



Deliverable 3.2
Report on joint initiatives &
networking activities – YEAR 2

WP3 - Joint Initiatives & Networking

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Executive Summary

This deliverable reports the activities carried out during the second year of the project under WP3-Joint initiatives & networking. The planned activities were much impacted by the covid-19 pandemic and several were cancelled and postponed. Both joint summer schools (JSS3 and JSS4) and the stakeholder exchange forum planned to take place with the JSS3 were all cancelled. Staff exchanges from March 2020 were also cancelled. These constraints ultimately lead to the need of requesting a project extension to allow the implementation of the cancelled activities. They all have been rescheduled and will be taking place in the remaining project duration, which has been extended by 9 months.

1. Introduction

The overall goal of TRUST project is to boost research excellence in the area of industrial sustainability. Through the establishment of a long lasting partnership between ISQ, UCAM and Chalmers, the S&T (Science and Technology) capacity of ISQ shall be improved and the partnership at European level leveraged, fostering the conditions for an effective support and engagement to achieve the Sustainable Development Goals.

The concept of sustainability is broad and has been used in different contexts; but the economic, social and environmental aspects, which are inextricably linked, remain the three fundamental pillars that must always be appropriately addressed. Nevertheless, evaluating sustainability and its evolution is a challenging task. For these reasons, this project is focused in two main aspects of sustainability, namely, assessment tools and methods as well as sustainability management, planning and business models.

This document reports the progress made in WP3 with joint initiatives and networking activities in the second year of the TRUST project. It is structured into four sections:

- 1) Staff exchanges – Tasks 3.1
- 2) Joint Summer Schools (JSS) – Task 3.2
- 3) Networking with relevant stakeholders – Task 3.3
- 4) Joint research agenda beyond TRUST – Task 3.4

2. Staff exchanges – Task 3.1

The consortium aims to promote cooperative work through short staff exchanges. Junior researchers and senior researchers can use those short-term exchanges to share knowledge and skills, and thus finding opportunities to establish long-term cooperation between the partners. The staff exchanges planned for year 2 are shown in Table 1 below. Some planned staff exchanges could not be held due to the restrictions caused by COVID-19 and were re-scheduled for future dates following the project extension. Other activities not initially planned were carried out and are described in Table 2. The partners also promoted several remote collaborations (Table 3), which helped to reduce the negative impact of the covid-19.

Activities completed during staff exchanges in Year 2 are shown in table 1 below. This table lists the activities listed in the planning for year 2 (D1.2).

Table 1 – Staff exchanges planned for year 2

Planned for Year 2 (Oct 2019 – Sept 2020)			Outcomes
Staff exchange	Dates	Workplan	
Senior staff exchange ISQ to UCAM	October 2019 – April 2020	-Attend lectures on campus (1 st and 2 nd semester) of MPhil in “Engineering for Sustainable Development” -Project management/coordination meeting at IfM; - Discuss case study -Meetings with researchers for the planning of mobilities -Attending 3 rd Summer School at UCAM	The activities planned for this staff exchange were mostly completed and consisted off: <ul style="list-style-type: none"> • Attending courses namely the module “Driving Change Towards Sustainability” and the module “Sustainability Methods and Metrics” (more details in D2.2). • Meetings at IfM to discuss project progress, project monthly meeting, meeting with researchers to define staff exchanges, meeting with UCAM researcher to discuss AB sugar factory case study and visit to Portuguese Sugar Factory – RAR (25th – 28th Nov. 2019) Also foreseen in the staff exchange planning was the participation on the 3 rd Summer School at UCAM. Due to the covid-19 pandemic, this event was postponed to April 2021
Junior and Senior staff exchange ISQ to UCAM	3-6 th March 2020	Mobility to UCAM for training and work on industrial case study	The activities planned for this staff exchange were mostly completed and consisted off: <ul style="list-style-type: none"> • Work with UCAM (IfM team) on the joint industrial case study. • Attending the New Business Models Workshop on the 5th March at Newnham College in Cambridge The Junior staff exchange planned for Feb-March 2020 (M17-M18) will be executed on May-June 2020 (M32-M33)
	14 th March 2020	Attend one lecture “MPhil in Engineering for Sustainable Development”	A lecture of the Module “Sustainability Methods and Metrics” (ESD200) related with Valuation tools and ecological economics was held on 4 th March 2020.
	27-29 th April 2020	3 rd Summer School at UCAM	The 3 rd Summer School at UCAM was postponed to April 2021 due to the covid-19 pandemic.
Senior staff exchange ISQ to CHALMERS	Tbc (2020)	Stay at Chalmers for training, proposal writing and joint publications	Due to the covid-19 pandemic this staff exchange was not possible to implement and has been rescheduled to May-June 2021.

