



**SUSTAINABLE
PLACES 2020**

October 27-30, 2020
Digital Event



FiberEUse

Dena Arabsolgar



Large scale demonstration of
new circular economy value-
chains based on the reuse of
end-of-life fiber reinforced
composites

Holonix FiberEUse IT platform

a circular IT platform to manage innovative design
and Circular Entities

Sustainable Places 2020

Virtual, 27th October 2020

Dena Arabsolgar





- Data about FiberEUse project
- FiberEUse Use Cases overview
- FiberEUse Example in Construction
- Stakeholders needs overview
- The new Circular Information Management
- A Matrioska approach: Circular Platform
- Multi-Actor involvement: co-create Circular Products
- Challenges
- Solutions: Idea Manager, Eco-System Management Platform



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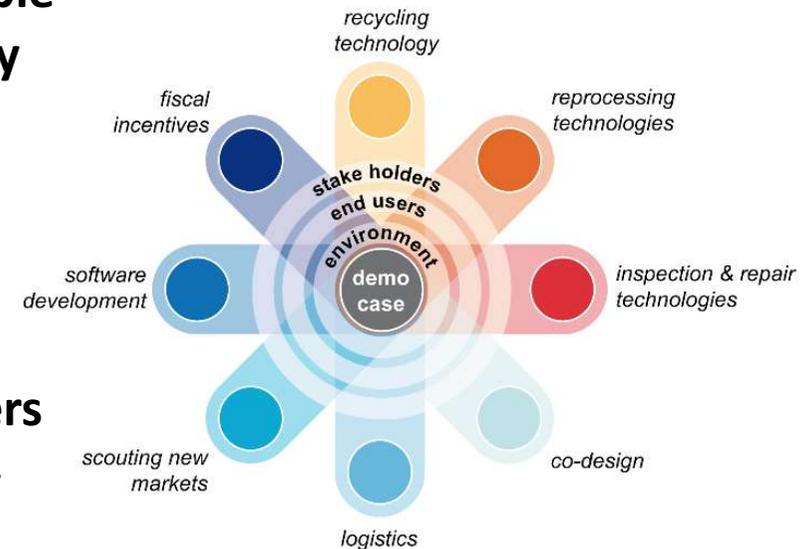


- Funding body: **EU Horizon 2020** (Grant Agreement No. H2020-730323-1)
- Grant: **€9.8 million**
- Duration: **4 years** started on June 2017
- Consortium: **20 partners**, from **7 EU countries**.
- Aim: **Integrating different innovation actions through a holistic approach to enhance the profitability of composite recycling and reuse in value-added products.**



FiberEUse aims to develop and demonstrate a large scale reuse of end-of-life (EoL) composites materials via:

- **Integration of innovative remanufacturing technologies addressed to develop profitable reuse options for mechanically or thermally recycled EoL GFRP and CFRP composites** - enabling ease of operation, significant cost reduction, compliance with EU Directives
- **Development of an innovation strategy for mobilization and networking of stakeholders from all the sectors related to composites** - from original equipment manufacturers (OEMs) to tier 1 suppliers, logistical operators, technology providers and exploiters, designers, and end-user associations



