



sowHat

INTEGRATED SO WHAT TOOL PRESENTATION



This Project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement N. 847097

OBJECTIVES OF THIS PRESENTATION

1. Users the tool and context
2. Overview of tool and functions
3. Online (Free) vs Advanced (Commercial) versions
4. Industrial Sectors Covered
5. Timeline
6. User Workflows
7. Current Progress



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ABOUT THE PROJECT

Objective is to develop and demonstrate a market ready integrated software which will:

- Support industries & energy utilities in simulating & comparing alternative Waste Heat and Waste Cold (WH/C) technologies
- Simulate how to balance the local forecasted H&C demand and supply
- Include RES integration.

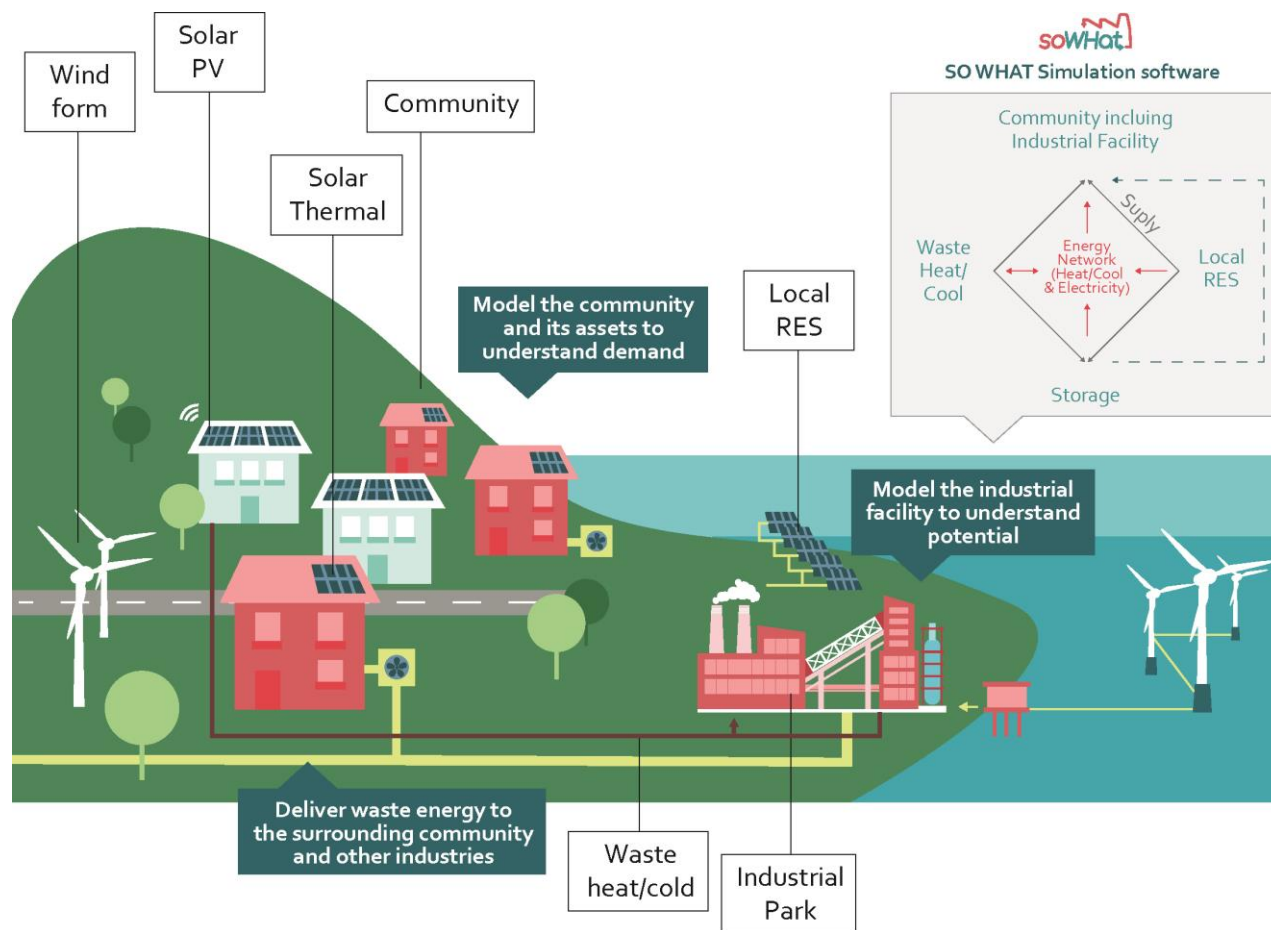
Start: Jun 2019. End: May 2022

Consortium: 7 countries, 21 partners, 11 demo sites



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ABOUT THE PROJECT – MANUFACTURING TO COMMUNITY SCALES



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WHO WILL USE THE TOOL & IN WHAT CONTEXT?

1. Industry - Operation/Energy Manager of Industrial Facilities will use the tool to understand the potential to:

- Recover waste heat/cooling and use within the factory .
- How waste heat can be used to supplement renewable energy systems.
- Recover waste heat/cooling and supply it local community.
- Where waste heat/cooling could be purchased from in the local community.

