



WOOD2WOOD

A Wood-to-Wood Cascade Upcycling Valorisation Approach

» Deliverable 19.3

Synergies with relevant initiatives and best practises exchange (version 1)

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GLOSSARY OF ACRONYMS

Acronym	Extended Definition
W2W	Wood2Wood
RDT	Resource Dependence Theory
OI	Open Innovation
ISWA	International Solid Waste Association
SACEH	South Africa Circular Economic Hotspot
GERS	Gauteng Environmental Research Symposium
UJOH	University of Johannesburg
SA DTIC	South Africa Department of Trade, Industry and Competition
ICERA	International Conference on Circular Economy, Renewable Energies and Green hydrogen in Africa
NGT	Nominal Group Technique
vNGT	Virtual Nominal Group Technique
CDW	Construction and Demolition Waste
TRL	Technology Readiness Level
C&D	Construction & Demolition
DPP	Digital Product Passport
CEAP	Circular Economy Action Plan

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EXECUTIVE SUMMARY

In an era where sustainability is no longer a choice but a necessity, the construction and furniture industries face a pressing challenge: the urgent need for more circular solutions in the use of wood. Wood2Wood is a groundbreaking EU funded project aimed at revolutionizing how wood is used and reused in Europe, addressing the critical need for sustainable practices that can keep pace with the demands of our planet. Wood, a renewable resource cherished for its beauty, durability, and versatility, lies at the heart of some of the most significant industries across Europe. Yet, the linear "take-make-use-dispose" model that has dominated these sectors for centuries now poses a severe threat to our forests, ecosystems, and climate. The rate at which we consume wood, coupled with inefficient recycling and reuse practices, has led to devastating environmental impacts, including deforestation, loss of biodiversity, and increased carbon emissions. The new circularity project for wood seeks to revolutionize the wood industry by promoting innovation and collaboration to establish a sustainable circular economy. Through the principles of reduce, reuse, and recycle, we aim to repurpose secondary wood materials, reduce waste, and shrink the environmental impact of construction and furniture industries. Our focus includes developing pollutant-free wood products, utilizing wood waste for bio-composite materials, biopolymer production, and facilitating nutrient recovery.

D19.3 'Synergies with relevant initiatives and best practises exchange (version 1)' is the first effort to identify and map all the synergies established by W2W within the first 18 Months and the best practices that came out. This deliverable aims to provide a detailed overview of collaboration activities and illustrate how they contribute to the project's objectives and also to serve as a reference for future collaboration opportunities.

In particular, this deliverable provides an overview of the efforts undertaken to establish the stakeholders' network, including the identification and mapping activities. Moreover, it provides a literature review, highlighting the existing collaboration opportunities and the technology roadmaps that are affecting W2W activities. Last but not least, it provides information about the development of the collaboration platform that been set up for engagement with both internal and external stakeholders, and collaboration and information dissemination activities have been held.

D19.3 is intended to be a living document which will be frequently updated within the project's lifetime in order to reflect all networking efforts and opportunities.

1. INTRODUCTION

1.1. PROJECT INTRODUCTION

W2W project aims to develop and validate a comprehensive framework for multi-dimensional cascade valorisation of wood from C&D and furniture waste. The project focuses on reducing the demand for virgin materials, reducing the amount of waste sent to landfill or incineration and supporting the transition to a circular economy, thus promoting closed-loop systems where materials are continuously reused and recycled over their lifetime.

W2W offers a comprehensive framework for the multi-dimensional cascade valorisation of wood waste from C&D and furniture, which is made up of four core components or pillars: 1) Advanced Separation and Sorting Technologies; 2) Upcycling Processes and Technologies; 3) Digital Tools for Improving Circular Flows of Secondary Materials; and 4) Supportive Framework in Policy, Market, and Skills.

The solutions developed within W2W will reach a Technology Readiness Level (TRL) of 6 by the project conclusion. W2W will demonstrate efficient and sustainable value chains in three Use Cases to produce: wood without pollutants; bio-composite building materials; biopolymers; polyols; chemical detergents; and the recovery of nutrients.

Overall, W2W is driven by 6 objectives that outline the project trajectory. The first objective (O.1) aims to produce and validate the W2W comprehensive framework in terms of stakeholder interactions, wood characterisation and classification, wood valorisation and management technologies, data sharing principles, and impact assessment methods. The second objective (O.2) entails improving the separation capabilities of wood sorting mechanisms in line with environmental and technical valorisation parameters. Subsequently, the third objective (O.3) entails creating sustainable and innovative technologies for upcycling waste materials, including cascade refinement, chemical and bioremediation processes, and energy, gas, and ashes valorisation, to promote resource efficiency, waste reduction, and sustainable waste management. Furthermore, the fourth objective (O.4) focuses on developing innovative approaches and digital tools for enabling the integration of life cycle thinking and advanced sustainability assessments throughout the cascade process. The fifth objective (O.5) centres on the validation of the W2W technologies in 3 the Use Cases, representing different value chains. Finally, the sixth objective (O.6) empowers to increase competitiveness and promote sustainable practices in industries through skills development, collaborative training programs, capacity building, contributions to standards and certification schemes, policy influence, and business models in circular and sustainable processes.

1.2. PURPOSE OF THE DELIVERABLE

D19.3 - Synergies with relevant initiatives and best practises exchange (version 1)- is an output of both Tasks 19.1 - Dissemination and communication activities for promoting resources consciously – and 19.2 - Cross-sectoral cooperation and link existing initiatives-. Its main purpose is to report all the efforts undertaken to establish synergies and connections with all the relevant initiatives while also to summarize the main results, lessons learnt and best practices.

This deliverable aims to serve as a foundation for ongoing collaboration across sectors, supporting the project's goals for sustainability and innovation.

1.3. INTENDED AUDIENCE

This deliverable is publicly available and is intended for a wide audience, including the W2W consortium, relevant initiatives, the European Commission representatives, interested parties and the public. It serves as a point of reference for all interested parties in reporting, planning, and fostering synergies and knowledge exchange with initiatives that share similar areas of interest.

1.4. STRUCTURE OF THE DELIVERABLE

D19.3 is comprised of 11 chapters and 4 annexes to provide a detailed report of the project's progress and activities up to M18. It begins with an Executive summary briefly but clearly presenting the main concept of the deliverable from the point of view of a first reader. The first chapter, is the Introduction, outlining the project's concept and objectives as well as the purpose and structure of the deliverable and the audience it addresses. Following, the second chapter is considered as a map of the European-wide projects and initiatives that W2W has established or plans to establish collaborations. The third chapter presents the international networks that W2W has created until now and the 4th the synergies with the technology roadmaps. The fifth chapter highlights the networking events and activities that W2W has organised or participated at while there is a discussion on the feedback received from the participants on these events. Chapter six focuses on the engagement of stakeholders and decision-makers while chapters seven and eight provide information on the practical recommendations, the knowledge and best practices exchange respectively. On chapter nine are presented the challenges and mitigation strategies. The deliverable concludes with chapter 10, outlining the next steps and recommendations for future synergies, followed by references and annexes to support the main content.

2. MAPPING OF EUROPEAN WIDE PROJECTS & INITIATIVES

The mapping of European-wide projects and initiatives aims to establish strong synergies and linkages with relevant projects, funding sources and technology roadmaps along the innovation chain proposed by W2W. More specifically, a structured mapping process will be conducted to bring together W2W with European-wide initiatives with a focus on networking activities with the SPIRE projects.

Through this process, W2W aims to increase awareness about its objectives and evolution, encourage external stakeholders and organisations to get further engaged with W2W while in parallel, similar technologies developed in similar projects will be identified to ensure the knowledge transfer and sustainability.

2.1. IDENTIFICATION OF RELEVANT PROJECTS AND THEIR RELEVANCE TO W2W.

Wood is a natural, renewable, and biodegradable material which is increasingly used for both energy production and products. This means that wood may be insufficient the following years in Europe and globally. At the same time, there is a great wood waste in furniture and Construction & Demolition, so recycling is a one-way street for providing a plentiful and low-cost raw material source. As recycling process is quite complicated and faces many challenges, W2W aiming to tackle these challenges, proposes a comprehensive framework for multi-dimensional cascade valorisation of wood from C&D and furniture waste, consisting of four key pillars: 1) Advanced Separation and Sorting Technologies; 2) Upcycling Processes and Technologies; 3) Digital Tools for Improving Circular Flows of Secondary Materials; and 4) Supportive Framework in Policy, Market, and Skills (W2W, 2023).

W2W is strongly related with several EU funded projects related to waste management, circular economy and material recovery. These projects share common goals and objectives with W2W, making them highly relevant. At this initial stage, the major projects presenting key similarities with W2W include the following:

- **RECLAIM Project** (RECLAIM Project, 2025): [RECLAIM](#) - RE-manufaCturing and Refurbishment of Large Industrial equipment- is an EU funded project, aiming to extend the lifetime of industrial equipment through demonstrating advanced refurbishment and remanufacturing technologies and strategies and also to improve productivity and performance.
 - o Relevance to W2W: RECLAIM is focused on the refurbishment of industrial equipment, providing W2W with useful information on how to reduce its operational waste and also improve the resilience of its technologies.
- **EcoReFibre Project** (EcoReFibre, 2025): [EcoReFibre](#) – Ecological Solutions for Recovery of Secondary Raw Materials from Post-Consumer Fibreboards– is an EU funded project on wood recycling. This project aims to establish a circular economy approach to recycle wood waste into fibreboards and novel building products. Its ambition is to substitute up to 25% of the virgin fibres currently used in the European fibreboard market with recycled fibres enhancing resource efficiency and promoting circularity.

- o Relevance to W2W: EcoReFibre, intends to develop sorting equipment and smart technologies to increase available wood resources in Europe through recycling. Their ultimate goal is to recycle waste wood back into fibreboards and into novel building products and is aligned with W2W goal to transform contaminated wood waste into valuable resources.
- **Grinner Project** (GRINNER Project, 2025): [GRINNER](#) – ImprovinG waste management through an AI-powered detection system of batteries utilizing data from X-ray detectors and pick-and-place robots – is an EU funded project, aiming to address the critical issue of fires caused by batteries. In particular, GRINNER aims to develop an AI-enabled robotic sorting system to detect and remove the battery-containing waste from current waste streams before they enter inhospitable-to-battery machines that crush and consolidate waste. The project will build an X-Ray data set of WEEE scrap, customise the X-Ray system and also develop the AI software module for detection of batteries within WEEE using X-Ray data and a prototype system in a WEEE facility environment to conduct live trials and validate GRINNER.
 - o Relevance to W2W: Although GRINNER seems to be totally different with W2W, its key sorting technologies are applicable to W2W as well.
- **ALCHIMIA Project** (ALCHIMIA Project, n.d.): [ALCHIMIA](#) aims at the digitalisation of big European metallurgy industries to unlock the full potential of artificial intelligence and support green growth. Its main objective is to ensure the highest levels of safety, trust and smooth communication between AI-powered industrial solutions and the industry’s workforce.
 - o Relevance to W2W: ALCHIMIA project provides valuable insights in the areas of digitalisation, human-centric AI integration, and industrial transformation. More specifically, ALCHIMIA focuses on the incorporation of AI-driven process optimisation and workforce integration which serves complementary in the W2W industrial process in terms of efficiency, safety and adaptability.
- **CLARUS Project** (CLARUS Project, 2025): [CLARUS project](#) aims to connect the Sustainable Manufacturing Paradigm in the food industry with AI-based applications, aiming at developing a platform with high communications and processing capabilities, as well as the use of standardized open protocols and data models that will allow resource consumption assessment and traceability for food industry processes.
 - o Relevance to W2W: While CLARUS project addresses the food industry, its innovative technologies may apply to the W2W valorisation value chains. More specifically, W2W by drawing from CLARUS, can improve transparency across the value chain and support the real-time decision making for environment and economic growth.
- **DARROW Project** (DARROW Project, 2025): [DARROW](#) is an Eu funded project, aiming to build a data-driven AI solution to optimise resource recovery from wastewater by making wastewater treatment plants more autonomous and energy efficient.
 - o Relevance to W2W: DARROW project, through its focus on data-driven AI solutions for optimising resource recovery, enhances the W2W mission of advancing resource efficiency and circularity.
- **iBot4CRMs** (iBot4CRMs, 2025): Led by the NORCE and a consortium of 18 European partners, the innovative EU-funded project [iBot4CRMs](#) will harness the potential of AI-powered, self-learning robotic systems to help secure Europe’s supply of Critical Raw Materials (CRMs). These materials are critical elements for a wide range of industrial

ecosystems, particularly in advanced electronic and automotive products. Many of these are considered essential for the energy and sustainability transitions, making their continued supply a strategic consideration.

- o Relevance to W2W: iBot4CRMs addresses the circular economy's critical aspect for recovery and sustainable management of Critical Raw Materials (CRMs). Through AI-powered robotic systems iBot4CRMs develops innovative solutions for material sorting.
- **TUBERS Project** (TUBERS Project, 2025): The [TUBERS](#) project aspires to become a definitive leakage solution for the European water supply sector. By jointly developing a snake-like resident robot, a modular soft robotic platform, a Decision Support System and the needed base stations, the aim is to address the critical demand for improved maintenance of the water distribution pipeline system through 24/7 inspection and targeted in-situ repairs. Therefore, when the project's ecosystem of robotic platforms and tools is market-ready, it will be able to save 158GWh of energy and 79,000 tonnes of CO2 emissions in a 5-year period. The TUBERS project is part of the digital transformation movement that strives for ground-breaking scientific research, tech-based economic growth, sustainability and societal improvement in Europe.
 - o Relevance to W2W: As TUBERS focuses on the water sector, it is an inspiration for W2W especially in the context of waste management infrastructure monitoring and optimisation.

This list will be updated and enriched in the course of the project and when more project's results and outcomes will be available.

2.2. EUROPEAN-WIDE INITIATIVES AND RELATED SPIRE PROJECTS.

W2W aligns strongly with European-wide initiatives that promote circularity, sustainability and innovation in industrial processes. In particular, W2W is supported by Processes4Planet (P4Planet) Partnership, including more than 170 industrial and research project stakeholders from more than 20 countries around Europe (A.SPIRE, 2025). The main goal of the [P4Planet](#) is to achieve circularity and climate neutrality at EU level by 2050 (A.SPIRE, 2025). Furthermore, waste wood streams coming from both industrial and urban waste, contain significant amounts of fossil-based carbon from coatings, paints, plastics, and preservatives, which could be recycled using innovative processes (among others, chemical recycling), making their valorisation one of the priorities of the Processes4Planet (P4P) partnership for wood waste processing (W2W, 2023).

W2W, as part of the P4Planet Partnership, aims to establish networking activities with other related projects. The following list presents some of the key SPIRE projects, both past and running, that are similar to W2W mission.

