



FOSTERING INDUSTRIAL SYMBIOSIS FOR A
SUSTAINABLE RESOURCE INTENSIVE INDUSTRY ACROSS
THE EXTENDED CONSTRUCTION VALUE CHAIN

WEBINAR “THE FISSAC ICT PLATFORM”

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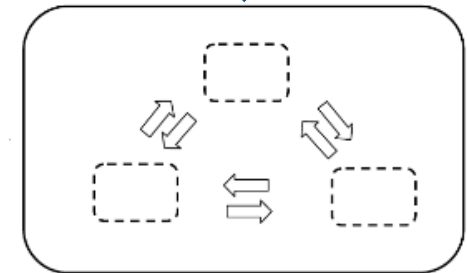
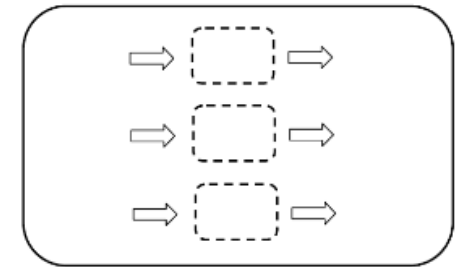


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Why do we need ICT Support for Industrial Symbiosis

- Most one-to-one waste valorisation possibilities are already in place.
- Overall benefits of Industrial Symbiosis (IS) are not directly visible and quantifiable in more complex ecosystems.
- A holistic and multi-criteria assessment capability is needed to identify the potential of IS,
- Especially in cases where an additional investment for intermediate processes or handling is needed,
- Which shall facilitate and support the operation of sustainable business models.



Requirement analyses and Progress **Beyond** State of Art

Existing tools have been assessed and added functionality has been identified to overcome known barriers and shortcomings

		KDSS	DIET	IME	DIME	MatchMaker	IEPT	WasteX	IEDP	RUES	IUWAWM	Presteo	SymbioGIS	CRISP*	SYMBIOSIS	eSymbiosis	C2C	US8CSD	Market place	ZeroWIN	LoopLocal	MIPS	COMETHE	EPESUS
Opportunity Identification	New Process Discovery	✓								o	✓				o			o		o				✓
	Input-Output Matching	✓	✓	✓	✓	✓	✓	✓	✓	o	✓	✓	✓	o	o	✓	✓					o		✓
	Relationship Mimicking		✓			✓		✓	✓	o	o	✓	✓			✓				o	o		o	
	Georeferencing and GIS						✓		✓		✓	✓	✓		✓									✓
Opportunity Assessment	SWOT analysis																							
	Cost Benefit Analysis		✓	✓	✓		✓			o	✓		✓				✓						o	
	LCA		✓												o	✓						o	o	✓
	LCC																							✓
	Barrier Assessment													o									o	
	Network Strength Analysis																							
Barrier Removal	Technology Development										✓					✓	✓	o						
	Regulatory Approval																						o	
	Financing																✓							
	Public Approval																							
Commercialization and Adaptive Management	Stakeholder Analysis														o		✓	o					o	
	Communication Management													o	o		✓	o						
	Transfer of Knowledge													o			✓	o						
	Research and Collaboration													o			✓	o						