2. Municipality / Regional Energy Agencies /Public Authorities - will use the tool to understand:

- Supply areas with waste heat/cooling.
- Where there is demand for waste heat/cooling.
- Areas for integrating waste heat/cooling with Renewable Energy technologies.

3. ESCOs / DH Operators - will use the tool to:

- Recognize which solutions relating to waste heat/cooling in a community would best suit the business models they operate under.
- Assess the costs/risks of any investments required.



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INTEGRATED SO WHAT TOOL – SUPPORTED BY ONLINE WORKFLOW



Minimal Data Collection via Energy Asset Audit Portal	Methodology for scenario & technology selection	KPIs to suit user focus (financial, energy, environment)
Industrial energy flow and waste h/c baseline	Modelling of technologies to recover and reuse waste h/c within factory	Compare scenarios to optimise solutions
Community heat & power supply baseline	Modelling of ways to reuse waste h/c at Community scale	Business Model & Energy Performance Contracting Guidance
Community heat & power demand baseline	Modelling of how to integrate waste h/c with RES	KPI Panel & Dashboard for Results Visualisation to suit different users
3D View of Individual site or Community	Balance local forecasted h/c demand with supply	Automated M&V software to allow ongoing reporting



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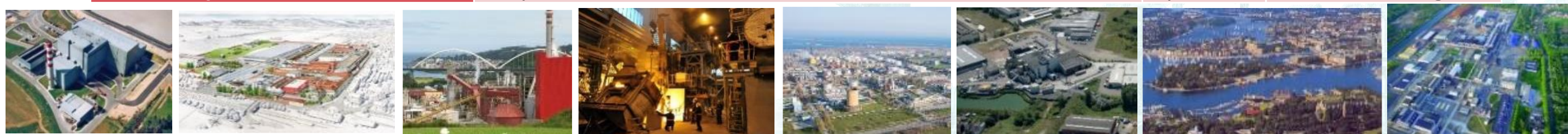
ONLINE VS. ADVANCED VERSIONS

Usability/Functionality	Online	Advanced
Form of Access to SO WHAT Tool	Free	Paid
Online or Desktop	Online	Desktop
Availability of expert consultant to support user	✗	✓
Online workflow to guide user through each step	✓	✓
3D Building / Community View	✓	✓
Industrial waste heat / cooling assessment based on industry profile or detailed assessment	Profile	Assessment
Results visualisation of waste heat/cooling potential	Basic	Detailed
Ability to select technologies/scenarios, & associated energy, environmental & financial KPIs to simulate	✓	✓
Simulation of potential waste heat recovery to be used in same factory	Basic	Detailed
Visualise local community energy consumption & supply sources	Basic	Detailed
View uses for waste heat/cooling in community & how to balance local waste heat supply with demand	Basic	Detailed
Ability to understand/view how this is integrated with RES	✗	✓
KPIs panel & dashboard suited to different users	Basic	Detailed
Business model guide	Basic	Detailed
Automated M&V software to allow ongoing reporting	✗	✓



DEMO SITES

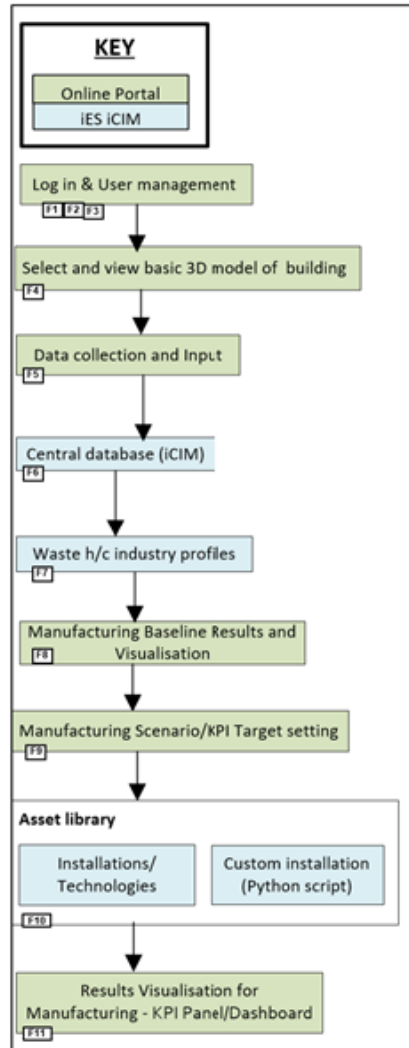
Name	Sector	Country	User perspective
LIPOR Maia Incineration Plant	Waste to Energy	Portugal	Community
UMICORE Rare material Centre	High tech manufacturing	Belgium	Manufacturing
GOTEBORG Multi WH DHN	Refinery, Waste to Energy, District Heating Network	Sweden	Community
Pulp Mill DHN VEAB	Pulp, District Heating Network	Sweden	Community
ISVAG Incineration	Waste to Energy	Belgium	Community
IMERYS Carbon black manuf.	Chemicals	Belgium	Manufacturing
M&R Pessione Distillery	Food & Beverage	Italy	Manufacturing
MPI steel pilot	Steel	UK	Manufacturing
Petromida refinery	Refinery	Romania	Manufacturing
Constanta DHN	Various industrial sectors, District Heating Network	Romania	Community
ENCE Pulp mill	Pulp	Spain	Manufacturing