Table 1, SPIRE projects

S/No.	Project	Short Description	Website
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1	DigInTraCE	DigInTraCE aims to provide a cross sectoral digitalisation solution, from sensing to sorting, from materials to products, digitalisation solution and propose a dynamic digital product passport scheme as landmark and in parallel develop and combine these digital with process and material innovations, to increase waste reduction, improve use of secondary raw materials, and thus lead to circular and low emission value chains.	https://www.digintrace.eu/
2	Plooto	Plooto aims to deliver a Circular and Resilient Information System (CRIS) to support manufacturers in their green, digital and circular transition. CRIS enables waste reduction and end-to-end traceability of Secondary Raw Materials (SRM) through interconnected digital services for real-time decision-making, monitoring and certification of materials and products, relying upon a digital transformation strategy pertinent to process industries.	https://www.plooto-project.eu/
3	CE-RISE	CE-RISE aims to optimize reuse of critical raw materials, thus minimizing waste and stimulating circular business models. It also includes an ethical factor, making it easier for end consumers to make more sustainable choices. The project will develop an information system that increases traceability and transparency of resources in value chains to make it easy for industries to trace raw materials all the way from production through use, to how and where they are treated as waste.	https://ce-rise.eu/
4	woodcircles	Woodcircles is an innovation, co-funded by European Union project, aiming to develop circular and sustainable solutions for wood in construction.	https://woodcircles.eu/
5	REVaMP	REVaMP - Retrofitting Equipment for Efficient Use of Variable Feedstock in Metal Making Processes- aims to develop, adapt and apply novel retrofitting technologies to cope with the increasing variability and to ensure an efficient use of the feedstock in terms of materials and energy.	https://revamp-project.eu/
6	FLEX4FACT	FLEX4FACT will accompany industrial partners in achieving their energy	https://flex4fact.eu/

		transition by developing digital tools integrated in a holistic platform, thus paving the way for industrial flexibility provision benefiting various stakeholders along the value chain. This will increase the penetration of renewable sources, which will in turn decrease the dependency on energy fuels and reduce the energy bill of EU enterprises, leading to a competitive EU industry.	
7	THESEUS	Industrial-Urban Symbiosis (I-US) fosters cooperation between municipalities, regions, and industries for managing resources, waste, energy, water, and infrastructures. The FOAK Theseus project will establish a Hubs4Circularity (H4C) model in Athens/Attica, Greece, covering 68 municipalities and 3.7 million inhabitants, as a pilot for national expansion to achieve climate neutrality by 2050. Theseus will validate technologies for water, energy, and materials (IPs 2, 3), integrate digital/robotic solutions (IP4), and implement innovative governance and cooperation models (IPs 1, 5) to upscale solutions and expand ecosystems. Aligning with Processes4Planet (P4P) and CCRI strategies, it leverages existing innovations for circular economy solutions. By targeting water, energy, and material flows with high European replication potential, Theseus provides a systemic approach to close resource loops. Inspired by the mythological reformer, Theseus aims to drive regional transformation while offering scalable solutions for EU regions. Theseus has received funding by the European Union under Grant Agreement No 101178059. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or HADEA. Neither the European Union nor the granting authority can be held responsible for them	https://www.theseus-h4c.eu/
8	H2GLASS	H2GLASS is an EU-funded project, committed to accelerating decarbonisation in the glass industry by	https://h2-glass.eu/



		developing and applying the technology stack needed to realise full H2 combustion in glass production facilities. The consortium is made up of six Industrial Demonstrators representing major players of the glass and aluminium industries, along with a group of highly qualified industrial and research institutions. Together, they will develop, test and validate the H2GLASS technologies and demonstrate their transferability to other hard to abate industries.	
9	PLASTICE	PLASTICE is an EU funded project, aiming to demonstrate innovative and sustainable routes to close the plastic production loop.	https://plastice.eu/
10	LEADS	LEADS is an EU funded project aiming to bridge the gap from research to deployment for CCUS projects in Europe by building an innovation pipeline of Horizon 2020/ Horizon Europe projects and supporting innovation owners in overcoming the main bottlenecks and reaching final investment decisions. Furthermore, LEADS will deliver a set of measures to assess and select the most promising projects, coach them, and enable them to apply to the Innovation Fund. A set of reusable IF tools will be created. Synergy mechanisms between H2020/HEU and IF will also be created by aligning the CCUS up-scaling potential with IF targets.	https://www.aspire2050.eu/leads
11	2DPLOY	2DPLOY is a Horizon Europe CSA (Coordination and Support Action) project aiming to support European energy-intensive industries by increasing the deployment of carbon-neutral technologies and processes. The project creates an innovation pipeline made of disruptive and mature innovations developed under Horizon 2020 and Horizon Europe projects, to the Innovation Fund. Moreover, it will offer capacity building and tailored guidance to innovation owners to prepare viable Innovation Fund applications.	https://www.aspire2050.eu/2dploy
12	Skills4EII	The Skills Alliance for the Green, Digital and Social Transformation of the Energy	https://www.aspire2050.eu/skills4eii

		Intensive Industries (Skills4EII) will uptake the results of the European Steel Skills Alliance (ESSA) and the Skills Alliance for Industrial Symbiosis (SPIRE-SAIS) and further develop them within the project aligned with the Large Scale Partnership Energy Intensive Industries (LSP EII) under the Pact for Skills. An essential part of Skills4EII is to identify and adjust additional skills gaps, both cross-sectoral and sector-specific, within national and regional skills and training ecosystems. Skills4EII will create a common framework integrating specificities of all industries to continuously and proactively adjust the skills demands of the energy intensive industries (including further process industries).	
13	SET_IndEU	SET_IndEU "Strategic Energy Technology for Industry in Europe" is an EU-funded project. It proposes a structured Secretariat for supporting and strengthening the activities and outcomes of the SET Plan IWG6, "Sustainable and efficient energy use in industry".	https://www.aspire2050.eu/set-indeu
14	RecAL	upgrade Europe's handling of its aluminium supply and metals marketplace. Through its solutions, RecAL aims to reduce the carbon footprint of aluminium by enabling the secondary resources use.	https://recal-project.eu/
15	Trineflex	TRINEFLEX is a comprehensive toolkit designed for Energy Intensive Industries. It serves as a platform for managing the digital transformation, as well as facilitating the transition towards more flexible and sustainable industrial processes.	https://trineflex.eu/

W2W consists part of a broader network of sister projects, funded by European Commission, to advance waste management, promote the principles of circular economy and enhance material recovery. Each of these projects brings its expertise and innovative methodologies which complement the W2W objectives, and all together work towards the transition towards a more sustainable and circular economy.

Table 2, W2W Sister Projects Network

S/No.	Sister Project	Short Description	Website
1	RecAl	RecAL is an Horizon Europe project aiming to upgrade Europe's handling of its aluminium supply and metals marketplace. Through its solutions, RecAl aims to reduce the carbon footprint of aluminium by enabling the secondary resources use.	https://recal-project.eu/
2	icarus	ICARUS aims to provide technological support to energy-intensive and construction industries for the transition to more sustainable and digital processes in a business model for successful market implementation.	https://project-icarus.eu/
3	PESCO-UP	PESCO-UP is an Horizon Europe project, aiming to transform the textile recycling industry by creating new raw materials from mixed wastes.	https://www.pesco-up.eu/

3. ESTABLISHMENT OF INTERNATIONAL NETWORKS

3.1. KEY OBJECTIVES AND SCOPE OF THE NETWORK.

The establishment of international networks as part of the W2W project is intended to firstly, provide access to universities, research institutions and private organisations working in areas related to the W2W pillars with the aim of exchanging information, knowledge and best practices. Secondly, to connect W2W partners with external stakeholders with the aim of fostering continuous interactions between the W2W project and relevant international projects and initiatives and ensuring that project outputs and input data are shared and communicated regularly. Thirdly, to leverage existing connections within the W2W consortium to build synergies with research institutions and industry organisations.

3.2. MAPPING THE NETWORK: INSTITUTIONS AND PRIVATE ORGANISATIONS.

Overall, the mapping of international institutions and private organisations was carried out in two main steps: stakeholder identification, followed by stakeholder matchmaking. The first step, stakeholder identification, was guided by the stakeholder theory. Stakeholder matchmaking was guided by assortative matching and the open innovation model (OI). These theories are explained hereunder:

- i. Stakeholder theory: The theory sets the qualifications of an organisation's stakeholders as people, communities or other organisations that have existential interests, rights or ownership in an organisation and/or are affected by its objectives and activities (Awa et al., 2024, p. 6; Sarkis et al., 2011, p. 9). This theory places a duty of care on an organisation achieved by working with stakeholders within it (internal stakeholders) and outside it (external stakeholders) to create value for all (Valentinov & Roth, 2024, p. 301).
- ii. Open innovation model (OI): In principle, OI argues that an organisation cannot effectively and efficiently innovate within its boundaries exclusively and improve its innovation performance. Therefore, the organisation needs to involve its entire network of stakeholders in the innovation process (Bertello et al., 2023). It encourages collaborative innovation with external stakeholders by advocating for an open innovation process in which knowledge flows across an organisation's boundaries to and from the public (Figenschou et al., 2024). OI has been applauded for fostering transparency, inclusion and creating synergy (Figenschou et al., 2024), lowering collaboration and knowledge exchange costs (Economist Impact, 2022) and improving the organisation's performance (Ahn et al., 2015)
- iii. Assortative matching: In assortative matching, organisations are matched based on similarities in the organisations' projects, values, interests, achievements and economic resources (Xie et al., 2015; Lichter & Qian, 2019). In such matches, the aim is to complement

or improve the productivity of the matched organisations (Xie et al., 2015; Shimer & Smith, 2000).

The three steps were structured around these theories and are described in the following sections.

3.2.1 Approach to Stakeholder Identification.

Based on stakeholder theory, three successive activities were used to identify external stakeholders: stakeholder outreach, stakeholder mapping and stakeholder snowballing.

- **Stakeholder outreach.**

The initial strategy adopted to identify relevant stakeholders was stakeholder outreach. This was done by attending events which resonate with wood-to-wood pillars and use cases. These events are the Gauteng Waste Management Forum, Gauteng Environmental Research Symposium (GERS), International Solid Waste Association (ISWA) World Congress 2024 and South Africa Circular Economic Hotspot (SACEH). Another outreach activity was sending emails to potential stakeholders identified from their research publications and/or industry reports related to W2W pillars and use cases. Lastly, calling potential stakeholders identified from their organisation's websites or publications. In addition to identifying stakeholders, these activities also aimed at introducing W2W and generating interest from other attendees. The initial contacts that were made from stakeholder outreach were then invited to a stakeholder mapping workshop.

- **Stakeholder mapping.**

A stakeholder mapping workshop was conducted on 21st November 2024. A total of 17 people from 12 organisations, including UJOH, participated in the workshop. The attendees were the stakeholders identified from the earlier stakeholder outreach events and from UJOH's network within academia and industry. The main aims of the workshop were to: convene a group of key stakeholders to introduce them to the wood-to-wood project, explore the stakeholder interests, develop an initial stakeholder map and lay the foundation for the stakeholder network for further engagement. A full report on the workshop is provided under Annex A.

- **Stakeholder snowballing.**

The stakeholder mapping workshop opened two snowballing avenues to identify more stakeholders and similar projects. The first avenue involved participants identifying other people and/or organisations who might be interested in the wood-to-wood project. The second avenue involved identifying people and/or organisations within the mapped stakeholder groups who might be interested in the wood-to-wood project. The identified people and/or organisations were contacted after the workshop to ascertain their interest in the project. This process yielded more stakeholders who expressed sufficient interest.

Altogether, the activities led to at least 20 stakeholders expressing their willingness to participate in W2W information and best practice exchange activities. In addition to the above strategies, other stakeholders were identified based on their work (academic publications and industry expertise) in areas relevant to circular economy and timber construction. The identified stakeholders are listed in Table 3, below.

Table 3: International network of W2W stakeholders.

S/No.	Organisation	Stakeholder group	Geographical scope
1	African Circular Economy Network	Recyclers, process industry, tech providers	Africa
2	Green Building Council of South Africa	Construction industry	South Africa
3	African Reclaimers Organisation	Waste reclaimers, recyclers	Mostly South Africa
4	Department of the Environment Forestry and Fisheries, South Africa	Policy	South Africa
5	York Timbers Research Chair in Wood Structural Engineering at the University of Pretoria	Wood sector expert, research and academic institution	South Africa, possibly with knowledge beyond
6	SAPPI Southern Africa	Wood industry	Southern Africa
7	Chartered Institution of Wastes Management	Professional waste management, policy	UK
8	National Materials Recovery Ltd	Recycling	Ghana
9	TNO	Multinational R&D	Netherlands
10	Takataka ni Mali	Waste management	Kenya
11	Green Cycle Technology Ltd	Recycling	Ghana
12	Warnell School of Forestry and Natural Resources, University of Georgia	Research and academic institution	USA
13	College of Forestry, Oregon State University	Research and academic institution	USA
14	Timber Construction School, Sunyani Technical University	Research and academic institution	Ghana
15	Mamphela Choma	Industry associations	South Africa
16	Engineering Project Consulting Service	Construction industry	South Africa
17	Siyakhula Energy	Energy company	South Africa
18	Department of Architecture, University of Pretoria	Research and academic institution	South Africa
19	Department of the Trade, Industry and Competition, South Africa	Policy	South Africa
20	Natural State	Research and academic institution	Norway
21	Bright Phoenix Pty Ltd.	Waste management	South Africa
22	Food & Beverage Recycling Alliance	Waste management	Nigeria
23	Faculty of Agriculture and Environmental Sciences, Rostock University	Research and academic institution	Germany and Africa

3.2.2 Stakeholder Matchmaking.

Stakeholder matchmaking involved connecting the identified stakeholders with the W2W task groups based on mutual interests. That is, introducing the stakeholders to task groups that are working on the areas that they are also working on. To simplify the matchmaking, especially on the stakeholder's side, the areas of interests are classified according to the W2W pillars of advanced separation and sorting technologies, upcycling technologies, digital tools for improving circular flows of secondary materials and supporting framework in policy, market and skills. The three theories that guided the matchmaking are resource dependence theory, open innovation model and assortative matching. Based on these theories, the following matching-making criteria were established and used:

- **The resource dependence theory.**

Stakeholders looking for opportunities to learn new wood valorisation technologies or increase their experience to these technologies are matched with W2W task groups under pillar 1 (if their interest is separation and sorting technologies), pillar 2 (if their interest is upcycling technologies) or pillar 3 (if their interest is digital tools for improving circularity of wood waste). The knowledge and experience gained are the external resources they will acquire by engaging with the matched W2W task group. Examples of stakeholders that are matched based on this criterion are academic and research institutions (researchers and students) and waste management industry practitioners (companies and individuals), especially from the global south.

- **Open innovation model.**

An open innovation invitation to collaborate with the W2W project was posted on the W2W website. The “Join Us” button serves as an open call for any individual or organisation interested in the W2W project to reach out directly to W2W work package 19.3 members (UJOH) and express their interest to work collaboratively, learn and exchange knowledge in any of our pillars. Upon clicking the “Join Us” button, a person will be taken to our online Discord server where, depending on their indicated interest, they will be matched with the appropriate task group. The W2W Discord server is where the stakeholder interactions take place. By being an open innovation invitation, this criterion targets stakeholders and stakeholder groups that were not identified earlier.

- **Assortative matching.**

Stakeholders working on projects or with businesses similar to or complementary to the W2W pillars are matched with the relevant task groups. Examples of stakeholders that are matched based on this criterion are academic and research institutions and industry organisations with either projects or work that resonates with W2W pillars and/or use cases.

The results of the matchmaking process, which culminates in the stakeholder mapping, are provided under Annex B.

4. ALIGNMENT WITH TECHNOLOGY ROADMAPS

4.1. ANALYSIS OF EXISTING AND UNDER-DEVELOPMENT TECHNOLOGY ROADMAPS.

Technology roadmaps are strategic planning tools that outline the technologies to be used in order to assist each organisation to achieve its goals. They combine the technology investments with the business objectives and the respective sources to achieve the desired results. In the framework of circular economy and waste management, the technology roadmaps are very crucial in identifying the key technologies, their maturity and plan their integration into the existing systems.

In the rapidly evolving sector of circular economy and waste management, several existing technology roadmaps have been developed to assist through providing insights of the current technologies and the future trends and also navigating the implementation strategies. In this section are presented the existing technology roadmaps that are relevant to the W2W objectives.

