Nantes Hamburg Helsinki Bydgoszcz Rijeka Palencia

Find Conference

14 - 15 September 2022 Hamburg (Germany) SMART PEOPLE – SMART ECONOMY – SMART CITIES

14/09/2022

Nantes demosite Urban Platform



my

Life

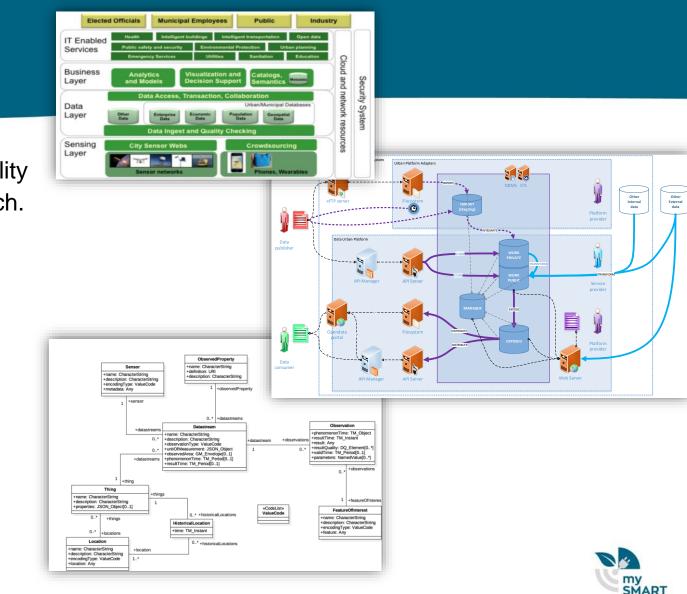
SMART

Nantes – Urban Platform

To collect data, give access, ensure interoperability through means of OpenAPI and OpenSource tech.

mySMARTLife's data:

- Assets owned by Nantes Métropole.
 - UC1. Pub.facilities electricity consumption
 - UC2. Smartlighing
 - UC3. Charging stations
 - UC4. Heating network
 - Nearly 100 KPIs on other actions



Life



Nantes – Urban Platform

5/9

17 / 57

4 webapps

6

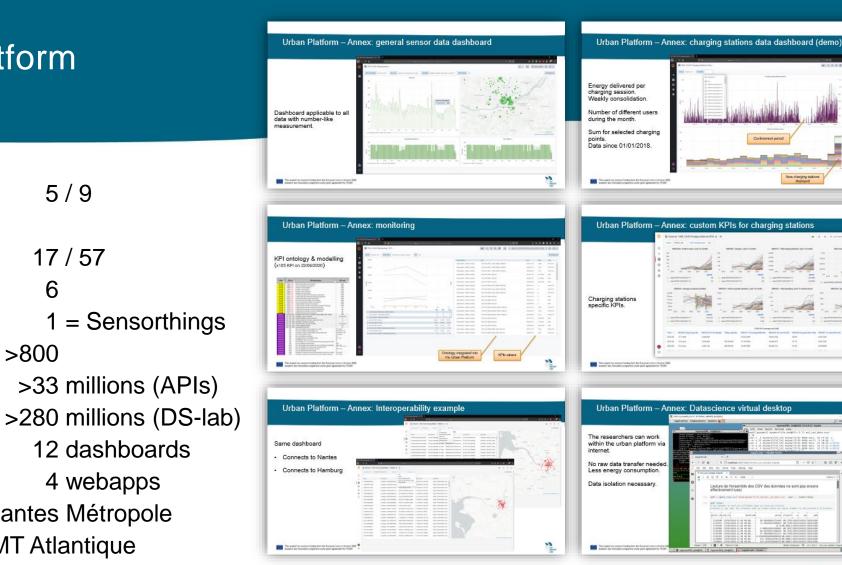
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Data publishers / APIs :

Data types / KPI types : Standardized datasets : Data model exposed : Observations points : Observations collected :

Services :

