

Nantes | Hamburg | Helsinki

Bydgoszcz | Rijeka | Palencia

# Final Conference

14 - 15 September 2022  
Hamburg (Germany)

SMART PEOPLE – SMART ECONOMY – SMART CITIES



14/09/2022

SOME PRACTICAL TOOLS FOR REPLICATION APPLIED  
ON 3 CITIES: BYDGOSZCZ, PALENCIA, RIJEKA  
Aurélien HENON (Nobatek/INEF4, France)

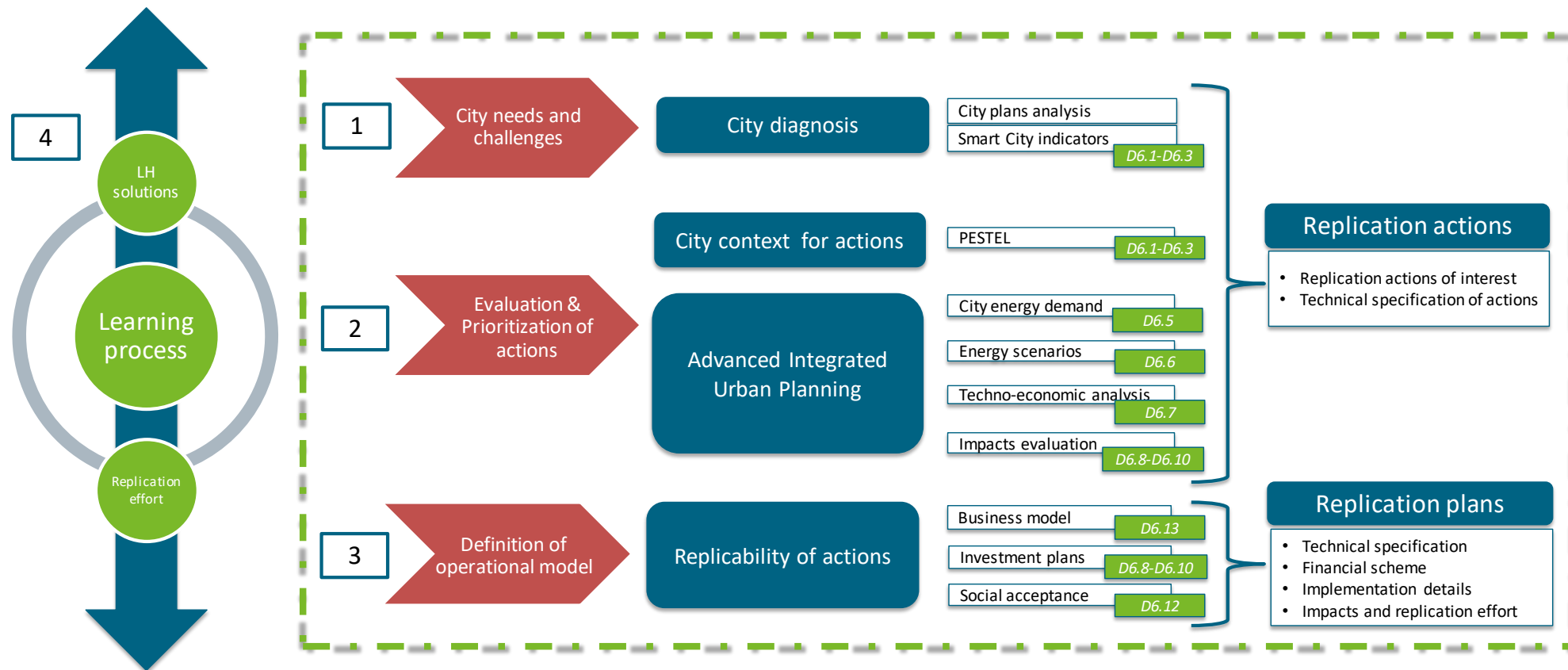
Cities transition towards climate neutrality, and  
application of a “smart people” and “smart economy”  
strategy: which lessons learnt from EU cities?