- i. **The European Green Deal:** Climate change tends to be a great threat to Europe and beyond. The European Green Deal aims to transform Europe into a modern, resource-efficient and competitive economy where no net emissions of greenhouse gases will be produced by 2050, the economic growth will be independent of the resource use and no person or place will be left behind. For this, the European Commission has adopted a set of proposals to modify the European policies for climate, energy, transport and taxation so as to reduce net greenhouse emissions by at least 55% by 2030.
- ii. **Fit for 55:** In addition to the European Green Deal, a set of laws has been developed, aiming to actively contribute to the reduction through i) ensuring a socially fair transition ii) maintaining and strengthening innovation and competitiveness of EU industry while ensuring a level playing field vis-à-vis third country economic operators and iii) supports EU as the leading actor against climate change (Council of the European Union, 2025).
- iii. **The European Commission Circular Economy Plan:** European Commission has established and adopted the [Circular Economy Action Plan \(CEAP\)](#) since March 2020. CEAP consists one of the main block of the European Green Deal, aiming to the transition into a circular economy where the natural resources' pressure will be reduced and sustainability will be promoted. Furthermore, it is a prerequisite to achieve the EU's 2050 climate neutrality target and to halt biodiversity loss. The action plan aims to increase the sustainable products, empower the consumers, focus on the sectors where circularity is more applicable as they use more resources, ensure less waste, make circularity work for people, regions and cities and also lead global efforts on circular economy (European Commission, 2025).
- iv. **International Solid Waste Association Technology Roadmap:** ISWA, the International Solid Waste Association, has developed a global repository including all the technical materials related to waste management. Its goal is to identify and promote the best practices in this sector globally (ISWA, 2025).
- v. **Horizon Europe Research and Innovation Program:** [Horizon Europe](#) is the main funding program for research and innovation in Europe for the period 2021-2027. It tackles climate change, helps to achieve the UN's Sustainable Development Goals and boosts the EU's competitiveness and growth (Horizon Europe, 2025).

- vi. **EU Nature Restoration Law:** The Nature Restoration Law is agreed between the European Parliament and the Council since August 2024. It aims to put in action measures to restore at least 20% of EU's land and sea areas by 2030, and all ecosystems that require restoration by 2050 (W2W, 2025).

All the above are the foundation for deeply understanding the waste management and circular economy technologies and goals and will assist W2W on its lifetime to develop its own strategies aligned with the European strategic goals.

4.2. INTEGRATION OF W2W RESULTS WITH RELEVANT ROADMAPS.

The integration of W2W results with relevant roadmaps is essential to ensure its alignment with the broader European strategic goals in circular economy and waste management and also to maximise its impact. W2W has already generated significant insights, especially in the areas of separation and sorting systems, assisting the recycling process and the material recovery. These technologies are aligned with the CEAP objectives.

Moreover, W2W fully supports the goal of EU climate neutrality, as set by the Green Deal. Through the technologies of ashes combustion valorisation, contributes to the transformation of its construction and production systems, supporting the energy transformation. It also turns waste streams into new, high-value products, supporting the transition to circular economy.

W2W results will be disseminated by all partners to relevant working groups and initiatives to ensure that they are available for future integration in the respective technology roadmaps.

4.3. STRATEGIC ALIGNMENT WITH INNOVATION CHAINS PROPOSED BY W2W.

W2W has been structured along an innovation chain that paves the path from research to market. The distinct stages of the innovation chain proposed by W2W include the following:

- Research and Development (TRL2-4): Research and initial development of key technologies for waste valorisation.
- Validation and Demonstration (TRL 5-6): Demonstration of selected technologies at pilot sites.
- Pre-commercial Scaling and Market Preparation (TRL 7-8)
- Exploitation and Commercial Uptake (TRL 9)

All the above changes are reflected in the W2W workplan and in specific WPs and activities.

Additionally, W2W is also following the World Economic Forum's 3Cs framework for technology advancement and market evolution (World Economic Forum, 2025). This framework describes three distinct steps of combination, convergence and compounding that are to be followed to align new technologies with existing innovation chains and by extension, technology roadmaps. W2W has adopted the following strategies to address each of these steps.

- i. **Combination** involves bringing together complementary technologies, and projects to establish synergy. In this first step, W2W has engaged stakeholders working in projects similar to or complementary to its pillars or use cases with the aim of maximizing impact. For example, W2W has intentionally joined other projects under the Horizon Europe Research and Innovation Programme to create the REACT Cluster group of projects. Other projects in this cluster are ALCHIMIA, CLARUS, RECLAIM, DARROW and Grinner. Together, these projects organised the EU Green Week 2025 themed “Circular Economy in Action: Rethinking Resources for Greener Future, The Role of AI and Robotics in Driving Circular Innovation and Strategic Autonomy in Europe.”
- ii. **Convergence** of technology and innovation chains to create more valuable chains. The strategy that speaks to convergence is collaboration within W2W tasks (internal stakeholder collaboration) and with external stakeholders (external stakeholder collaboration). To this end, W2W has focused on establishing collaborative relationships with stakeholders such as the University of Pretoria, South Africa and Rostock University, Germany who are doing research on wood value chains. Section 5 of this report provides details on W2W collaboration with external stakeholders.
- iii. **Compounding** is necessary to foster dissemination and adoption of new technologies in academic and industry. W2W has established network of stakeholders made up of industry, academia and government. Building this network is the primary strategy for disseminating W2W results and diffusing them in industry, academia and government.

5. NETWORKING ACTIVITIES AND EVENTS

5.1. OVERVIEW OF ORGANISED AND PLANNED COLLABORATION EVENTS: GOALS AND OUTCOMES

5.1.1 Organised Collaboration Events

This section includes both events that W2W has coordinated as a leading partner or has participated as a contributing partner. It outlines the project partners' active role and effort in promoting the knowledge exchange, disseminating the key outcomes and in fostering collaboration and networking with projects and initiatives presenting similar interest.

- ***Collaboration with The York Timbers Research Chair at the University of Pretoria, South Africa.***

The York Timbers Research Chair is hosted at the University of Pretoria in South Africa. The Chair's research objective is to promote structural wood products within the built environment. The Chair is responsible for organising timber-related research events such as the timber construction conference, timber research colloquium and timber design competitions. Based on the Chair's research focus and activities, the following areas of collaboration have been identified: -

- Conducting workshops, webinars and training sessions (where possible) on wood waste valorisation research and best practices. The target audience will be the Research Chair's stakeholder's particularly timber companies funding the research chair and students at the Chair's timber laboratory. The goal is to inspire interest in research on reclaimed wood in South Africa and highlight opportunities for companies in the timber sector.
- Participation in events organised by the Research Chair. Specifically, the timber construction conference and timber research colloquium. The main scope of the Research Chair's work is on the structural use of virgin wood. The collaboration with W2W will expand this scope to include reclaimed wood by bringing attention to upcycling wood waste from construction and demolition waste for use in structural and/or other building elements.
- Opportunities for research students attached with to the Research Chair's timber laboratory to learn from W2W by participating in workshops and webinars organised by W2W. Some of the students are doing research that aligns with W2W tasks. For example, research on cross laminate timber involves gluing cast-off timber sections and testing their structural properties including glue properties. This research aligns with W2W's tasks on glue separation from wood and composite wood. In this regard, the goal of the collaboration is to expose students to a greater research network and international dialogue in their research area.

- ***From Waste to Resource at ECOMONDO.***

W2W participated together with RECLAIM, Grinner and EcoReFibre project at a workshop entitled "From Waste to Resource- Innovative Approaches to Material Recovery and Sustainable Waste

Management” organised by ISWA partners during the ECOMONDO exhibition. This event showcased the collective efforts of European Union-funded projects to transition towards a circular economy through sustainable waste management practices.

The annual exhibition in Rimini, Italy, collectivised a multitude of stakeholders from green technology sectors, including solid waste management, with the intention to define and influence the strategies for the development of European industrial and environmental policy. In view of this ambition, ISWA brought four EU-funded projects together – Wood2Wood, Reclaim, EcoRefibre, and Grinner – for a workshop to identify synergies for potential technical cooperation in future with the aim to increase the visibility and impact of Horizon Europe Projects. More information about the event are available at the website [here](#).

- ***Innovent Forum 2025: How W2W is leveraging human-robot collaboration + Mixed Reality for advanced wood waste separation.***

The Innovent Forum is a dynamic hybrid event dedicated to the intersection of science and technology, with the intention to display and promote innovative technological solutions that benefit humanity, fostering networking and collaboration among participants.

This year’s forum targeted a diverse audience, including business executives, entrepreneurs, startup leaders, professionals, developers, academics, public sector representatives and policymakers, all of which are crucial to Wood2Wood project. The event focused on several key sectors, including agri-food, energy, and the environment, as well as important technologies such as IoT, Digital Twins, AI, and Extended Reality (XR).

W2W was showcased at the event among other EU funded projects, THESEUS Hub4Circularity, Choice, Rurbanive and Thetida, demonstrating the Human-Robot Collaboration to enhance productivity and efficiency demo. More information are available [here](#).

- ***European Robotics Forum 2025: W2W project to participate in “Challenging robotics/AI Use Cases by End-Users” workshop***

Wood2Wood project participated at the European Robotics Forum 2025 (ERF) taking place in Stuttgart, Germany on March 26 from 8:30 to 9:50 am in a workshop on “**Challenging Robotics/AI Use Cases by End-Users.**” During this workshop, End-Users of AI and Robotics applications presented their **real-world use case challenges**, along with a poster session to foster meaningful networking with research organisations, technology providers, and system integrators.

During the event, key insights from the W2W project were presented, especially on “Advanced classification and robotic sorting for wood waste valorisation”. End-Users were also able to showcase their challenges to a diverse audience base ranging from technology providers, system integrators, and research organisations, including European-Union funded projects, such as Wood2Wood, RECLAIM project, REDOL EU project, DigInTraCe project, among others. More information about the event are available [here](#).

- ***Circular Economy in Action: Rethinking Resources for a Greener Future***

On June 2025, W2W participated at a joint workshop of the REACT cluster during the EU Green Week 2025. Entitled as ‘Circular Economy in Action: Rethinking Resources for a Greener Future’ the workshop brought together projects such as ALCHIMIA, CLARUS, DARROW, RECLAIM, GRINNER, and Wood2Wood and showcased their innovations and the power of AI and Robotics to solve real industrial challenges.

5.1.2. Planned Events

- ***Planned collaboration with the Faculty of Agriculture and Environmental Sciences, Rostock University, Germany.***

The Faculty of Agriculture and Environmental Sciences at Rostock University in Germany is actively involved in circular economy research and practice, including waste valorisation. Over the years, it has organised the International Conference on Circular Economy, Renewable Energies and Green hydrogen in Africa (ICERA) (<http://icerafrica.com/>). The conference has been held in various countries across the continent – Ghana (2023), Togo (2024) and Namibia (October 2025). Due to the geographical scope of the conference across Africa, the planned collaboration will focus on the conference. The objective is to disseminate information on the W2W project and the circularity of wood across the continent.

- ***Joint activities with REACT Cluster***

More joint activities will take place in collaboration with relevant project participating at REACT Cluster, fostering synergies through dissemination efforts and co-organised events. These activities may include joint workshops and webinars, newsletters or even common policy recommendations.

- ***DPP4EU 2025***

DPP4EU 2025 will take place in Brussels from 16 to 18 June 2025. W2W will participate at Session 4: Emerging technologies for DPPs together with other projects such as DigInTraCE, ARGONAUT, TRICK- PRODUCT, etc. W2W will be represented with a presentation about DPPs for manufacturing machines.

5.2. FEEDBACK AND ENGAGEMENT

5.2.1 Feedback of Engagement with York Timbers Research Chair at the University of Pretoria.

Several meetings have been held with the York Timbers Research Chair on potential collaboration, which culminated in a trip to the University of Pretoria on 29th April 2025. The main agenda of the visit was to familiarise the UJOH team with the Research Chair’s activities, meet his team, and finalise the areas of collaboration. The visit also included presentations on the Research Chair’s

projects and a tour of the York Timber Laboratory, a tour of Future Africa to showcase the extensive use of timber in its construction and a visit to the Department of Architecture to learn about their community projects involving reclaimed wood and circular economy. Pictures of the trip are provided under Annex C.

Following this visit, the UJOH and the Research Chair agreed to collaborate on dissemination of wood waste valorization research and best practices through workshops, webinars and training sessions (where possible), wood-to-wood participation in the timber construction conference and timber research colloquium and involvement of students attached to the Research Chair's timber laboratory in workshops and webinars organized by W2W.

UJOH- representing W2W- has already received and accepted an invitation to participate in the Timber Construction Conference held on 8th and 9th September 2025 at the University of Pretoria. We will be presenting on 8th September, the academia/ research day. And we will be in attendance on 9th September, the industry day, to introduce the wood-to-wood project with industry stakeholders.

5.2.2 Feedback of Engagement with the Faculty of Agriculture and Environmental Sciences, Rostock University, Germany.

UJOH has reached out to a Professor of Material and Energy Valorisation of Biogenic Residues and Professor of Waste and Resource Management in the Faculty for potential collaboration in the wood to wood. We have received a positive response and an invitation to participate in the ICERA. An in-person meeting between the Professor from Rostock University and UJOH has been scheduled and confirm on 9th July 2025 to discuss the potential collaboration between wood-to-wood and the ICERA. The meeting will be held at UJOH.

5.2.3 Feedback from W2W participation in joint activities

W2W's participation in various joint activities and especially its participation in REACT cluster has been proved very significant, enhancing the project's impact and increasing the engagement. This collaboration encourages a continuous exchange of knowledge and best practices related to circular economy and waste management practices.

The feedback collected from the participation in different events across Europe has maximised the project's visibility, increasing the interest from various stakeholder groups. Moreover, has brought out new collaboration opportunities and potential future synergies.

5.3. INTEGRATION OF REGIONAL AND NATIONAL PROGRAMS WITH W2W INITIATIVES.

5.3.1 Engagement with South Africa Department of Trade, Industry and Competition (SA DTIC).

Initial contact has been made with South Africa's department of Trade, Industry and Competition (SA DTIC) to introduce the wood-to-wood project. This was followed by a meeting on 25th February 2025 to further discuss the scope of the wood-to-wood project and how it aligns with the Department's priorities in the wood/ timber sector. The area that was identified for potential collaboration is skills development. Based on the DTIC's role as a government entity, it will be a strategic partner to help integrate national programs with the W2W program.

5.3.2 Leveraging the EC funded ASIM project

The European Commission funded an Intra-Africa mobility project (ASIM) (<https://asim.uj.ac.za/>), involving four African Universities covering the West, East and Southern Africa, was identified as a suitable vehicle to integrate regional programs on the African continent. A relationship has been established with the project to partner on the W2W project. Moreover, ASIM has submitted another grant bid with the EC to extend the impact of both the W2W and ASIM on the continent. The ASIM project, in its initial phase, implemented over 70 mobilities covering all the regions of the continent. Based on this capability, the ASIM project has been identified as a viable vehicle for regional integration with the W2W project.

6. STAKEHOLDERS & DECISION MAKERS ENGAGEMENT AND INTERACTION

6.1. STRATEGIES FOR ENGAGING STAKEHOLDERS WITHIN AND OUTSIDE W2W AND INTERNATIONAL DECISION-MAKERS.

The strategy that is used to engage stakeholders consists of five steps: stakeholder identification, stakeholder matchmaking, identification of appropriate engagement mechanism, implementation of engagement mechanism and evaluation of engagement mechanism.

6.1.1 Stakeholder Identification.

Stakeholders were identified based on the stakeholder theory. The theory was used to define distinct groups of potential stakeholders that will be later engaged for potential collaboration. Using this theory, three successive activities were conducted to identify stakeholders. The first, stakeholder outreach done by participating in the Gauteng Waste Management Forum, Gauteng Environmental Research Symposium (GERS), International Solid Waste Association (ISWA) World Congress 2024 and South Africa Circular Economic Hotspot (SACEH). The second, stakeholder mapping, was achieved through a stakeholder mapping workshop conducted on 21st November 2024 in which 12 organisations participated. The third, stakeholder snowballing, is the outcome of the preceding steps and is the identification of other stakeholders from the ones already identified.

6.1.2 Stakeholder Matchmaking.

Stakeholder matchmaking involved identifying the interests and needs of each stakeholder and the finding their alignment with the wood-to-wood project pillars (the common area of interest). Thereby identifying the basis for a mutually beneficial relationship. After which the stakeholders are matched with the task groups based on their common area of interest and mutual benefits to be gained by collaborating. The matching exercise was guided by the resource dependence theory (RDT), open innovation model (OI) and assortative matching. These theories were used to as a guide on how to match stakeholders and task groups based on interest and needs.