Planned for Year 2 (Oct 2019 – Sept 2020)			Outcomes
Staff exchange	Dates	Workplan	
Junior staff exchange ISQ to CHALMERS	4 th Nov. – 6 Dec. 2019 (continuation of course Simulation of production systems year 1)	Attend on campus training and 4 to 6 week stay at CHALMERS	<p>The planned activities were all completed, namely:</p> <ul style="list-style-type: none"> • Gather information and discuss existing and emerging tools on energy systems and production systems; • Collaborate on on-going research projects with Swedish companies; • Attend the course “Simulation of production systems” (see D2.2 for more details) <p>In addition to these planned activities, the following was also completed:</p> <ul style="list-style-type: none"> • Attended and participated in Chalmers Sustainability Day (8 Nov 2019) • Attended a three-part doctoral course on “sustainable development” as part of the Produktion2030 programme.
Senior staff exchange UCAM to Chalmers	August 2020	Stay at Chalmers for training delivery and joint publications	Due to Covid-19 and travel restrictions it was not possible to implement this activity, which will now be implemented on October - November 2021
Junior staff exchange UCAM to Chalmers	Dec. 2019 – Jan 2020	Attend on campus training and develop collaborations	This staff exchange will be implemented on October - November 2021 according to the new project planning.
Senior Staff exchange UCAM to ISQ	September 2020	Participation at the Summer School in Porto	Due to Covid-19 and travel restrictions it was not possible to implement this activity. Also, the initial plan to change the 4 th JSS to Porto was cancelled and it will be taking place at UCAM as planned in the GA.
Junior Staff exchange UCAM to ISQ	March 2020	Stay at ISQ and develop collaboration on Industry 4.0 projects	Due to Covid-19 and travel restrictions it was not possible to implement this activity, which will now be implemented on May-June 2021.
Senior staff exchange CHALMERS to ISQ	September 2020	Contribute to the Summer School at ISQ, and develop collaborations	Due to Covid-19 and travel restrictions it was not possible to implement this activity, which will now be implemented on August-September 2021.
Junior Staff exchange CHALMERS to ISQ	tbc	2 weeks stay	Due to Covid-19 and travel restrictions it was not possible to implement this activity, which will now be implemented on August-September 2021. The Junior staff exchange must have a duration of at least 6 weeks.

Some additional staff exchanges not initially planned were carried out and are listed in table 2 below.

Table 2 – Additional activities not foreseen in the initial planning

Staff Exchange	Dates	Workplan	Outcomes
Senior staff exchange UCAM to ISQ	6-7 february 2020	Visit to RAR - Refinarias de Açúcar Reunidas, S.A. plant in Oporto. Discussion with plant managers about sustainability issues and challenges they face.	Two UCAM's senior researchers joined forces with ISQ researchers and visited RAR. Following the visit to the industrial plant and discussions with plant managers, some potential improvements were identified. RAR is interested in continue the collaboration and next steps will be to propose a joint project that will allow them to implement some of the identified improvements.
Senior staff exchange CHALMERS to UCAM	13 Dec 2019	Meetings and PhD examination	<ul style="list-style-type: none"> PhD examination at the IfM. Topic: "Creating and Capturing Sustainable Value: Perspectives and Cases on Additive Manufacturing". Meetings and networking with IfM researchers to share knowledge on current research in digital manufacturing, innovative business models for industrial sustainability, gamification, backcasting and strategic roadmapping.
Senior staff exchange CHALMERS to UCAM	10-12 Feb 2020	Conferencing, networking and teaching	<ul style="list-style-type: none"> 10-12 February: EurOMA Sustainable Operations and Supply Chains Forum hosted by the University of Nottingham. Sharing knowledge and networking with international research community on industrial sustainability. 12 February: Teaching "Eco-efficiency & circularity in the factory" for the module "Sustainable Manufacturing" in the MET IIB programme at the IfM. Explore opportunities to create industrial collaboration through research projects with the STIM consortium (https://www.ifm.eng.cam.ac.uk/research/ctm/stim/)

Apart from the physical held staff exchanges we also had several virtual collaborations during the second year. Those were especially useful once the travel restrictions due to the covid-19 pandemic were in place as they allowed us to perform some of the activities we had planned for the staff exchanges, which were cancelled. Table 3 below lists the activities performed.