FiberEUse Concept

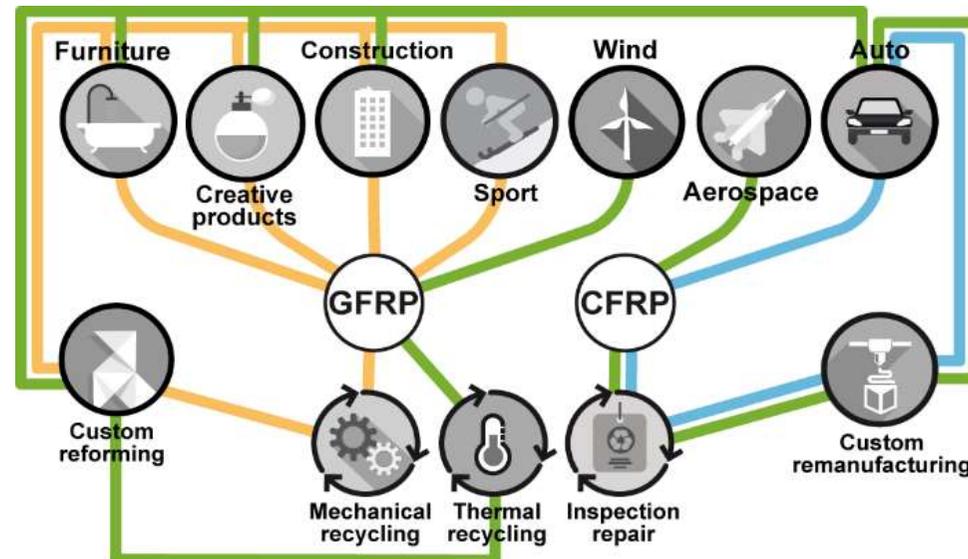


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FiberEUse is based on the realization of three macro use-cases, further detailed in eight demonstrators:

- **Use-case 1: Mechanical** recycling of short GFRP and re-use in added-value customized applications, including furniture, construction, sport and creative products
- **Use-case 2: Thermal** recycling of long fibers (glass and carbon) and re-use in high-tech, high-resistance applications
- **Use-case 3: Inspection, repair and remanufacturing** for EoL CFRP products in high-tech applications

