CIVINET

1st CIVINET Greece – Cyprus Forum

The HARMONY Model Suite

Dr. Athena Tsirimpa

mobyX

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 815269

The HARMONY Model Suite (MS)

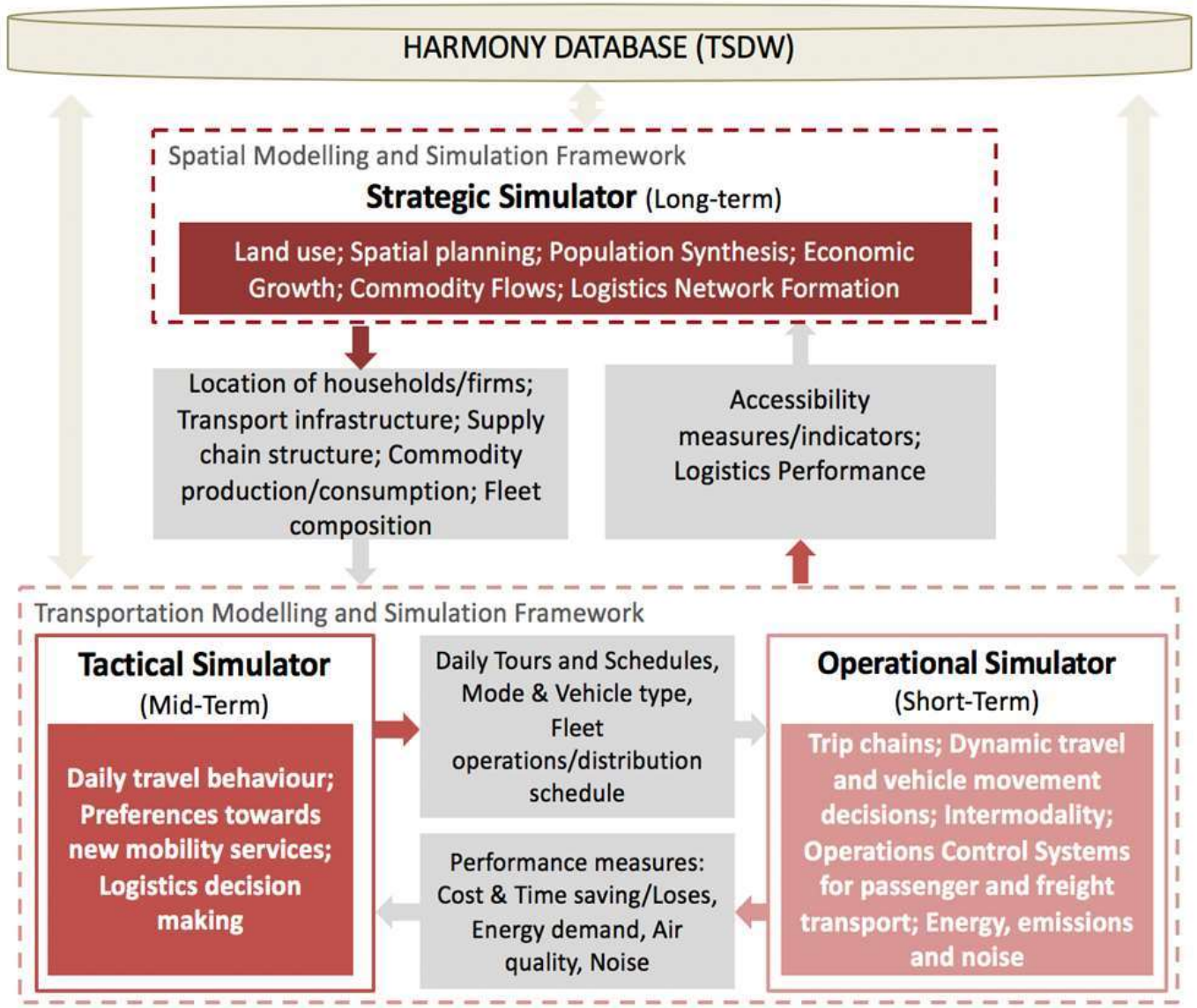
Multi-scale, software-agnostic, integrated activity-based model system.

Integration of new and existing sub-models, including:

- land-use models (strategic/long-term),
- people and freight activity-based models (tactical/mid-term), and
- multimodal network models (operational/short-term).

