

# ReCiPSS

## D9.4 – IPR registry

<b>Project acronym:</b>	<b>ReCiPSS</b>
<b>Project full title:</b>	<b>Resource-efficient Circular Product-Service Systems — ReCiPSS</b>
<b>Grant agreement no.:</b>	<b>776577-2</b>
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<b>Document Reference:</b>	<b>D9.4</b>
<b>Dissemination Level:</b>	<b>PU</b>
<b>Version:</b>	<b>0.3</b>
<b>Date:</b>	<b>05.12.2022</b>

**This is a draft document and subject to approval for final version. Therefore the information contained herein may change.**



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 776577-2

## History of Changes

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<i>Version</i>	<i>Date</i>	<i>Modification reason</i>	<i>Modified by</i>
<b>0.1</b>	30.08.2022	Initial Draft	Jan Koller
<b>0.2</b>	07.10.2022	Incorporation of comments	Jan Koller
<b>0.3</b>	13.10.2022	Updates after SIMAVI review	Dana Oniga
<b>0.4</b>	24.11.2022	Updates after C-ECO review	Markus Wagner
<b>0.5</b>	02.12.2022	Agreed version after discussion SIMAVI and C-ECO	Dana Oniga, Razvan Codreanu, Marius Jianu, Maria Bonelli, Markus Wagner

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## List of abbreviations

<i>Abbreviation</i>	<i>Explanation</i>
<b>C-ECO</b>	Circular Economy Solutions GmbH
<b>CIR</b>	CirBES Circular Business and Engineering Systems AB
<b>FHG</b>	Fraunhofer Gesellschaft zur Foerderung der angewandten Forschung E.V.
<b>GOR</b>	Gorenje Gospodinjski Aparati doo
<b>KTH</b>	KTH Royal Institute of Technology
<b>SIG</b>	Signifikant Svenska AB
<b>SIMAVI</b>	Software Imagination & Vision S.R.L.
<b>TUD</b>	Technische Universiteit Delft

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# 1. Introduction

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This deliverable report lists and summarizes the ownership of the solutions, technologies, and prototypes which have been developed during the ReCiPSS project. Since the project has not yet been completed new development results may occur. In that case the new development will fall under the intellectual property of the respective creator.

The results were collected during the General Assemblies and the IPR template was made available online in Project Place to the consortium members. Each partner had the opportunity to review the inputs as well as the possibility to object in case claiming ownership was not straightforward.

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## 2. Overview IPR Directory

To collect the development results (Foreground IP) and the contributing stakeholders an IPR directory (Excel-file, accessible by all partners) has been used during the project for all partners.

Based on the IPR directory the table in this document has been created to substitute the Excel-file as from now on and the following statements are supposed to clarify the use rights of the developments:

- The right for commercial use lies with the respective owner, as stated in Consortium Agreement, point 8.1: "Results are owned by the Party/Parties or a Party's employees, where applicable, that generates them". Therefore, if one consortium member intends to use a development that another consortium member owns, then the respective development owner needs to be approached for its agreement regarding commercial use.
- The cases of Joint Ownership are governed by the provisions of the Consortium Agreement, Section 8 - Results, point 8.2, which states that:

### "8.2 Joint ownership

Joint ownership is governed by Grant Agreement Article 26.2 with the following additions:

Where Results are generated from work carried out jointly by two or more Parties and it is not possible to separate such joint invention, design or work for the purpose of applying for, obtaining and/or maintaining the relevant patent protection or any other intellectual property right, the Parties shall have joint ownership of this work..

The joint owners shall, within a six (6) month period as from the date of the generation of such Results, establish a written separate joint ownership agreement regarding the allocation of ownership and terms of exercising, protecting, disseminating, the division of related costs and exploiting such jointly owned Results on a case by case basis.