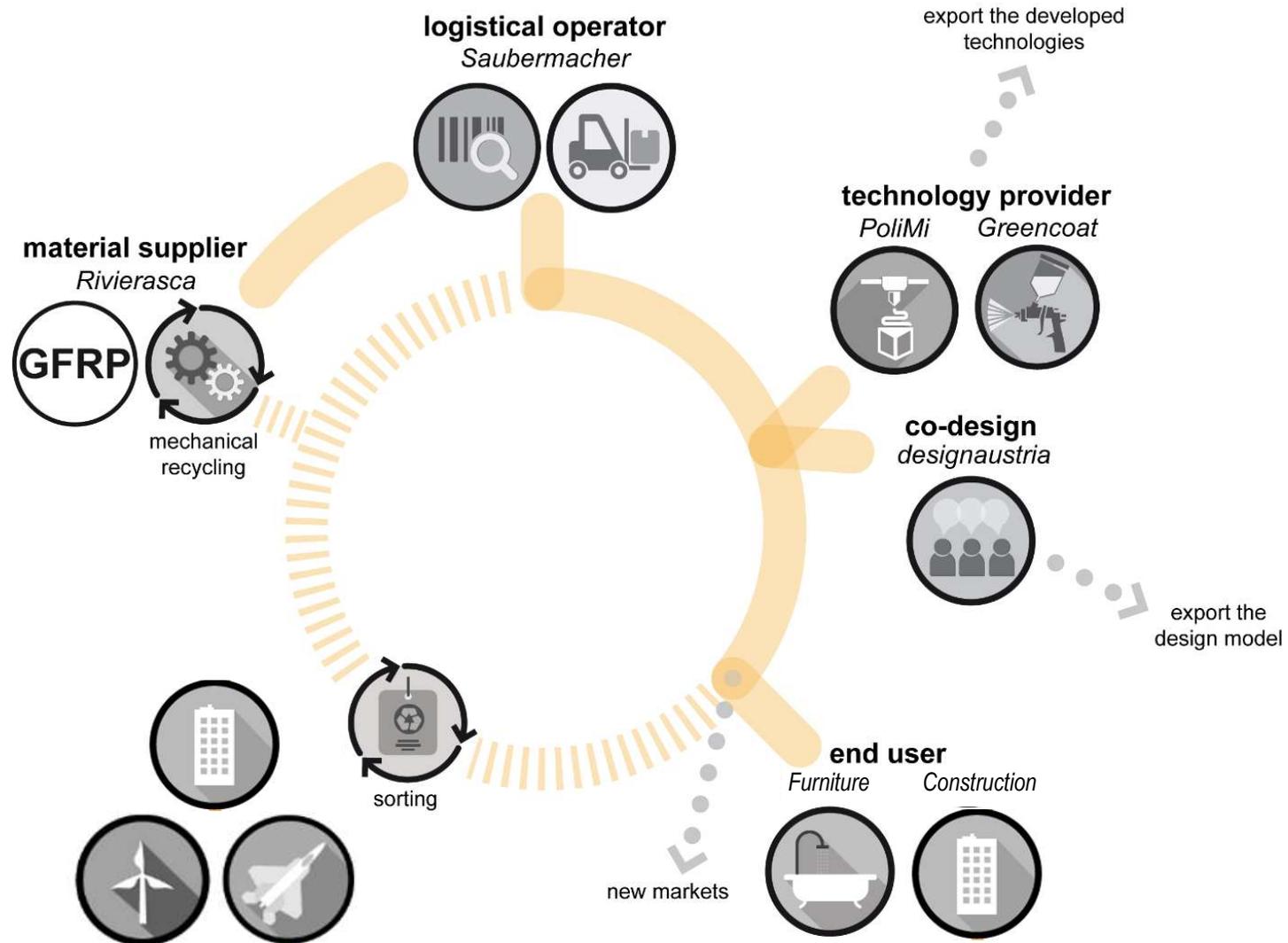


FiberEUse Use-Cases and involved industrial sectors



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FiberEUse project – a circular value chain example





Construction: how we can improve future

GFRP manufacturers need to be encouraged and stimulated to

take back their products at the end of their useful lives,

and shown how to make **profit** from this.

New business opportunities can be realized by careful evaluation
and minimization of logistical costs.

New product concepts based on **recyclates**

need to be developed for a wider market and social acceptance,

making possible the realization of new circular economy business cases

making profit

and at the same time saving raw materials,

energy and reducing emissions.



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Stakeholders needs



«I am a Waste provider»

«I am a ByProduct provider»:

- I need to dispose my end of life products
 - I want to reduce costs
 - I cannot send them to landfill anymore...
 - I want to do that in a sustainable way
- BUT...
 - I do not know who to offer them
 - Should I pre-process my waste? How?



Stakeholders needs



«I am a Producer»:

- I am interested in new materials that
 - Are less expensive than traditional ones
 - Offer the same/similar properties than traditional ones
 - Whose availability meets my production needs
- BUT...
 - I cannot compare traditional and new materials
 - I do not know how to purchase them...who can provide me the material?





«I am a process provider»:

- I can process end-of-life products
- I can create new materials
- I can offer technologies to use new materials (i.e.: additive manufacturing,...)

- BUT...
 - I do not know who can provide me waste
 - I do not know who is interested in the new materials/technologies



«I am a logistic operator»:

- I can pre-process end of life products
- I can organise national/international transport

- BUT...
 - Who needs my services?
 - Which are the regulations that are applied to waste and new materials in each country?

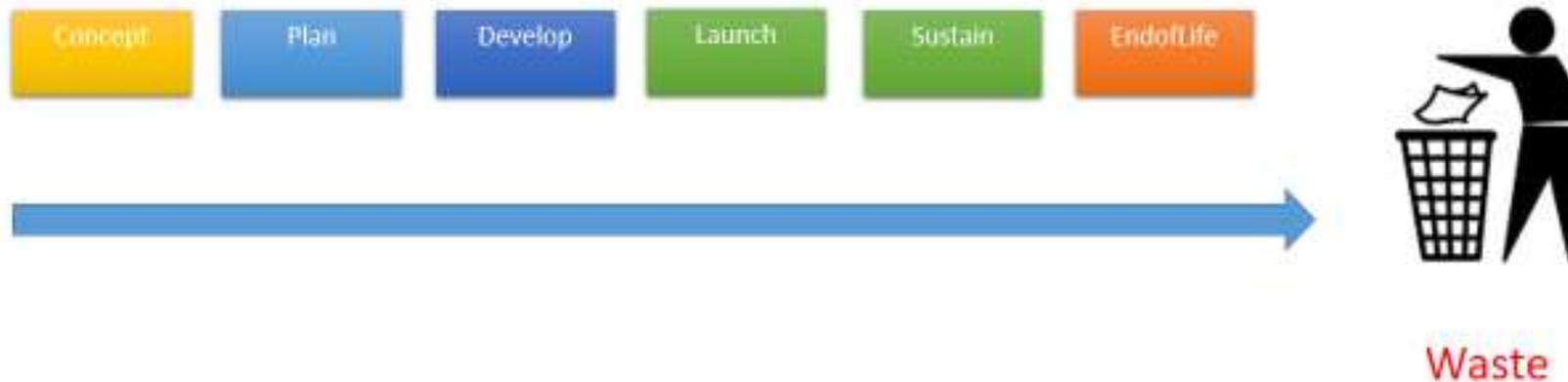




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PLM Phases from Concept to EoL... to Waste