Enables end-users to couple/link independent models and analyses a portfolio of regional and urban interventions for both passenger and freight mobility:

- policies and capital investments,
- land-use configurations,
- economic and sociodemographic assumptions,
- travel demand management strategies
- new mobility service concepts.



www.harmony-h2020.eu

Harmony-H2020

Harmony_H2020

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement N°815269.n HARMONY is a project under the CIVITAS Initiative, an EU-funded programme working to make sustainable and smart mobility a reality for all. Read more - civitas.eu.

Overall architecture

Web-based interface

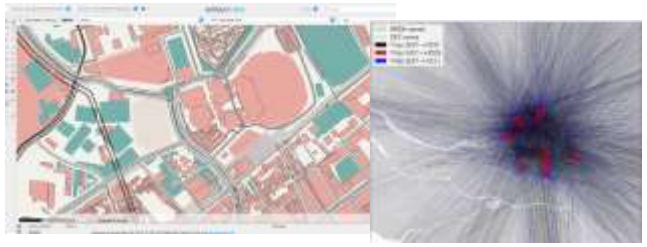
User can choose which transport interventions to compare on a concrete setting (supply, demand)

Platform core

Upon a user's request, runs a specific workflow that consists of one or more simulators/models

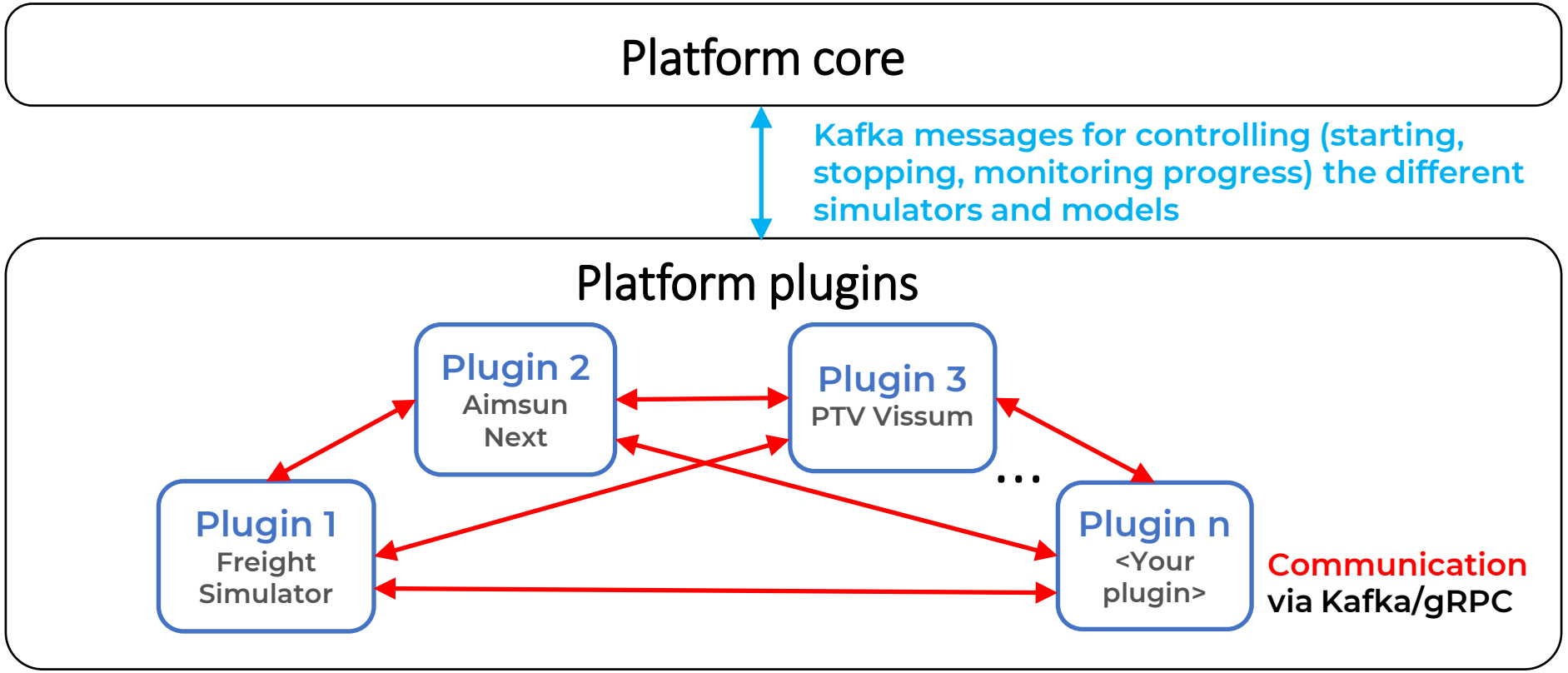
Platform plugins

Simulators and models that can be plugged in to the platform and used in workflows



This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement N°815269.n HARMONY is a project under the CIVITAS Initiative, an EU-funded programme working to make sustainable and smart mobility a reality for all. Read more - civitas.eu.

