# City of Things - MoDi

## Third-party payment system for MaaS

The New Drive
Samen België schoner maken

LEUVEN
EEUWENOUD SPRINGLEVEND

AGENTSCHAP
INNOVEREN &
ONDERNEMEN

imec

# Partners

**Municipalities, cities, Intercommunals**

- City of Leuven – coördinator
- City of Deinze
- City of Genk
- City of Hasselt
- Municipality of Schoten
- Municipality of Wevelgem
- Intercommunal Leiedal
- Intercommunal Interleuven

**Strategic partners**

- City of Antwerp
- De Lijn
- ITS.be

**Support**

- The New Drive (project management)
- IMEC (software development)

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- **What** to implement via MaaS-app?

# Intro third-party payment & MaaS

## Definitions

**Third-party payment**

*A third-party payment system or arrangement means that the mobility provider receives an allowance directly from a third party, such as a government agency, for a trip. The traveler only pays any remaining amount for the trip.*

**MaaS (Mobility as a Service)**

*A service in which different mobility services are offered to the user through one application (app). In this way, the user has access to the various mobility services. By using this application, the user can plan his transport modes.*

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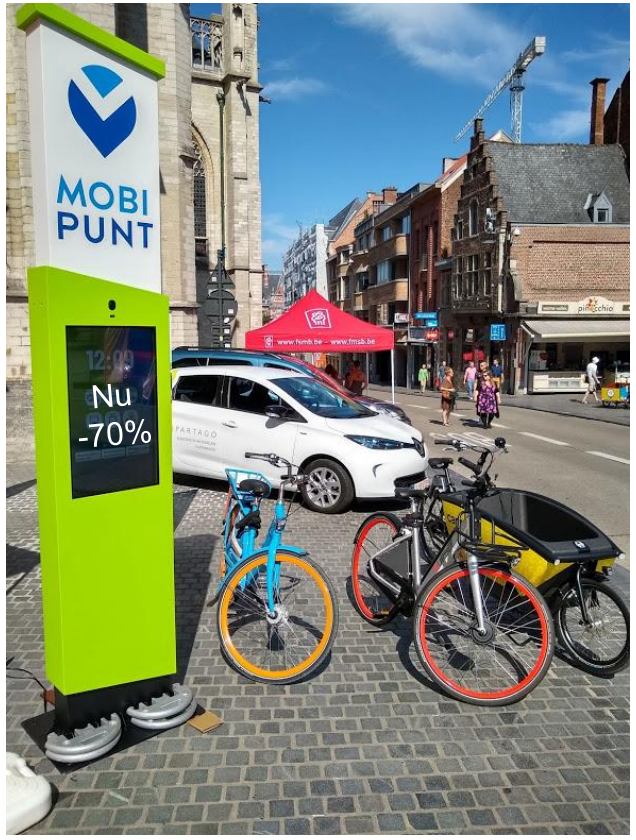
# Why introduction via MaaS-app

- To stimulate shared mobility (temporarily)
- Local accents in a generic system
- To stimulate the business model B2C shared mobility
- Uniform applicable via MaaS applications



# Third-party payment systems are currently ad-hoc and mono-modal

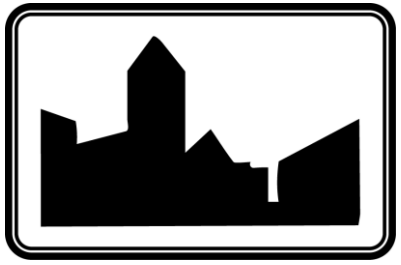
Genk
- Free payment cards for new inhabitants / discount for inhabitants

Deinze
- Free Blue-Bike rides

Schoten
- Mobit-coupon for events (discount for 10 rides of 20mins)

Leuven
- P + Bus parking system: per parking ticket you receive a ticket for 4 people to take the bus