In absence of such an agreement:

- each of the joint owners shall be entitled to use their jointly owned Results for non-commercial research and teaching activities on a royalty-free basis, and without requiring the prior consent of the other joint owner(s), whereas non-commercial research activities means use for academic/teaching/scientific purposes, or mere internal use, and
- excludes use in contract research (= rendering a research service against payment to a customer, using the joint Result), even when the charge is mere cost reimbursement without profit;
- excludes use of results for royalty bearing activities (such as licensing) or other activities leading to monetary benefits (e.g. use in developing, creating or marketing a product or process or creating and providing a service or use in standardisation activities);
- includes use in further (funded or unfunded) cooperative research projects. However where such use leads to a grant of further user rights to others (e.g. project partners) for royalty-bearing or other activities leading to monetary benefits, such further user rights shall

not be included in the category of non-commercial research activities under this bullet point, and

each of the joint owners shall be entitled to otherwise Exploit the jointly owned Results. In each and any case of third party licensing there must be prior consent by the co-owners of jointly owned results.”

All consortium members of the ReCiPSS project entered their development results (Foreground IP created under the project) as owners in the template and added additional information. These include:

- **Nature:** Specifies the form of the development, e.g., tool, checklist, terminology, model, report and software platform.
- **Status:** Indicates the current status and thus already enables an early exchange of information regarding the intellectual property of the developments.
- **Dissemination:** Shows how the owner would like to disseminate the developments in the future and thus also serves as a basis for Deliverable 9.2 “Exploitation plan update”
- **Protection measures:** Sometimes, the results are protected, e.g., by password protection, trademark, etc.

All other members of the consortium indicated if they “claim any shared (ownership) right for this development” in the ReCiPSS IPR Directory.

Until today there are no documented objections or conflicts regarding the ownership of the developments of the ReCiPSS project. In addition, all members of the consortium were informed about the service of the European IP Helpdesk.<sup>1</sup> The European IP Helpdesk “supports cross-border SME and research activities to manage, disseminate and valorize technologies and other Intellectual Property (IP) Rights and IP assets at an EU level. Offering a broad range of informative material, a Helpline service for direct IP support, and on-site and online training, the European IP Helpdesk’s main goal is to support IP capacity building along the full scale of IP practices: from awareness to strategic use and successful exploitation. This strengthening of IP competencies focuses on EU SMEs, participants and candidates in EU-funded projects, and EU innovation stakeholders for an increased translation of IP into the EU innovation ecosystem.”  
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<sup>1</sup> <https://www.iprhelpdesk.eu/>



*Table 1: Overview of the ReCiPSS IPR Directory*

<i>N°</i>	<i>Owner (s)</i>	<i>Nature</i>	<i>Status</i>	<i>Dissemination</i>	<i>Protection measures</i>
1	C-ECO SIMAVI	software platform to digitally incorporate and manage options (“right-to-return”) Source code; limited to components from lines No. 20-38 and No. 6; Refers only to the versions/code-commits before and until 04.11.2022 <a href="https://dev-platform.coremannet.app/users/sign_in">https://dev-platform.coremannet.app/users/sign_in</a> (only for internal use of C-ECO and SIMAVI)	Developed	presentations, project reports	versioned source code checked in protected code-management-system; development-, testing- and productive systems stored in protected environment in MS Azure Cloud
2	C-ECO	Business logic, concept and Algorithm <sup>2</sup> to manage options (“right-to-return”): concept/process/terminology and business-models basing on describing “the right to return a used part (core)” as a financial	Developed	presentations, project reports	Integrated in private-cloud application in the context of service-product “CoremanNet”. “CoremanNet” is protected as registered service-brand.

<sup>2</sup> The term “Algorithm” is referring to know-how, concepts and procedures from business-context which defines the purpose and basis for the implementation for the IT-platform mentioned in line No.1 “software platform to digitally incorporate and manage options “ developed under the project.