Communication between core and plugins



Each plugin

- can be written in any programming language/ environment
- can be and be open or closed source
- needs to be able to communicate with the platform core via several messages

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement N°815269.n HARMONY is a project under the CIVITAS Initiative, an EU-funded programme working to make sustainable and smart mobility a reality for all. Read more - civitas.eu.

Innovation

Flexible integration of new simulators and models

Users can leverage already integrated simulators, plug in their models + extend the capabilities of the platform

Management of data, algorithms, and tools for policy making

Users can use a single platform for running their experiments, compare results and store analysis data for further analysis

Efficient, reproducible experiments and what-if analyses

Users can browse though the results of similar experiments in other cities, reproduce results, and perform several what-if analyses

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement N°815269.n HARMONY is a project under the CIVITAS Initiative, an EU-funded programme working to make sustainable and smart mobility a reality for all. Read more - civitas.eu.

Tactical Simulator

Passenger

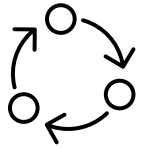
- Household/individual daily trips
- Household/individual daily activities (per type)
- Household/individual daily kms travelled
- Time usage
- Accessibility to public transport services
- Demand/modal split for future services or modes
- PT demand originating from MaaS subscribers

Freight

- Production of shipments per logistics segments
- Consumption of shipments per logistics segments
- Nr of trips per flow type
- Average load carried in trip by vehicle type
- Emissions by vehicle type
- Emissions by municipality (or other zonal aggregation)

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement N°815269.n HARMONY is a project under the CIVITAS Initiative, an EU-funded programme working to make sustainable and smart mobility a reality for all. Read more - civitas.eu.