6.1.3 Selection of Stakeholder Engagement Mechanisms.

The third step in the engagement strategy was selecting the appropriate mechanism to engage with stakeholders that have already been identified as well as reaching out to other potential stakeholders. Depending on the stakeholder and the benefits to be gained from the engagement, several mechanisms were used. These are in-person dialogue, online stakeholder platforms, presentations, exhibitions, partnerships and collaborations.

6.1.4 Implementation of Stakeholder Engagement Mechanisms.

The implementation of the engagement mechanisms was done through several activities that we organised and others that we invited to participate. The activities for in-person dialogue were attendance and networking at academic and industry events. A wood-to-wood discord server was created to facilitate online stakeholder interactions. Presentations were made to the University of Pretoria, Sunyani Tech University and South Africa's Department of Trade, Industry and Competitions. Exhibitions of the wood-to-wood project at the University of Johannesburg

community engagement day, Timber Construction Conference, International Solid Waste Association World Congress and Exhibition and International Conference on Circular Economy, Renewable Energies and Green hydrogen Africa. And partnerships and collaboration with the York Timbers Research Chair at the University of Pretoria, Faculty of Agriculture and Environmental Sciences, Rostock University and South Africa's Department of Trade, Industry and Competition.

6.1.5 Evaluation of Stakeholder Engagement Mechanisms.

The last step is evaluating the engagement mechanisms and their associated activities. The evaluation is made against the overall aim of Task 19.3, which is to establish synergies and knowledge and best practice exchange in their area of common interest. The evaluation also notes the challenges and lessons learned from each activity and mechanisms. And draws recommendations for improving them.

6.2. MECHANISMS FOR INVOLVING EXTERNAL ORGANIZATIONS, STAKEHOLDERS & INTERNATIONAL DECISION-MAKERS

Five main mechanisms are used to secure the involvement of external organisations, stakeholders and the international community in the W2W activities: in-person dialogue, online stakeholder interactions, presentations, exhibitions and partnerships and collaborations. These mechanisms and their associated activities are discussed below.

6.2.1 In-person Dialogue.

The foremost mechanism for generating interest and involving external stakeholders with the purpose of creating synergies is dialogue. Various in-person and online activities have been undertaken to initiate and facilitate continuous dialogue with our stakeholders. These are:

- Attendance of academic and industry events that resonate with wood-to-wood pillars and use cases.
 - o Breaking Silos – Connect with South Africa's Circular Economy Network on 22nd May 2025. An interactive online networking event for South Africa's circular economy community organised by Circular South Africa (<https://circularsouthafrica.co.za/>).
 - o Gauteng Environmental Research Symposium (GERS) held in Johannesburg, South Africa on 22nd October 2024 (<https://www.uj.ac.za/faculties/engineering-the-built-environment/uj-peets/gers/>).
 - o International Solid Waste Association (ISWA) World Congress 2024 held in Cape Town, South Africa from 15th to 18th September 2024 (<https://iswa2024.org/>).
 - o South Africa Circular Economic Hotspot (SACEH) held in Cape Town, South Africa from 19th to 20th September 2024 (https://circularsouthafrica.co.za/csa_events/south-africa-circular-economy-hotspot-2024/).
 - o Gauteng Waste Management forum.

- WoodEx for Africa to be held in Johannesburg, South Africa from 18th to 20th June 2025 (<https://woodexforafrica.com/>)
- One-on-one meetings with stakeholders.
 - Online meeting with stakeholders identified from the GERS, ISWA 2024, SACEH and Gauteng Waste Management Forum held on 21st November 2024. The purpose of this meeting was to introduce the W2W project in more detail, introduce the already identified stakeholders to each other, identify other stakeholders and map stakeholder groups.
 - Online meeting with the York Timbers Research Chair at the University of Pretoria on 21st February 2025 and 17th April 2025. This meeting was followed by a trip to the University of Pretoria on 30th May for further discussions on potential collaboration. The meeting included a tour of the York Timber Laboratory and the University's Department of Architecture to see the projects that align with W2W.
 - Online meeting with the South African Department of Trade, Industry and Competition on 25th February 2025.

6.2.2 An Online Stakeholder Interactive Platform.

The strategies used for stakeholder identification resulted in a diverse, both geographically and professionally, set of stakeholders outside Europe. The matchmaking was solely based on their professional interest in W2W pillars, with no consideration of their location. So, the strategy to facilitate engagement and interactions between the W2W task group and external stakeholders considered their location and the fact that in-person meetings will not be possible for most of the matches. At the same time, to maximise the benefits of interacting chiefly, building rapport and synergies that will result in collaborative relationships, the strategy had to allow for simple, open, timely and friendly communication.

For these reasons, an online stakeholder interactive platform was the best strategy because it allows engagement over distance, time and is accessible to all. The platform was created on Discord (<https://discord.com>). Discord is “a versatile online social media platform that allows users to engage in voice and video calls, exchange text messages, share multimedia, and transfer files” (Gupta et al., 2024, p. 1321). These qualities, together with allowing members to have text, voice and video real-time conversations, make it an ideal platform for facilitating stakeholder interactions. Further, members have access to these features without additional costs.

Within the W2W server, several channels have been created to facilitate discussions on specific topics such as the W2W pillars and general discussions on wood waste. The members of these channels are W2W consortium members and W2W stakeholders. It is in these channels that the interactions are taking place. At the moment, the general channel is the most active. We are still onboarding members into the server, and once the numbers have grown, we will split the members into specific channels based on their interests.

6.2.3 Presentations at Universities and Research Institutions.

- Presentations at universities with programmes related to timber.

- o Timber Construction School at Sunyani Tech University, Ghana on 28th November 2024.
- o Faculty of Engineering, Built Environment and Information Technology (The York Timbers Laboratory and Department of Architecture) at the University of Pretoria, South Africa on 30th May.

6.2.4 Exhibitions and Conferences Presentations.

- Exhibitions and presentations at academic, industry and public events with considerable attendance.
 - o Exhibition at Annual University of Johannesburg Community Engagement Day held at the University of Johannesburg, South Africa on 4th April 2025 (<https://www.uj.ac.za/event/community-engagement-day/>)
 - o Timber Construction Conference to be held at the University of Pretoria in Pretoria, South Africa from 8th and 9th September 2025. Invitation to present on the 8th has been extended and accepted.
 - o International Solid Waste Association (ISWA) World Congress & Exhibition 2025 to be held in Buenos Aires, Argentina from 27th to 29th October 2025 (<https://iswa2025.org/>).
 - o International Conference on Circular Economy, Renewable Energies and Green hydrogen in Africa (ICERA) to be held in Windhoek, Namibia from 21st to 23rd October 2025 (<http://icerafrica.com/>).

6.2.5 Partnerships and Collaborations.

- Establishing collaborative relationships with stakeholders who have expertise on either of the wood-to-wood pillars and/or projects similar to wood to wood.
 - o York Timbers Research Chair at the University of Pretoria.
 - o Faculty of Agriculture and Environmental Sciences, Rostock University, Germany.
 - o Department of Trade, Industry and Competition, South Africa.

6.3. OUTCOMES OF INTERACTIONS AND CONTRIBUTIONS TO W2W.

The main outcome of the interactions with stakeholders and decision makers is the identification and agreement of stakeholders to participate in wood-to-wood activities. A full list of the stakeholders is provided in Table 1 of individuals and organisations who have expressed interest in partnering with the project. The contact details of these stakeholders have been provided to the wood-to-wood consortium partners when organising workshops or conducting surveys. As a result,

the stakeholders have been invited and some have participated in the Workshop on Roles, Skills and Training Needs organised by POLIMI in April 2025.

Another outcome is the identification of research similar to wood-to-wood within Africa, such as the timber research at the University of Pretoria. The research at the University of Pretoria under the York Timbers Research Chair explores the structural use of virgin timber in the built environment. Part of the research includes how to utilise cast-off timber pieces to create cross-laminated timber for structural use. After finalising the areas of collaboration with the Research Chair, we will be organising a joint meeting with wood-to-wood task groups working on glue separation from wood and on composite wood. The contribution to the wood-to-wood project is in the exchange of knowledge and best practices, as well as gaining a different approach and perspective in this research area.

7. PRACTICAL RECOMMENDATIONS' DEVELOPMENT

7.1. FRAMEWORK FOR DEVELOPING RECOMMENDATIONS

Practical recommendations to enhance the impact maximisation of the W2W project will not only depend on the lessons drawn from the implemented strategies but will also invite project stakeholders to give their input. The framework that, from literature and practice, has proven to be practical, comprehensive and insightful in developing recommendations jointly between project proponents and project stakeholders is the Nominal Group Technique (NGT) (O'Haire et al., 2016; McMillan et al., 2016). This framework is primarily used for engaging a group of stakeholders (both internal and external) to firstly get their individual views on a topic under discussion. After this, the individual views are brought together for a group discussion, which involves going through each view and analysing them until a consensus is reached. More on this technique can be read at (RECLAIM Project, 2025).

The framework consists of five steps, which can be done virtually (virtual Nominal Group Technique (vNGT)) over MS Teams (Smith et al., 2024) or Zoom (Khurshid et al., 2023). These steps are listed below:

- Step 1: Introduction. At this first step, the NGT facilitator (the facilitator) invites participants to the recommendation development session. Participants are introduced to the wood-to-wood project and the aims of the session. Particularly, areas where recommendations are sought, the steps of the NGT framework and what is expected from the participants. The participants should consist of both internal and external stakeholders to the wood-to-wood project.
- Step 2: Individual generation of recommendations. At this step, participants are invited to write down/ list the recommendations individually based on their personal or their organisation's expertise and experience. The recommendations generated at this step are solely those of a single participant without consulting or discussing them with others in the session.
- Step 4: Round robin sharing of individual recommendations. This is the step where each participant shares their recommendations. The recommendations are listed and an in-depth discussion each ensues. The discussion entails, among others, reasons and aim for the recommendation, impact of the recommendation and suggestions on how to implement the recommendation (who, how and when). At this step, the aim is to get information on the recommendation from the individual bringing it forth and from other participants based on their expertise and experience. The aim of the discussion is not to filter (that is, select the best and drop the rest) the recommendations but to generate as much information as possible on each recommendation.
- Step 5: Analysis and finalising recommendations. The last step in the framework is to analyse the information generated on each recommendation relative to the aims of the

session and the broader aims of the wood-to-wood project. This analysis focuses on the merits and demerits of each recommendation based on the generated information. The analysis continues until a consensus is reached on which recommendations to put forward. In some cases, this will involve voting on the recommendations and those with more votes are put forward.

7.2. DRAFTING AND REFINING RECOMMENDATIONS FOR INTERNATIONAL POLICY

Drafting and refining recommendations will consist of two escalating rounds of reviewing and refining the recommendations put forward by the NGT participants.

- The recommendations put forward by the NGT participants will be compiled by the facilitator as the first draft of the recommendations for international policy. The draft will be circulated to the NGT participants for their review and comments. Based on the received comments, the facilitator will refine the recommendations based and prepare the final recommendations of the NGT sessions. These recommendations will be submitted to the wood-to-wood project manager (task group one) who will be responsible for the second round of peer review and refinement.
- Upon receiving the recommendations from the NGT facilitator, the project manager will circulate them to the wider wood-to-wood task groups for their review and comments. This is essentially a peer review process. As part of this process, the project manager may choose to invite stakeholders to who were not part of the NGT to review the recommendations. This review is meant to further refine the recommendations and establish a consensus on among all wood-to-wood consortium partners.
- The comments received from the peer review process will be used to refine the recommendations. The project manager, working together with the NGT facilitator, will finalise the recommendations for international policy.

8. KNOWLEDGE EXCHANGE & BEST PRACTICES

8.1. KNOWLEDGE EXCHANGE MECHANISMS

To date, four mechanisms have been identified to facilitate knowledge exchange between the wood-to-wood project and its stakeholders. These are: one-on-one connections, real-time online stakeholder interactions, an online stakeholder mailing group and an online research group. Of these mechanisms, the first two are active, the third is being established, and the last will be initiated once results from task groups are ready to be shared with the public. These mechanisms are detailed hereunder.

8.1.1 One On One Connections.

Establishing one-on-one connections between wood-to-wood and stakeholders is, at the moment, the foremost mechanism for knowledge exchange. As we continue to build the stakeholder base and generate interest in the project, the focus has been on establishing synergies with stakeholders. One-on-one connections have proven to be the best for building rapport and trust with stakeholders. Thus, allowing for a free and mutually beneficial exchange of knowledge. Various activities have been carried out to initiate and establish connections and have resulted in the exchange of knowledge. These events include attendance at relevant academic and industry events, meetings with stakeholders, conferences, university exhibitions and presentations and forming partnerships and collaborative agreements. The full details of these activities are presented under Section 6.2 of this report.

8.1.2 Real-time Online Stakeholder Interactions.

Real-time online stakeholder interactions as facilitated through the wood-to-wood server on discord. The discord server allows stakeholders to share information, ask questions and have discussions at any time they are online. On discord, the knowledge exchange is between wood-to-wood and the stakeholders as well as between the stakeholders themselves. The full details on the discord server are presented under Section 6.1 of this report.

8.1.3 Online Stakeholder Mailing Group.

Another mechanism that is being set up to share detailed information on the wood-to-wood project and exchange knowledge with stakeholders is a mailing group. The mailing group will be hosted on Google Groups. The group will be dedicated to sharing news and progress of the wood-to-wood project with stakeholders. The group will cater to stakeholders who prefer periodic communication through email rather than real-time chats on Discord. And stakeholders that are not comfortable with joining Discord and/or are unfamiliar with Discord. Like Discord, the group members can also send information to the group. Thus, allowing information exchange between wood-to-wood and its stakeholders and between the stakeholders themselves.

8.1.4 Research Group

The last knowledge exchange mechanism that will be used to share the results from wood-to-wood task groups with the public is a wood-to-wood research group hosted at ResearchGate. This group

will focus on the results generated by the task groups and research publications (journal and conference articles) from the wood-to-wood task groups. Because of this the group will be created once the results from the task groups are ready for public sharing.

8.2. LESSONS LEARNT FROM COLLABORATION ACTIVITIES.

Several mechanisms have been used to engage stakeholders and decision-makers with the ultimate goal of building collaborative relationships that lead to synergies, knowledge, and best practice exchange. These mechanisms are in-person dialogue, online stakeholder interactions, presentations, exhibitions and partnerships and collaborations. In implementing these mechanisms three main lessons stand out for their associated activities.

- i. Building trust and a rapport with stakeholders is the first step to collaboration. In most cases this was achieved through a one-on-one interaction with a specific stakeholder. This was acutely observed when implementing the online stakeholder interactive platform on discord. All stakeholders that we had had one on one meetings prior to inviting them to join the wood-to-wood discord sever accepted the invitation and were willing to engage on discord. But stakeholders that were invited without a prior one-on-one meeting did join discord and were reluctant to interact with other stakeholders. From this, we learned that rather than engaging with a group of stakeholders as the initial contact to introduce the wood-to-wood project, it is best to make the initial contract with each stakeholder individually. The one-on-one interaction creates an environment where our full attention on one stakeholder and we are more focused on their interests, the stakeholder feels valued and is comfortable to ask questions and share their views and lastly, the engagement is more in-depth, semi-formal and it is easier to identify common areas of interest and the mutual benefits of collaboration.
- ii. The second lesson is the success of any stakeholder engagement activity hinges on highlighting and exploring a common area of interest as a potential area of collaboration. And this area must be a priority to both wood-to-wood and the stakeholder. In this regard, basing the stakeholder identification on the stakeholder theory ensured that common interest is the deciding factor in 'recruiting' relevant stakeholders. For example, stakeholder outreach, stakeholder mapping and stakeholder snowballing activities were all rooted on the stakeholder theory's argument that the people or organisations that qualify as stakeholders are those whose interests are affected or will be affected by the project. Thereby allowing us to identify, participate and implement activities that are precisely tailored to attract people and organisations with interests that align to wood to wood.
- iii. The third lesson is a demonstration of value or benefits to be gained by collaborating or engaging with wood-to-wood is necessary to secure a collaborative relationship with stakeholders. Identifying a common area of interest and priority will, in most cases, only go as far as a successful stakeholder engagement activity. But to build a collaborative relationship and synergy, a mutual beneficial relationship has to be assured or a potential for one. For instance, businesses are more willing to collaborate if the wood-to-wood project will widen their business portfolio or solve a problem in their business. And research

institutions are more willing to collaborate if the wood-to-wood project will complement to their own research and/or contribute to knowledge in their research area. Having observed this early in the project, the choice to use established stakeholder matchmaking theories (resource dependence theory, assortative matching and open innovation model) ensured that stakeholders needs are addressed by matching them to wood-to-wood task groups that are working to meet their needs. In so doing demonstrating how wood-to-wood project will be of benefit and create value.