# Increasing number of transport providers
# → silo-effect and a lot of administration



X third party payment system

cargoroo

cambio

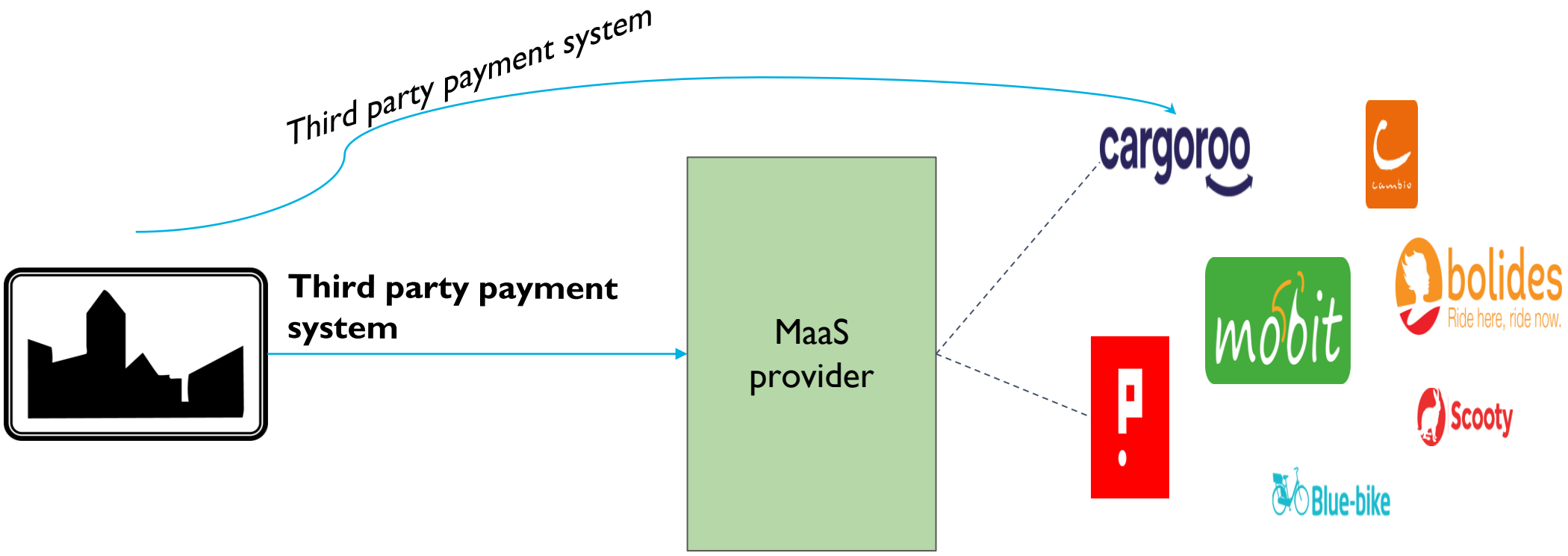
bolides
Ride here, ride now.

mobit

Blue-bike

Scooty