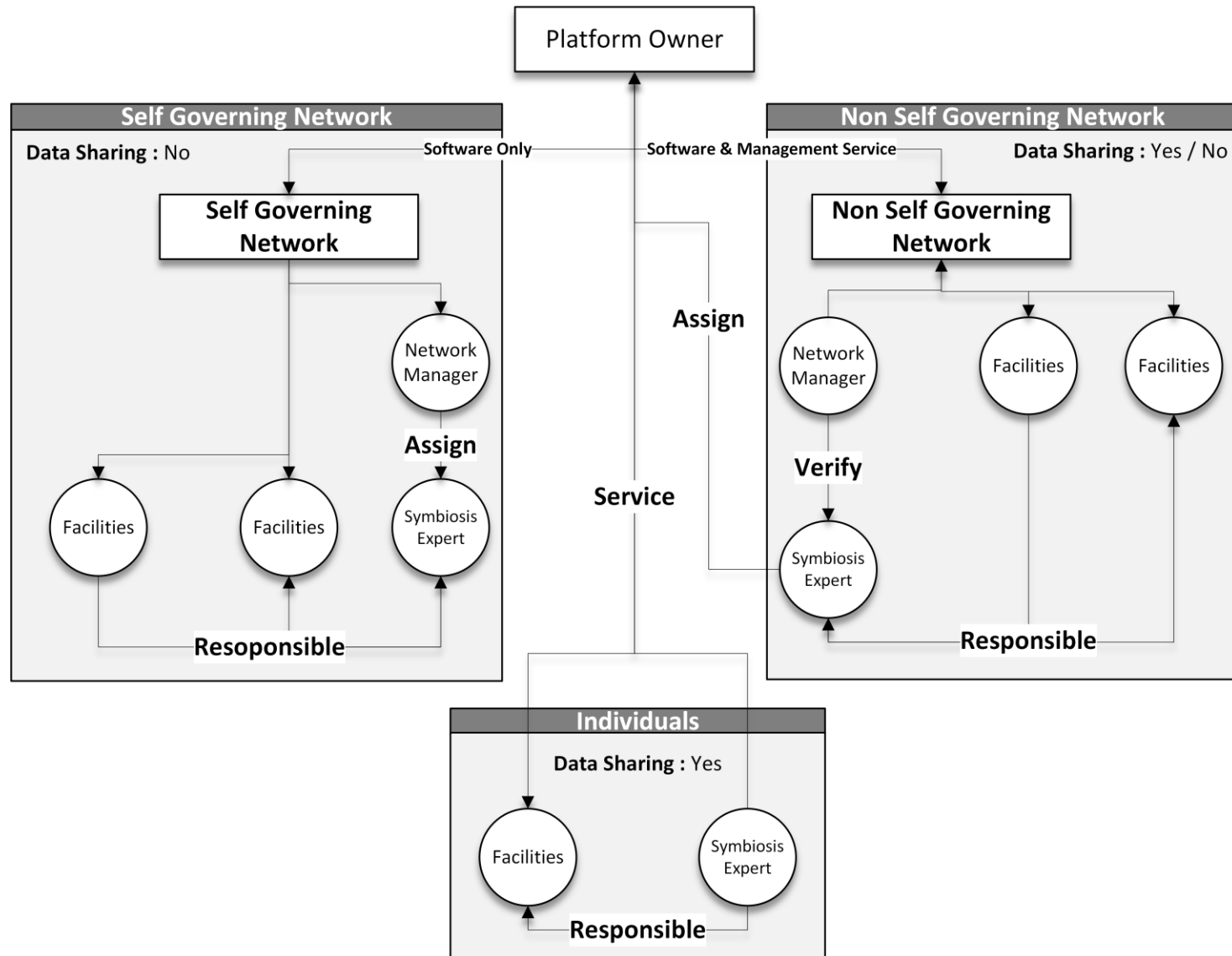
Objectives of FISSAC Platform

The FISSAC Platform is an web based software service platform, integrating the background capabilities of the Project partners, that enable multiple actors of an IS Network benefit from below features:

- Registration of all network actors, with their production information
- Data management on the flows and potential exchange materials
- Preliminary and enhanced assessment of symbiosis potential
- Delivery of a Marketplace for the exchange of flows
- Decision support on the possible interim processes that can facilitate mutual benefits
- Geographical referencing to support decision making
- Monitoring of the network flows and support to business models