Direct users (closed data) : Nantes Métropole **IMT** Atlantique







Nantes – Urban Platform

Return of experience

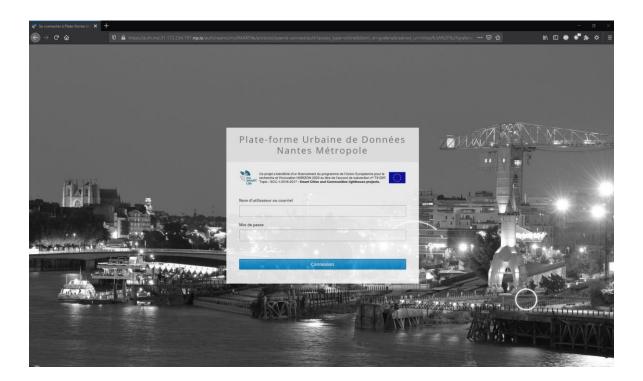
- Very few existing supervisors provide standardized APIs. Connectors are required. Graphical ETL: OK for transformation, KO for complex processing and checking.
- Data governance can be achieved before the actual business use cases are identify.
- Data volumetry should be defined as a requirement.
- Simple specific model VS complex all-purpose ontologic standard?
- Digital costs are not proportionate to the amount of IOT.

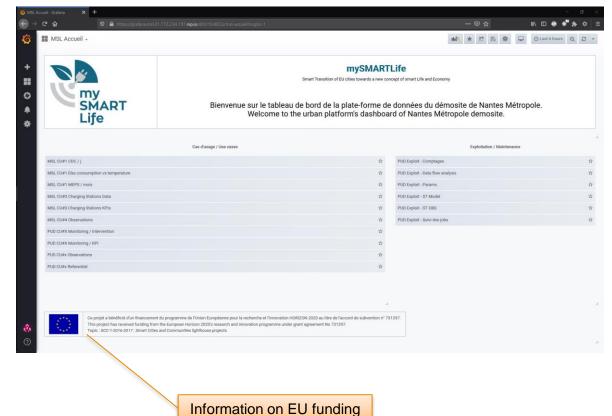






Urban Platform – Annex: login and home pages

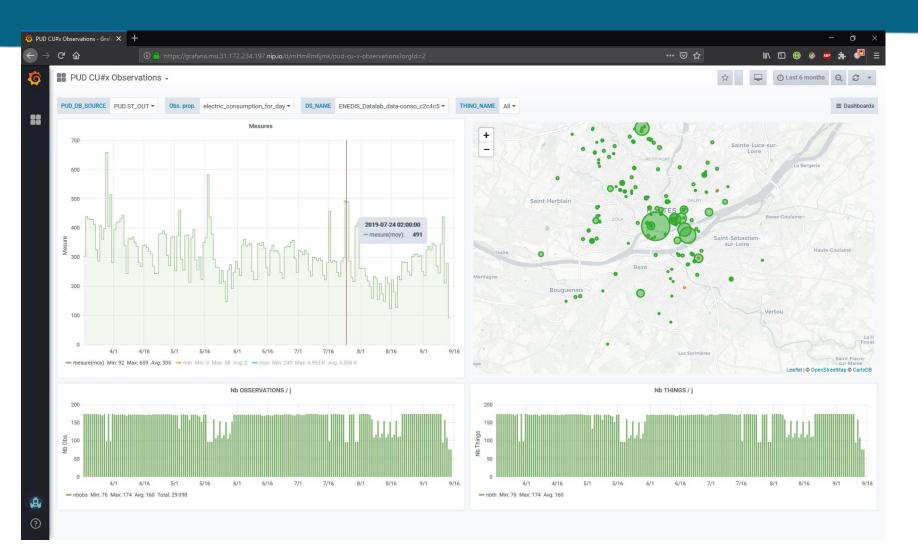






Urban Platform – Annex: general sensor data dashboard

Dashboard applicable to all data with number-like measurement.



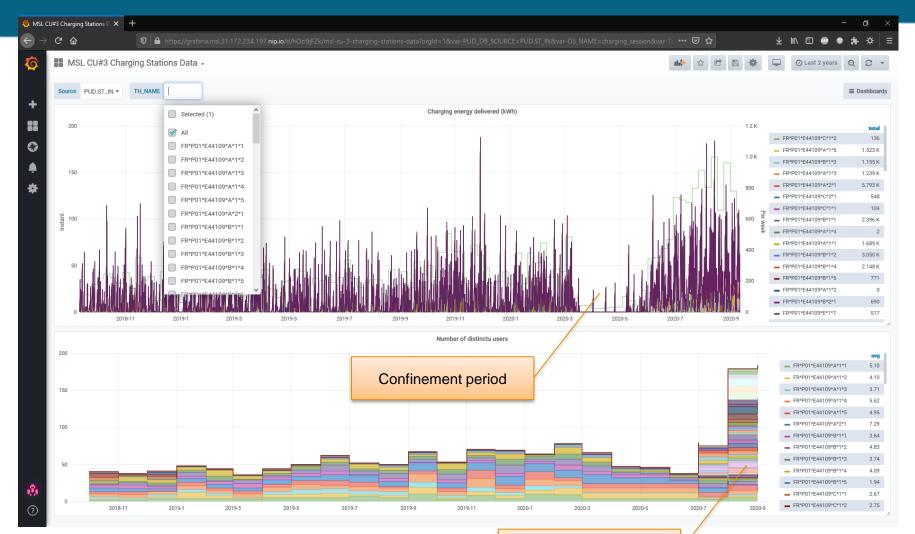


Urban Platform – Annex: charging stations data dashboard (demo)

Energy delivered per charging session. Weekly consolidation.