8.3. BEST PRACTICES FOR KNOWLEDGE EXCHANGE & ESTABLISHING SYNERGIES.

The literature on knowledge and skills exchange and establishing synergies presents four areas that form the best practice for success. These are to transmit, engage, practice and application of the knowledge (Bridgwood et al., 2023). These areas have been addressed through the various strategies to engage and interact with stakeholders and decision makers (refer to Section 7 for full details of the strategies). Knowledge exchange and synergies best practices were covered through the following activities.

- i. Knowledge transmission has been achieved through dialogue, exhibitions and conference presentations, presentations at universities and research institutions and through the brochures distributed at these events.
- ii. Engagement for knowledge exchange and synergies have been achieved through dialogue particularly through meetings and the discord stakeholder interactive platform. As well as through collaboration and partnerships.
- iii. Knowledge practice activities such as presentations at universities and research institutions and site visits to York Timbers Laboratory at the University of Pretoria and Timber Construction School at Sunyani Technical University Sunyani.
- iv. Knowledge application through collaboration and partnerships with the York Timbers Research Chair at University of Pretoria, Faculty of Agriculture and Environmental Sciences, Rostock University and South Africa's Department of Trade, Industry and Competition.

9. CHALLENGES AND MITIGATION STRATEGIES

Three main challenges were encountered in building synergies, knowledge, and best practice exchange. These and their mitigation are discussed below.

- i. Poor response to the invitation to join the wood-to-wood server on Discord. Although the invitations to join the server have been shared with task group members and external stakeholders, the number of people who have joined is lower than expected. We noticed that the external stakeholders who have joined the server are the ones we had met individually prior to inviting them to join the server. That is, we had already established a mutually beneficial rapport outside discord. To increase the server members, we will have a one-on-one meeting with a stakeholder first before extending the invitation to the Discord server. The meeting will be the initial contact where we build trust and rapport with stakeholders by introducing the project, establishing a common area of interest and the benefits of the wood-to-wood project. The invitation to join Discord is seen as a step in building a mutually beneficial collaborative relationship with the wood-to-wood project and other stakeholders.
- ii. Poor stakeholder interactions on Discord. Real-time engagement on Discord requires the members to be online for most of the time. We have followed up on this, and the feedback from stakeholders is that it is not possible to be online for lengthy periods of time because of busy schedules. Another reason was unfamiliarity with Discord. To mitigate this, we are establishing a Google group that will not require the members' online presence and will use email to communicate. In this way, stakeholders will be kept informed on the wood-to-wood project, and the interactions will be via email. Therefore, the group will act as both a newsletter and an interactive platform.
- iii. The need to protect sensitive information by both the wood-to-wood task groups and stakeholders has impeded the exchange of knowledge and best practice. This is especially noticeable for businesses. To encourage information sharing and knowledge exchange, we will create a research group on ResearchGate. The intention is to assure both task groups and stakeholders that the information and best practice knowledge they share will solely be used for research purposes to create knowledge.

10. NEXT STEPS & RECOMMENDATIONS FOR FUTURE COLLABORATIONS.

10.1. NEXT STEPS IN ESTABLISHING SYNERGIES AND BEST PRACTICE EXCHANGE.

The next steps in establishing synergies with relevant stakeholders and initiatives and best practice exchange are dictated by three things: current progress, encountered challenges and the activities stipulated in the original project proposal (Project 101138789 — W2W) and its subsequent amendments (AMENDMENT No AMD-101138789-14)

So far, the focus of the mechanisms to establish synergies and exchange best practice has been on establishing a stakeholder base. That is, at the initial stages of the project, the focus of stakeholder engagement and interaction activities has been on building rapport and trust with stakeholders and establishing a network of stakeholders that is actively involved in the wood-to-wood project. The intention of is to have the ‘stakeholder infrastructure or foundation’ for building synergies and exchanging knowledge and best practices later in the project when wood-to-wood partners are ready to share results and use cases. Now, that we have identified a group of stakeholders willing to participate in the wood-to-wood project and the project is advancing; the next steps in establishing synergies and best practice exchange will focus on stakeholder interactions (interactions between wood-to-wood task groups and external stakeholders). To this end, the following activities are planned starting June 2025:

- Exhibitions and presentations at academic, industry and public events with considerable attendance.
 - Timber Construction Conference to be held at the University of Pretoria in Pretoria, South Africa from 8th and 9th September 2025. Invitation to present on the 8th has been extended and accepted.
 - International Solid Waste Association (ISWA) World Congress & Exhibition 2025 to be held in Buenos Aires, Argentina from 27th to 29th October 2025 (<https://iswa2025.org/>).
 - International Conference on Circular Economy, Renewable Energies and Green hydrogen in Africa (ICERA) to be held in Windhoek, Namibia from 21st to 23rd October 2025 (<http://icerafrica.com/>).
- Collaboration and partnerships.
 - Collaboration with the Faculty of Agriculture and Environmental Sciences, Rostock University, Germany.
 - Collaboration with South Africa Department of Trade, Industry and Competition (SA DTIC).

- Sessions to disseminate wood-to-wood task group results and use cases to the international community of stakeholders. Two results dissemination sessions are planned by M36 of the project. The dates of these sessions will be confirmed later because they depend on the availability of the results and wood-to-wood task groups.
- Seminars, trainings and/or tutorials to exchanging information and best practices on wood valorisation. These sessions are intended to facilitate information exchange from wood-to-wood task groups to stakeholders as well as from stakeholders to wood-to-wood task groups and other stakeholders.
- Establish one on one connections between wood-to-wood task groups and stakeholders (stakeholders matchmaking) to build stronger collaborative and mutually beneficial relationships.

Based on the noted challenges in building synergies and knowledge and best practice exchange the mechanisms poor; the following are planned starting June 2025 to mitigate the challenges: -

- One on one meeting with stakeholders to serve as initial contact to introduce the project and build rapport.
- Establish a wood-to-wood google group to function as a newsletter and interactive platform. The group will be made up of wood-to-wood task teams and stakeholders and members can share news and information relevant to the project via email.
- Establish a wood-to-wood research group on ResearchGate. Research publications (journal articles and conference papers) from wood-to-wood task groups and other relevant publications will be shared in this group.

According to the original project proposal and its amendment (refer to Project 101138789 — W2W and AMENDMENT No AMD-101138789-14) the upcoming steps after M18 are: -

- Involvement in the development of practical recommendations to support international policy initiatives by leveraging the stakeholder network to provide an international perspective and input on the proposed policy initiatives.
- Development of key exploitable result: methodology on how to create synergies and exchange information and best practices that can be used outside of the wood-to-wood project. This will involve publishing articles and guidelines on synergy creation as well as best practice and knowledge exchanges for innovation research projects. This will add knowledge to and influence collaborative networks and how future benefits of the project can be enhanced.

10.2. RECOMMENDATIONS FOR FUTURE COLLABORATIONS.

Based on the challenges encountered and lessons learned from the various stakeholders' and decision makers engagement activities, the following are recommended for future collaborations:

- i. One-on-one meetings with each potential collaborator should be held to introduce the project and its pillars. The meeting should aim to firstly build trust and a rapport with the potential stakeholder. And secondly, to identify the common area of interest and highlight the mutual benefits of collaborating in this area.
- ii. As the wood-to-wood project is advancing, the stakeholder collaborations will now focus on establishing synergies, best practices, and information exchange. This requires interactions between wood-to-wood task groups and the stakeholders, and the next steps under Task 19.3 are focused on facilitating these interactions. However, the success of these steps depends on the availability of the task groups and their willingness to share results and use cases. Success will also depend on the willingness of stakeholder to share information about their projects, activities or businesses. As we will be acting as the bridge between task groups and stakeholders, we recommend that task groups avail themselves to the matchmaking sessions and stakeholder engagement activities, despite their busy schedules. Especially the first meeting with stakeholders. It is important for the task groups to understand that project impact maximisation through synergies and best practice exchange cannot happen without their willing participation and interaction with stakeholders.

11. CONCLUSION

D19.3 relies on Tasks 19.2 and 19.3. Both the tasks on their first 18 months of implementation involved creating and establishing a network of stakeholders interested in the Wood-to-wood project. This task entailed developing an implementation plan, literature review, stakeholder identification and mapping activities and setting up a platform for collaboration.

The task has proceeded as planned and achieved its goals set to be attained by month 18. The implementation plan was developed, the stakeholder mapping was done, a collaboration platform has been set up for engagement with both internal and external stakeholders, and collaboration and information dissemination activities have been held. All the above mentioned activities have been explicitly documented on this report. Further, the UJOH has also facilitated R2M and POLIMI activities by connecting them to its network.

D19.3 will be updated on M36 and M48 resulting on the revised versions D20.2 and D21.2 respectively.

12. ANNEXES

12.1. ANNEX A: (STAKEHOLDER MAPPING REPORT)



Research and Development Report on Wood2Wood Stakeholder Mapping Workshop



Prepared for: Prof Innocent Musonda

Prepared by: University of Johannesburg Process Energy and Environmental Technology Station (UJ-PEETS Air Quality Unit)

Reference: Stacey Hope-Bailie

Date: January 2025



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Project Code: xx			Document Number: xx	
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C				
D				

1 Background



Wood2Wood (W2W) is a project with the ambition to redefine how wood waste is managed across the EU and globally, by developing scalable and replicable processes to recycle contaminated waste wood into high-value products. W2W aims to develop a comprehensive framework for the valorisation of wood from Construction & Demolition (C&D) and furniture waste through a multidimensional cascade involving digital tools and innovative upcycling technologies, and to validate its technical and economic feasibility in real use cases. The project focuses on significantly reducing the demand for virgin materials, cutting the amount of waste sent to landfill or incineration and supporting the transition to a circular economy, thus promoting closed-loop systems where materials are continuously reused and recycled over their lifetime.

The project has the following objectives:

1. Develop and Validate the **W2W Framework** for classifying and managing wood waste, including techno-economic and life-cycle assessments of the entire process.
2. Enhance **Wood Sorting Mechanism** through human-robot collaboration and mixed reality technology.
3. Innovate Sustainable **Upcycling Technologies** to detect and remove additives through cascade refinement, chemical and bioremediation processes, and energy/gas/ashes valorisation.
4. Pioneer **Digital Tools** for Sustainability decision-making, employing machine learning, computer vision methods, 3D models and other advanced monitoring and sensing technologies, as well as data sharing and FAIR digital assets principles to enhance data accuracy and interoperability.
5. Validate Technologies in **Use Cases** involving all actors in the value chain of at least two realistic use cases, to demonstrate the technical and economic feasibility of producing, through innovative upcycling, products with identical properties and performance as those made from primary resources.
6. Enhance **Industry Competitiveness** and Promote Sustainable Practices including a strategy for inclusive growth and skills development for upcycling, in cooperation with existing initiatives.

Wood2Wood is a European Commission funded project, involving a consortium of 25 partners, divided into 21 work packages (WPs) that span 48 months, with a total budget of over € 9,9 million. Partners and stakeholders include digital and industrial experts, certification bodies, universities, registered training organisations and SMEs, most of which are from 10 different countries in Europe. The only non-EU country represented is South Africa, with the University of Johannesburg (UJ) leading a component of WP19 dealing with **International Collaboration and Exchange of Best Practices**. This work

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depends on the results from other WPs in the project and overlaps with other stakeholder engagement and dissemination activities, although these are largely within Europe. For example, the consortium partner DRAXIS also has the task of mapping stakeholders and had made a first attempt by surveying the rest of the consortium and conducting some desktop research.

Wood2Wood calls on the wood industry, waste management and recycling sectors, material suppliers, governments, researchers, engineers and the general public to feel inspired and consider new ways of thinking and consuming. The University of Johannesburg has been tasked with establishing a broader network of stakeholders for the project, to disseminate information as well as create opportunities for collaboration and exchange of best practices and recommendations. Prof Innocent Musonda from the Centre of Applied Research and Innovation in the Built Environment (CARINBE) in the School of Civil Engineering and Built Environment represents the University of Johannesburg as a member of the project consortium, and is being supported by the Process Energy and Environment Technology Station (UJ PEETS), which brings its own network, and experience as a quadruple helix connector in the national innovation system.

From June to December 2024, UJ set out to take advantage of existing local opportunities to connect with stakeholders and start creating awareness of the project. This included participation in the International Solid Waste Association conference held in Cape Town from 15-18 September, followed by the South African Circular Economy Hotspot (SACEH) conference also held in Cape Town from 19-20 September. On 22 October, the W2W Project was presented in a panel session in the Gauteng Environmental Research Symposium held in Johannesburg, and W2W also hosted a stand in the exhibition. At these and other events, the project team took advantage to network with organizations with potential interest in W2W, making use of exhibition materials such as flyers as well as informal conversations to invite them to provide their information to be contacted in future. An online form for collecting this information was created and refined based on the experience of these events.

Drawing on the contacts collected through these networking efforts, as well as the relationships with existing partners, an online Stakeholder Mapping Workshop was planned to initiate engagements with some of the strategic partners and to work together with them to start mapping the broader stakeholder network.

2 Objectives of the Stakeholder Mapping Workshop

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This first stakeholder mapping workshop was designed to achieve the following key objectives:

• **Convene a group of Key Stakeholders to Introduce them to the W2W project:**

Facilitate introductions among key stakeholders from diverse sectors with whom we already have direct contact, to introduce the W2W project and the hope of establishing a network of stakeholders beyond Europe who could benefit from and give input into the project.

Develop an Initial Stakeholder Map: Draw on the Network of the Network to begin mapping relevant stakeholders across the related value chains, including waste owners, sorting providers, waste management companies, product end-users, public authorities, and standardisation actors, to build a comprehensive network for international collaboration with the Wood2Wood project.

Lay the Foundation for this Network: Initiate the sharing of insights, challenges, and opportunities, and exploring of synergies for advancing the circular economy (especially in wood reuse and recycling) that can inform ongoing stakeholder engagement to ensure long-term participation and impact across the project lifecycle.

3 Identifying participants

There was a decision that the workshop be kept quite small to facilitate active participation. Organisations were selected for invitation to the workshop in order to represent a diversity of stakeholder groups and geographical scopes:

Organisation	Stakeholder group	Geographical scope
African Circular Economy Network	Recyclers, process industry, tech providers	Africa
Green Building Council of South Africa	Construction industry	South Africa
African Reclaimers Organisation	Waste reclaimers, recyclers	Mostly South Africa
Department of the Environment Forestry and Fisheries	Policy (national)	South Africa

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Gauteng Department of Environment	Policy (provincial)	South Africa
City of Johannesburg	Local government	South Africa South
York Timbers Chair in Wood Structural Engineering	Wood sector expert	Africa, possibly with knowledge beyond
SAPPI Southern Africa	Wood industry	Southern Africa
Chartered Institution of Wastes Management	Professional waste management, policy	UK
National Materials Recovery Ltd	Recycling	Ghana
TNO	Multinational R&D	Netherlands
Takataka ni mali	Waste management sector	Kenya
Green Cycle Technology Ltd	Recycling	Ghana
National Business Institute	Industry, skills	South Africa

The original date of 4 November was changed as a number of key participants would have been unable to join. Some invitees recommended extending the invitation to others or passed their invitation to an alternative colleague. In the end, the invitation was sent to 22 people and a total of 17 were able to attend. Some of the organisations which could not make it (as well as some of those who did participate) have requested a bilateral engagement to discuss the project and possible collaborations.