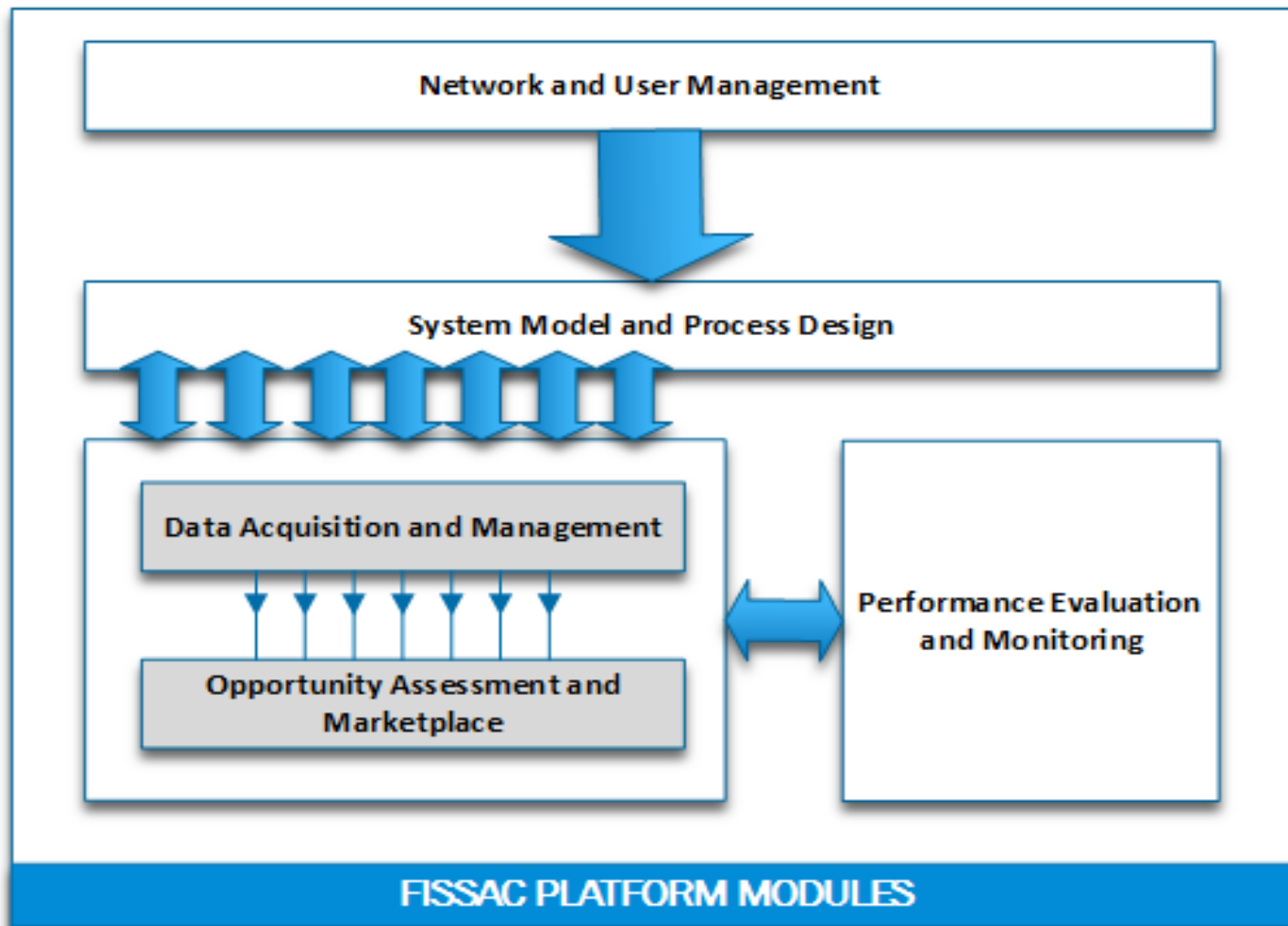
FISSAC PLATFORM USE SCENARIOS



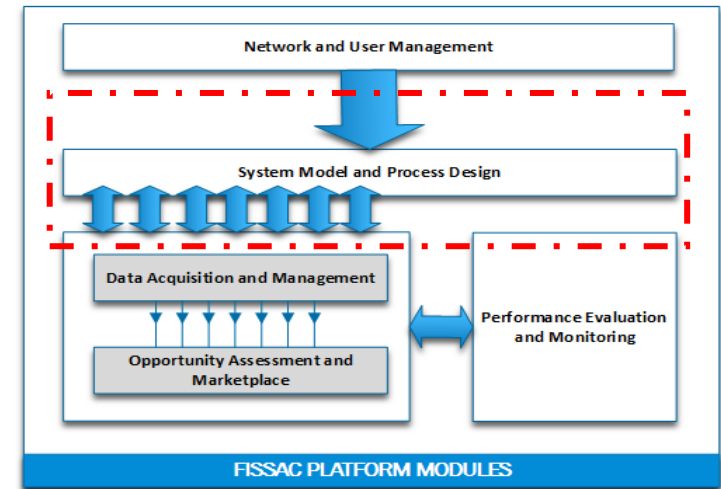
FISSAC PLATFORM USER ROLES

Users	Roles
System Designers	handling facility modelling and system models, identifying the input output flows in cooperation with the field experts
Symbiosis Experts	IS Experts responsible for data gathering, finding facilities, intercommunication of platform, IS prioritizing update and upgrade the content of the opportunity matrix etc.
Facility	representing the industrial facility which is involved in potential assessment, flow exchange and trading
Observers	users with limited access and able to monitor platform or any process
Network Managers	the management roles of the platform