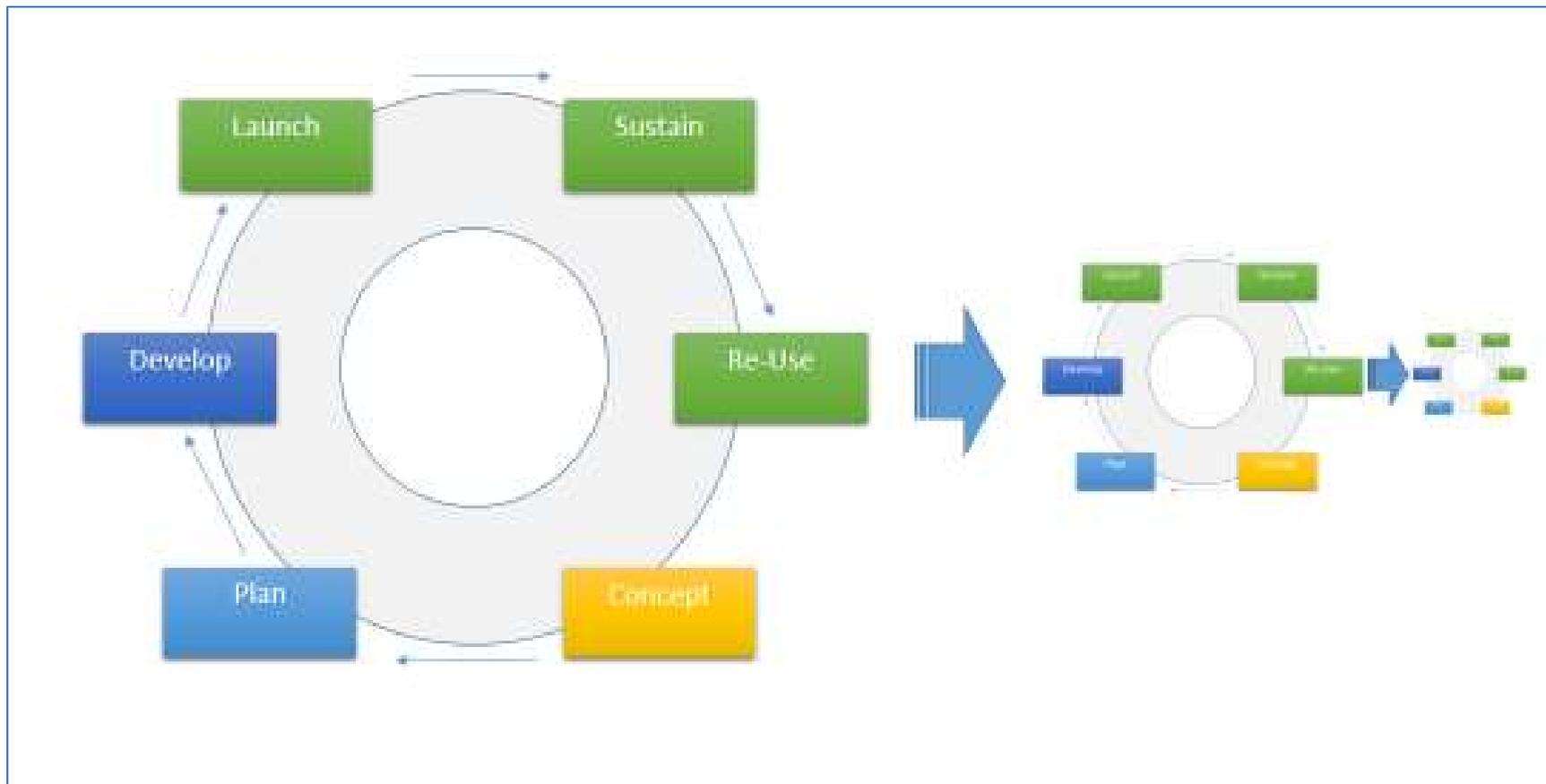


Linear economy
From extraction to waste

The new Circular Information Management

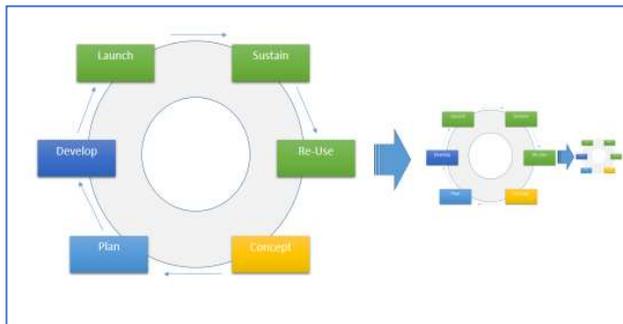


Circular economy
From object to object





Matrioska approach



Multi-Actor involvement



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-



Re-use, Re-cycle, and Re-something again

We need to
create knowledge and match needs
to know IF, HOW, WHAT, WHEN
I can use, reuse, recycle, remanufacture

How?
Let people know
Search
Enter in touch
Match
Suggest
Visualize
Keep history tracked

#circularentity
#eco-system





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A Multi-Actor involvement: co-creation



Share and collaborate is the new mantra

We need to involve actors
And to introduce
the social approach
across the Value Chain

How?

Propose ideas

Tag

Like

Comment

Score

Poll

Search

Match

#circularITplatform

#cocreation

#openinnovation





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1. How to go from one Entity to the next Circular Entity?



- New collaborations
- New ideas
- New processes
- New materials



Solution:
Idea Manager tool
#openinnovation
#cocreation



2. How to actively involve users?



New collaborations

New deals

New connections

New ecosystem

Solution:
the Eco-System Management platform
#matchmake
#Re-cursion



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Solution:

Idea Manager tool
#openinnovation
#cocreation

Idea Manager is a web-based software-tool designed to provide and support activities along the idea generation process, which is part of the **open innovation** approach.

not solely firm-centric

multi-actor (employee, designers, customers, providers, ...community)

Solutions: The Idea Manager tool



