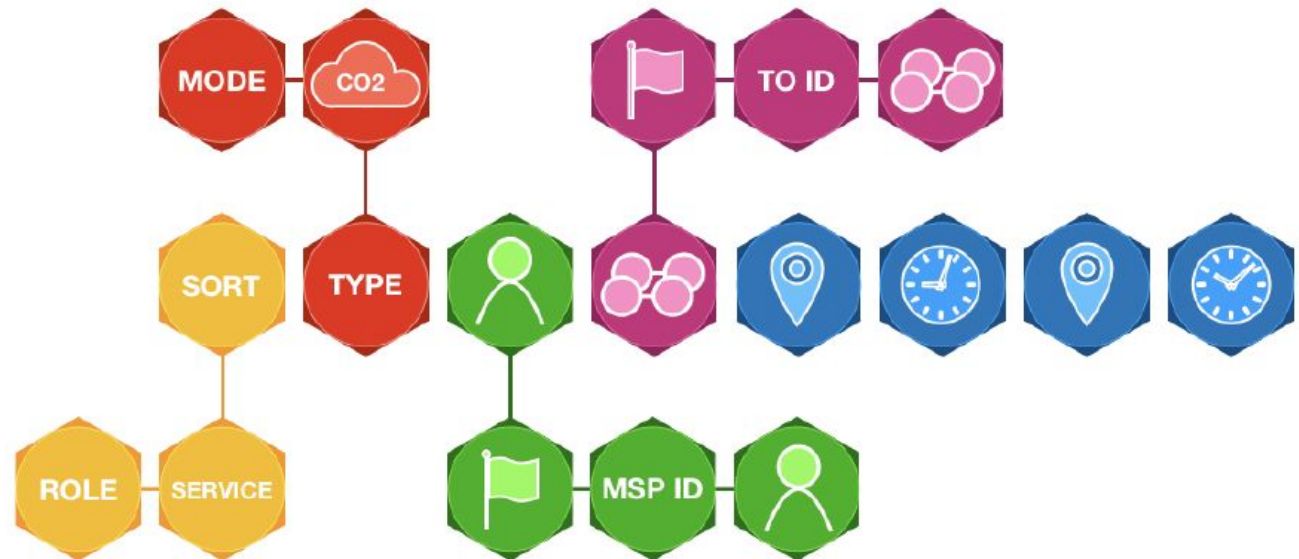
## Blockchain Challenge Program Overview 3/3

### • The data string transaction format within the Ecosystem

- In the MaaS ecosystem, transactions between stakeholders will be registered and processed through a standardized data string, with the following definition:



The following elements are included in the complete data string:



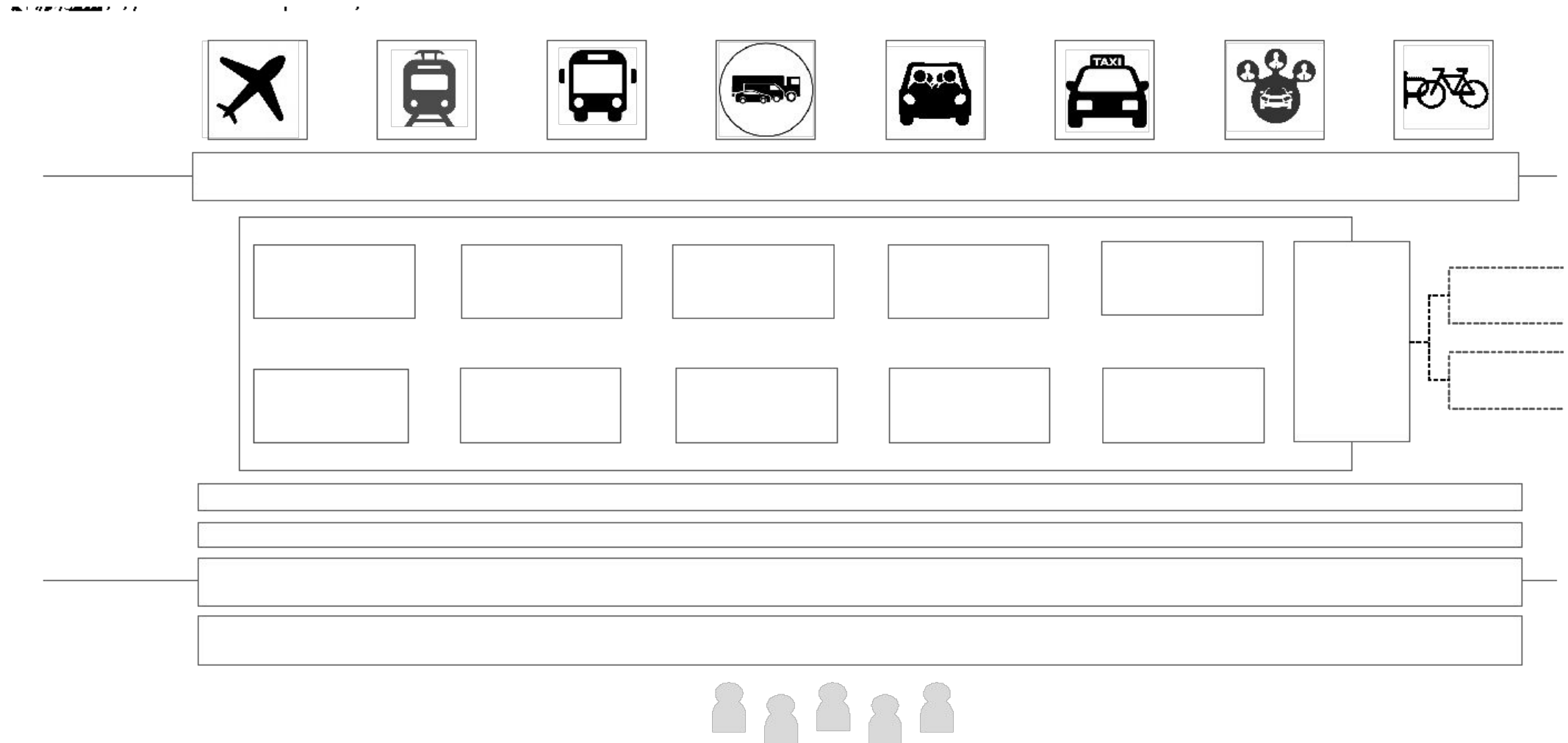


# Table of Contents

- 1. Blockchain Challenge Program Overview**
- 2. Preliminary outcome of Blockchain Challenge Program from Sony as applicant of Blockchain Challenge Program**
  - Blockchain Common DB Overview
  - Feasibility Test Result Overview
- 3. What Blockchain means for trustworthy solution**
- 4. The plan of Blockchain Challenge Program from now**