FISSAC PLATFORM ARCHITECTURE



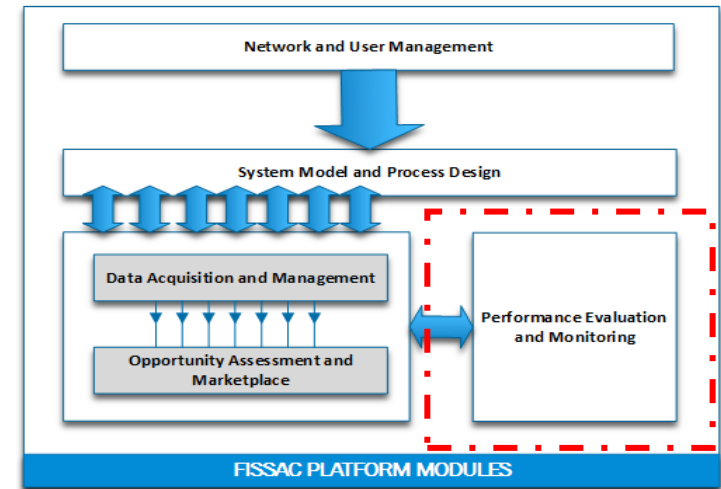
FISSAC System Model And Process Design



Approach & Benefits

- Predesigned and growing system model inventories, interoperable with Life Cycle Inventories
- Confirming & feedback mechanism is for improvement of system modelling
- Easy to perform pre-assessments on designed and confirmed system model representations of facility processes

FISSAC Performance Evaluation And Monitoring



Approach & Benefits

- Symbiosis Experts perform assessments on defined models
- Initial model, alternative IS models, confirmed model, applied model are compared and assessed
- Assessing models to improve and create best available practices and interim handling processes
- KPIs and related metrics for evaluating the developed/proposed IS Network performance

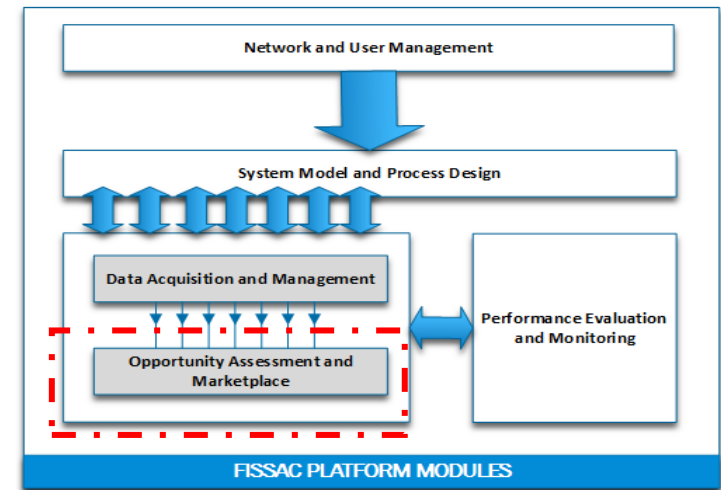
FISSAC Industrial Symbiosis Network Performance Assessment Indicators

Environmental	Economic	Social	Network and circularity
Material indicators	Product indicators	Number of jobs	Centrality
Water indicators	Turnover	Creation of IS	Reciprocity
Land indicators	Net value added	Social responsibility	Embeddedness
Energy indicators	OPEX and CAPEX	Lifelong learning	Intensity
Exergy indicators	Savings	Health and safety	Multiplexity
Emission indicators	Revenues	Social acceptance	Circularity