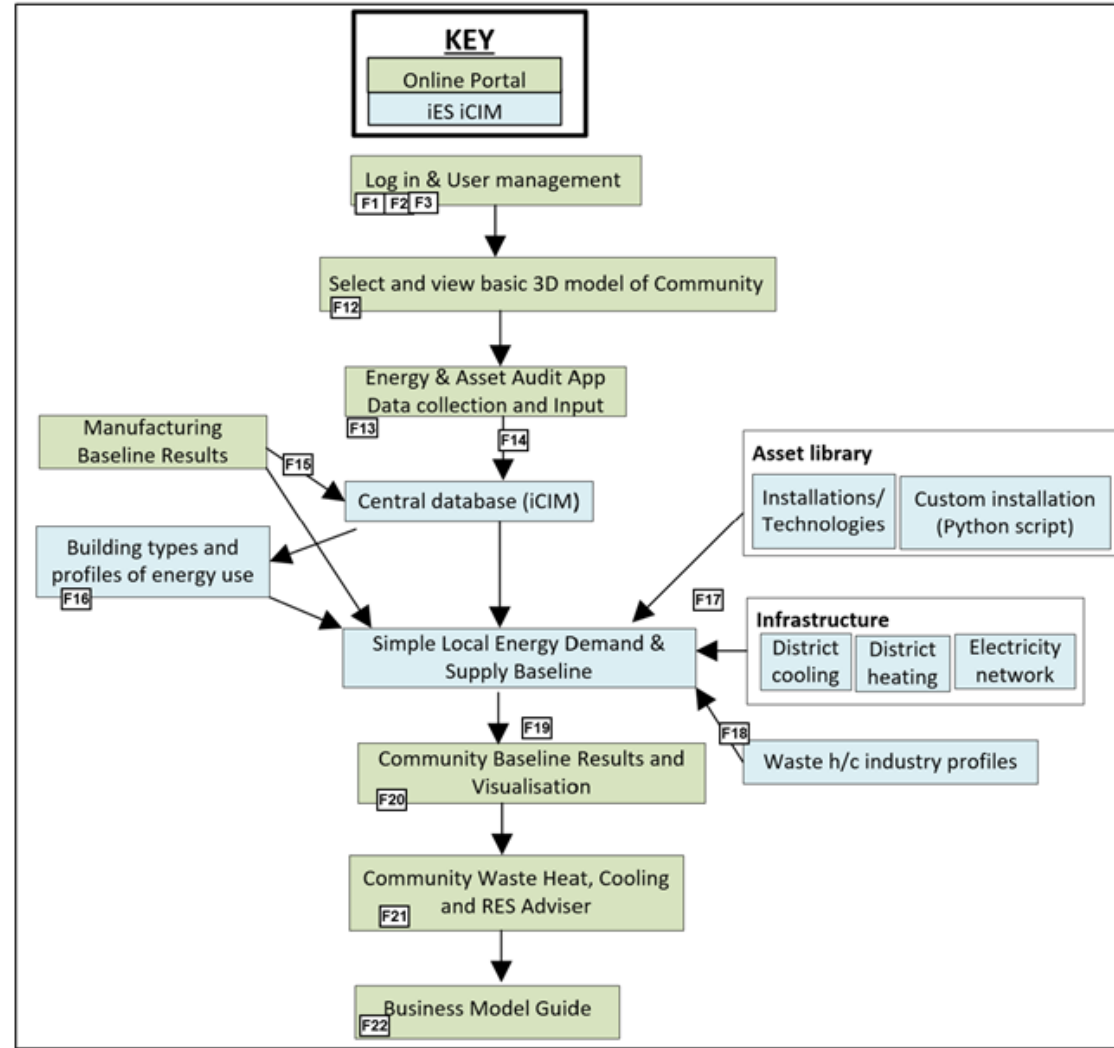
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BASIC VERSION WORKFLOWS