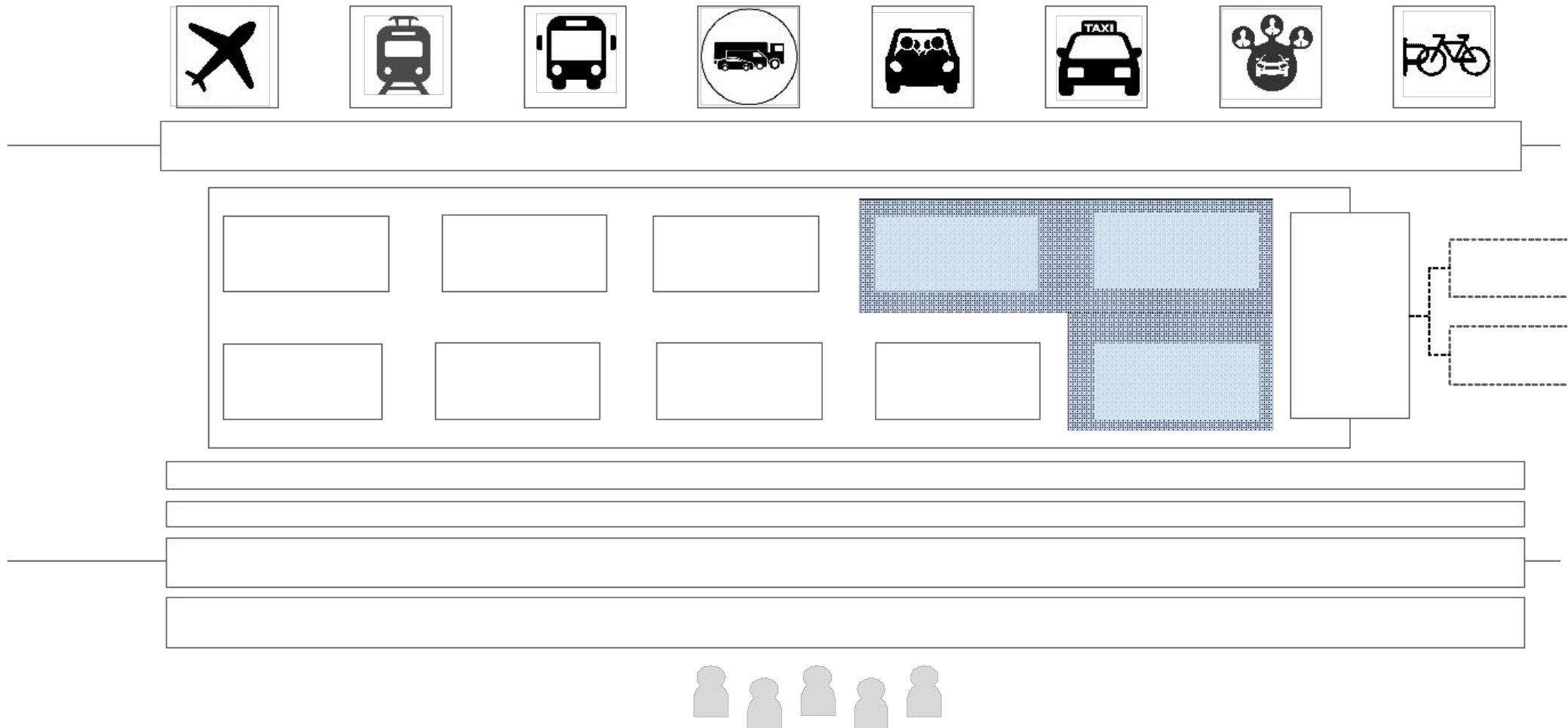
# MaaS Industry Analysis





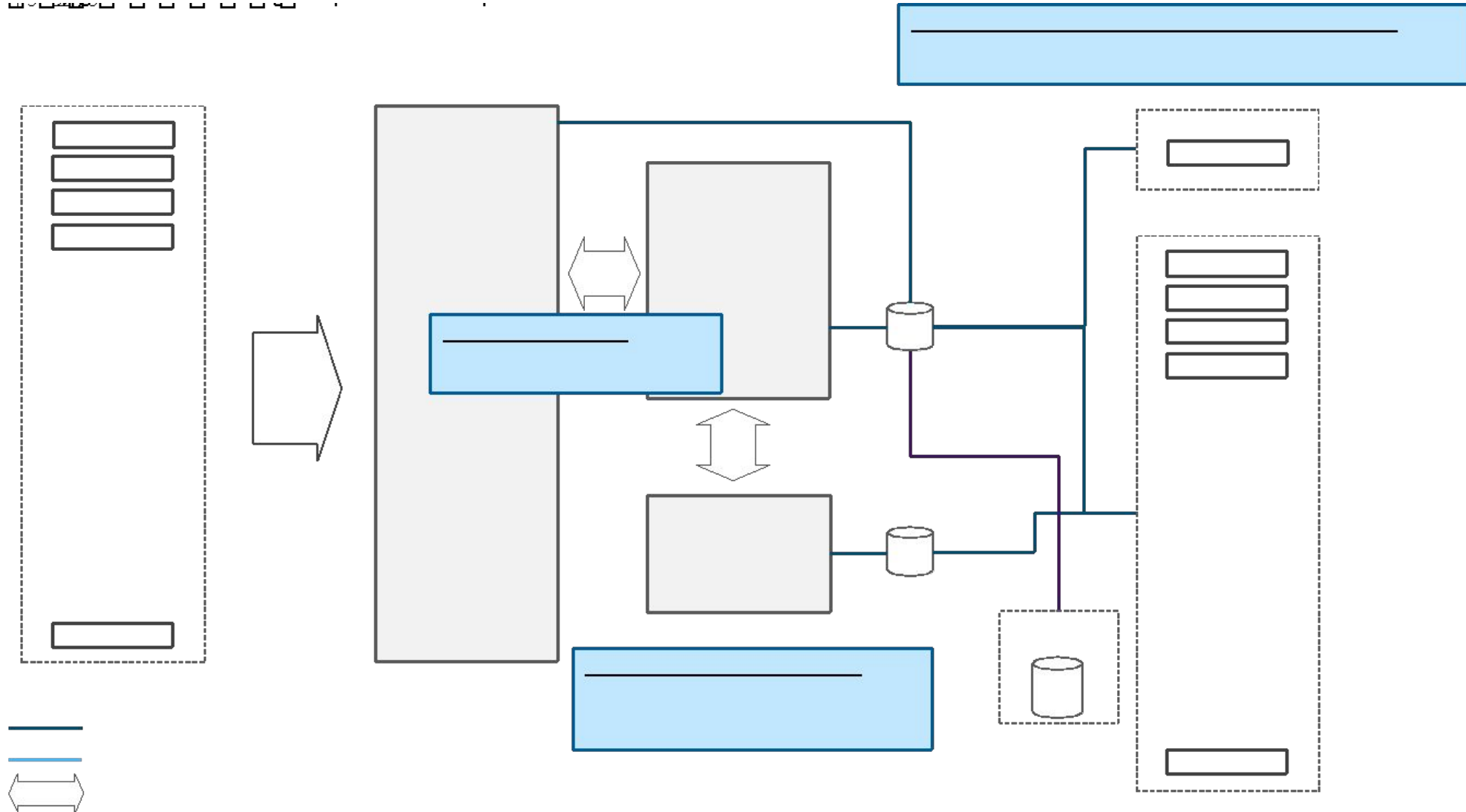


# MaaS Industry Analysis & Blockchain Common DB



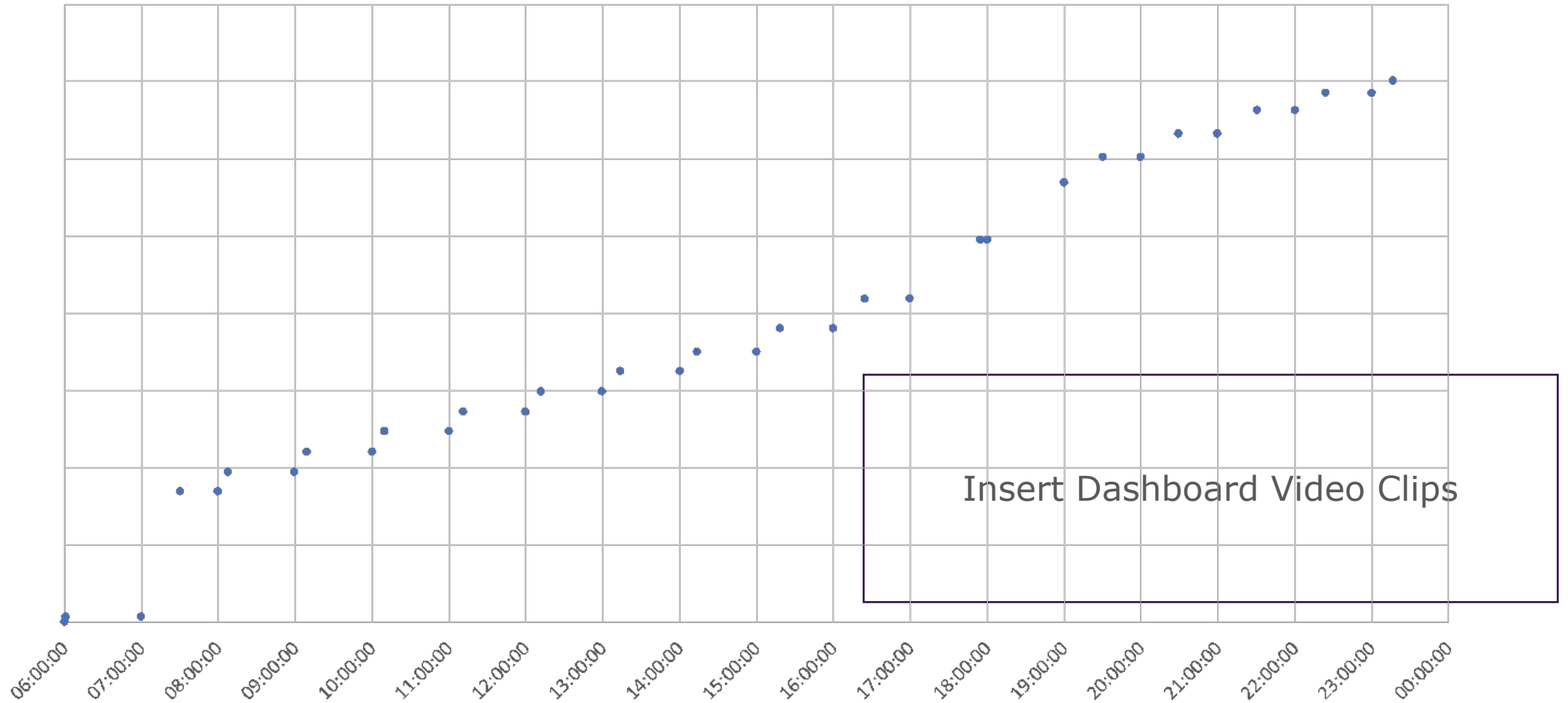


# How Blockchain Common DB works





# Feasibility Test Result Overview: Blockchain Common DB Total Records Transition





## What has been validated thusfar

- Blockchain Transaction Speed completed multi-modal MaaS requirement in the Netherlands, based on datastring
- Blockchain Common DB completed the following roles
  1. *Shared transaction*
  2. *Utilizing transaction record with respective ownership*
    - Access Control is needed to set-up for each providers.
    - Need to consider the utilization of transaction record deeply  temporary dashboard examples are prepared. It will be able to be improved after discussion in the industry.
  3. *Transparent Revenue Sharing* See video capturing