Including resource
efficiency, sustainability and
life cycle indicators



Opportunity Assessment And Marketplace Sub Modules

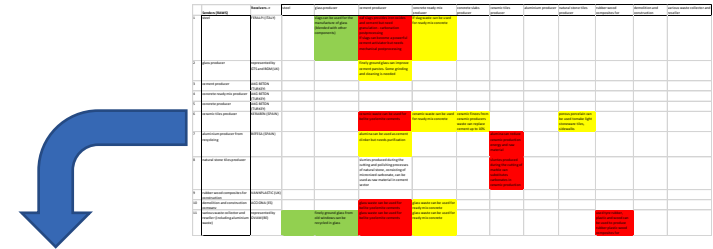


Approach & Benefits

- Opportunity is a database working in background. It is a matrix with a list of Facilities in the construction value chain across Europe and Turkey
- Each Facility reports the potential input / output for Industrial Symbiosis
- MarketPlace is used by a Facility to spot an opportunity



EXAMPLE OF OPPORTUNITIES



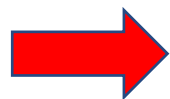
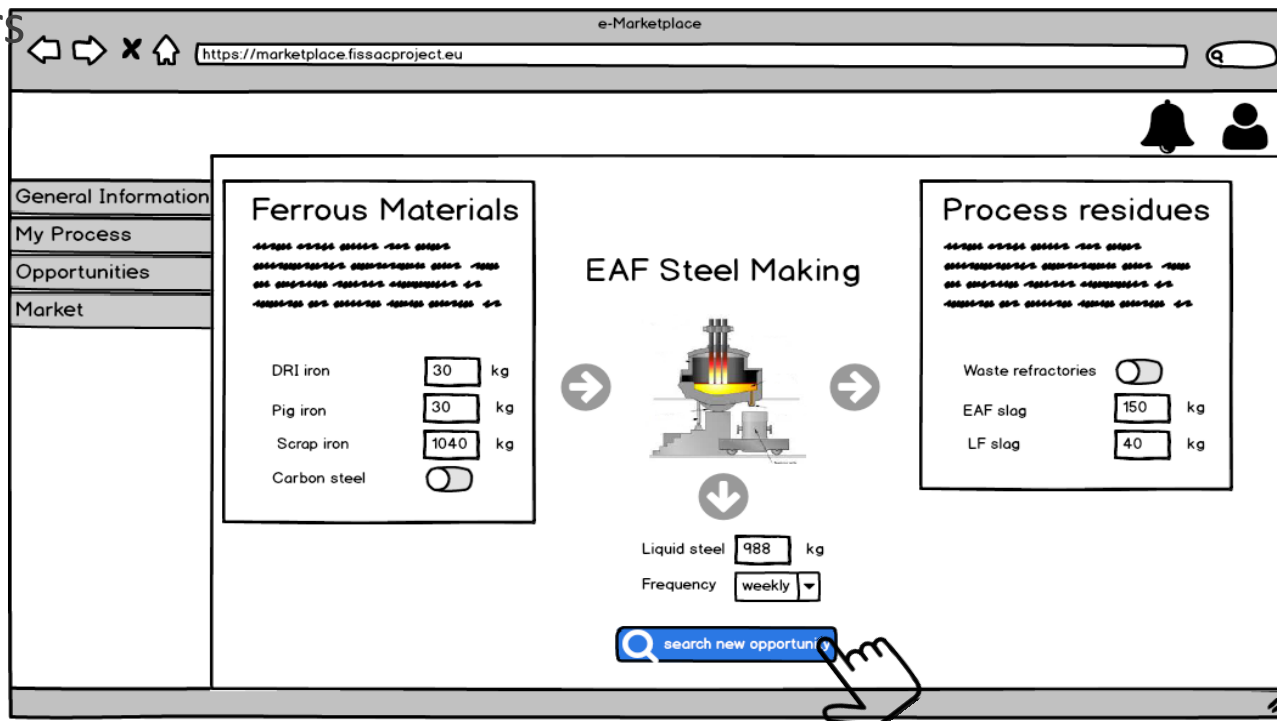
	Senders (RAWS)	Receivers ->	steel	glass producer	cement producer
1	steel	FERALPI (ITALY)		slags can be used for the manufacture of glass (blended with other components)	eaf slags provides iron oxides and cement but need granulation - carbonation postprocessing If slags can become a powerful cement activator but needs mechanical postprocessing
2	glass producer	represented by GTS and BGM (UK)			finely ground glass can improve cement parstes. Some grinding and cleaning is needed
3	cement producer	AKG BETON (TURKEY)			

color codes:

	no post processing needed, put it as it is with your existing input raw materials
	you have to postprocess a bit the material before using it in your products
	you have both to postprocess and change the existing product / method of production