MANUFACTURING

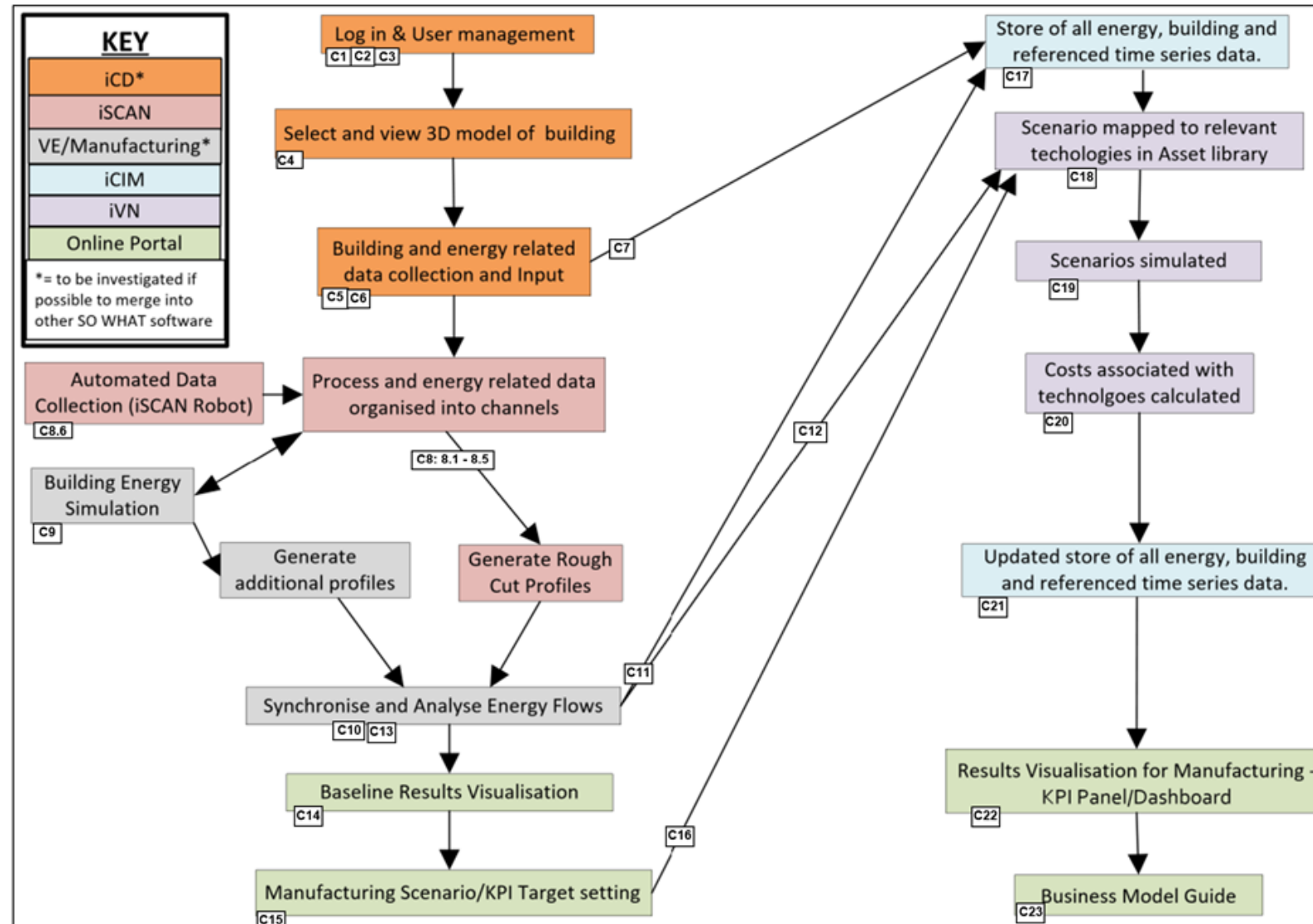


COMMUNITY



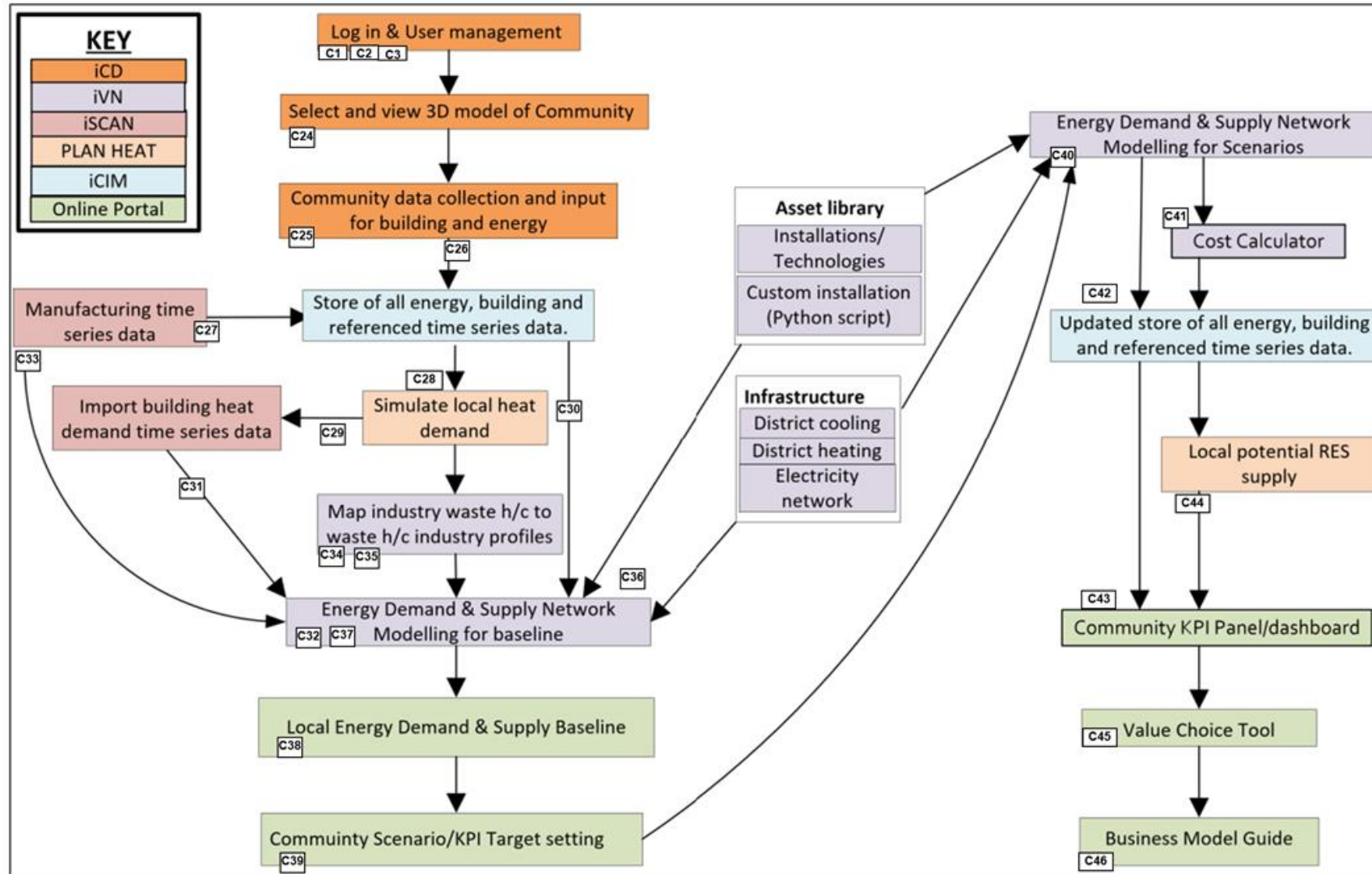
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Advanced Version Manufacturing Workflows



