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Decision Support Toolkit for WEF Innovations

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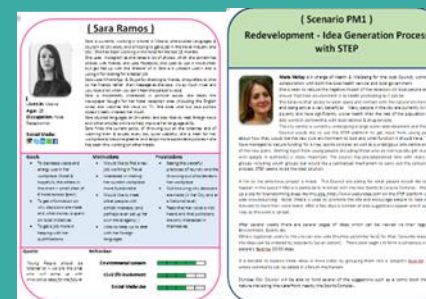
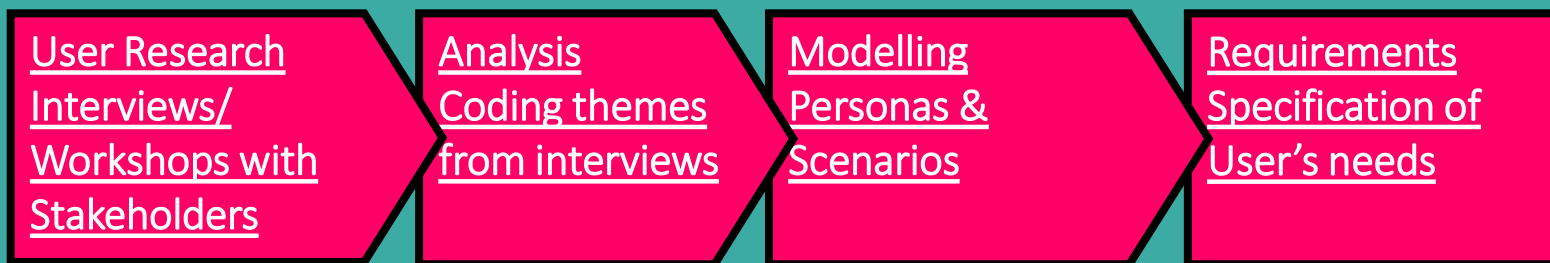


Elements of the Toolkit

- Catalogue of Sustainability Indicators for Nexus innovation
- Games for Awareness raising of Nexus Innovations & Sustainability
- Combined ABM and MOO for AD planning (DST)



User Research for DST Requirements



1. The user shall be able to create a username and password to log into STEPPING UP DST
3. The user shall be able to customise their profile page
4. The user shall be able to select the feedstock type etc



(Cost/Feedstock/Knowledge)

Barriers to AD innovation:

- High Cost
- Regulations
- Lack of/ Quality of Feedstock Supply
- Dependency on Incentives
- Uncertainty
- Complexity (technical and knowledge)

Drivers of AD innovation:

- Financial incentives
- Revenue from electricity / Biogas
- Accessible Feedstock Supply
- Heat use
- Waste Policy Regulations (Scotland & Wales)
- Transport (RTFO)
- Public perception



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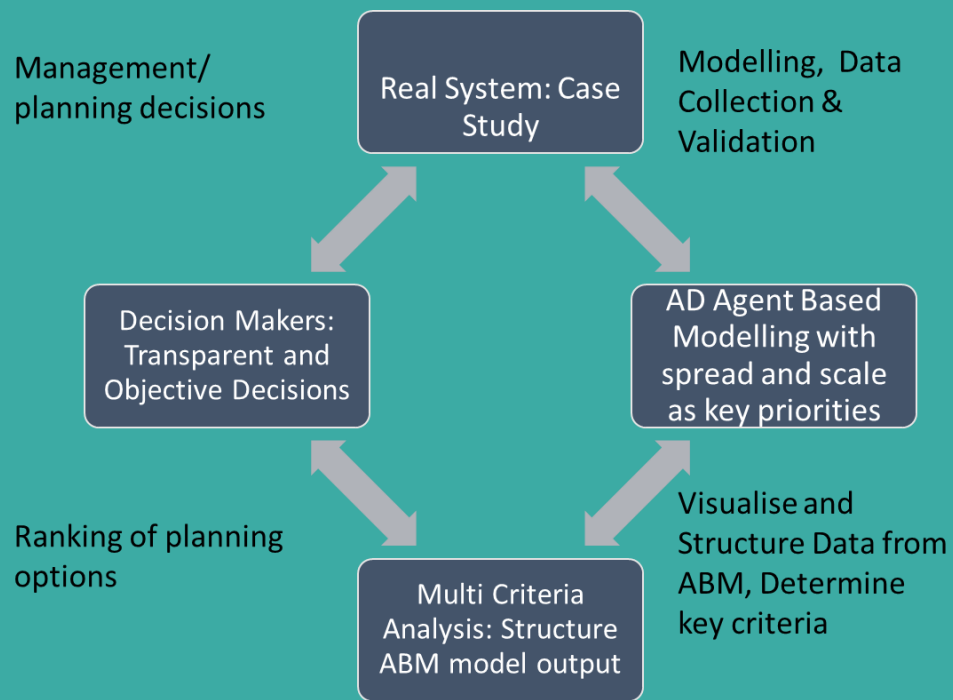
Main components of the DST:

Decision Support Tool

- A system model of AD innovation
 - ABM
- A set of criteria to assess its viability in terms of sustainability and nexus assessment
- Multi objective optimization and a structured way to interact with the system model
 - MCA (TOPSIS)



Criteria/Indicators



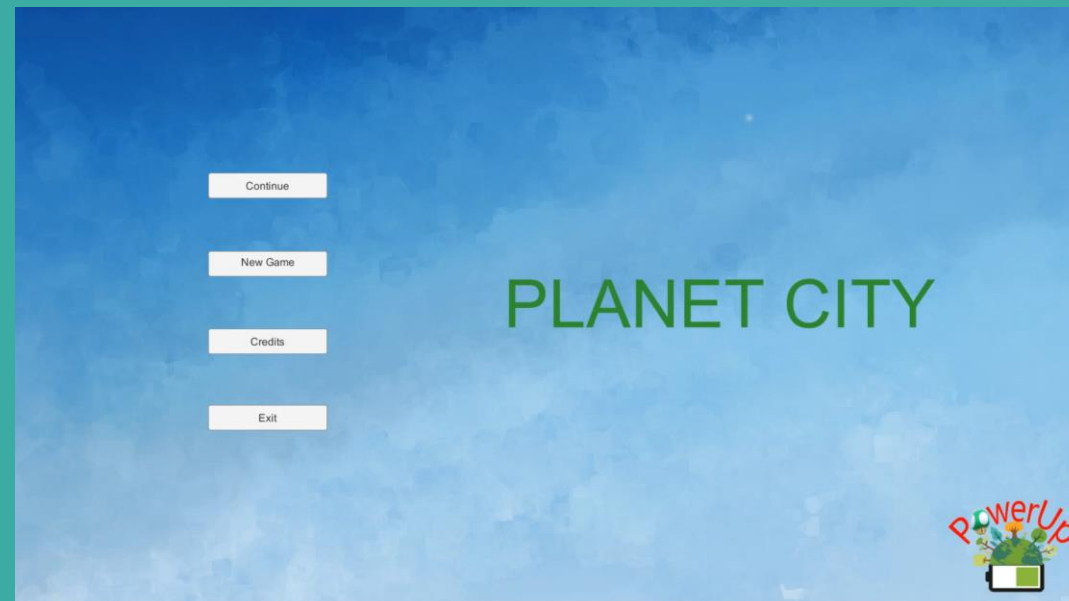
	Criteria	ABM Input Parameter/Variable	ABM Output Variables
Environmental	Minimize (fresh) water consumed	AD Type, Technology, Bussiness Model	Type and net amount of water used by AD plants (lt)
	Maximise digestate	AD Type, Technology, Bussiness Model	Produced digestate (lt)
	Minimize food waste to landfill	Recycle rate (kg/kg)	Food waste to landfill (ton)
Social	Maximize Acceptability of AD plant	Acceptability parameter, increased diffusion	Negatively affected people (number)
Economic	Minimize capital costs	AD Type, Technology, Bussiness Model	Investment and operation cost (million £)
	Maximize net biogas produced	AD Type, Technology, Bussiness Model	Net generated biogas (kWhr)
	Minimize operating costs	Recycle rate (kg/kg)	Food waste to landfill (ton)
	Minimize transport costs	CO2 emmision rate of transport vehicles (m3/km)	CO2 produced by trucks (m3)



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Nexus Game Jam Concepts





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Thank you

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