# How to describe and validate multi-modal rules in a uniform manner?



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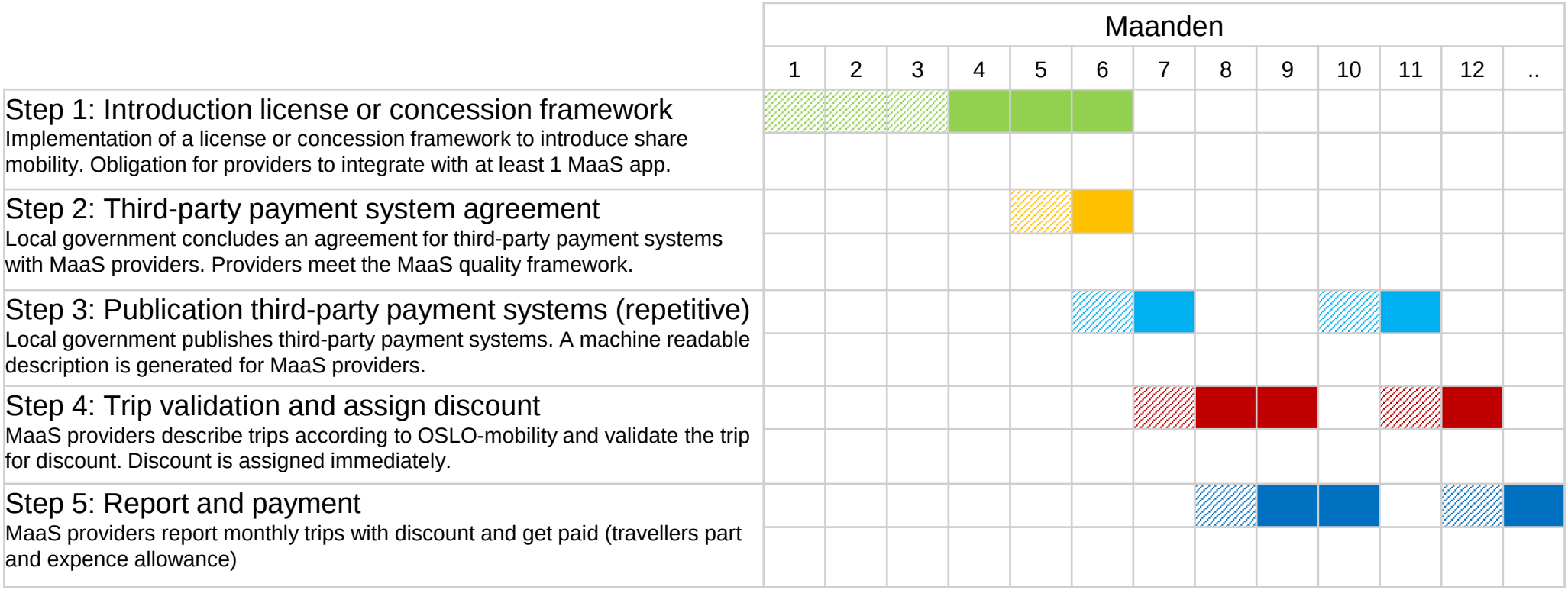
# Example planning: introduction shared mobility with third-party payment system