The screenshot shows a web browser window with the URL <https://fibereuse.holonix.biz/ideamanager/#/>. The page header includes "Idea manager v1.0.0", "Idea", "Notification", "Signed in as user", and a "Logout" button. The main content area features a large heading "Welcome to FiberEUse!" and a sub-heading "Co-creation for the re-use of plastic waste". Below this is a paragraph: "Growing concern for the environment, together with increasing awareness of the limitation in resources, are promoting a shift from the traditional cradle-to-grave product lifecycle towards a circular economy, a novel approach in which products and materials can have multiple lives." Another heading asks "Would you like to participate?" followed by: "Idea Manger involves you in a novel co-design approach to realise innovative products from glass fibre reinforced composite wastes. Please take 10 minutes to give us your feedback on these innovative concepts! Thank you". At the bottom, there are two buttons: "Give feedback" (with subtext "Take a look at innovative design products made of recycled plastic") and "Submit" (with subtext "Create a new idea of products made of rGFRP and be ready to"). The footer contains the FiberEUse logo, a European Union flag, and text: "This project is funded by the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No. H2020-790823-1", "All rights are with the creator Powered by Holonix S.R.L.", and a list of links: "Terms and condition", "Privacy policy", "Cookies policy", and "Contact us".



Solution:
Idea Manager tool
#openinnovation
#cocreation

Solutions: The Idea Manager tool



The screenshot shows a web browser window with the URL <https://fibereuse.holonix.biz/ideamanager/#/newidea>. The page title is "Idea manager" and the version is "v1.0.0". The user is signed in as "user" and can click "Logout". The main heading is "New Idea".