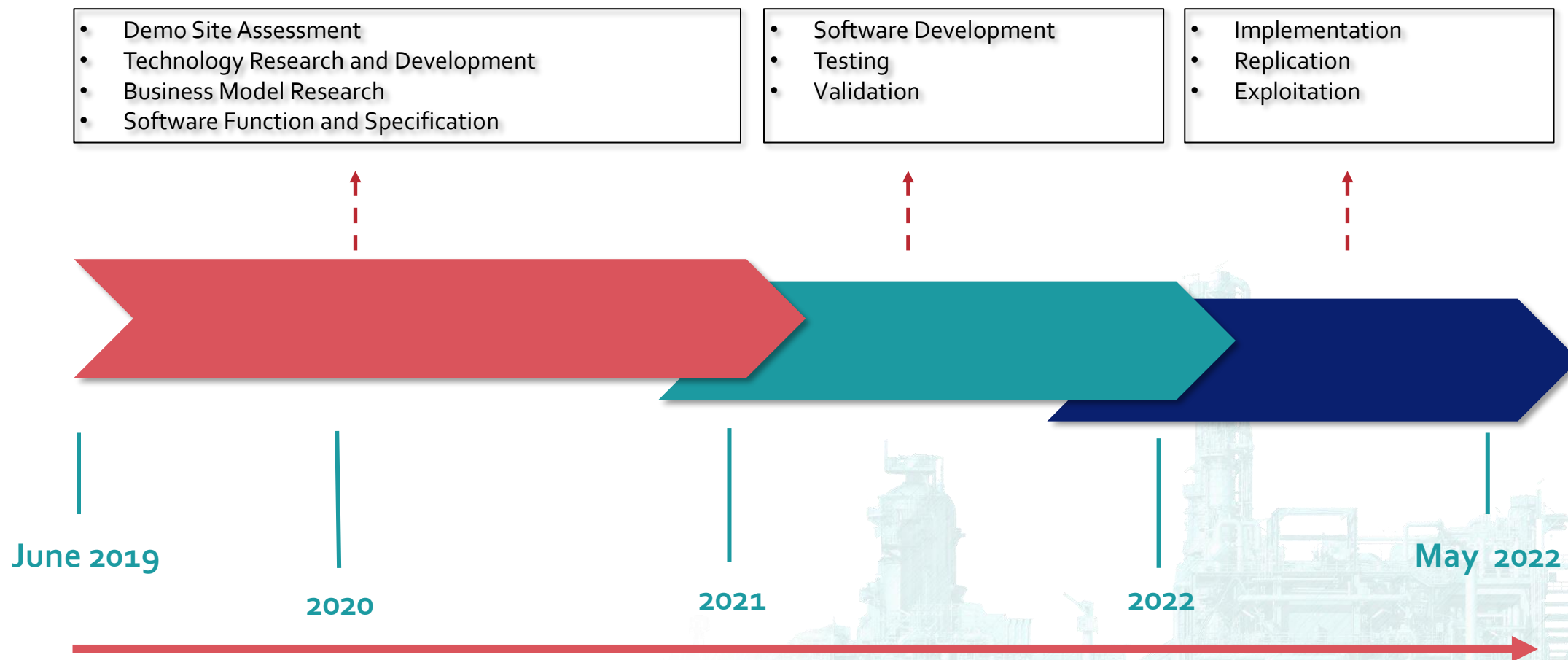
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ADVANCED VERSION COMMUNITY WORKFLOWS