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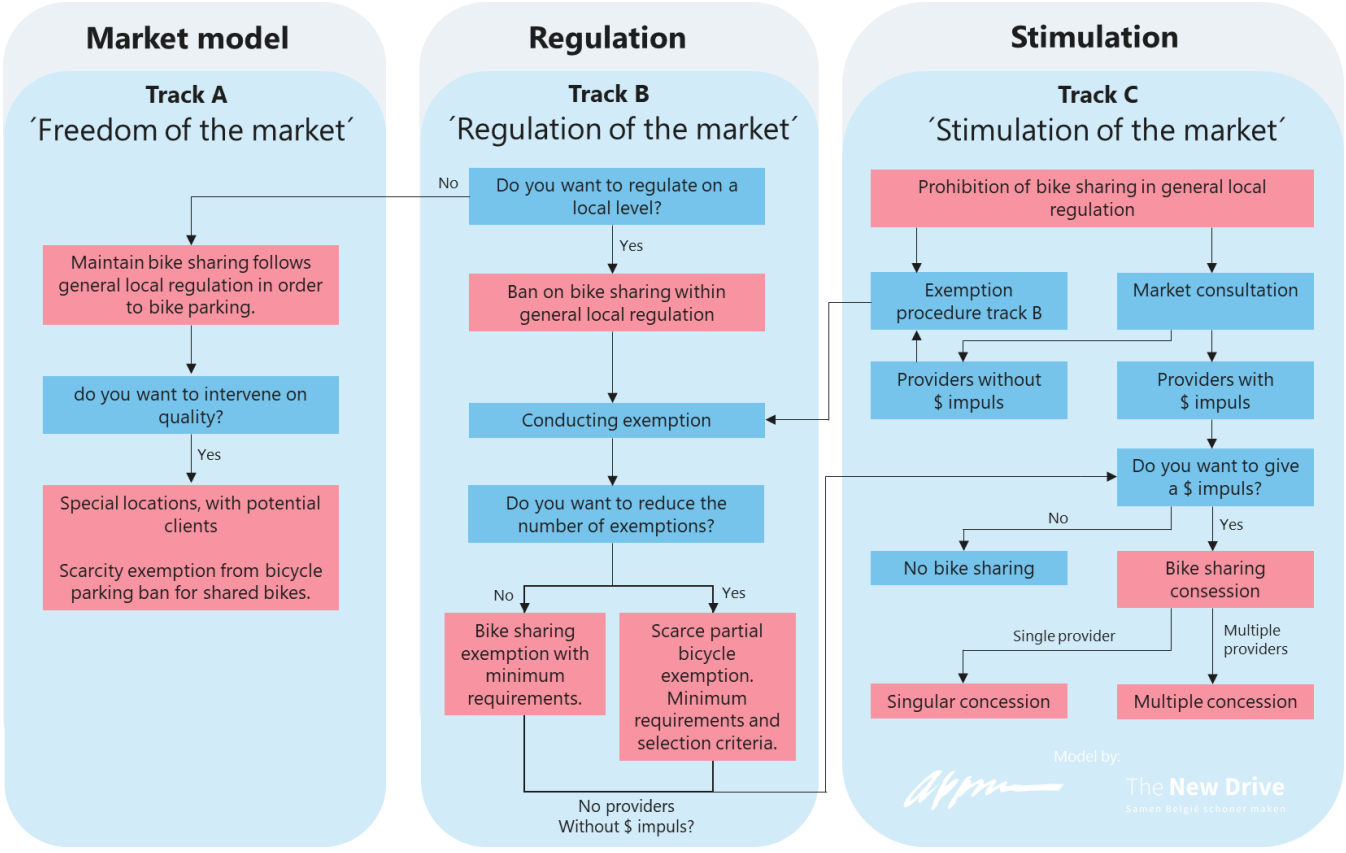
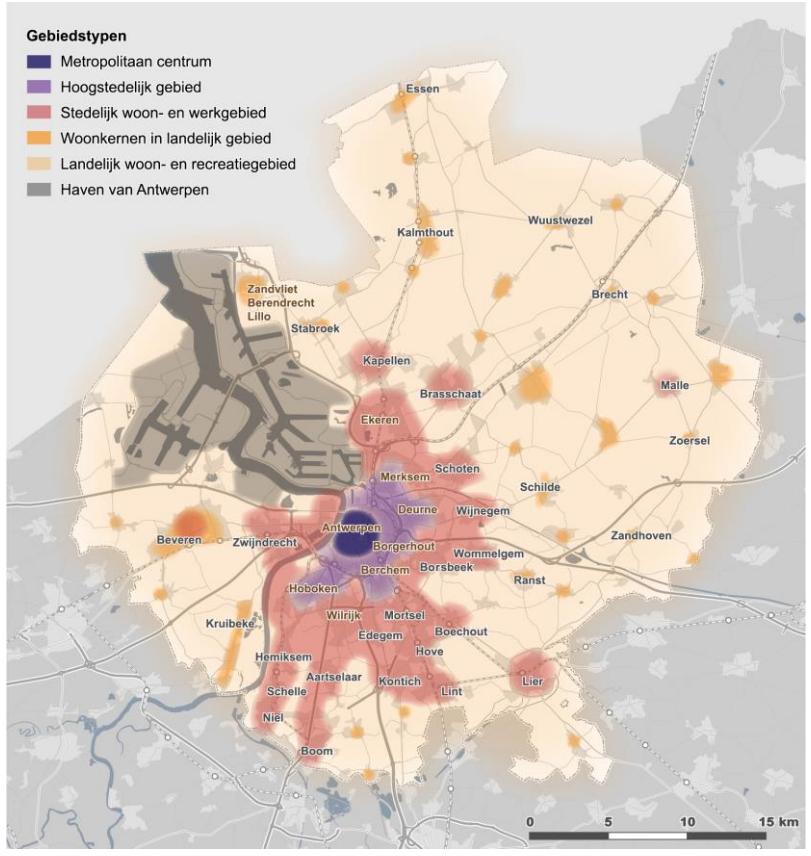
# Step 1: Introduction license or concession framework