Diagnostic and Prognostic Tool - Indicative KPIs Operational Simulator

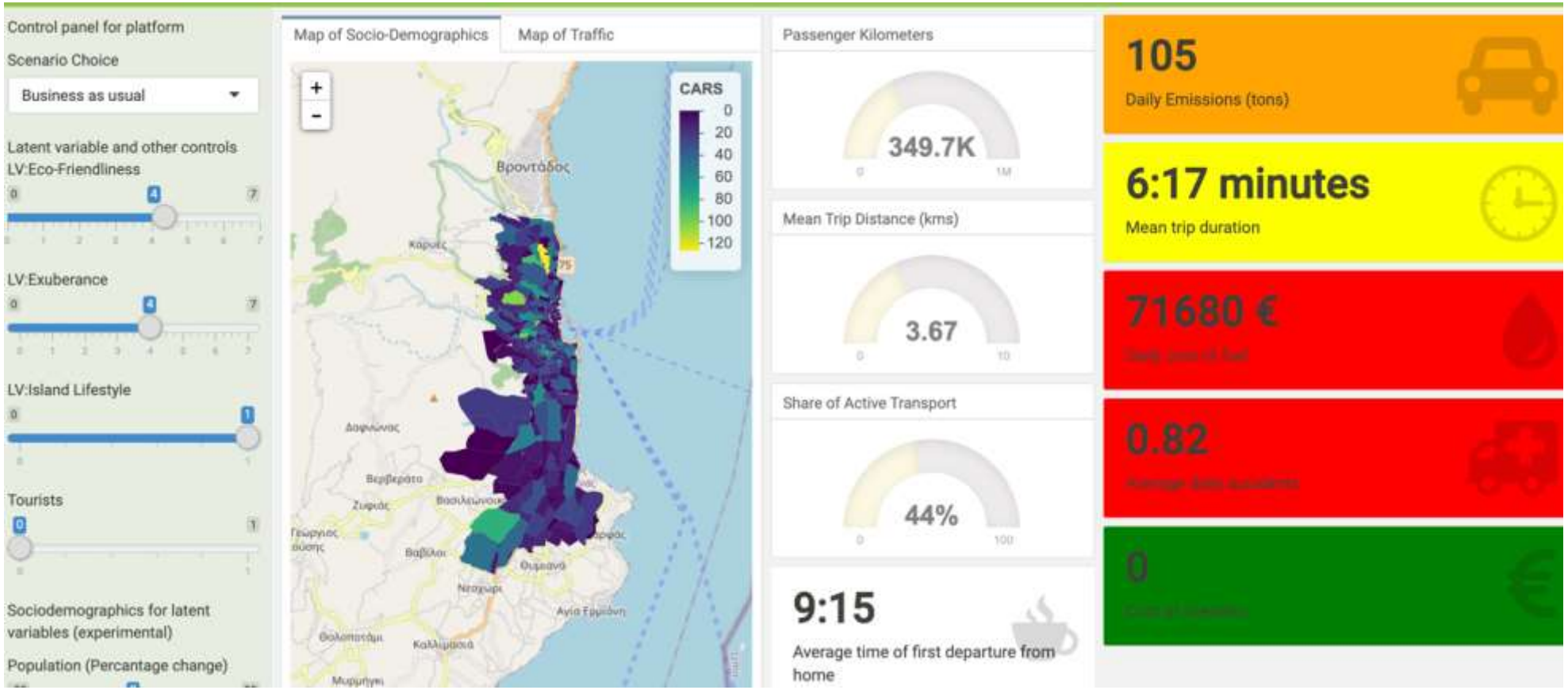


- Total trips per vehicle
- Parcels delivered
- Total distance travelled
- Total cost of trip
- Pollutant emissions
- Vehicle used capacity
- Number of incidents
- Delay time (total)

- Flow (total)
- Input flow (total)
- Max virtual queue (total)
- Mean virtual queue (total)
- Speed (total)
- Total distanced travelled (total)
- Travel time (total)
- Total trips delayed
- Total cost of trip

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement N°815269.n HARMONY is a project under the CIVITAS Initiative, an EU-funded programme working to make sustainable and smart mobility a reality for all. Read more - civitas.eu.