<i>N°</i>	<i>Owner (s)</i>	<i>Nature</i>	<i>Status</i>	<i>Dissemination</i>	<i>Protection measures</i>
		option (warrant) and using it for circular economy			
3	FHG	development and implementation of an add algorithm in simulation models for both demonstrators to improve supply chain activities	published	presentations, project reports	none
4	CIR	Methodology and conceptualization of multi-method simulation models for circular value and supply chains including (meta models, scenarios development and analysis for consolidated operations and trade-off analysis for economic and environmental performance for the White goods and Automotive demonstrators	published	presentations, project reports, peer-reviewed publication, webinar	none
5	C-ECO	Generic description-logic (Algorithm) for used-parts as basis for standardized options in circular economy (“underlying”-description)	in development	presentations; project reports	Integrated in data-model of private-cloud application in the context of service-product “CoremanNet”. “CoremanNet” is protected as registered service-brand
6	C-ECO SIMAVI	Development and implementation of an interface (API) to communicate used-parts return options between IT-systems	Developed, published in version 2	Clearing house API (Version 1)	none

N°	Owner (s)	Nature	Status	Dissemination	Protection measures
				and 2) (windows.net <sup>3</sup> )	
7	C-ECO	Algorithm for iterative allocation of used-parts to return-options by single checking of underlying asset and build “chain-of-options” to determine final owner.	developed	presentations; project reports	Integrated in data-model of private-cloud application in the context of service-product “CoremanNet”. “CoremanNet” is protected as registered service-brand
8	C-ECO	Function to combine used-parts return options to a batch (so called “container”) to enable transfer of a set of options	developed	presentations; project reports	Integrated in data-model of private-cloud application in the context of service-product “CoremanNet”. “CoremanNet” is protected as registered service-brand
9	TUD	Design tools: Product journey map (In development) Disassembly map (published in academic lit.) Impact model co-creation (published in academic lit.) Circular product profiles (in development)	In development	presentation, project report, scientific publication	none
10	GOR	Long lasting ASKO washing machine (construction and inbuilt algorithms)	developed	presentation, project reports	Patents, software and firmware code, blueprints

<sup>3</sup> See: <https://webdocumentation.z6.web.core.windows.net/>

<i>N°</i>	<i>Owner (s)</i>	<i>Nature</i>	<i>Status</i>	<i>Dissemination</i>	<i>Protection measures</i>
11	GOR	E-wallet for pay-per-use deployment	developed	presentation, project reports	Software code
12	GOR	Web store	developed	presentation, project reports	Software code
13	GOR	ConnectLife app for long lasting ASKO washing machine	developed	presentation, project reports	Software code
14	KTH	<p>Development of multi-method simulation models of circular manufacturing systems using agent-based, discrete-event, and system dynamics. The models have been developed using AnyLogic University, a Java based simulation development platform, and tested with both demonstrators.</p> <p>As part of WP4, task 4.1 the following simulation models have been developed and tested:</p> <p>Automotive Demonstrator: Multi-method simulation model to evaluate the economic and environmental performance of implementing a Circular Supply/Value Chain by consolidating the trade levels in the reverse</p>	developed	presentation, project reports, papers	password; eventually trademark

<i>N°</i>	<i>Owner (s)</i>	<i>Nature</i>	<i>Status</i>	<i>Dissemination</i>	<i>Protection measures</i>
		<p>supply chain. In this model, the focus was on the physical flow and optimal facilities allocation</p> <p>Whitegoods Demonstrator: Multi-method simulation model to evaluate the economic and environmental performance of implementing a Circular Supply/Value Chain for multiple lifecycle products. In this model, the focus was on the physical flow and optimal facilities allocation</p>			
<b>15</b>	KTH	<p>Design and development of multi-method simulation models of circular manufacturing systems using agent-based, discrete-event, and system dynamics. The models have been developed using AnyLogic University, a Java based simulation development platform, and tested with both demonstrators.</p>	published	presentations, project reports, papers	password; eventually trademark

Nº	Owner (s)	Nature	Status	Dissemination	Protection measures
		<p>As part of WP2, task 2.3 the following simulation models have been developed and tested:</p> <ul style="list-style-type: none"> <li>Multi-method simulation model of circular manufacturing systems in white goods: The model simulates the product journey through multiple lifecycles in order to evaluate the economic performance (i.e., lifecycle costs, lifecycle revenues, and lifecycle profits), environmental performance (i.e., lifecycle environmental impact), and technical performance (i.e., quantity, quality, and timing of product return, number of usecycle during product lifetime)</li> <li>Multi-method simulation model of circular manufacturing systems in automotive: The model evaluates the economic and</li> </ul>			