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



# Replication method in mySMARTLife

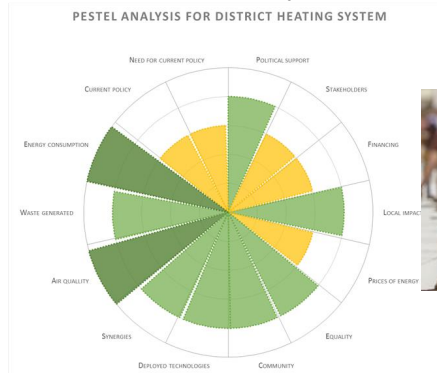


# Analysis tools to facilitate replication

## Energy demand and scenarios



## PESTEL analysis



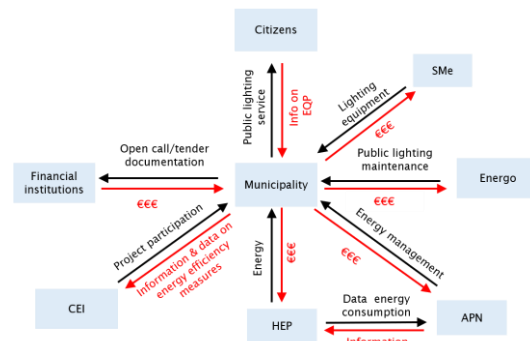
## Social acceptance campaigns



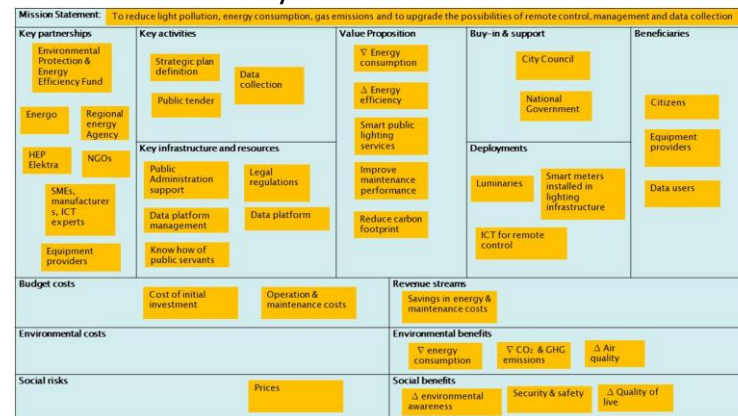
## Techno-economic analysis

Cost breakdown	Costs	Unit	% paid with public funding (Out of the region)	% paid with public (Regional) funding	% paid by the individual (others)	% paid by private companies
Central unit WMS type	2 382	€/Unit	50 %	50 %		
Active antenna type IBB AAC	715	€/Unit	50 %	50 %		
Wireless M-Bus PulseRepeater	250	€/3Unit	50 %	50 %		
Wireless M-Bus PulseRepeater	551	€/3Unit	50 %	50 %		
Zener battery	350	€/Unit	50 %	50 %		
Assembly and installation	2000	€/Unit	50 %	50 %		
Parameterization, testing and commissioning	1000	€/Unit	50 %	50 %		
System maintenance and control	13500	€ per year (30 buildings)		100 %		
Database - management	10000	€ per year		100 %		