Table 3 - Remote collaboration during year 2

Collaboration	Dates	Activities	Outcomes
ISQ with CHALMERS	April – Sept. 2020	Remote collaboration with Chalmers for training and joint publication	<ul style="list-style-type: none"> • Online training on “Life cycle assessment” provided by Chalmers • April – September 2020: Collaboration with Chalmers on a joint publication with a systematic literature review on environmental impact assessment methods in the manufacturing industry
CHALMERS with ISQ and UCAM	Jan – Sept. 2020	Remote collaboration on two joint publications and develop further collaborations	<ul style="list-style-type: none"> • January – August 2020: Collaboration with ISQ and UCAM on a joint publication on “Digitally Driven Supply Chains: Dynamic Capabilities for Industrial Symbiosis and Circular Economy”. • April – September 2020: Collaboration with ISQ on a joint publication with a systematic literature review on environmental impact assessment methods in the manufacturing industry
CHALMERS with ISQ and UCAM	Oct 2019 – Sept. 2020		<ul style="list-style-type: none"> • Junior staff participation in ongoing R&D project activities concerning IS tools. • Contribute to the development and optimization of Maturity IS4.0 framework • January – August 2020: Collaboration with ISQ and UCAM on a joint publication on “Digitally Driven Supply Chains: Dynamic Capabilities for Industrial Symbiosis and Circular Economy”. • April – September 2020: Collaboration with ISQ on a joint publication with a systematic literature review on environmental impact assessment methods in the manufacturing industry.
CHALMERS with ISQ	April – Sept. 2020		<ul style="list-style-type: none"> • April – September 2020: Collaboration with Chalmers on a joint publication with a systematic literature review on environmental impact assessment methods in the manufacturing industry
UCAM with CHALMERS and ISQ	Jan – Aug 2020		<ul style="list-style-type: none"> • January – August 2020: Collaboration with ISQ and Chalmers on a joint publication on “Digitally Driven Supply Chains: Dynamic Capabilities for Industrial Symbiosis and Circular Economy”.
ISQ with CHALMERS and UCAM	Jan – Aug 2020	Remote collaboration on a joint publications	<ul style="list-style-type: none"> • January – August 2020: Collaboration with UCAM and Chalmers on a joint publication on “Digitally Driven Supply Chains: Dynamic Capabilities for Industrial Symbiosis and Circular Economy”.

3. Joint Summer Schools – Task 3.2

Two JSS were planned for year 2 of the project, namely

JSS 3

Main Theme - Resource and Energy Efficiency tools (Environmental systems analysis; Sustainability methods and metrics; Sustainable energy futures)

Activities

- Lectures from UCAM/CHALMERS senior researchers or short courses taught by senior trainers;
- Study of specific industrial case studies;
- 1 or 2 visits to local industrial stakeholders (see best practices, identify needs);
- Identification of new R&D opportunities to develop within staff exchange activities – Task 3.1;
- Identification of themes for MSc and PhD thesis for joint orientation within staff exchange activities – Task 3.1)
- Starting the definition of a joint research agenda for 2030.

Where: UCAM

When: M18

JSS 4

Main Theme - Circular Economy & Industrial Symbiosis (Capturing value, Embedding natural capital, Circular Economy business models)

Activities

- Lectures from UCAM/CHALMERS senior researchers or short courses taught by senior trainers;
- Study of specific industrial case studies;
- 1 or 2 visits to local industrial stakeholders (see best practices, identify needs);
- Identification of new R&D opportunities to develop within staff exchange activities – Task 3.1;
- Identification of themes for MSc and PhD thesis for joint orientation within staff exchange activities – Task 3.1)

Where: UCAM

When: M24

Due to the COVID-19 pandemic and the restrictions caused by it on travel, the third and fourth JSS have been postponed. They have been re-scheduled as follows:

- JSS3 – April 2021
- JSS4 – October 2021

4. Networking with relevant stakeholders – Task 3.3

Through its engagement with relevant stakeholders (e.g. industries, industrial and entrepreneurial associations, scientific and technological platforms, research projects, authorities), the consortium aims to be aware of major relevant developments in the field, such as cutting edge technology and emerging topics, but also be kept informed about the real industrial needs to be able to promote industrial applied research.

In the planning of the project networking will be accomplished through the organization of an annual stakeholder exchange forum (SEF) between TRUST partners and a selected group of external stakeholders from industry, industrial associations and R&D running projects, in order

to promote discussion on industrial sustainability trends, challenges and opportunities. SEFs were foreseen to be held simultaneously with joint summer schools (M6/JSS1, M18/JSS3, M30/JSS5), one per year of the project, in order to benefit as much as possible from stakeholder participation and reduce travel and accommodation costs.

Due to the already mentioned restrictions caused by covid-19, JSS3 was cancelled and therefore the SEF planned for year 2 could not be held as well. This SEF will now be taking place in April 2021 by the same time of the JSS3.

Although it was not possible to have the SEF, UCAM hosted the “New Business Models for a Sustainable Future: Balancing Social and Environmental Value” workshop. It was held on 5th March 2020. ISQ researchers attended the event. This event presented some additional opportunity for interactions of ISQ and UCAM’s researchers with participating stakeholders.

UCAM/IfM organised and hosted a scientific workshop on New Business Models for a Sustainable Future for the advancement of early career researchers (PhDs and researchers up to 8 years of PhD completion). IfM senior researchers gathered leading UK researchers in this research area to deliver lectures on the major developments in the field; facilitate an interactive workshop, and convene a stakeholder network for the development of new collaborations on new business models.