4 Participation

The workshop was attended by 17 people representing 12 organisations, including UJ PEETS and CARINBE. Everyone on the call introduced themselves and shared information about their organisations and some response to the W2W project. Many gave input in other moments of the workshop, through audio or the chat function, or took advantage to share their contact details (8 of the 12 non-UJ participants). The link to an online attendance register form was shared a number of times, and was filled in by 8 of the participants.

Below is a list of those who participated in the workshop:

Participant	Organisation
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Agneta Were	CARINBE CARINBE UJ PEETS UJ PEETS
Innocent Musonda	UJ PEETS Chartered Institution of Wastes
Mbali Zwane	Management Department of the Environment
Nickey Janse van Rensburg	Green Building Council of South Africa Green
Stacey Hope-Bailie	Cycle Technology Ltd National Business
Vicki Hughes	Institute National Business Institute National
Malesotse Makgalemele	Materials Recovery Ltd SAPPI Southern Africa
Bakang Moeng	Takataka ni mali Takataka ni mali TNO York
Francisca Emefa Arko	Timbers Chair in Wood Structural
Shannon Moffet	Engineering
Dale Jeevanantham	
Dr. Rebecca K. Yandam	
Barend Oliver	
Mary Ngechu	
Evance Abok	
Peter Paul van't Veen	
Dr Schaik Grobbelaar	

5 Workshop Format

The workshop was held online using MS Teams. It was scheduled to begin at midday South African time and be 1.5 hours long. After a brief welcome, Prof Musonda gave a presentation about the W2W project, explaining its objectives and describing its different components. The majority of the time was allowed for the various stakeholders to introduce themselves, ask questions and express any potential interest in the W2W project that could help define information sharing and collaboration going forward. UJ PEETS was the first, highlighting the role of the Technology Station in connecting academia, industry, government, and communities. Once everyone on the call had been given the opportunity, the remaining time was used to begin the stakeholder mapping. A visual stakeholder map had been created to represent the data collected by another consortium partner regarding stakeholders in the EU context. Workshop participants input the names of stakeholders in the chat of the Teams Call, sometimes giving more detail about the stakeholder category they could belong to. The link to the revised online information form was also shared for participants to fill in or share within their networks.



The programme below provides an overview of the workshop as it was expected to proceed:

12h00	Welcome and purpose
12h15	Introduction to Wood2Wood Project
	Pillars and use cases
	UJ role
	Opportunities for collaboration
12h30	Stakeholder introductions
	Name, role
	Organisation
	Interest or alignment with Wood2Wood Project
	Hopes and expectations
12h50	Stakeholder mapping
	Brief explanation
	Brainstorm in stakeholder categories
	Discussion and ranking
	Actions and way forward
13h20	

6 Proceedings

Welcome and Purpose

- **Facilitator:** Nickey Janse van Rensburg (UJ PEETS)
- **Purpose:**
 - To introduce the Wood2Wood (W2W) project and its objective of advancing circular economy practices, focusing on reusing wood in the construction sector from demolition and discarded furniture. Establish connections to
 - leverage "the network of networks" for industry and broader stakeholder participation to ensure project relevance. Develop mechanisms for
 - information sharing and collaboration to enhance innovation and impact.

Presentation of the Wood2Wood Project

- **Presenter:** Prof. Innocent Musonda (CARINBE), Principal Investigator.
- **Overview:**



- o **Project Goal:** Transform discarded wood from construction, demolition, and furniture industries into high-value products, integrating it back into the circular economy.
- o **Similar challenges around the world:**
 - Contaminants like metals, nails, and adhesives.
 - Lack of regulation and safe handling standards for reused wood.
 - Disposal in landfill and informal wood use for energy.
 -
- o **Technological Focus:** Advanced sorting and separation technologies, chemical decontamination, and lifecycle assessment tools.
- o **Work Packages (Pillars):**
 1. **Separation and Sorting:** Technology-based sorting, including human-robot interaction.
 2. **Cascade Refinement:** Chemical and physical remediation for wood upcycling.
 3. **Digital Tools:** Life-cycle sustainability assessment and scaling-up potential.
 4. **Policy Framework and Skills:** Developing guidelines and regulations for wood reuse.
- **Key Takeaway:** The project aims to address current gaps in regulation, enhance safety, and improve the adoption of sustainable practices, relevant in Africa and beyond.

Stakeholder Introductions

- **Participants:** Representatives from academia, industry, government, and international organisations.
- **Discussion points:**
 - o **Dale Jeevanantham** (National Business Initiative): Highlighted the need for self-regulation in the absence of government regulations. **Dr. S. Grobbelaar** (University of Pretoria): Shared insights from timber construction and forestry sectors in South Africa. **Evance Abok** (Taka Taka Nimali Foundation, Kenya): Emphasized leveraging digital solutions to track and promote circular economy practices. **Vicki Hughes** (UK): Provided examples from the UK's established waste wood management systems,
 - o stressing the role of standards and legislation in fostering innovation.

- o **Others:** Stakeholders from Green Building Council of South Africa, Sappi, and global research institutions like TNO Netherlands shared complementary perspectives.

Stakeholder Mapping

- **Process:** Facilitated through an interactive **Miro Board**.
 - o Participants introduced to six stakeholder categories using examples from European Stakeholder Map:
 1. Waste Owners and Generators.
 2. Wood Waste Sorting Providers.
 3. Waste Management Companies and Operators.
 4. Product End Users.
 5. Public Authorities.
 6. Standardisation Actors.
 - o Key organisations such as SABS, municipalities, and private companies were proposed as vital contributors.
- **Challenges and Opportunities:**
 - o Coordination across diverse regions and sectors.
 - o The need for clear regulatory frameworks and certifications.
 - o Expanding engagement beyond construction to include furniture and chemical industries.

-
- **Way Forward and Actions**
 - **Immediate Next Steps:**
 - o Share a Google form created to collect stakeholder details.
 - o Broaden the stakeholder base via network outreach and introductions.
 - o Organise follow-up workshops, potentially in a hybrid format, to ensure broader participation.
 - **Long-term Goals:**
 - o Build a robust community of practice for sustainable wood reuse.
 - o Enhance knowledge-sharing platforms, leveraging international best practices (e.g., from the UK and Europe).
 - o Encourage bilateral and multilateral collaborations between stakeholders.

7 Emerging points and issues for discussion



Throughout the workshop, a number of issues emerged as of special interest to the project:

- **Regulatory Gaps:** The lack of established wood reuse regulations could hinder progress; self-regulation is proposed as an interim measure.
- **Economic Opportunities:** Job creation, SME participation, and training for youth in wood processing and upcycling were emphasized.
- **Technological Solutions:** Advanced sorting, remediation, and digital tools are critical for scaling circular economy practices.
- **Knowledge Transfer:** Learning from mature markets like the UK to avoid pitfalls and accelerate adoption.
- **Cross-sector Collaboration:** Strong potential for symbiosis across forestry, construction, waste management, and academic research.

8 Workshop outcome

The workshop was successful in bringing together some of the key stakeholders to introduce them to the Wood2Wood project and begin to establish relationships which could be the basis of a network for information sharing, synergies and collaboration. The actual stakeholder

mapping exercise was not as fruitful as expected. Although participants alluded to their knowledge of other roleplayers, few came forward with names and details during the call (only one participant, who shared 8 stakeholder websites) and others suggested that they needed more time to think and engage within their organization. Contributing to this could be the fact that the workshop was not in person but online and that the time allocated was nearly finished, which made it easy for participants to escape the process. Also, since the W2W project was still in its very early stages, it was not easy to identify concrete opportunities that it could present for stakeholders. In order to put details of their partners forward, participants may need a clearer sense of what these organisations can expect from being coopted into the stakeholder network.

APPROVAL SIGNATURES

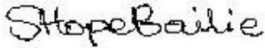
CLIENT NAME: Prof Innocent Musonda

DATE: 02/04/2025



SIGNATURE: _____

PROJECT
MANAGER: Stacey Hope-Bailie

SIGNATURE:  DATE: 02/04/2025

TECHNOLOGY
STATION MANAGER: Nickey Janse van Rensburg

SIGNATURE:  DATE: 02/04/2025

12.2. ANNEX B: (STAKEHOLDER MAPPING)

Table 4: Stakeholder Mapping based on Wood-to-Wood Pillar 1

P1: ADVANCED SEPARATION AND SORTING TECHNOLOGIES		
Stakeholders	W2W Partners	
Organisation	Partners	Activities
Area of interest: construction and demolition waste flows valorisation and digitalisation		
African Circular Economy Network	ELAK	Methodology for the CDW separation and sorting systems at each construction site where CDW is primarily disposed of
African Reclaimers Organisation	ICCS	Methodology for the CDW separation and sorting systems at regional level that consists of two or more urban core areas
National Materials Recovery Ltd	RCM	Methodology for the CDW separation and sorting systems at city/ urban level of the pilots' countries
Takataka ni mali		
Green Cycle Technology Ltd		
Warnell School of Forestry and Natural Resources, University of Georgia		
College of Forestry, Oregon State University		
Timber Construction School, Sunyani Technical University		
Area of interest: wood and glass non-destructive real time techniques analysis and definition of optimal size.		
African Circular Economy Network	IRIS	Adequate optical and spectroscopic characterisation techniques to determinate which is the most efficient particle size of wood and glass coming from CDW to further process these materials.
African Reclaimers Organisation	ICCS	
National Materials Recovery Ltd		
Takataka ni mali		
Green Cycle Technology Ltd		
Warnell School of Forestry and Natural Resources, University of Georgia		
College of Forestry, Oregon State University		

P1: ADVANCED SEPARATION AND SORTING TECHNOLOGIES		
Stakeholders		W2W Partners
Organisation	Partners	Activities
Timber Construction School, Sunyani Technical University		
Area of interest: adaptive glass sorting system based on recycling threshold		
African Circular Economy Network African Reclaimers Organisation National Materials Recovery Ltd Takataka ni mali Green Cycle Technology Ltd Warnell School of Forestry and Natural Resources, University of Georgia College of Forestry, Oregon State University Timber Construction School, Sunyani Technical University	ICCS	Deploy an adaptive system for sorting glass waste, by gradually separating the grades of glass according to quality, purity and existence of foreign materials.
Area of interest: adaptive wood sorting system based on cascade valorisation thresholds		
African Circular Economy Network African Reclaimers Organisation National Materials Recovery Ltd Takataka ni mali Green Cycle Technology Ltd Warnell School of Forestry and Natural Resources, University of Georgia College of Forestry, Oregon State University Timber Construction School, Sunyani Technical University	ICCS	Develop an adaptive cyber-physical system for sorting wood waste extracted from CDW by applying cascade valorisation to separate different grades of wood depending on their potential for recycling Initially, wood will be separated via a robotic arm from other CDW and separated into two flows depending on the presence of assembly elements.

P1: ADVANCED SEPARATION AND SORTING TECHNOLOGIES		
Stakeholders	W2W Partners	
Organisation	Partners	Activities
Area of interest: robotics and human robot collaboration for better separation		
African Circular Economy Network African Reclaimers Organisation National Materials Recovery Ltd Takataka ni mali Green Cycle Technology Ltd Warnell School of Forestry and Natural Resources, University of Georgia College of Forestry, Oregon State University Timber Construction School, Sunyani Technical University	ICCS	Create a station where a collaborative robot (cobot) will cooperate with workforce to jointly process the wood stream with existing assembled elements separated.
Area of interest: MR system for better separation and quality control		
African Circular Economy Network African Reclaimers Organisation National Materials Recovery Ltd Takataka ni mali Green Cycle Technology Ltd Warnell School of Forestry and Natural Resources, University of Georgia College of Forestry, Oregon State University Timber Construction School, Sunyani Technical University	ICCS	Program an application for an MRHMD to interact with the cobot to stream data from the cobot to monitor its state and operating modes Program an application for an MRHMD to interact with the cobot to guide the operator to the needed task A user-friendly interface to deliver fast and clear information about the current state of the wood material and the actions to be performed.

Table 5: Stakeholder Mapping based on Wood-to-Wood Pillar 2

P2: UPCYCLING TECHNOLOGIES		
Stakeholders Organisation	Partners	W2W Partners Activities
Area of interest: cascade to function, mixed wood treatment		
African Circular Economy Network African Reclaimers Organisation National Materials Recovery Ltd Takataka ni mali Green Cycle Technology Ltd Warnell School of Forestry and Natural Resources, University of Georgia College of Forestry, Oregon State University Timber Construction School, Sunyani Technical University SAPPI Southern Africa TNO	UHE	Isolation of cellulose nanofillers Functionalisation / modification of cellulose Lignin isolation and modification
Area of interest: new mix between wood, glass and composites for wallboards		
African Circular Economy Network African Reclaimers Organisation National Materials Recovery Ltd Takataka ni mali Green Cycle Technology Ltd Warnell School of Forestry and Natural Resources, University of Georgia College of Forestry, Oregon State University Timber Construction School, Sunyani Technical University SAPPI Southern Africa TNO York Timbers Chair in Wood Structural Engineering	NTUA ICCS	Combine the recovered lignocellulose-based materials from wood waste with thermoplastic matrices, to deliver composite compounds that will serve as low-cost sustainable recycled material aiming at construction applications.
Area of interest: final products and initial validation		
African Circular Economy Network	FOCCHI	Validate the final products through the integration of the composite components into a developed prefabricated façade system.

P2: UPCYCLING TECHNOLOGIES		
Stakeholders Organisation	Partners	W2W Partners Activities
African Reclaimers Organisation National Materials Recovery Ltd Takataka ni mali Green Cycle Technology Ltd Warnell School of Forestry and Natural Resources, University of Georgia College of Forestry, Oregon State University Timber Construction School, Sunyani Technical University SAPPI Southern Africa TNO York Timbers Chair in Wood Structural Engineering	NTUA UHE	The physical prototype will allow testing the possibility of introducing innovative composite materials into the façade industry.
Area of interest: isolation of cellulose nanofillers		
African Circular Economy Network African Reclaimers Organisation National Materials Recovery Ltd Takataka ni mali Green Cycle Technology Ltd Warnell School of Forestry and Natural Resources, University of Georgia College of Forestry, Oregon State University Timber Construction School, Sunyani Technical University SAPPI Southern Africa TNO	NTUA	Prepare and purify cellulose nanofillers from wood waste using chemical and mechanical treatments
Area of interest: glue separation from wood		
African Circular Economy Network African Reclaimers Organisation	LERMAB	Perform a chemical and morphological characterisation of fibres. As steam explosion combines a hydrolytic step, a physical degradation allows both the defibration of the wood waste and the removal of glue from the fibres (> 90%).