<i>N°</i>	<i>Owner (s)</i>	<i>Nature</i>	<i>Status</i>	<i>Dissemination</i>	<i>Protection measures</i>
		environmental performance of the Automotive Demonstrator as a result of an increased efficiency and transparency of reverse logistic flow enabled by the ReCiPSS ICT platform.			
<b>16</b>	KTH	<p>Design and development of multi-method simulation models of circular manufacturing systems using agent-based, discrete-event, and system dynamics. The models have been developed using AnyLogic University, a Java based simulation development platform, and tested with both demonstrators.</p> <p>As part of WP3, task 3.5 the following simulation models are being developed and tested:</p> <ul style="list-style-type: none"> <li>Multi-method simulation model of different circular design approaches with a concurrent focus on reuse, remanufacturing, and recycling for the white goods demonstrator</li> </ul>	In development	In progress	password; eventually trademark

<i>N°</i>	<i>Owner (s)</i>	<i>Nature</i>	<i>Status</i>	<i>Dissemination</i>	<i>Protection measures</i>
		<ul style="list-style-type: none"> <li>Multi-method simulation model of different circular design approaches with a concurrent focus on reuse, remanufacturing, and recycling for the automotive demonstrator</li> </ul>			
<b>17</b>	C-ECO	New approach on collecting additional product-information to CRI-cores and linking it for circular use to an original marking (2D-code) which has been applied to the product in initial production – Algorithm and source code	Developed	productive use for Bosch-cores	versioned source code checked in protected code-management-system; development-, testing- and productive systems stored in protected environment in MS Azure Cloud
<b>18</b>	SIG	White goods demonstrator ReCiPSS backend server. REST services, information model and backend storage for managing contracts and wallet information	developed	presentation, project reports	Software code
<b>19</b>	SIG	Whitegoods demonstrator API to integrate Augmented reality application with Signifikant's parts catalogue with technical data on washing machine	developed	presentation, project reports	Software code
<b>20</b>	SIMAVI	User interface platform for user interaction regarding the options management ("obligations" view,	developed	presentation, project reports	versioned source code checked in protected code-management-system; development-,



N°	Owner (s)	Nature	Status	Dissemination	Protection measures
		"trade functionalities" that includes "create options" view and "transfer options" view , "reports" view, "account " view and "options" view)- source code between 1.11.2021- 4.11.2022			testing- and productive systems stored in protected environment in MS Azure Cloud
21	C-ECO	User interface platform for user interaction regarding the options management ("obligations" view, "trade functionalities" that includes "create options" view and "transfer options" view , "reports" view, "account " view and "options" view)- Algorithm	developed	presentation, project reports	versioned source code checked in protected code-management-system; development-, testing- and productive systems stored in protected environment in MS Azure Cloud
22	SIMAVI C-ECO	User interface for automotive platform -versions until 1.11.2021	developed	presentation, project reports	versioned source code checked in protected code-management-system; development-, testing- and productive systems stored in protected environment in MS Azure Cloud
23	SIMAVI	User interface platform for centralizing the three sub-UI frontends (options management, company management and support) - source code between 1.11.2021- 4.11.2022	developed	presentation, project reports	versioned source code checked in protected code-management-system; development-, testing- and productive systems stored in protected environment in MS Azure Cloud
24	C-ECO	User interface platform for centralizing the three sub-UI frontends (options management,	developed	presentation, project reports	versioned source code checked in protected code-management-system; development-,