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TIMELINE AND PROGRESS



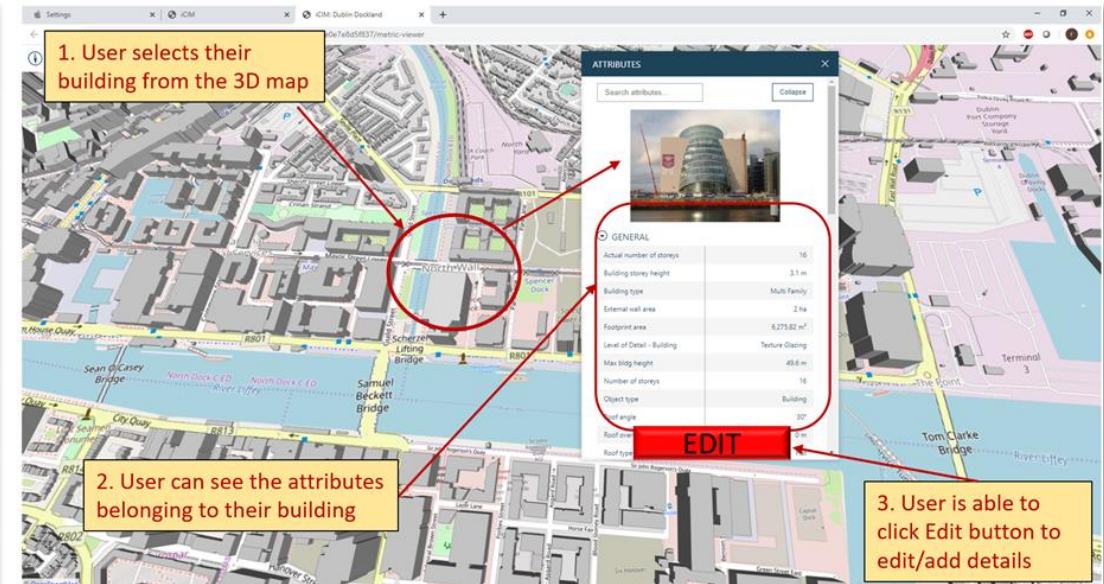
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DATA COLLECTION, ENTRY & ORGANISATION

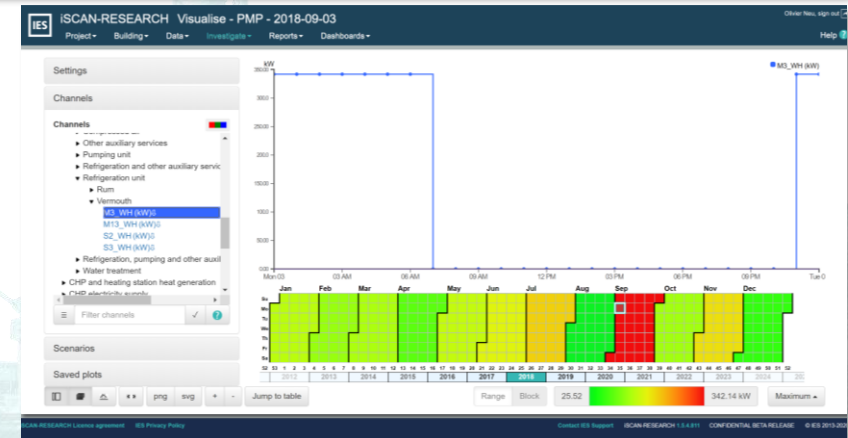
Collection

Data source	Data type
1. Demo site data checklist 2. Energy audit report 3. Energy consumption sub-metering and production monitoring system file (Excel)	List of sub-meter
	Sub-meter energy source type
	Rated power (kW) and monthly energy consumption (kWh)
	Operational schedule
	Process category and type
4. Process technical data sheet	Product category
	End-use category and type
	Process annual energy flows