Main data

- Title:
- File input: Nessun file selezionato
- Description:
- Insert new tag:
- Tags:

acoustic ,artificial marble ,bioreisin ,bodyshaker ,building system ,
cellulosefibers ,cold tub ,criticaldesign ,double-sided-bench ,
e-charger ,electric product ,electronic ,environmentalpollution ,
fiber reinforcement for concrete ,FiberEUse ,Fibrewall ,furniture ,
gogreen ,grass ,greening ,healthcare ,hot tub ,let'sgrowgrass ,
letthedustsattleonit ,medical treatment ,mobility ,Outdoor ,
outdoorbench ,para ,Parametric Layering ,Plants ,plasticpollution ,
public space ,public use ,recycled pho ,recycling ,
recycling phoneboxes ,relaxing ,safe ,safe space ,safezone ,ski ,
smartphone ,sound ,spa ,sports&leisure ,stores ,transport ,tub ,
urba ,urban gardening ,Urban greening ,Vertical greening ,
wasteforwaste

Additional data



Solution:
Idea Manager tool
#openinnovation
#cocreation



MODUL X^3

Description

THE DESIGN CONCEPT IMPLIES A DEVELOPMENT OF A MULTIFUNCTIONAL, TEMPORARY MODULAR VOLUME WITH AN EXTE...[read more](#)



Author

MikSmol

Attachments

SMOLSKI_Mikhail_SS18_Final_Presentation.pdf

👍 Unlike it 22

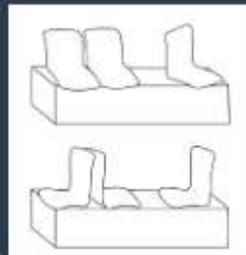
💬 comments 5

Feedback survey

FIBREBENCH

Description

You choose which direction you would like to look at or how close you would like to sit to another p...[read more](#)



Author

alicia.wa

Attachments

Guschlbauer,Stangl,Wackenheim - Bank.pdf

👍 Unlike it 23

💬 comments 6

Feedback survey

BICYCLE RACK

Description

The aim is to develop a functional, safe and attractive place where bicycles can be stored and locke...[read more](#)



Author

saracramer

Attachments

Cramer_Bicyclerack.pdf

👍 Unlike it 39

💬 comments 8

Feedback survey

Solutions: The Idea Manager tool



Idea manager v1.0.0 Idea ▾ Concept ▾ Survey ▾ Signed in as moderator Logout

Find innovative idea!

Search idea

Autodose,Connectivity,Easy to Use,Eco-Friendly,Efficacy,Efficiency,Energy Saving,Ergonomic Machine,High Performance,Home wellness,IoT,Light Noise,Monitoring, Reliability,Resource Efficiency,Safe,Smart Device,Smart Home,Smart Maintenance,Sustainability,Touch,Water Saving

Add a tag

Name	Status	Description	Usefull for	Like	Comment	Author
Energy Awareness Service	Pending	Service that allows costumer to control and optimize the energy consumption during each cycle in the day, making him/her more aware about his/her usage.	Not usefull	Like it 1	comments 0	user
Predictive Assistance Service	Evaluating (Public)	Analysis of machine current status, recognition of dangerous situations, efficient management of the maintenance process.	1 concept	Like it 1	comments 3	user
Perfect Dosing Technology	Reject	Allows customer to understand what and how many detergent should be used according to dirty clothes to wash.	Not usefull	Like it 0	comments 0	user
Professional washing	To Clarify	This ability allows costumer to wash and dryer in total safety the clothes that request drywash	Not usefull	Like it 0	comments 0	user
Touch Experience	Evaluating (Public)	This idea provides the re-design of dashboard where the costumer has a touch screen to choose the cycles, identify the timing, and set	1 concept	Like it 5	comments 3	user



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Solution:

the Eco-System Management platform

#matchmake

#Re-cursion

The Holonix Circular IT platform is a cloud based multi-sided platform where multiple potential users can be enabled to manage and access relevant information.

It connects two or more interdependent user groups, by playing an intermediation or a matchmaking role.

This solution minimize transactions costs between market sides.

The platform must achieve a network effect, involving many users and stakeholders.



Solution:

the Eco-System Management platform

#matchmake

#Re-cursion

FiberEUse

RIVIERASCA_ADMIN

FiberEUse LAND_c8ee984691.svg

Eco-System management platform

Glass and carbon fiber ecosystem

An innovative tool that enable new value chains in the circular economy of the glass and carbon fiber.