Diagnostic and Prognostic Tool – Dashboard – Initial Prototyping

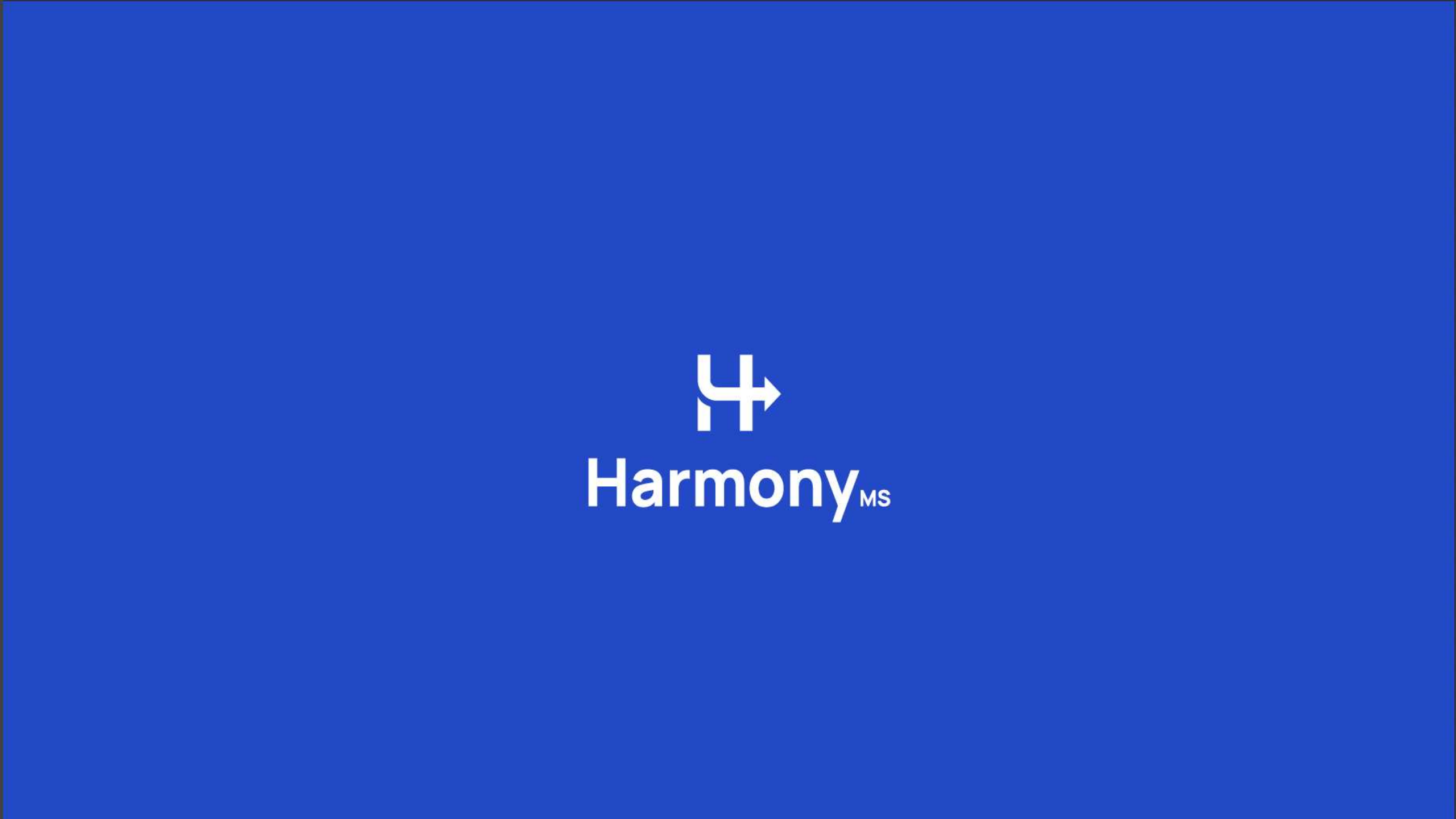


User interaction/controls
(for additional input or interaction with specific variables/scenarios

Various approaches to presenting results/KPIs
(Graphs, charts, icons, colorscales, etc.)

Map or other screen

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement N°815269.n HARMONY is a project under the CIVITAS Initiative, an EU-funded programme working to make sustainable and smart mobility a reality for all. Read more - civitas.eu.


Harmony MS

Harmony MS

Scenarios

Template 1

CREATE SCENARIO

4 scenarios found

NAME	TEMPLATE NAME	DESCRIPTION	STATUS	ACTION
Example Scenario 1	Duis autem vel eum iriure	Lorem ipsum dolor sit consectetuer adipiscing elit	100% **completed**	EDIT START
Example Scenario 2	Lorem ipsum dolor sit amet	Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat		SAVE CHANGES
Example Scenario 3	Duis autem vel eum iriure dolor	Lorem ipsum dolor sit amet consectetuer adipiscing elit	75% **in progress**	EDIT START
Example Scenario 4	Lorem ipsum dolor sit amet	Duis autem vel eum iriure dolor in hendrerit in vulputate	100% **completed**	EDIT START
Example Scenario 5	Duis autem vel eum iriure	Lorem ipsum dolor sit consectetuer adipiscing elit	100% **completed**	EDIT START
Example Scenario 6	Duis autem vel eum hendrerit	Lorem ipsum dolor sit consectetuer adipiscing elit	100% **completed**	EDIT START
Example Scenario 7	Duis autem vel eum iriure dolor	Lorem ipsum dolor sit amet consectetuer adipiscing elit	75% **in progress**	EDIT START

SCENARIOS

EXPERIMENTS

RESULTS

CONFIGURATION

Welcome Brad!

MobyX © 2021 All rights reserved

Harmony MS

SCENARIOS

EXPERIMENTS

RESULTS

CONFIGURATION

Welcome Brad!

Scenarios / New scenario

BACK TO ALL SCENARIOS

NAME

Scenario 1

DESCRIPTION

Scenario description

FILES

CHOOSE FILES

No file chosen.

CONFIGURATION

Select a configuration

PANELS PER EMPLOYER

Select panels number

CREATE SCENARIO

Experiments

ADD EXPERIMENT

0 *experiments found*

MobyX © 2021 All rights reserved

Harmony MS

SCENARIOS

EXPERIMENTS

RESULTS

CONFIGURATION

Welcome Brad!