P2: UPCYCLING TECHNOLOGIES		
Stakeholders Organisation	Partners	W2W Partners Activities
National Materials Recovery Ltd Takataka ni mali Green Cycle Technology Ltd Warnell School of Forestry and Natural Resources, University of Georgia College of Forestry, Oregon State University Timber Construction School, Sunyani Technical University SAPPI Southern Africa TNO York Timbers Chair in Wood Structural Engineering		
Area of interest: bioremediation wood treatment		
African Circular Economy Network African Reclaimers Organisation National Materials Recovery Ltd Takataka ni mali Green Cycle Technology Ltd Warnell School of Forestry and Natural Resources, University of Georgia College of Forestry, Oregon State University Timber Construction School, Sunyani Technical University SAPPI Southern Africa TNO York Timbers Chair in Wood Structural Engineering	LERMAB	Perform a micoremediation by solid state and submerged fermentation. Heavy metals desorption will be addressed by fungal produced oxalate chelation.
Area of interest: liquefaction Process of mixed wood waste and green adhesives based on polyols		
African Circular Economy Network African Reclaimers Organisation National Materials Recovery Ltd	UHE LERMAB	Liquefaction: the reaction condition of the liquefaction process (temperature, time, ratio biomass/solvent) will be optimised using experimental design Cationic ring opening polymerisation: is the synthesis of a family bio-polyols by cationic ROP using acid catalysts

P2: UPCYCLING TECHNOLOGIES		
Stakeholders Organisation	Partners	W2W Partners Activities
Takataka ni mali Green Cycle Technology Ltd Warnell School of Forestry and Natural Resources, University of Georgia College of Forestry, Oregon State University Timber Construction School, Sunyani Technical University SAPPI Southern Africa TNO		
Area of interest: final products and initial validation		
African Circular Economy Network African Reclaimers Organisation National Materials Recovery Ltd Takataka ni mali Green Cycle Technology Ltd Warnell School of Forestry and Natural Resources, University of Georgia College of Forestry, Oregon State University Timber Construction School, Sunyani Technical University SAPPI Southern Africa TNO	LERMAB UHE ICCS	Validate the final products produced in this WP Particleboard (one layer and 3 layers) will be produced to TRL5 scale from T9.1 and fully characterised (Internal bond strength, MOE, MOR, Swelling, density profiles) Innovative lightweight panels with no VOC emissions with mycocomposites incorporated will be produced at TRL 4-5. Particleboard (one layer and 3 layers) will be produced then to TRL6 scale and characterised (Internal bond strength, MOE, MOR, Swelling, density profiles). Innovative lightweight panels with no VOC emissions with mycocomposites incorporated will also be produced and validated.
Area of interest: hydrothermal carbonisation		

P2: UPCYCLING TECHNOLOGIES		
Stakeholders Organisation	Partners	W2W Partners Activities
African Circular Economy Network African Reclaimers Organisation National Materials Recovery Ltd Takataka ni mali Green Cycle Technology Ltd Warnell School of Forestry and Natural Resources, University of Georgia College of Forestry, Oregon State University Timber Construction School, Sunyani Technical University SAPPI Southern Africa TNO	CIRCE	Compilation of experimental conditions reported for similar systems in high impact journal papers.
Area of interest: fluidised bed gasification process of wood		
African Circular Economy Network African Reclaimers Organisation National Materials Recovery Ltd Takataka ni mali Green Cycle Technology Ltd Warnell School of Forestry and Natural Resources, University of Georgia College of Forestry, Oregon State University Timber Construction School, Sunyani Technical University SAPPI Southern Africa TNO	CIRCE	Preliminary prediction analysis for the production of H ₂ and CO ₂ through gasification of the selected waste streams based on their reported characteristics
Area of interest: valorisation of ashes from CDW and thermal gasification		
African Circular Economy Network African Reclaimers Organisation National Materials Recovery Ltd Takataka ni mali Green Cycle Technology Ltd Warnell School of Forestry and Natural Resources, University of Georgia	CIRCE	Perform microwave hydrothermal treatment of CDW-FA taking as input material incineration CDW flying ashes

P2: UPCYCLING TECHNOLOGIES		
Stakeholders Organisation	Partners	W2W Partners Activities
College of Forestry, Oregon State University Timber Construction School, Sunyani Technical University SAPPI Southern Africa TNO		
Area of interest: upcycling of H2 and CO2		
African Circular Economy Network African Reclaimers Organisation National Materials Recovery Ltd Takataka ni mali Green Cycle Technology Ltd Warnell School of Forestry and Natural Resources, University of Georgia College of Forestry, Oregon State University Timber Construction School, Sunyani Technical University SAPPI Southern Africa TNO	KIV CIRCE	Employ high-throughput genetic and analytical tools to improve dodecanol production by reengineering fatty acid biosynthesis and fatty acid beta-oxidation.
Area of interest: final products and initial validation		
African Circular Economy Network African Reclaimers Organisation National Materials Recovery Ltd Takataka ni mali Green Cycle Technology Ltd Warnell School of Forestry and Natural Resources, University of Georgia College of Forestry, Oregon State University Timber Construction School, Sunyani Technical University SAPPI Southern Africa TNO	Final products and initial validation P&G KIV CIRCE ICCS	Perform the lab scale trials for the preliminary assessment of compatibility of dodecanol and exhausted cells from fermentation with surfactants formulation by performing different stress tests (such as Stability, Colour, Odour, Safety, etc..)

Table 6: Stakeholder Mapping based on Wood-to-Wood Pillar 3

P3: DIGITAL TOOLS FOR IMPROVING CIRCULAR FLOWS OF SECONDARY MATERIALS		
Stakeholders	W2W Partners	
Organisation	Partners	Activities
Area of interest: end-to-end tracing module and digital product passport		
TNO	CERTH	Produce the end-to-end tracing module to facilitate the storage and sharing of manufacturing data related to wood waste materials.
	UPV	Produce W2W Digital Product Passport (DPP) to facilitate the storage and sharing of manufacturing data related to wood waste materials.
	EBOS	Create interfaces, interface standards, and interface protocols that will allow for reliable and effective data exchange between various computer-aided manufacturing systems and stages.
Area of interest: material volume estimation		
TNO	ICCS	Estimation of the materials' volume
	CERTH	Multi-source data collection in which images will be collected using both aerial (drone) and ground images (assistive apps for site workers) - images will come from conventional RGB cameras
	EBOS	The collected material will be used for developing 3D models for volume estimation The collected material will be used for ii) feeding them in a deep learning algorithm based on CNNs for material detection
Area of interest: supply chain optimisation (including primary materials and zero-defect management)		
TNO	UPV	Develop the supply chain optimisation digital tool for secondary materials for managing the process of recycling wood along the supply chain

P3: DIGITAL TOOLS FOR IMPROVING CIRCULAR FLOWS OF SECONDARY MATERIALS		
Stakeholders	W2W Partners	
Organisation	Partners	Activities
	CERTH EBOS	The developed tool will allow companies to design, simulate, and optimise their supply chain networks for secondary materials by creating virtual representations of their supply chains for the secondary materials providers, recyclers, transporters, formulators and users.
Area of interest: life cycle sustainability assessment for cascade pathways		
TNO	DRAXIS ICCS EBOS	Develop a tool to predict and assess the impact of different cascade paths or sequences for possible further uses of wood products and their materials Comprehensive studies on Life Cycle Assessment (LCA), Life Cycle Cost Analysis (LCCA), and Social Life Cycle Assessment (S-LCA) will be conducted for the project use cases. Comprehensive studies on Life Cycle Assessment (LCA), Life Cycle Cost Analysis (LCCA), and Social Life Cycle Assessment (S-LCA) will be conducted for different possible scenarios that make use of the project technologies.
Area of interest: integrated circular wood upcycling platform		
TNO	EBOS DRAXIS UPV ICCS CERTH	Integrate all the tools developed into a common multifunctional and interoperable Integrated Circular Wood Upcycling platform for the complete monitoring, tracking and tracing of materials and products through dynamically updated digital product passport in the whole value chains by the end-users.
Area of interest: CDW pilot installation and validation		

P3: DIGITAL TOOLS FOR IMPROVING CIRCULAR FLOWS OF SECONDARY MATERIALS		
Stakeholders	W2W Partners	
Organisation	Partners	Activities
TNO	ICCS ELAK	Implement the installation, operation and validation activities of the CDW sorting system.
Area of interest: material exchanges and logistics optimisation between the pilot sites		
TNO	NTUA CIRCE UHE	Optimisation of material flows and logistics (transportation of raw materials, intermediate and final products, storage, and management, along with their availability (supply) and demand).
Area of interest: final validation and sustainability assessment of the overall cascade valorisation scheme		
TNO	NTUA R2M QPLAN RCM	Verifying the sustainability of the proposed CDW valorisation schemes across the overall cascade scheme Validate that the optimisation of materials exchanges and logistics is viable, promoting circular economy and upcycling of waste. Overall sustainability will be assessed using necessary control mechanisms, including a step-by-step evaluation system in the logistics supply chain, combined with a weighed sustainability assessment performance indicator. Sustainability assessment performance indicator will focus on the environmental, social and economic attributes of the overall cascade valorisation scheme, incorporating the six key dimensions of the supply chain: customs performance, infrastructure quality, ease of arranging shipments, logistics services quality, consignments tracking and tracing, and tracing and timeliness of shipments.
Area of interest: data sharing model, FAIR digital assets and digital passports principles		
TNO	TUB	Develop the concept for the W2W data sharing model based on FAIR principles

P3: DIGITAL TOOLS FOR IMPROVING CIRCULAR FLOWS OF SECONDARY MATERIALS		
Stakeholders Organisation	W2W Partners	
	Partners	Activities
	UPV	The model will support the development of the Digital Product Passport (DPP), therefore existing solutions will be analysed
	DRAXIS	A model with a suitable ontology will be developed, focusing on the increased confidence in the materials' lifecycle.
	EBOS	

Table 7: Stakeholder Mapping based on Wood-to-Wood Pillar 4

P4: SUPPORTIVE FRAMEWORK FOR POLICY, MARKET, AND SKILLS		
Stakeholders	W2W Partners	
Organisation	Partners	Activities
Area of interest: identification of trends and scenario development		
African Circular Economy Network Green Building Council of South Africa Department of the Environment Forestry and Fisheries Chartered Institution of Wastes Management York Timbers Chair in Wood Structural Engineering Department of Trade, Industry and Competition World Wildlife Fund Gauteng Department of Environment Johannesburg City Parks National Business Institute	VTT UPV POLIMI	Identifying broad trends with the potential to impact the European labour market in circular economy in the process industries, by 2035.
Area of interest: navigating the future of skill development		
African Circular Economy Network Green Building Council of South Africa Department of the Environment Forestry and Fisheries Chartered Institution of Wastes Management York Timbers Chair in Wood Structural Engineering Department of Trade, Industry and Competition	POLIMI UPV VTT ICCS KIV	Investigating emerging roles and skills in the applied context of the pilots: examine and introduce the necessary skills, professions, and roles needed to successfully implement a Circular Economy, including Industrial and Urban Symbiosis, as well as virtuous circular value chains Cooperation with existing learning initiatives for skills activities: by using the output of T16.2, skill gaps will be identified and analysed to find potential solutions Jobs, competences and training action plan: focusing on people dimension, a thorough analysis of current jobs and professions involved in this project context will be conducted to identify possible skills gaps derived by Circular Economy, data and digital adoption

P4: SUPPORTIVE FRAMEWORK FOR POLICY, MARKET, AND SKILLS		
Stakeholders Organisation	W2W Partners	
	Partners	Activities
World Wildlife Fund Department of Forestry, Fisheries and the Environment Gauteng Department of Environment Johannesburg City Parks National Business Institute		
Area of interest: standardisation activities		
African Circular Economy Network Green Building Council of South Africa Department of the Environment Forestry and Fisheries, South Africa Chartered Institution of Wastes Management York Timbers Chair in Wood Structural Engineering Department of Trade, Industry and Competition, South Africa World Wildlife Fund Department of Forestry, Fisheries and the Environment, South Africa Gauteng Department of Environment Johannesburg City Parks National Business Institute	UNE	Analyse the applicable standardisation landscape and report the relevant Technical Committee(s) together with applicable standards. Analyse the applicable certification programmes and report the relevant Technical Committee(s) together with where relevant, existing certification schemes. Based on the applicable landscape, a strategy will be developed to allow W2W to effectively contribute to standardisation of the secondary materials.
Area of interest: policy influencing towards a truly circular and sustainable process industry		
African Circular Economy Network Green Building Council of South Africa Department of the Environment Forestry and Fisheries, South Africa Chartered Institution of Wastes Management	CEPS ICCS	Consolidation on the regulation, legislation, and certification barriers that affect the implementation of the proposed framework.

P4: SUPPORTIVE FRAMEWORK FOR POLICY, MARKET, AND SKILLS		
Stakeholders Organisation	W2W Partners	
	Partners	Activities
York Timbers Chair in Wood Structural Engineering Department of Trade, Industry and Competition, South Africa World Wildlife Fund Department of Forestry, Fisheries and the Environment, South Africa Gauteng Department of Environment Johannesburg City Parks National Business Institute		
Area of interest: dissemination and communication activities for promoting resources consciously		
African Circular Economy Network	ISWA	Build the foundation for and prepares W2W's dissemination, communication and outreach of the project achievements to the priority target audience groups
Green Building Council of South Africa	All partners	Build the foundation for and prepares W2W's dissemination, communication and outreach of research results to the priority target audience groups.
Department of the Environment Forestry and Fisheries, South Africa		Coordinate the efforts of W2W partners in the dissemination of the project's achievements by: (a) submitting high quality papers at high impact, peer-reviewed journals and magazines
Chartered Institution of Wastes Management		Coordinate the efforts of W2W partners in the dissemination of the project's achievements by: (b) presenting and publishing results in prestigious conferences
York Timbers Chair in Wood Structural Engineering		Coordinate the efforts of W2W partners in the dissemination of the project's achievements by: (c) organising workshops, trainings, conference session, and tutorials
Department of Trade, Industry and Competition, South Africa		Coordinate the efforts of W2W partners in the dissemination of the project's achievements by: (d) link the dissemination and communication activities with related initiatives and ongoing projects.

P4: SUPPORTIVE FRAMEWORK FOR POLICY, MARKET, AND SKILLS		
Stakeholders Organisation	W2W Partners	
	Partners	Activities
World Wildlife Fund Department of Forestry, Fisheries and the Environment, South Africa Gauteng Department of Environment Johannesburg City Parks National Business Institute		
Area of interest: cross-sectoral cooperation and link existing initiatives		
African Circular Economy Network Green Building Council of South Africa Department of the Environment Forestry and Fisheries, South Africa Chartered Institution of Wastes Management York Timbers Chair in Wood Structural Engineering Department of Trade, Industry and Competition, South Africa World Wildlife Fund Department of Forestry, Fisheries and the Environment, South Africa Gauteng Department of Environment Johannesburg City Parks National Business Institute	ICCS ISWA CIRCE	Set up synergies between different projects, funding sources and technology roadmaps along the innovation chain proposed by W2W. Collaboration will be established with European-wide initiatives, as well as networking activities with related SPIRE projects
Area of interest: international collaboration and exchange of best practises		
African Circular Economy Network	UJOH	Create and provide access to an established network of universities and private organisations working on developing highly skilled built environment professionals in the field of sustainable infrastructure development, in order to exchange knowledge and best practises

P4: SUPPORTIVE FRAMEWORK FOR POLICY, MARKET, AND SKILLS		
Stakeholders Organisation	Partners	W2W Partners Activities
Green Building Council of South Africa Department of the Environment Forestry and Fisheries, South Africa Chartered Institution of Wastes Management York Timbers Chair in Wood Structural Engineering Department of Trade, Industry and Competition, South Africa World Wildlife Fund Department of Forestry, Fisheries and the Environment, South Africa Gauteng Department of Environment Johannesburg City Parks National Business Institute	ICCS NTUA	Constant interaction with relevant international projects and initiatives, making use of the ongoing connections that exist among the consortium members with relevant initiatives will ensure that the project outputs as well as input data are shared and communicated regularly during the duration of the project Liaison with decision-makers, at international level will be sought in form of meetings, invitations to attend and speak at dissemination events, as well as involvement in developing a set of practical recommendations that will give support to international policy initiatives UJOH will leverage its own rich networks to involve industry stakeholders, which has extensive experience with technical solutions as well as financial modelling and digitalisation, in the waste management and built environment sectors
Area of interest: exploitation, business models and IPR management		
African Circular Economy Network Green Building Council of South Africa Department of the Environment Forestry and Fisheries, South Africa Chartered Institution of Wastes Management	R2M All partners	Undertake the project's exploitation activities in a collaborative fashion, resulting into the definition of the system's Business Case and allow partners to work towards the realisation of the joint business model

P4: SUPPORTIVE FRAMEWORK FOR POLICY, MARKET, AND SKILLS		
Stakeholders Organisation	W2W Partners	
	Partners	Activities
York Timbers Chair in Wood Structural Engineering Department of Trade, Industry and Competition, South Africa World Wildlife Fund Department of Forestry, Fisheries and the Environment, South Africa Gauteng Department of Environment Johannesburg City Parks National Business Institute		
Area of interest: market analysis, sustainable business models and go-to-market strategy		
African Circular Economy Network Green Building Council of South Africa Department of the Environment Forestry and Fisheries, South Africa Chartered Institution of Wastes Management York Timbers Chair in Wood Structural Engineering Department of Trade, Industry and Competition, South Africa World Wildlife Fund Department of Forestry, Fisheries and the Environment, South Africa Gauteng Department of Environment Johannesburg City Parks National Business Institute	QPLAN All partners	Deliver an evidence-based go-to-market strategy for W2W's circular techs Build upon the evidence produced within the project and employ market research to better define and understand the market targeted by the circular technologies of W2W, as well as new business opportunities at the time. Co-design sustainable business model (or models if meaningful) with new revenue streams in close cooperation with our technology providers and industry partners.
Area of interest: actors mapping and key stakeholders' interactions		
African Circular Economy Network Green Building Council of South Africa	DRAXIS ICCS,	Developing appropriate standards and regulations for recycled wood products to ensure their safety and sustainability. Developing innovative processes that utilise clean, waste, and polluted wood

P4: SUPPORTIVE FRAMEWORK FOR POLICY, MARKET, AND SKILLS		
Stakeholders Organisation	W2W Partners	
	Partners	Activities
Department of the Environment Forestry and Fisheries, South Africa Chartered Institution of Wastes Management York Timbers Chair in Wood Structural Engineering Department of Trade, Industry and Competition, South Africa World Wildlife Fund Department of Forestry, Fisheries and the Environment, South Africa Gauteng Department of Environment Johannesburg City Parks National Business Institute	NTUA, UPV, CERTH	Development of high-value wood products and contribute to a more sustainable and circular economy.
Area of interest: wood characterisation and classification schemes		
African Circular Economy Network Green Building Council of South Africa Department of the Environment Forestry and Fisheries, South Africa Chartered Institution of Wastes Management York Timbers Chair in Wood Structural Engineering Department of Trade, Industry and Competition, South Africa World Wildlife Fund Department of Forestry, Fisheries and the Environment, South Africa Gauteng Department of Environment Johannesburg City Parks National Business Institute	CEPS NTUA ICCS DRAXIS	Analysis of all the available routes and valorisation schemes from the provided feedstock. A dynamic valorisation framework aiming to maximise the resource recovery potential, based on the principles of circular management.
Area of interest: definition of impact assessment methodologies and KPIs		
African Circular Economy Network	DRAXIS	Methodologies to quantitatively evaluate the results obtained by implementing the W2W framework in the project use cases.