Entry



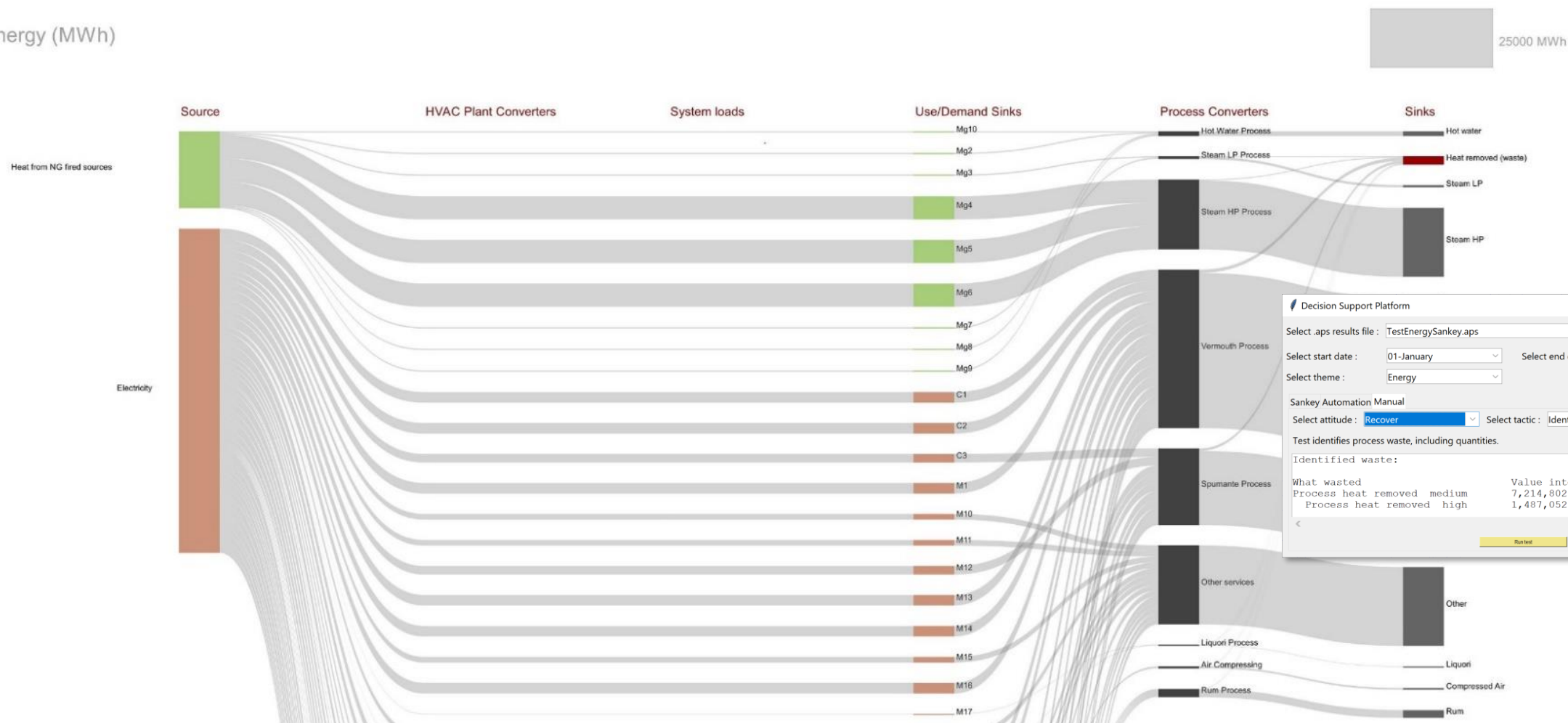
Organisation



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BASELINE WASTE HEAT/COOLING IN INDUSTRY

Energy (MWh)



Decision Support Platform

Select .aps results file : Close

Select start date : Select end date :

Select theme :

Sankey Automation Manual

Select attitude : Select tactic :

Test identifies process waste, including quantities.

Identified waste:

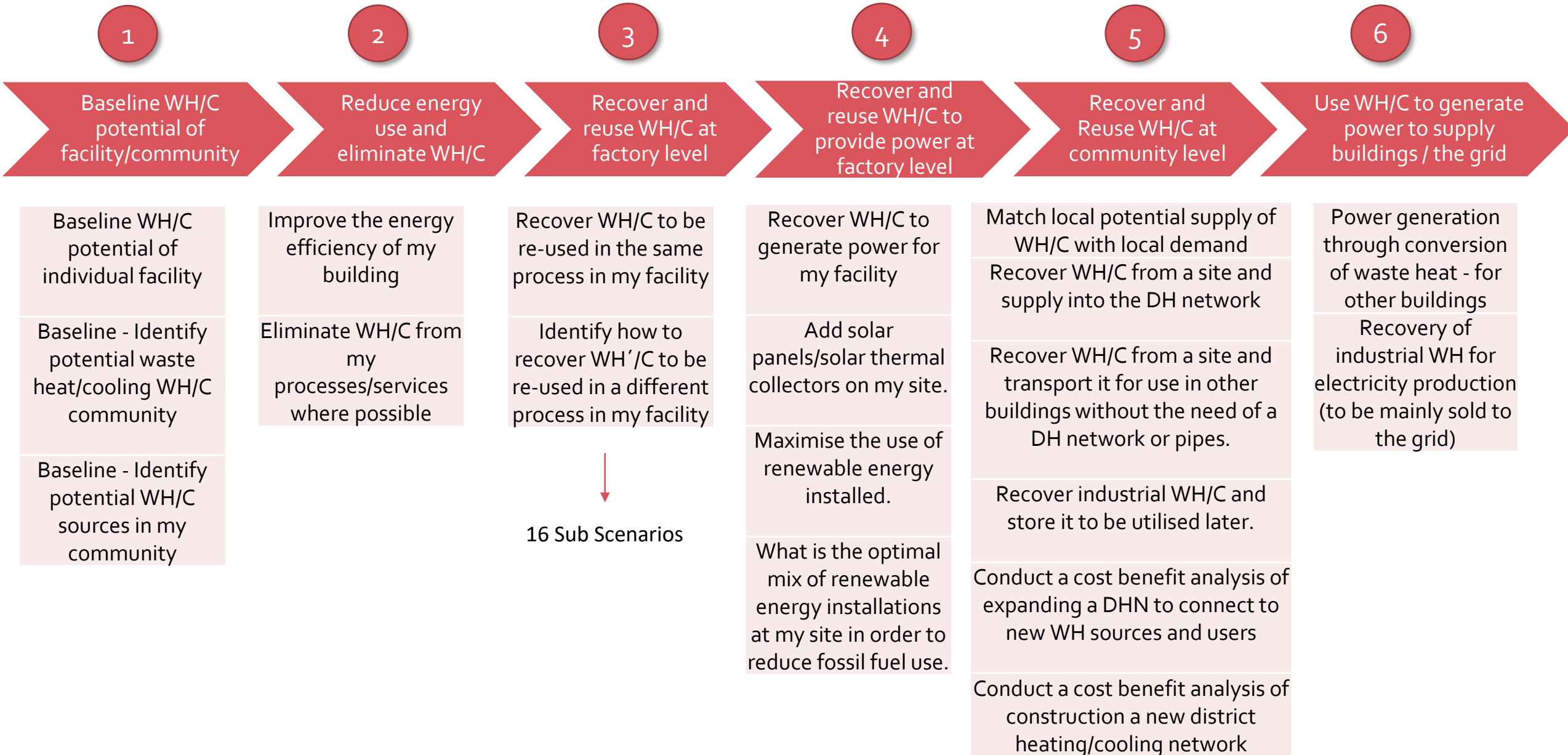
What wasted	Value	integral	Units
Process heat removed medium	7,214,802		kW.h
Process heat removed high	1,487,052		kW.h