Number of different users during the month.

Sum for selected charging points. Data since 01/01/2018.

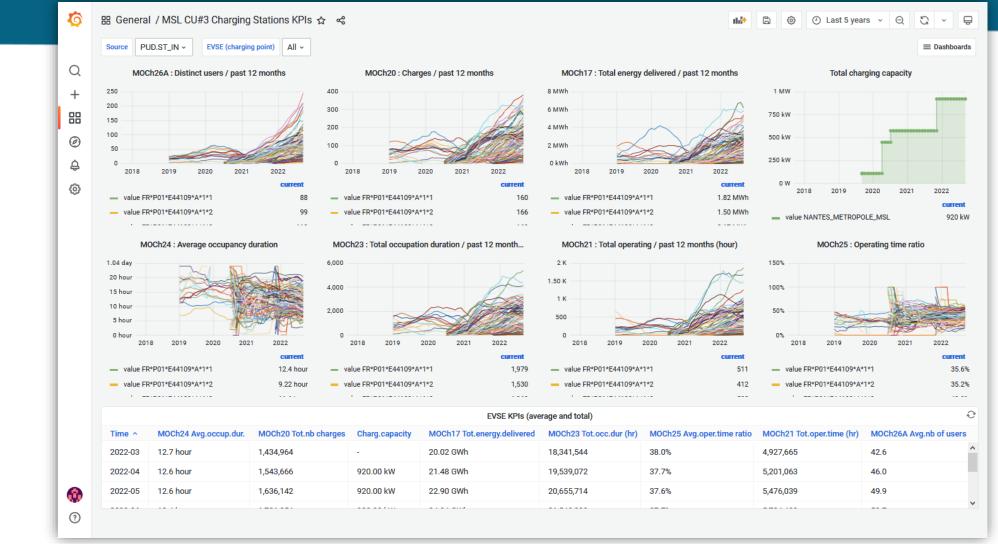


New charging stations deployed





Urban Platform – Annex: custom KPIs for charging stations





This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 731297.

Urban Platform – Annex: monitoring

🧔 PUD CU#X Monitoring / KPI - G 🗙 🛛 🕂

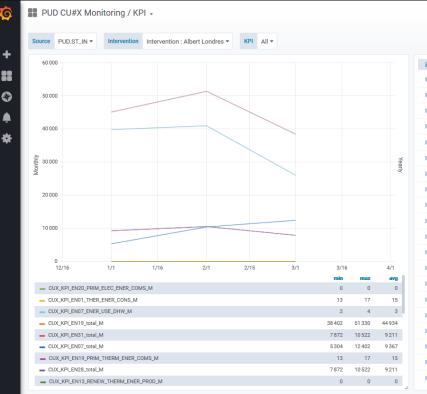
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KPI ontology & modelling (x105 KPI on 22/06/2020)