# Table of Contents

- 1. Blockchain Challenge Program Overview**
- 2. Outcomes of Blockchain Challenge Program from Sony as applicant of Blockchain Challenge Program**
  - Blockchain Common DB Overview
  - Feasibility Test Result Overview
- 3. What Blockchain means for trustworthy solution**
- 4. The plan of Blockchain Challenge Program from now**



## What Blockchain can mean for trustworthy solutions

1. Blockchain technology is suited for sharing transaction record transparently among related entities with secure and trusted way. It helps harmonization of MaaS industry and MaaS industry development through the transparent data sharing among related stakeholders.
2. MaaS related entities can decide business rules of data management as industry common distributed ledger. It is equal and healthy operation, if we compare with the connection between mobility providers and specific player's centralized DB.
3. Government, City authorities and other mobility providers can monitor, analyze from travel records and then continuously can improve the total operations from the analysis in the future data driven era.



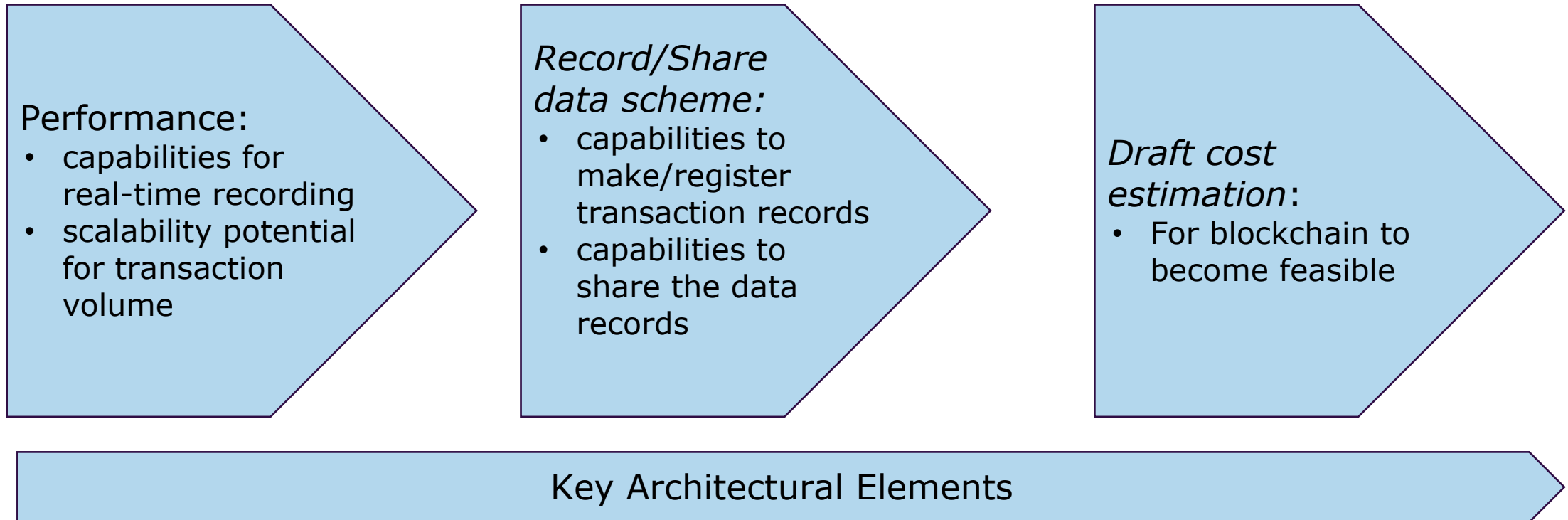
# Table of Contents

- 1. Blockchain Challenge Program Overview**
- 2. Outcomes of Blockchain Challenge Program from Sony as applicant of Blockchain Challenge Program**
  - Blockchain Common DB Overview
  - Feasibility Test Result Overview
- 3. What Blockchain means for trustworthy solution**
- 4. The plan of Blockchain Challenge Program from now**



# The plan of Blockchain Challenge Program from now

1. Will be proceeded 3-day's continuous feasibility test on dataset.
2. Evaluate the following items



3. Review & pick-up improvement points for further step.





# Questions