Experiments

ADD EXPERIMENT

***17** experiments found*

NAME	SCENARIO NAME	DESCRIPTION	STATUS	ACTION
Example Experiment 1	Example Scenario 1	Lorem ipsum dolor sit consectetuer adipiscing elit	100% **completed**	START
Example Experiment 2	Example Scenario 5	Lorem ipsum dolor sit consectetuer adipiscing elit	100% **completed**	START
Example Experiment 3	Example Scenario 3	Lorem ipsum dolor sit amet consectetuer adipiscing elit	75% **in progress**	START
Example Experiment 4	Example Scenario 4	Duis autem vel eum iriure dolor in hendrerit in vulputate	100% **completed**	START
Example Experiment 5	Example Scenario 5	Lorem ipsum dolor sit consectetuer adipiscing elit	100% **completed**	START
Example Experiment 6	Example Scenario 6	Lorem ipsum dolor sit consectetuer adipiscing elit	100% **completed**	START
Example Experiment 7	Example Scenario 7	Lorem ipsum dolor sit amet consectetuer adipiscing elit	75% **in progress**	START

MobyX © 2021 All rights reserved

Harmony MS

SCENARIOS

EXPERIMENTS

RESULTS

CONFIGURATION

Welcome Brad!

Results

7 *experiments found*

NAME	SCENARIO NAME	DESCRIPTION	STATUS	ACTION
Example Result 1	Example Scenario 1	Lorem ipsum dolor sit consectetuer adipiscing elit	100% **completed**	DETAILS
Example Result 2	Example Scenario 2	Duis autem vel eum iriure dolor in hendrerit in vulputate	100% **completed**	DETAILS
Example Result 3	Example Scenario 3	Lorem ipsum dolor sit amet consectetuer adipiscing elit	100% **completed**	DETAILS
Example Result 4	Example Scenario 4	Duis autem vel eum iriure dolor in hendrerit in vulputate	100% **completed**	DETAILS
Example Result 5	Example Scenario 5	Lorem ipsum dolor sit consectetuer adipiscing elit	100% **completed**	DETAILS
Example Result 6	Example Scenario 6	Lorem ipsum dolor sit consectetuer adipiscing elit	100% **completed**	DETAILS
Example Result 7	Example Scenario 7	Lorem ipsum dolor sit amet consectetuer adipiscing elit	100% **completed**	DETAILS

MobyX © 2021 All rights reserved

Results / Result example 1

BACK TO ALL RESULTS

SAVE RESULT (.pdf)

CONTROL PANEL

Scenario choice

Lorem ipsum dolor amet

Latent variable & other controls
LV:Eco-Friendliness

0 — 6 — 7

LV:Exuberance

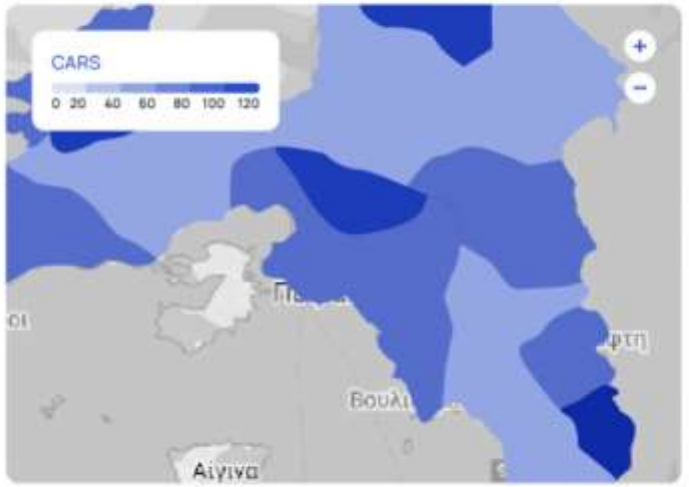
0 — 3 — 7

LV:Island Lifestyle

0 — 4 — 7

Population
(Percantage change)