In addition to being a central topic on TRUST, as a recognised critical area of research, this workshop also received support from the Society for the Advancement of Management Studies (SAMS) in the UK, Ulster University Business School, Exeter University, Queen’s University Belfast and the University of Manchester. This event brought together 21 stakeholders in total, including 4 TRUST representatives and 17 external stakeholders. The complete agenda for the workshop and collaborative thematic brainstorm can be found in Appendix A.

This workshop also contributed to Task 2.2. “On campus training” of ISQ researchers on the subject of sustainable business models.

5. Joint research agenda beyond TRUST – Task 3.4

The joint research agenda will be centred on the development of a more sustainable industry, concerned with solving industrial practical problems and aligned with EU policies, strategies and roadmaps on resource efficiency and the circular economy. The kick-off work for drafting the joint research agenda was planned to be at the JSS3. This JSS was cancelled due to covid-19 and rescheduled for April 2021. Nevertheless as a result of the interactions between TRUST partners, collaborations were developed through knowledge and data sharing, leading to joint publications. Research gaps were consequently identified and provide a platform to create new project proposal. This will enable the sustainability and exploitation of the collaboration outcomes through new research opportunities beyond the TRUST project duration. This joint research agenda will be drafted during the interactions within tasks 3.1 and 3.2, resulting in a final document to be delivered at the end of the project (M45). This document will detail the priority research/cooperation areas, with clear objectives and targets; the form of cooperation between partners; as well as the research work plan.

Appendix A – Workshop agenda



New Business Models for a Sustainable Future: Balancing Social and Economic Value

Date: 5th March 2020 Time: 09.30 – 16.30
 Location: Newnham College, University of Cambridge, United Kingdom.

Schedule	
08.45 – 9.30	Registration and networking
09.30 – 9.45	Welcome & introduction
Dr Kristel Miller, Ulster University & Dr Doroteya Vladimirova, University of Cambridge	
09.45 – 10.15	Sustainable business models: what we know and what next?
Dr Doroteya Vladimirova, University of Cambridge	
10.15 – 10.45	Sustainable value analysis for product-service systems
Dr Miying Yang, Exeter University	
10.45 – 11.15	Value drivers of social businesses: A business model perspective
Dr Patrick Spieth, Kassel University	
11.15 – 11.30	Break and Networking
11.30 – 12.00	Value co-creation in SPO value networks
Dr Bernadette Best, Queen's University, Belfast	
12.00 – 12.30	Business model "chemistry" for sustainability: Illustrations from retail and manufacturing cases
Dr Oliver Laasch, The University of Manchester	
12.30 – 13.30	Lunch
13.30 – 14.00	Panel discussion
14.00 – 15.00	Small group presentations of research interests
15.00 – 15.45	Thematic development of collaborative ideas
15.45 – 16.15	Feedback on collaborative ideas
16.15 – 16.30	Next steps and close of workshop

*This workshop is funded jointly by the Society for the Advancement of Management Studies and the EU H2020 Twinning for Industrial Sustainability (TRUST) project.



Figure 1 - Workshop agenda

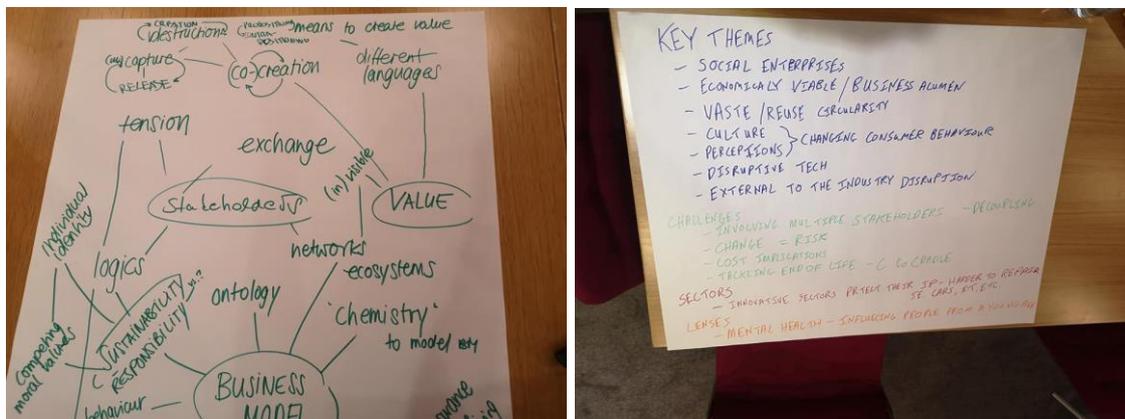


Figure 2 - Thematic development of collaborative ideas at the workshop