This project is funded by the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No. H2020-730323-1



Solution:
the Eco-System Management platform
#matchmake
#Re-cursion

The screenshot displays the FiberEUse web application interface. On the left is a navigation sidebar with the FiberEUse logo and menu items: Home, Project, Company, Circular entity (highlighted), Process, Logistic, Service, Enter in touch, Open Innovation, and Search. The main content area has a blue header with the FiberEUse logo and a user profile icon for 'RIVIERASCA_ADMIN'. Below the header is the title 'List Circular entity' and a '+ NEW CIRCULAR ENTITY' button. There are two tabs: 'MINE' (active) and 'SHOW OTHER'. A table lists circular entities with columns for name, location, and description. The table contains six rows of data. At the bottom right of the table, there is a pagination control showing 'Records per page: 5' and '1-5 of 6'.

name	location	description
Construction 75% UP, 25% GF	Bottanuco - BG - Italy	Glass Fiber construction waste in unsaturated polyester various colours
Uncured glass fiber prepreg pieces	Bregenz Austria	
Blade	Spain	Glass Fiber Blade entire to be cutted or chopped
Piece of Blade	Spain	Glass Fiber Blade cutted and ready for common truck transport
Recycled fibers	Romanore-Borgo Virgilio (MN)	raw recycled material



Solution:
the Eco-System Management platform
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The screenshot displays the FiberEUse web application interface. On the left is a sidebar with the FiberEUse logo and a navigation menu containing: Home, Project, Company, Circular entity (highlighted), Process, Logistic, Service, Enter in touch, Open Innovation, and Search. The main header shows 'FiberEUse' and the user 'RIVIERASCA_ADMIN'. The main content area is titled 'Circular entity detail' and features a toggle for 'Active' and a 'VALUE CHAIN' button. A left-hand menu for the entity detail includes 'ATTRIBUTES', 'ATTACHMENTS', and 'SUGGESTIONS'. The main form contains the following fields:

- name: Construction 75% UP, 25% GF
- location: Bottanuco - BG - Italy
- category: Glass fiber
- description: Glass Fiber construction waste in unsaturated polyester various colours

Below the description is an 'External resource' section with two entries:

- Circular entity(EXT)
- Process(EXT)

A green 'SAVE' button is located at the bottom center of the form area.



Solution:
the Eco-System Management platform
#matchmake
#Re-cursion

The screenshot displays the 'Circular entity detail' page in the FiberEUse application. The interface is divided into a left sidebar and a main content area. The sidebar contains the FiberEUse logo and a navigation menu with items: Home, Project, Company, Circular entity, Process, Logistic, Service, Enter in touch, Open Innovation, and Search. The main content area has a blue header with 'FiberEUse' and 'RIVIERASCA_ADMIN'. Below the header, the title 'Circular entity detail' is shown. The main content is organized into sections: 'Internal resource' with three dropdown menus (Circular entity(IN), Process(IN), Logistic(IN)), 'LCA - LCC results' with a dropdown and a plus sign, 'Dismantlable' with a dropdown, and 'Custom attributes' with an 'ADD ATTRIBUTE' button. The 'Custom attributes' section includes: 'Type of resin' (Unsaturated polyester - Orthoftalic), 'GF content (%)' (24, 25, 26), and 'Fiber Length (mm)'. A green 'SAVE' button is located at the bottom right of the main content area.



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Sender	Receiver	Object	message	reply	Deal
#####	RIVIERASCA	[circularEntity] Construction 75% UP, 25% GF	TEST ATTACHMENT		<input type="button" value="REPLY"/> <input type="button" value="YES"/> <input type="button" value="NO"/>