Nº	Owner (s)	Nature	Status	Dissemination	Protection measures
		company management and support) - Algorithm			testing- and productive systems stored in protected environment in MS Azure Cloud
25	SIMAVI	User interface platform for user interaction regarding the company management - source code between 1.11.2021- 4.11.2022	Developed	presentation, project reports	versioned source code checked in protected code-management-system; development-, testing- and productive systems stored in protected environment in MS Azure Cloud
26	C-ECO	User interface platform for user interaction regarding the company management - Algorithm	In development	presentation, project reports	versioned source code checked in protected code-management-system; development-, testing- and productive systems stored in protected environment in MS Azure Cloud
27	SIMAVI	User interface platform for user interaction regarding the support management - source code between 1.11.2021- 4.11.2022	Developed	presentation, project reports	versioned source code checked in protected code-management-system; development-, testing- and productive systems stored in protected environment in MS Azure Cloud
28	C-ECO	User interface platform for user interaction regarding the support management - Algorithm	In development	presentation, project reports	versioned source code checked in protected code-management-system; development-, testing- and productive systems stored in protected environment in MS Azure Cloud
29	SIMAVI C-ECO	Development and contribution to backend APIs (Versions 1 and 2) for option management in displaying reports into interactive formats (histograms, pie charts, quota) – source code	developed	presentation, project reports	versioned source code checked in protected code-management-system; development-, testing- and productive systems stored in protected environment in MS Azure Cloud
30	C-ECO	Development and contribution to backend APIs (Versions 1 and 2) for	developed	presentation, project reports	versioned source code checked in protected code-management-system; development-,

<i>N°</i>	<i>Owner (s)</i>	<i>Nature</i>	<i>Status</i>	<i>Dissemination</i>	<i>Protection measures</i>
		option management in displaying reports into interactive formats (histograms, pie charts, quota) - Algorithm			testing- and productive systems stored in protected environment in MS Azure Cloud
<b>31</b>	C-ECO SIMAVI	<b>Options</b> -management – Microservice Version 1, Source-code created before 01.11.2021	Developed	presentation, project reports	versioned source code checked in protected code-management-system; development-, testing- and productive systems stored in protected environment in MS Azure Cloud
<b>32</b>	C-ECO SIMAVI	<b>Company</b> -management – Microservice Version 1, Source-code created before 01.11.2021	Developed	presentation, project reports	versioned source code checked in protected code-management-system; development-, testing- and productive systems stored in protected environment in MS Azure Cloud
<b>33</b>	C-ECO SIMAVI	<b>Orchestrator</b> – Microservice Version 1, Source-code created before 01.11.2021	Developed	presentation, project reports	versioned source code checked in protected code-management-system; development-, testing- and productive systems stored in protected environment in MS Azure Cloud
<b>34</b>	C-ECO SIMAVI	<b>Underlying</b> -management - Microservice Version 1, source-code created before 01.11.2021	Developed	presentation, project reports	versioned source code checked in protected code-management-system; development-, testing- and productive systems stored in protected environment in MS Azure Cloud
<b>35</b>	C-ECO	<b>Options</b> -management – Microservice Version 2, Algorithm and source-code created 01.11.2021 – 04.11.2022	Developed	presentation, project reports	versioned source code checked in protected code-management-system; development-, testing- and productive systems stored in protected environment in MS Azure Cloud

Nº	Owner (s)	Nature	Status	Dissemination	Protection measures
36	C-ECO	<b>Company</b> -management – Microservice Version 2, Algorithm and source-code created 1.11.2021 – 04.11.2022	Developed	presentation, project reports	versioned source code checked in protected code-management-system; development-, testing- and productive systems stored in protected environment in MS Azure Cloud
37	C-ECO	<b>Orchestrator</b> – Microservice Version 2, Algorithm and source-code created 01.11.2021 – 04.11.2022	Developed	presentation, project reports	versioned source code checked in protected code-management-system; development-, testing- and productive systems stored in protected environment in MS Azure Cloud
38	C-ECO	<b>Underlying</b> -management - Microservice Version 2, Algorithm and source-code created 01.11.2021 – 04.11.2022	Developed	presentation, project reports	versioned source code checked in protected code-management-system; development-, testing- and productive systems stored in protected environment in MS Azure Cloud

### 3. Conclusions

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A total of 38 distinct solutions, technologies, and prototypes have been developed during the ReCiPSS project with potential commercial use in the future.

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## 4. References

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- [1] <https://www.iprhelpdesk.eu/>

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