**Three different models..**




**..for application in different area's.**



# Step 2: Agreement third-party payment system

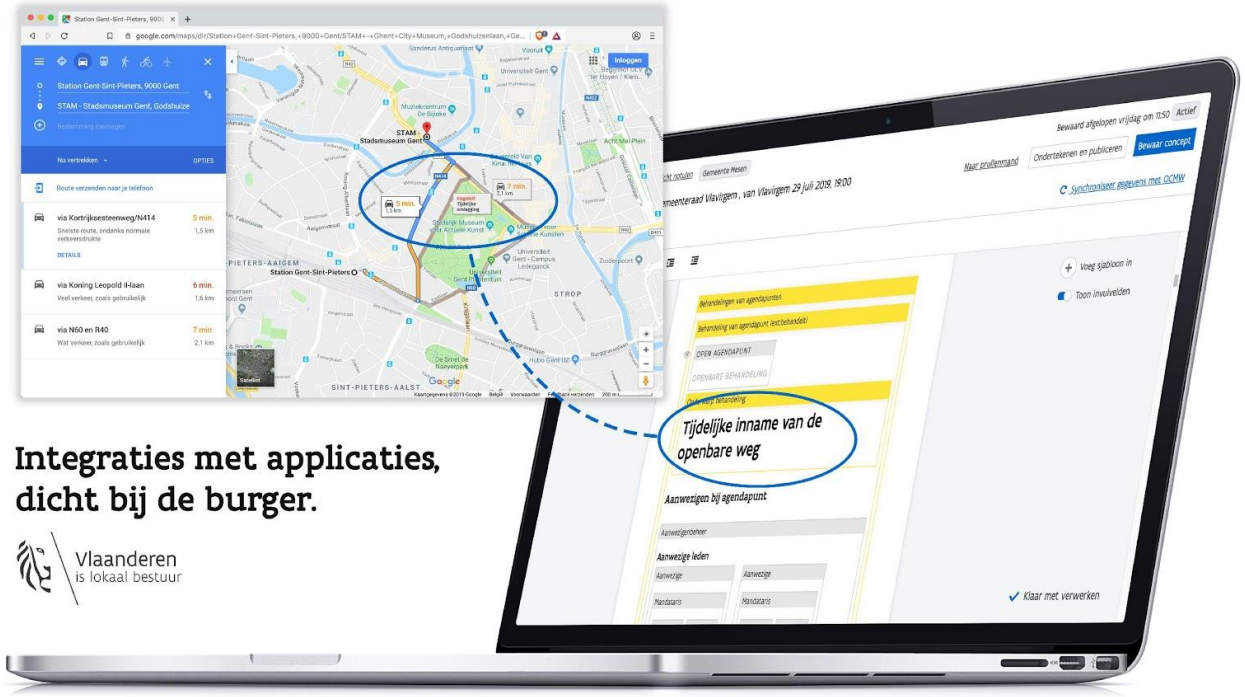
**Agreement third party payment system**

1. **Interference of the city:** conform third-party payment system aligned with open standards (LBLOD subsidies and OSLO-mobility trips and offer)
2. **Preconditions MaaS-app:** conform the criteria from the quality framework MaaS
3. **Report and payment:** monthly afterwards based on assigned discounts, regarding per ride a traveller's part and indemnities

**Criteria MaaS quality framework**

1. **Multimodal**: at least 3 authorized modi besides PT
2. **Integration with PT**: the app is integrated with De Lijn and NMBS.
3. **Availability mobility solutions**: The availability is displayed real time
4. **Minimal user modalities:** available for B2C, payment minimal pay-as-you-go
5. **Service level:** system for handling complaints, language minimal Dutch and English
6. **Exchange user data:** Aligned with standards LBLOD subsidies and OSLO-mobility trips and offer

# Step 3: Publication of third-party payer regulations in accordance with Lokale Besluiten als Linked Open Data (LBLOD)




https://lokaalbestuur.vlaanderen.be/lokale-besluiten-als-gelinkte-open-data/gelinkte-subsidies
https://lokaalbestuur.vlaanderen.be/lokale-besluiten-als-gelinkte-open-data

# Step 3 (PoC): With entry form

## Subsidiemaatregel derdebetalersregeling MaaS

Door de velden in het formulier in te vullen wordt een gestructureerde beschrijving gegenereerd, conform het applicatieprofiel Besluit-subsidies van gelinkte besluiten als Linked Open Data (LBLOD). Vul de criteriumvereisten waaraan een reiziger moet aan voldoen aan de linker kant. Kopieer de code-snippet aan de rechterkant en stuur dit door naar de MaaS-partij die hiermee moet valideren vooraleer een korting toe te kennen.