P4: SUPPORTIVE FRAMEWORK FOR POLICY, MARKET, AND SKILLS		
Stakeholders Organisation	W2W Partners	
	Partners	Activities
Green Building Council of South Africa Department of the Environment Forestry and Fisheries, South Africa Chartered Institution of Wastes Management York Timbers Chair in Wood Structural Engineering Department of Trade, Industry and Competition, South Africa World Wildlife Fund Department of Forestry, Fisheries and the Environment, South Africa Gauteng Department of Environment Johannesburg City Parks National Business Institute	NTUA	Key Performance Indicators (KPIs) to quantitatively evaluate the results obtained by implementing the W2W framework in the project use cases.

12.3. ANNEX C: (ENGAGEMENT WITH YORK TIMBERS RESEARCH CHAIR AT THE UNIVERSITY OF PRETORIA)









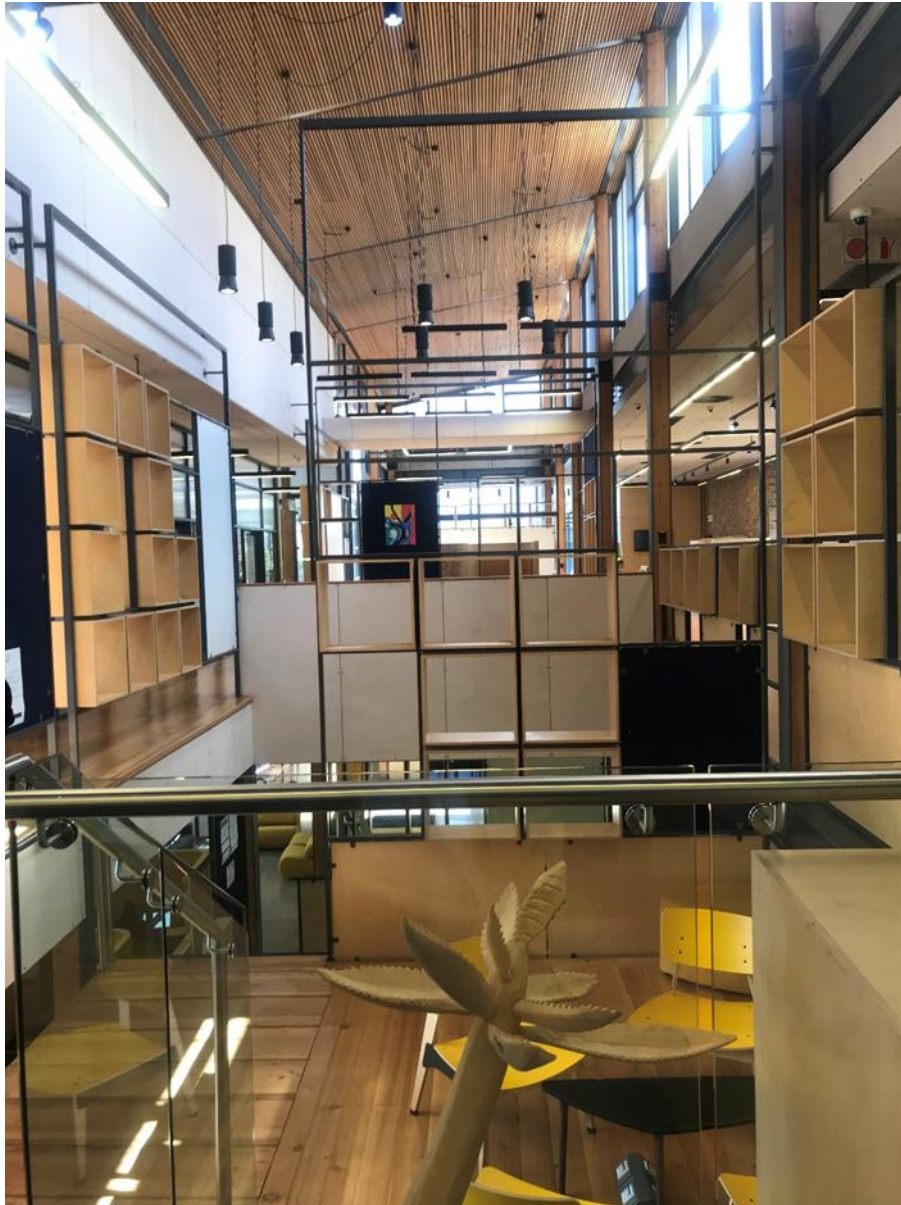


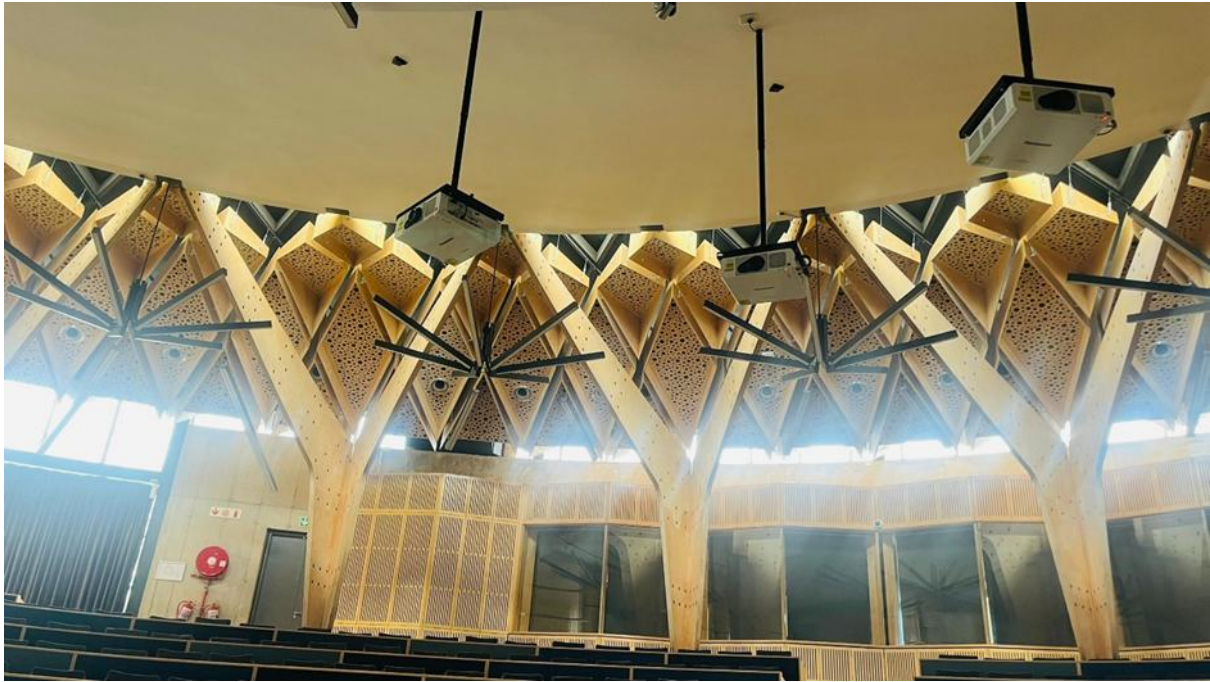












12.4. ANNEX D: (JOINT DISSEMINATION ACTIVITIES)

Date	Type of activity	Title of the event	Participating Projects
6/11/2024	Workshop	ECOMONDO	W2W, RECLAIM, Grinner Project and EcoRefibre.
14-15/02/2025	Booth and Presentation “Human-robot collaboration to enhance productivity and efficiency”	Innovent Forum 2025	W2W was showcased together with THESEUS Hub4Circularity, Choice, Rurbanive and Thetida
25-27/03/2025	Workshop on “Challenging Robotics/AI Use Cases by End-Users”	ERF2025	Wood2Wood, RECLAIM project, REDOL EU project, DigInTrace, etc.
April 2025	Webinar		W2W, RECLAIM, EcoRefibre
4/06/2025	Workshop “Circular Economy in Action: Rethinking Resources for a Greener Future”	EU Green Week 2025	ALCHIMIA, CLARUS, DARROW, RECLAIM, GRINNER, and Wood2Wood.

13. REFERENCES

- Ahn, J. M., Minshall, T. & Mortara, L. 2015. Open Innovation: An Approach for Enhancing Performance in Innovative SMEs. *Journal of Innovation Management*, 3, 33-54.
- Awa, H. O., Etim, W. & Ogbonda, E. 2024. Stakeholders, stakeholder theory and Corporate Social Responsibility (CSR). *International Journal of Corporate Social Responsibility*, 9, 1-14.
- Bertello, A., De Bernardi, P. & Ricciardi, F. 2023. Open innovation: status quo and quo vadis - an analysis of a research field. *Review of Managerial Science*, 18, 633-683.
- Bridgwood, B., Woolley, K. & Poppleton, A. 2023. A scoping review of international virtual knowledge exchanges for healthcare professionals. *Educ Prim Care*, 34, 7-15.
- Cuervo-cazurra, A., Dieleman, M., Hirsch, P., Rodrigues, S. B. & Zyglidopoulos, S. 2021. Multinationals' misbehavior. *Journal of World Business*, 56, 1-23.
- Figenschou, T., Li-ying, J., Tanner, A. & Bogers, M. 2024. Open innovation in the public sector: A literature review on actors and boundaries. *Technovation*, 131, 1-10.
- Gupta, K., Lanka, P. & Varol, C. 2024. A holistic digital forensic analysis of Discord - Storage, memory, and network perspectives. *J Forensic Sci*, 69, 1320-1333.
- Hillman, A. J., Withers, M. C. & Collins, B. J. 2009. Resource Dependence Theory: A Review. *Journal of Management*, 35, 1404-1427.
- Jiang, H., Luo, Y., Xia, J., Hitt, M. & Shen, J. 2022. Resource dependence theory in international business: Progress and prospects. *Global Strategy Journal*, 13, 3-57.
- Khurshid, F., O'connor, E., Thompson, R. & Hegazi, I. 2023. Twelve tips for adopting the virtual Nominal Group Technique (vNGT) in medical education research. *MedEdPublish (2016)*, 13, 18.
- Lichter, D. T. & Qian, Z. 2019. The Study of Assortative Mating: Theory, Data, and Analysis. In: SCHOEN, R. (ed.) *Analytical Family Demography*. Cham: Springer International Publishing AG.
- Mcmillan, S. S., King, M. & Tully, M. P. 2016. How to use the nominal group and Delphi techniques. *Int J Clin Pharm*, 38, 655-62.
- O'Haire, C., Mcpheeters, M., Nakamoto, E. & Al., E. 2011. *Engaging Stakeholders To Identify and Prioritize Future Research Needs* [Online]. Available: <https://www.ncbi.nlm.nih.gov/books/NBK62556/#:~:text=Stakeholders> [Accessed].
- Rashid, A., Rasheed, R. & Ngah, A. H. 2024. Achieving sustainability through multifaceted green functions in manufacturing. *Journal of Global Operations and Strategic Sourcing*, 17, 402-428.
- Sarkis, J., Zhu, Q. & Lai, K.-H. 2011. An organizational theoretic review of green supply chain management literature. *International Journal of Production Economics*, 130, 1-15.
- Shimer, R. & Smith, L. 2000. Assortative Matching and Search. *Econometrica*, 68, 343-369.
- Smith, D., Cartwright, M., Dyson, J. & Aitken, L. M. 2024. Use of nominal group technique methods in the virtual setting: A reflective account and recommendations for practice. *Aust Crit Care*, 37, 158-165.
- The Economist Group 2022. Economist Impact: The Open Innovation Barometer.
- Valentinov, V. & Roth, S. 2023. Stakeholder theory: Exploring systems-theoretic and process-philosophic connections. *Systems Research and Behavioral Science*, 41, 301-315.
- World Economic Forum 2025. Technology Convergence Report.

Xie, Y., Cheng, S. & Zhou, X. 2015. Assortative mating without assortative preference. *Proc Natl Acad Sci U S A*, 112, 5974-8.

14. WEBSITES

A.SPIRE. (2025). Retrieved 05 27, 2025, from A.SPIRE: <https://www.aspire2050.eu/aspire/the-association>

ALCHIMIA Project. (n.d.). *ALCHIMIA Project*. Retrieved 06 03, 2025, from <https://alchimia-project.eu/>

CLARUS Project. (2025). *CLARUS Project*. Retrieved 06 05, 2025, from <https://clarus-project.eu/>

Council of the European Union. (2025). *Council of the European Union*. Retrieved 5 29, 2025, from <https://www.consilium.europa.eu/en/policies/fit-for-55/>

DARROW Project. (2025). *DARROW Project*. Retrieved 05 26, 2025, from <https://www.wastewater.ai/>

EcoReFibre. (2025, 05 27). *EcoReFibre*. Retrieved from <https://ecorefibre.eu/>

European Commission. (2025). *European Commission*. Retrieved 05 12, 2025, from https://environment.ec.europa.eu/strategy/circular-economy-action-plan_en

GRINNER Project. (2025, 06 04). *GRINNER Project*. Retrieved from <https://grinnerproject.eu/>

Horizon Europe. (2025). *Horizon Europe*. Retrieved 06 03, 2025, from https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en

iBot4CRMs. (2025, 06 11). *iBot4CRMs*. Retrieved 2025, from <https://ibot4crms.com/>

ISWA. (2025). *ISWA*. Retrieved 04 22, 2025, from <https://www.iswa.org/knowledge-base/?v=f214a7d42e0d>

RECLAIM Project. (2025, 05 27). *RECLAIM Project*. Retrieved from <https://www.reclaim-project.eu/>

TUBERS Project. (2025, 06 04). *TUBERS Project*. Retrieved 2025, from <https://tubers-project.eu/>

W2W. (2025). *W2W*. Retrieved 06 03, 2025, from <https://www.wood2wood-project.eu/2024/07/15/eu-nature-restoration-law-adopted-and-how-this-aligns-with-w2w-project/>

W2W, C. (2023). *W2W Grant Agreement*.



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