STEP1: PROCESS DESCRIPTION

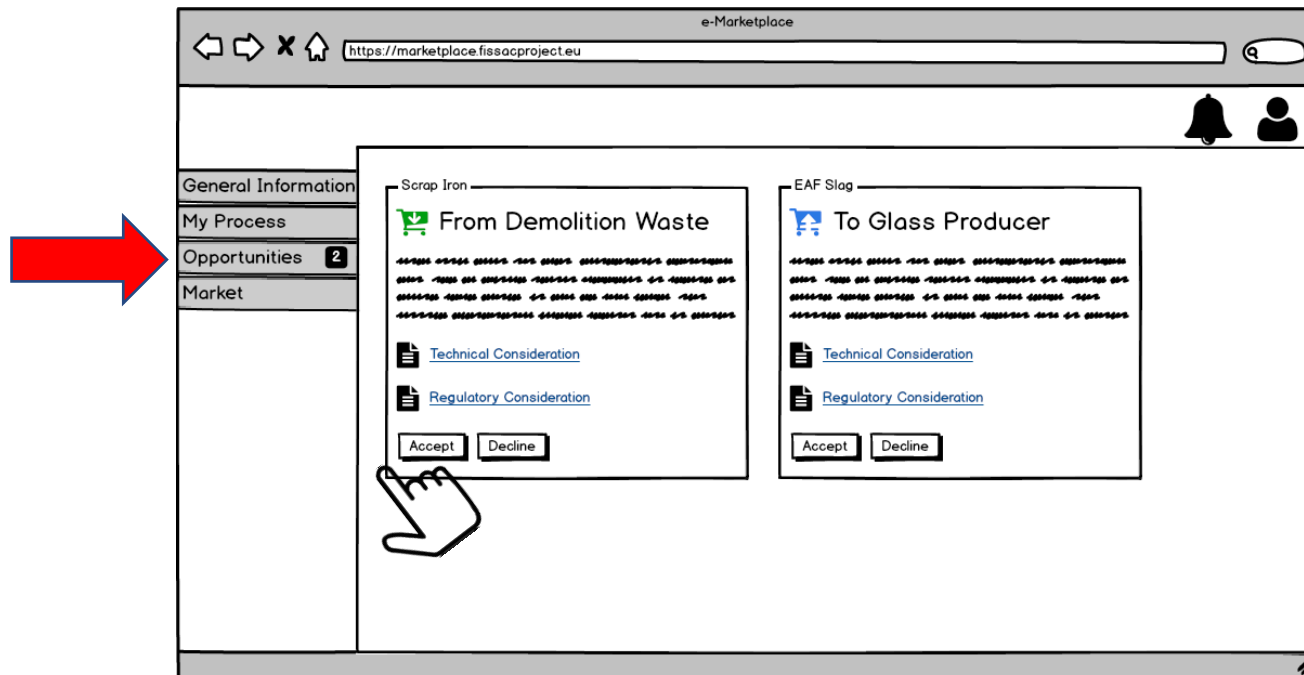
- The Facility User describes the “traditional” input / output materials
- By clicking on “search”, the System proposes a list of new opportunities for reuse (input of by-products) or sale (output of by-products)
- The proposal is built according to the research performed by FISSAC partners

The screenshot shows the 'e-Marketplace' interface for FISSAC. The browser address bar displays 'https://marketplace.fissacproject.eu'. The left sidebar contains a menu with 'General Information', 'My Process', 'Opportunities', and 'Market'. The main content area is titled 'EAF Steel Making' and features a central diagram of an electric arc furnace. To the left of the diagram is a box labeled 'Ferrous Materials' with input fields for 'DRI iron' (30 kg), 'Pig iron' (30 kg), 'Scrap iron' (1040 kg), and a toggle for 'Carbon steel'. To the right is a box labeled 'Process residues' with a toggle for 'Waste refractories', 'EAF slag' (150 kg), and 'LF slag' (40 kg). Below the diagram, there are input fields for 'Liquid steel' (988 kg) and 'Frequency' (weekly). At the bottom, a blue button labeled 'search new opportunity' is being clicked by a hand icon.