Pillar	KPI id	KPI description	KPI unit		
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Energy	EN02_total	Electrical energy consumption	kWh		
Energy	EN04_total	Annual energy consumption	kWh		
Energy	EN06_total	Energy use for heating	kWh		
Energy	EN07_total	Energy use for DHW	kWh		
Energy	EN08_total	Energy use for lighting	kWh		
Energy	EN09_total	Energy use for cooling	kWh		
Energy	EN13_total	Total renewable thermal energy production	kWh		
Energy	EN14_total	Total renewable electrical energy production	kWh		
Energy	EN15_total	Total renewable energy production	kWh		
Energy	EN19_total	Primary thermal energy consumption	kWh		
Energy	EN20_total	Primary electrical energy consumption	kWh		
Energy	EN21_total	Total primary energy consumption	kWh		
Energy	EN23_total	Total primary energy consumption related to heating	kWh		
Energy	EN28_total	Total greenhouse gas emissions (thermal)	kg		
Energy	EN29_total	Total greenhouse gas emissions (electrical)	kg		
Energy	EN30_total	Total greenhouse gas emissions (lighting)	kg		
Energy	EN31_total	Total greenhouse gas emissions	kg		
Mobility	CU3_KPI_EPY	Énergie fournie par an (ENERGY_DELIVERED_PER_YEAR)	kWh		
Mobility	CU3 KPI CPY		# (number)		
Mobility	CU3 KPI OPY	Total operating / past 12 months	h		
Mobility		Total occupancy duration / past 12 months	h		
Mobility		Average occupancy duration	h		
Mobility	CU3 KPI UPY		# (number)		
Mobility		Total charging capacity	kW		
Mobility	CU3 KPI OTR		%		
Mobility	M1	Annual number of passengers (or users)	# (number)		
Mobility	M2	Annual number of passengers.km	# (number) / km		
Mobility	M3	Average number of passengers per working day	# (number) / day		
Mobility	M4	Annual number of trips	# (number)		
Mobility	M5	Annual distance travelled	km		
Mobility	M6	Average distance travelled by trip	km / trip		
Mobility	M7	Availability rate of e-buses	%		
Mobility	M8	Percentage of e-buses acquired that are equipped for data	%		
Mobility	M9	Annual energy consumption	kWh		
Mobility	M10	Annual energy consumption per annual distance travelled	kWh / km		
Mobility	M11	Annual energy consumption per passenger.km	- Arman		
Mobility	M12	Annual energy consumption per trip	kWh / trip		
Mobility	M13	Annual eqCO2 emissions saved	t		
Mobility	M14	Number of incidents and trafic accidents where the shuttle	# (number)		
Mobility	M15	Number of heavy-duty (HD) vehicle compatible charging	# (number)		



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Intervention : Albert Londres	CUX_KPI_EN01_THER_ENER_CONS_M	2020-01-31	17,06	W-hr/m*2
Intervention : Albert Londres	CUX_KPI_EN01_THER_ENER_CONS_M	2020-02-29	12,77	W-hr/m*2
Intervention : Albert Londres	CUX_KPI_EN01_total_M	2019-12-31	45 070,57	kWh
Intervention : Albert Londres	CUX_KPI_EN01_total_M	2020-01-31	51 329,61	kWh
Intervention : Albert Londres	CUX_KPI_EN01_total_M	2020-02-29	38 401,58	kWh
Intervention : Albert Londres	CUX_KPI_EN02_ELEC_ENER_CONS_M	2019-12-31	0	W-hr/m*2
Intervention : Albert Londres	CUX_KPI_EN02_ELEC_ENER_CONS_M	2020-01-31	0	W-hr/m*2
Intervention : Albert Londres	CUX_KPI_EN02_ELEC_ENER_CONS_M	2020-02-29	0	W-hr/m*2
Intervention : Albert Londres	CUX_KPI_EN02_total_M	2019-12-31	0	kWh
Intervention : Albert Londres	CUX_KPI_EN02_total_M	2020-01-31	0	kWh
Intervention : Albert Londres	CUX_KPI_EN02_total_M	2020-02-29	0	kWh
Intervention : Albert Londres	CUX_KPI_EN04_ANUAL_ENER_CONS_M	2019-12-31	14,98	W-hr/m*2
Intervention : Albert Londres	CUX_KPI_EN04_ANUAL_ENER_CONS_M	2020-01-31	17,06	W-hr/m*2
Intervention : Albert Londres	CUX_KPI_EN04_ANUAL_ENER_CONS_M	2020-02-29	12,77	W-hr/m*2
Intervention : Albert Londres	CUX_KPI_EN04_total_M	2019-12-31	45 070,57	kWh
Intervention : Albert Londres	CUX_KPI_EN04_total_M	2020-01-31	51 329,61	kWh
Intervention : Albert Londres	CUX_KPI_EN04_total_M	2020-02-29	38 401,58	kWh
Intervention : Albert Londres	CUX_KPI_EN06_ENER_USE_HEAT_M	2019-12-31	13,22	W-hr/m*2
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Ontology integrated into the Urban Platform

KPIs values



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 731297.



Urban Platform – Annex: Interoperability example

Same dashboard

- **Connects to Nantes**
- Connects to Hamburg

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Urban Platform – Annex: Datascience virtual desktop

The researchers can work within the urban platform via internet.

No raw data transfer needed. Less energy consumption.

Data isolation necessary.

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This project has received funding from the European Union's Horizon 202 research and innovation programme under grant agreement No 731297.

Thank you for your attention!

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