**Criteriumvereiste**

Trein

+

Deelfiets

+

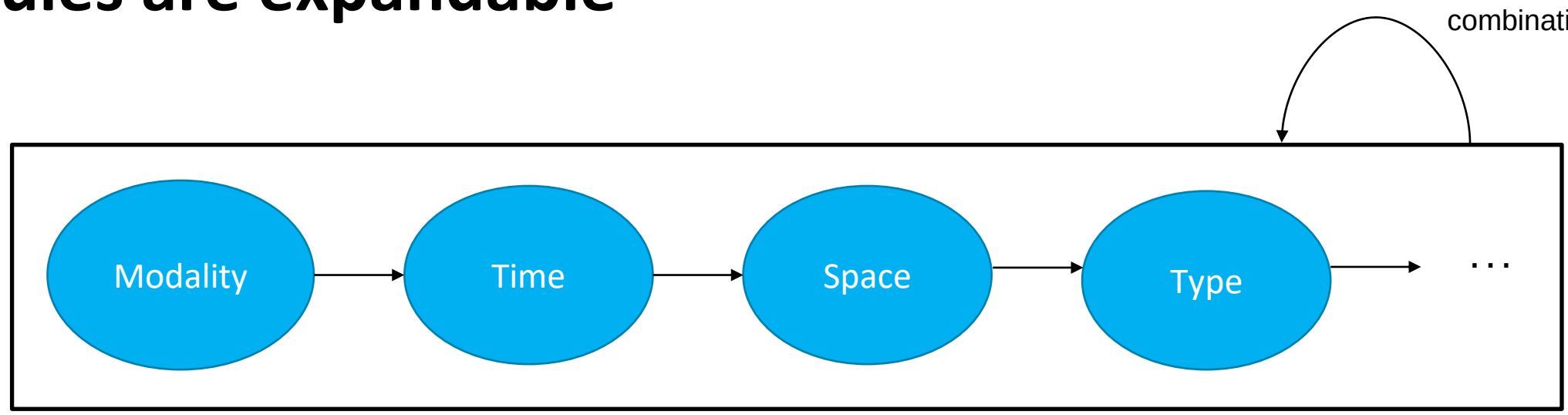
**Snippet**

```
{
    "@type": "SubsidiemaatregelAanbod",
    "naam": "Subside voor het gebruik van Mobility as a Service (MaaS) diensten",
    "heeftVerantwoordelijke": {
        "@type": "Organisatie",
        "voorkeursnaam": "Gemeente X"
    },
    "heeftCriterium": {
        "@type": "Criterium",
        "naam": "Criterium dat de reis van een reiziger moet aan voldoen zodat deze
        "isVervuldDoor": {
            "@type": "VereistenGroep",
            "beschrijving": "Groep vereisten waaraan d          et aan voldoen.",
            "heeftVereiste": [
                {
```

City can draw up rules in an intuitive way with fill in form

A machine-readable description of the rules is generated automatically. MaaS or transport provider must use this to validate whether a trip qualifies for a discount.

# Rules are expandable




Trein
+
Deelfiets
+

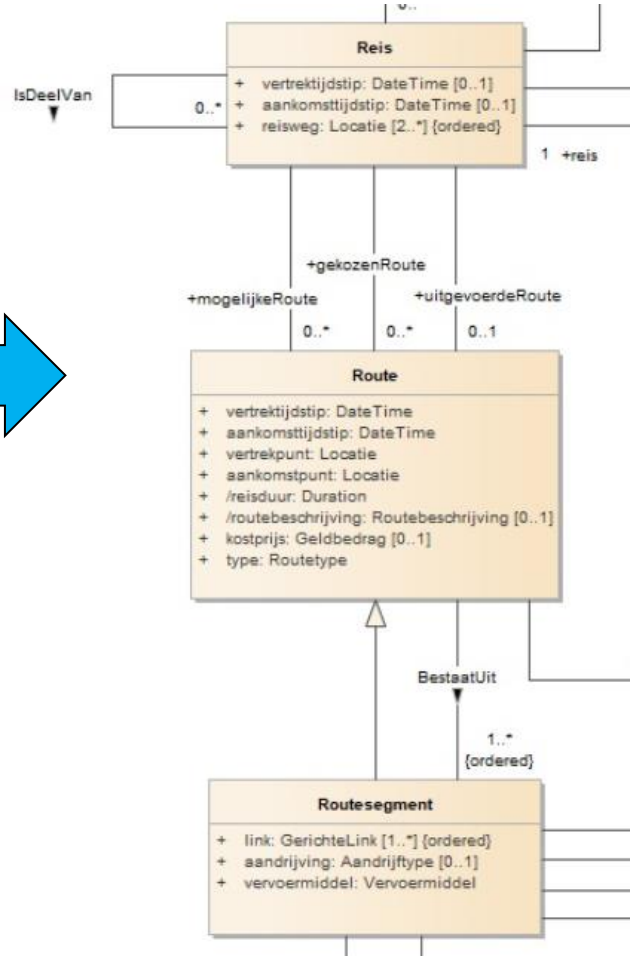
Every weekday,
from 4 p.m. to 5 p.m.