Run test

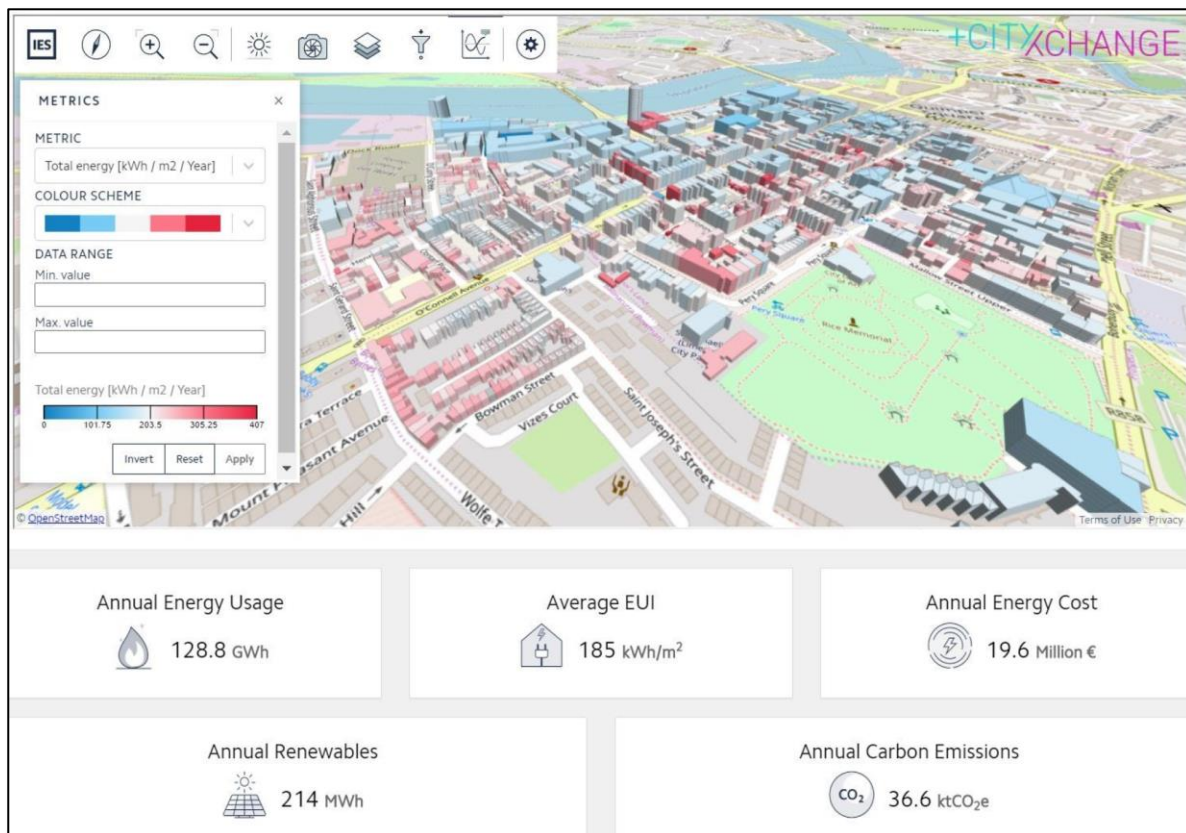


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SIMULATION OF TECHNOLOGIES & SCENARIOS - METHODOLOGY



REPORTING & DECISION SUPPORT



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