0 — 3 — 7



Share Of Active Transport

44%

Passenger Kilometers

kms
349.7K

Main Trip Distance

kms
3.67

Daily Cost Of Fuel

€ 71,680

Average Daily Accidents

0.82

Daily Emissions

tons 105

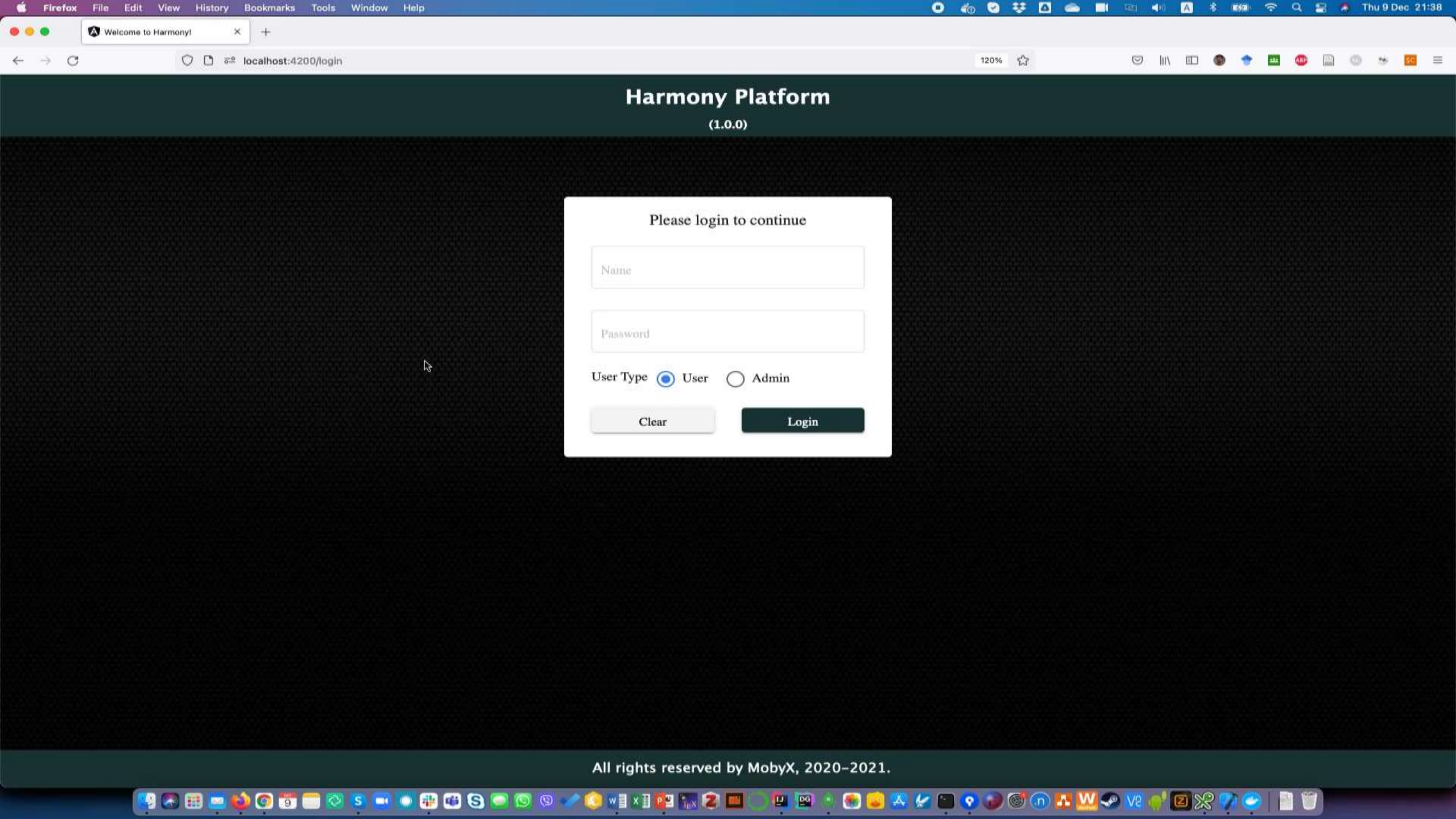
Main Trip Duration

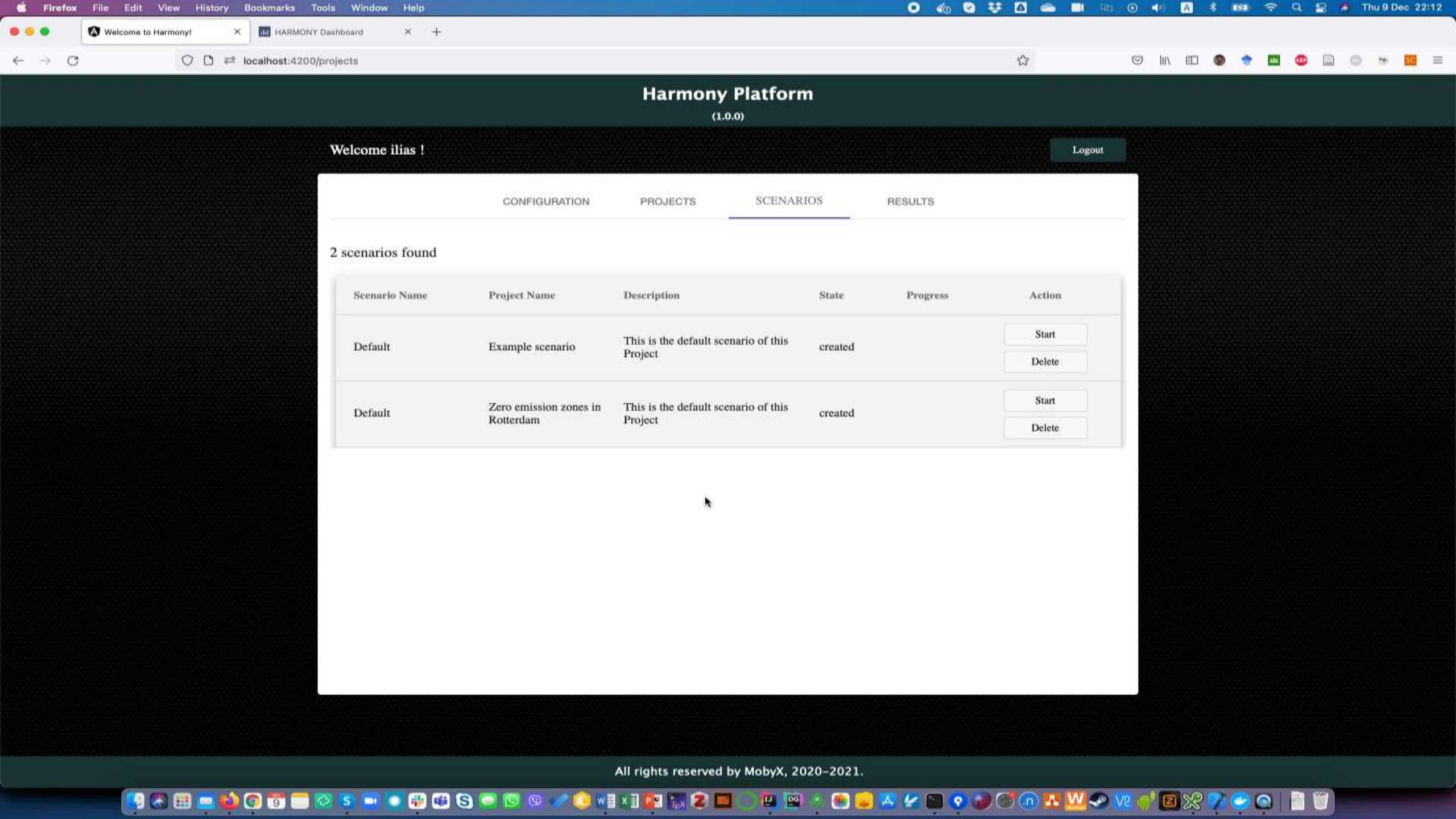
minutes 6:17

Cost Of Scenario

€ 0

MobyX © 2021 All rights reserved


Firefox File Edit View History Bookmarks Tools Window Help
Thu 9 Dec 21:38
Welcome to Harmony!
localhost:4200/login
120%
Harmony Platform
(1.0.0)
Please login to continue
Name
Password
User Type
User
Admin
Clear
Login
All rights reserved by MobyX, 2020-2021.


Firefox File Edit View History Bookmarks Tools Window Help
Thu 9 Dec 22:12
Welcome to Harmony!
HARMONY Dashboard
localhost:4200/projects
Harmony Platform
(1.0.0)
Welcome ilias !
Logout
CONFIGURATION
PROJECTS
SCENARIOS
RESULTS
2 scenarios found
Scenario Name
Project Name
Description
State
Progress
Action
Default
Example scenario
This is the default scenario of this Project
created
Start
Delete
Default
Zero emission zones in Rotterdam
This is the default scenario of this Project
created
Start
Delete
All rights reserved by MobyX, 2020-2021.

The HARMONY MS will be available to the market in mid-2023.

CIVINET

1st CIVINET Greece - Cyprus Forum

Thank you for your attention

www.harmony-h2020.eu

Harmony-H2020

Harmony_H2020

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement N°815269.n HARMONY is a project under the CIVITAS Initiative, an EU-funded programme working to make sustainable and smart mobility a reality for all. Read more - civitas.eu.