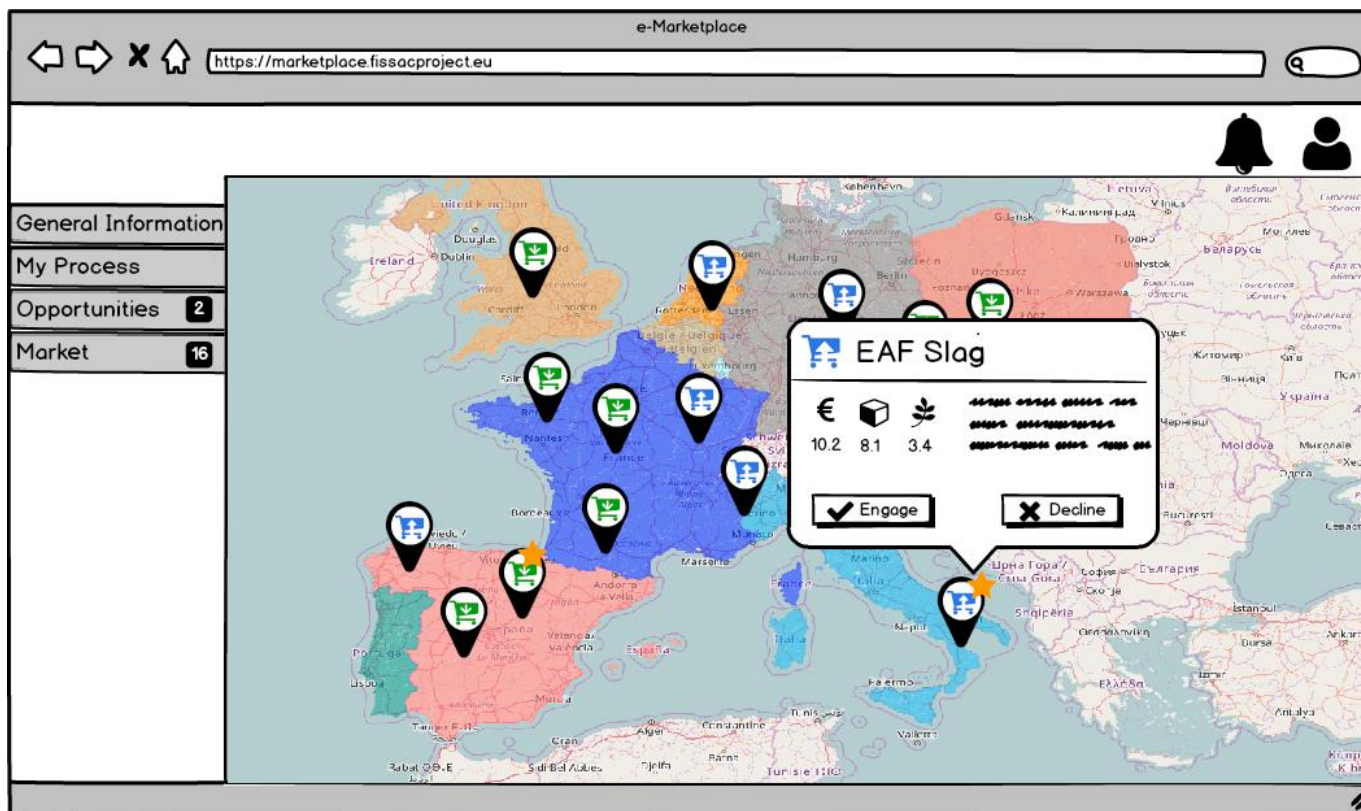
STEP2: OPPORTUNITIES

- The System shows a list of opportunities in terms of Input / Output
- Each Opportunity is proposed with Technical Data Sheets and requested compliances to Rules and Regulations
- By clicking on “accept”, the User search for georeferenced suppliers or buyers Facilities (next step)