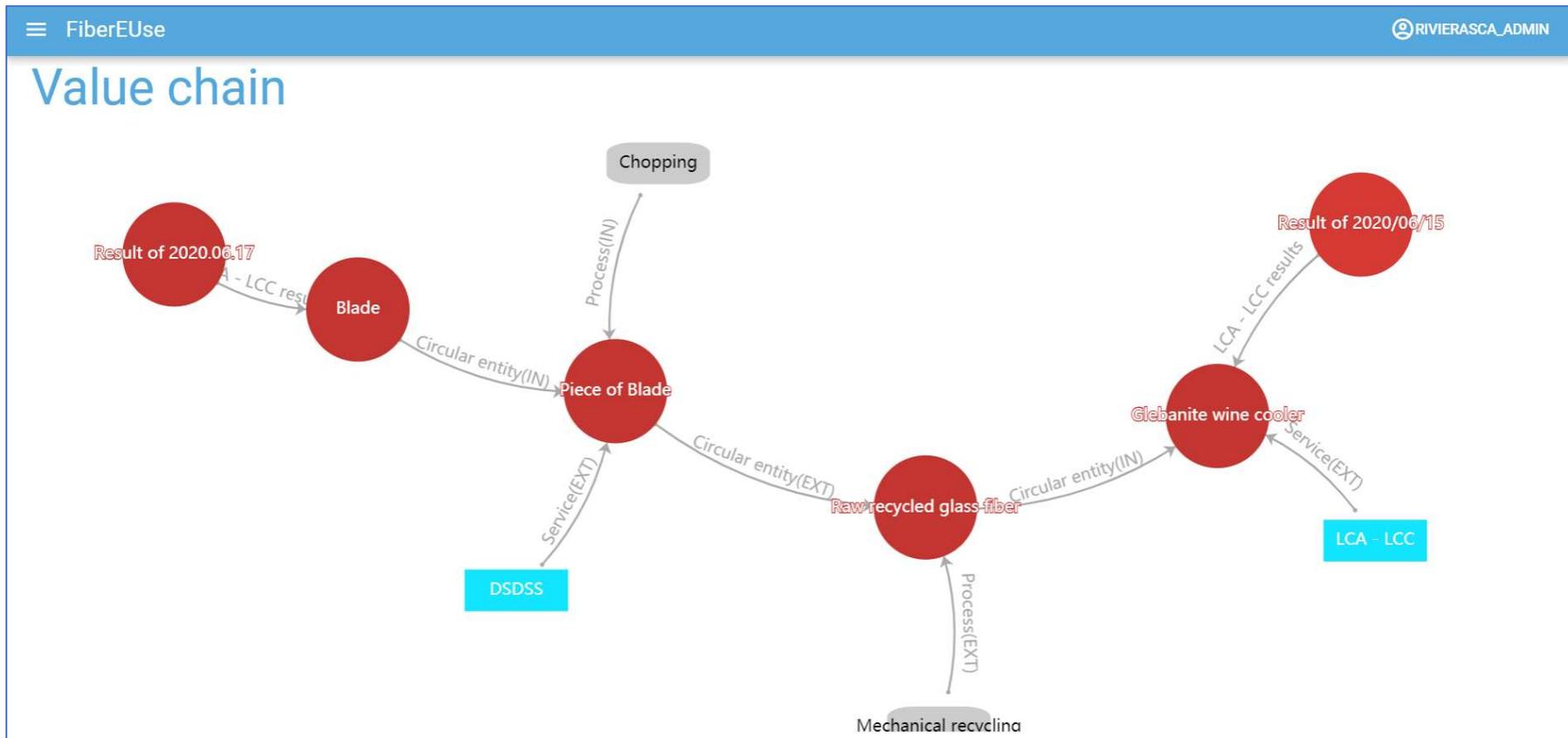


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The screenshot displays the FiberEUse web application interface. On the left is a vertical navigation menu with icons and labels for: Home, Project, Company, Circular entity, Process, Logistic, Service, Enter in touch, Open Innovation, and Search. The main content area has a blue header with the FiberEUse logo and the user name 'RIVIERASCA_ADMIN'. Below the header is a 'Search' section with a search bar containing the text 'Key chopping'. Underneath the search bar are three tabs: 'CIRCULAR ENTITY' (which is selected), 'PROCESS', and 'LOGISTIC'. Below the tabs is a 'Filters' section with a search bar containing 'rangeVal' and a count of '2'. There is an 'ADD FILTER' button to the right of the filter bar. At the bottom of the filter section are 'SAVE' and 'RUN' buttons.



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