From P&R
to downtown

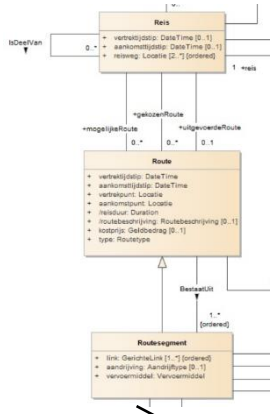
Fixed or percentage discount
(with ceiling)

# Step 4: Trip validation and assign discount

## Providers describe trips according to OSLO-mobility and offer (1/2)



# and validate the trip for discount. (2/2)




Snippet

```
{
    "@type": "SubsidiemaatregelAanbod",
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        "@type": "Criterium",
        "naam": "Criterium dat de reis van een reiziger moet aan voldoen zodat deze
        "isVervuldDoor": {
            "@type": "VereistenGroep",
            "beschrijving": "Groep vereisten waaraan de reis moet aan voldoen.",
            "heeftVereiste": [
                {
                    "@type": "CriteriumvereisteVoorMaaSSubsidie",
                    "beschrijving": "De reiziger moet de deelfiets genomen hebben",
                    "modaliteit": "https://lodi.ilabt.imec.be/modl/thesauri/modalit
                }
            ]
        }
    },
    "@context": {
```

Open source: managed by both cities as providers

The rule engine is performed at the provider's side.
Based on a trip and subsidy measure the rule engine gives if the trip meets and which subsidy ammount can be assigned.

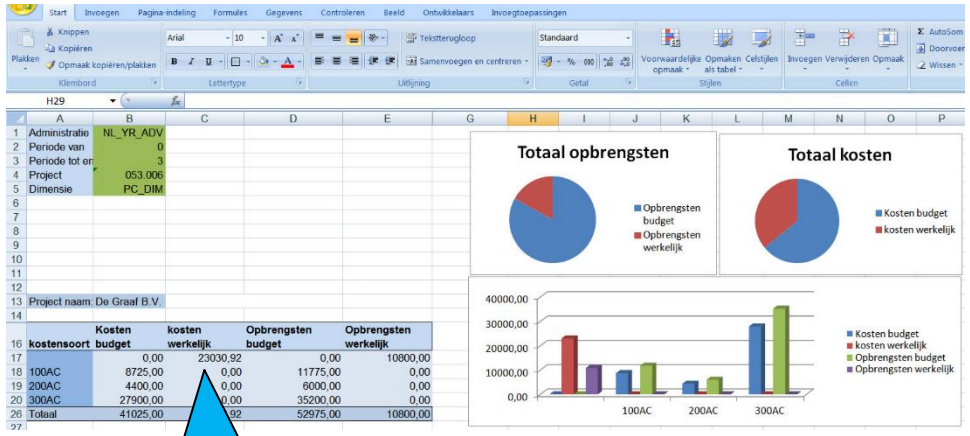
# Rule engine

- Command Line Interface (CLI):

./rule-engine
-s exampleSubsidymeasure.jsonld
-j exampleJourney.jsonld

- Next step: validate with Web API and Docker support

# Step 5: Report and payment, providers report and get paid




| | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | Administratie | NL_YR_ADV | | | |
| 2 | Periode van | 0 | | | |
| 3 | Periode tot en | 3 | | | |
| 4 | Project | 053.006 | | | |
| 5 | Dimensie | PC_DIM | | | |
| 13 | Project naam: De Graaf B.V. | | | | |

| kostensoort | Kosten budget | kosten werkelijk | Opbrengsten budget | Opbrengsten werkelijk |
|---|---|---|---|---|
| | 0,00 | 23030,92 | 0,00 | 10800,00 |
| 100AC | 8725,00 | 0,00 | 11775,00 | 0,00 |
| 200AC | 4400,00 | 0,00 | 6000,00 | 0,00 |
| 300AC | 27900,00 | 0,00 | 35200,00 | 0,00 |
| Totaal | 41025,00 | 23030,92 | 52975,00 | 10800,00 |

Provider reports number of trips with discount.

Municipality can test to what extent the subsidy measure has worked.

Provider gets paid per trip:

1. Traveller's part e.g. €3,50 (e.g.)
2. Expense allowance e.g. €0,10 (e.g.)

For high ammounts the possibility is to work with advance payments.

# Added value

## City

+ Rules in own management and flexible (time, location, modality)

+ Rules aligned with LBLOD subsidies

## MaaS and transport provider

+ Rule-engine download and implementation
→ no implementing of complexity

+ Rule-engine works on own infrastructure

+ More rides, means more revenu and better business model

- Mapping OSLO-Mobility en validation-step with rule engine cost time and money

## Rule engine

+ Usable for each MaaS and transport provider

+ Increasing confidence thanks to open-source

+ Aligned with standards **LBLOD Subsidies** and **OSLO-Mobility Trips and offer**

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# Implementation within Modi project

## Producing technical specifications and prototype

**Technical specs & prototype**

Imec develops open source a technical specification and prototype. Local governments, partners, MaaS providers and transport providers are invited to review this product and to keep on improving.