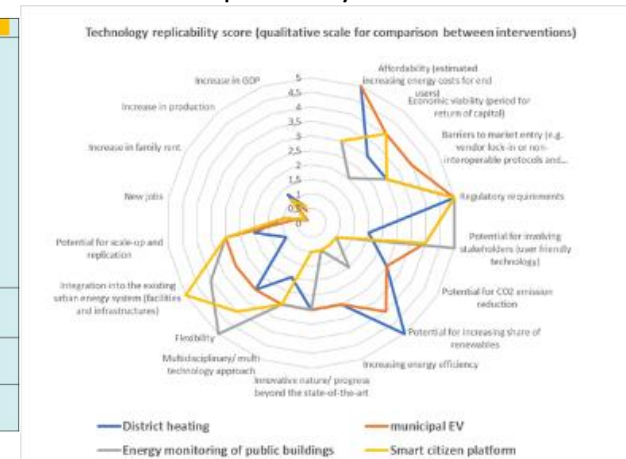
## Value creation ecosystems



## City Model Canvas



## Replicability score



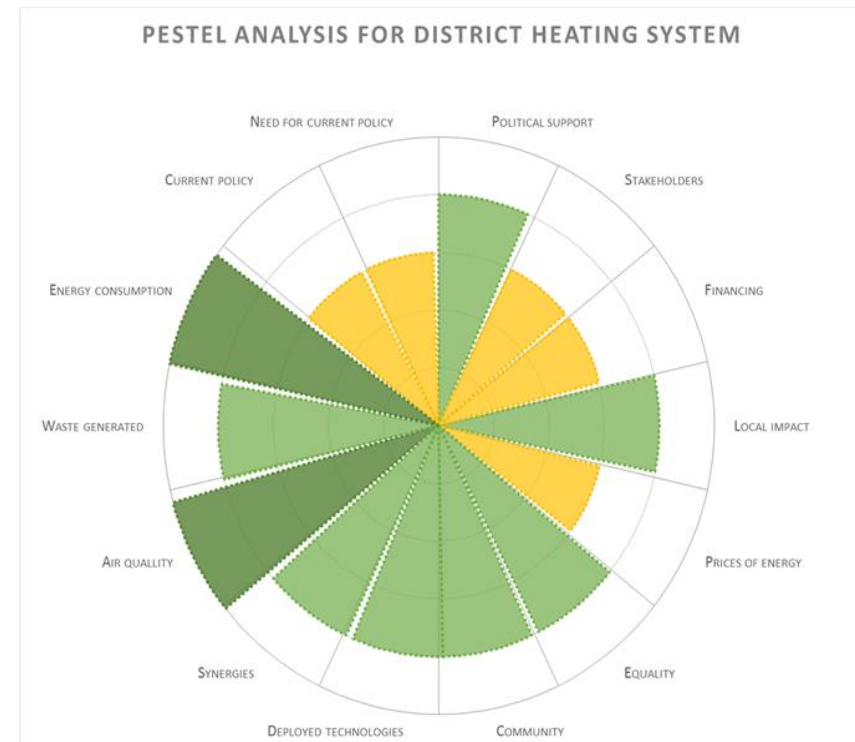


# Some replication tools

## Is the environment propitious for developing an action?

- **P**olicies, existing plans
- **E**nvironmental context/issues
- **S**ocial context and expectancies
- **T**echnical feasibility (supply chains, service providers)
- **E**conomic feasibility (financing, payback conditions)
- **L**egal/Regulation context

## PESTEL analysis



# Some replication tools

## What is the economic impact of the action?

- Total cost? (investment + operation over life cycle)
- Supply chain analysis (breakdown of all the components related to the action)
- Who pays?
- Are there local providers?
- ...

## Techno-economic analysis

Cost breakdown	Costs	Unit	Who makes the payment?			
			% paid with public funding (Out of the region)	% paid with public (Regional) funding	% paid by the individual (Citizens)	% paid by private companies
E-vehicle cost (without the battery cost) - bus (30 pcs.)	21.577.726,22 €	€	15 %	85 %	0 %	0 %
Desing, projects, procurments	116.279,07 €	€	100 %	0 %	0 %	0 %
Battery cost - bus	13.953.488,37 €	€	100 %	0 %	0 %	0 %
E-vehicle charger cost - e-bus pantographs 400 kW (5 pcs.)	976.744,19 €	€	15 %	85 %	0 %	0 %
E-vehicle charger cost - e-bus 60 kW chargers (20 pcs.)	930.232,56 €	€	15 %	85 %	0 %	0 %
Grid connection	250.000,00 €		100 %	0 %	0 %	0 %
Grid maintenance	500.000,00 €		100 %	0 %	0 %	0 %
Taxes		€/MWh				
Insurance	336.075,11 €	€/MWh	100 %	0 %	0 %	0 %
Grid electricity price (variable costs of the electricity)		€/year	0 %	0 %	50 %	50 %
Grid electricity distribution price (variable)			0 %	0 %	50 %	50 %
Grid electricity base-price (fixed costs)	221.767,44 €		0 %	0 %	50 %	50 %
Operation & Maintenance cost (materials)						
Operation & Maintenance costs (labour)						
Scrap value of vehicle	25.116,28 €		100 %	0 %	0 %	0 %



# Some replication tools

## How to ensure the social acceptance of the action?

- Different levels of involvement of the citizen:  
Information -> Participation -> Being the main actor
- Social acceptance campaigns  
-> “Tailor-made”
- Require more time for the topics that are new to the citizens  
-> Anticipation

## Social acceptance



# 3 cities, 3 replication approaches

## PALENCIA

Action category	Action analyzed
Building integrated RES (BUILDING/DISTRICT)	New heating systems in public buildings
Smart control (BUILDING/DISTRICT)	Energy monitoring of public buildings
Public lighting (CITY INFRASTRUCTURES)	Public LED lighting
District Heating (CITY INFRASTRUCTURES)	District heating with biomass in public and private buildings
Electro-mobility (MOBILITY)	Electrical vehicles for municipal services fleet
Citizen engagement (NON-TECHNICAL ACTIONS)	Smart Platform for municipal services

## BYDGOSZCZ

Action category	Action analyzed
Electro-mobility (MOBILITY)	e-mobility in Bydgoszcz
Building integrated RES (BUILDING/DISTRICT)	PV on public buildings
Public lighting (CITY INFRASTRUCTURES)	Smart lighting system
URBAN PLATFORM AND ICT DEVELOPMENT	Open data GIS portal
CITY INFRASTRUCTURE	Smart rainwater system
Building retrofitting (BUILDING/DISTRICT)	Public building refurbishment

## RIJEKA

Action category	Action analyzed
Building integrated RES (BUILDING/DISTRICT)	PV panels, energy storage and sharing
Smart control (BUILDING/DISTRICT)	Smart metering and data management
Public lighting (CITY INFRASTRUCTURES)	Smart public lighting
ICT & Urban Platform (URBAN PLATFORM)	Open data GIS platform
e-vehicles (MOBILITY) (ICT & URBAN PLATFORM)	Smart bus stations and smart traffic platform
Citizen engagement (NON-TECHNICAL ACTIONS)	Citizen participation in energy savings



# Thank you for your attention!

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