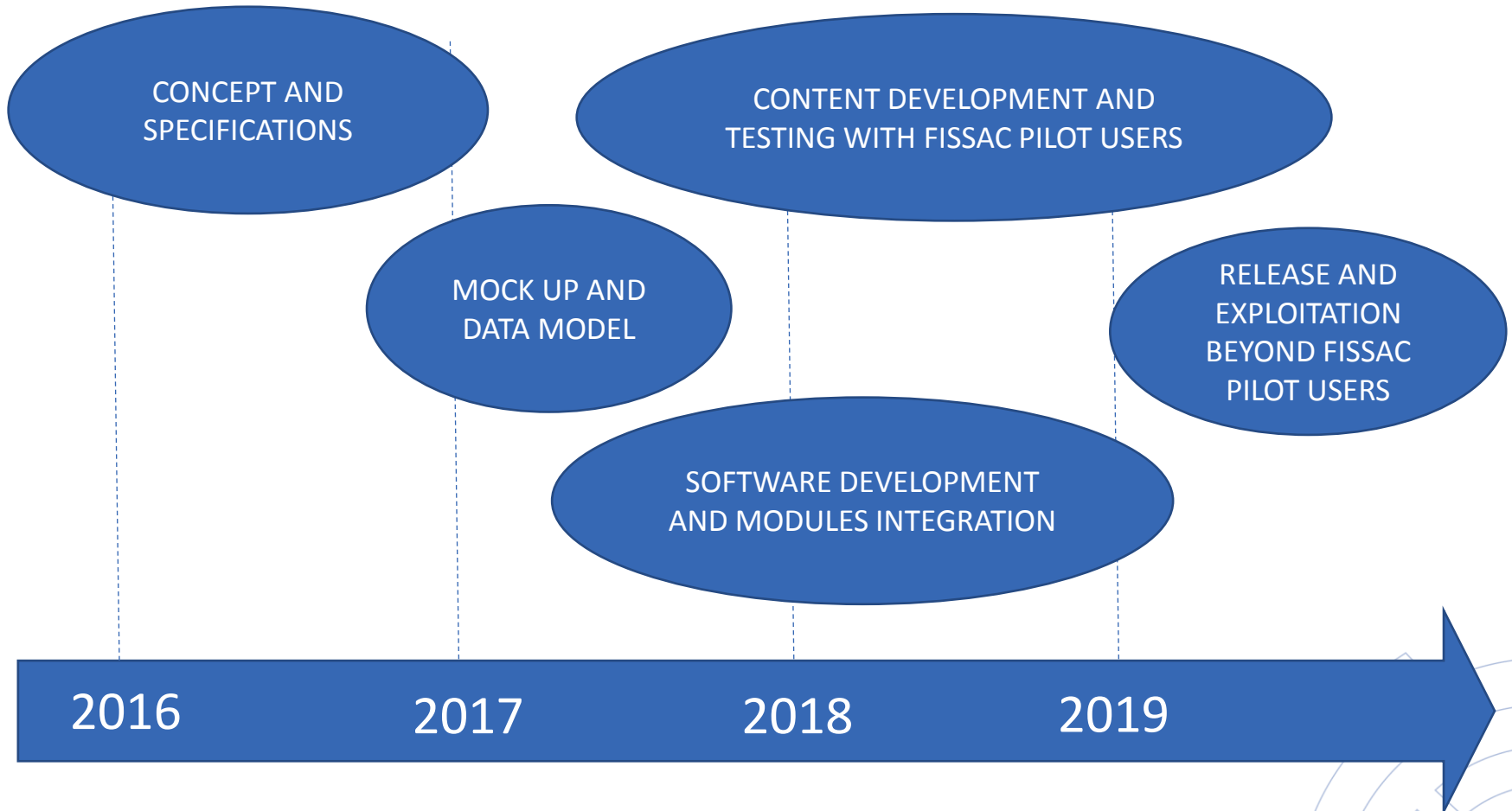


STEP3: MARKET AVAILABLE

- The System delivers a list of georeferenced Facilities across Europe and Turkey
- Each Facility shows a buy /sell availability, including average price



FISSAC PLATFORM RELEASE PLAN





KERABEN GRUPO