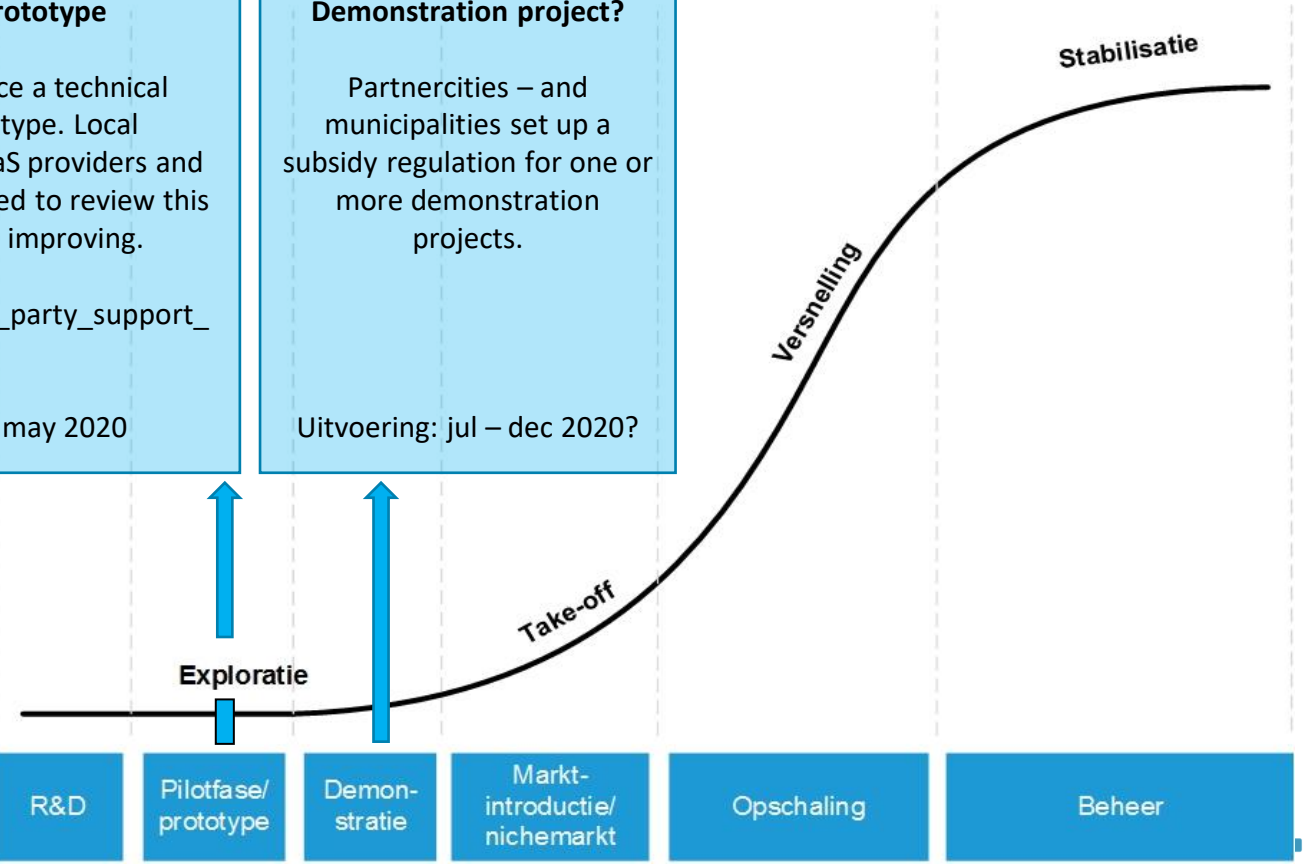
github.com/brechtvdv/third_party_support_maas

Implementation: jan - may 2020

**Demonstration project?**

Partnercities – and municipalities set up a subsidy regulation for one or more demonstration projects.

Uitvoering: jul – dec 2020?



# Call to action

## Feedback for specification

New issue

https://github.com/brechtvdv/third_party_support_maas

- Third-party payment system agreement
- License framework
- Agency: examples of rules
- Provider: how to map to OSLO and validate with rule engine

**From May 2020**

# Q&A