D3.4 Sustainability Plan for Co-Change Labs

Version 2.0

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Executive Summary

This deliverable corresponds to Task 3.5 “Sustainability Plan for Co-Change Labs”, led by the Tecnalia Research and Innovation and revised by AIT and VTT. Its main objective is to present the Labs´ Sustainability Plans, where the Labs assess the achieved institutional changes, set sustainability visions and goals for these assets and plan for internal/organisational and community/ecosystem support.

The document highlights the strategies planned by the Co-Change project’s partners to ensure the sustainability of the institutional changes after the end of the project. Under institutional changes we understand all modified and significantly more responsible practices, procedures, rules, norms and values, as well as new types of product solutions and services that may have emerged in consequence, or even relationships and coalitions between actors. The terms sustainability and sustainment are referred to the ability of the Co-Change Labs to maintain the institutional changes at the level achieved during the project and to provide continuity beyond the funding period.

The document is structured as follows: Section one presents the theoretical framework on the related literature highlighting the importance of sustainability and the different factors that may affect it; section two presents the individual sustainability plans of the Labs. Section three illustrates the recommendations provided to the Labs to further elaborate these plans, while section four discusses the results of the mutual work of the Labs based on the provided recommendations.

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1. Theoretical framework

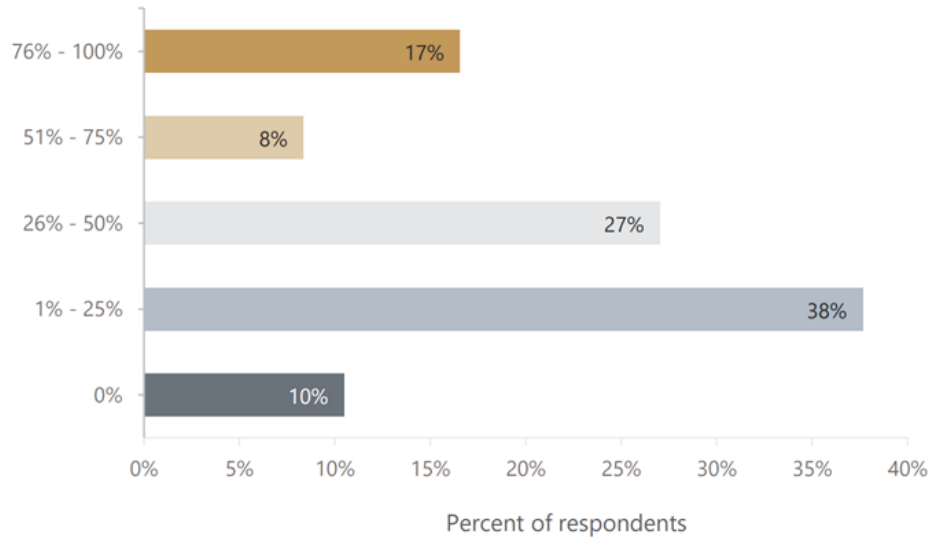
The Co-Change project supports the implementation of institutional changes through its consortium members, which act as change agents. As defined in the objectives of the project, the Co-Change Labs act as an instrument for sustaining the institutional changes and ensure their sustainability beyond the lifetime of the project funding. Sustainability thus is a continuation of the Transformative Capacity of the Labs presented previously in Deliverable 2.1 and Deliverable 2.6 as it reflects "the collective ability to initiate and perform path-deviant change towards sustainability" (Lehtinen et al., 2022, forthcoming).

This section selects the most relevant concepts related to sustaining changes with the aim to situate the work of the Co-Change Labs in the broader context and to guide them in the definitions of their particular sustainability strategies. Under sustainability, irrespective of whether it is in the artificial intelligence, agricultural, open access or gender dimension, we understand that the changes will produce a continuous flow of benefits and social well-being in their host organisations and ecosystems in the mid- and long-term. The International Fund for Agricultural Development (IFAD) defines sustainability as the likely continuation of net benefits from a development intervention beyond the phase of external funding support (IFAD, 2007). This definition of sustainability also includes the likelihood that actual and anticipated results will be resilient to risks beyond the project's life considering different technical, financial, institutional, social and environmental factors (IFAD, 2007).

Though academics have significantly improved the understanding of how corporate transformations work (Kotter, 1995; Schein, 1980) the Change Management Consultancy Prosci reports that organizations often invest effort to implement a change, only to watch the progress regress after the initial implementation (Prosci, 2009). Thomas & Zahn indicate that there is a 70% failure rate in sustaining long-term changes (Thomas & Zahn, 2010).

Regardless of the acknowledged importance of sustainability, often not enough time and resources are invested in securing the success of the interventions. Thus, for example, when participants in a study reported on the percentage of projects in their organisations that included planning for sustainment (see Fig.1), only less than one in five (17%) indicated that a sustainment plan was included in more than 75% of their projects (Prosci, 2009).

Fig.1 Planning for sustainment[1]



Source: Prosci, 2009

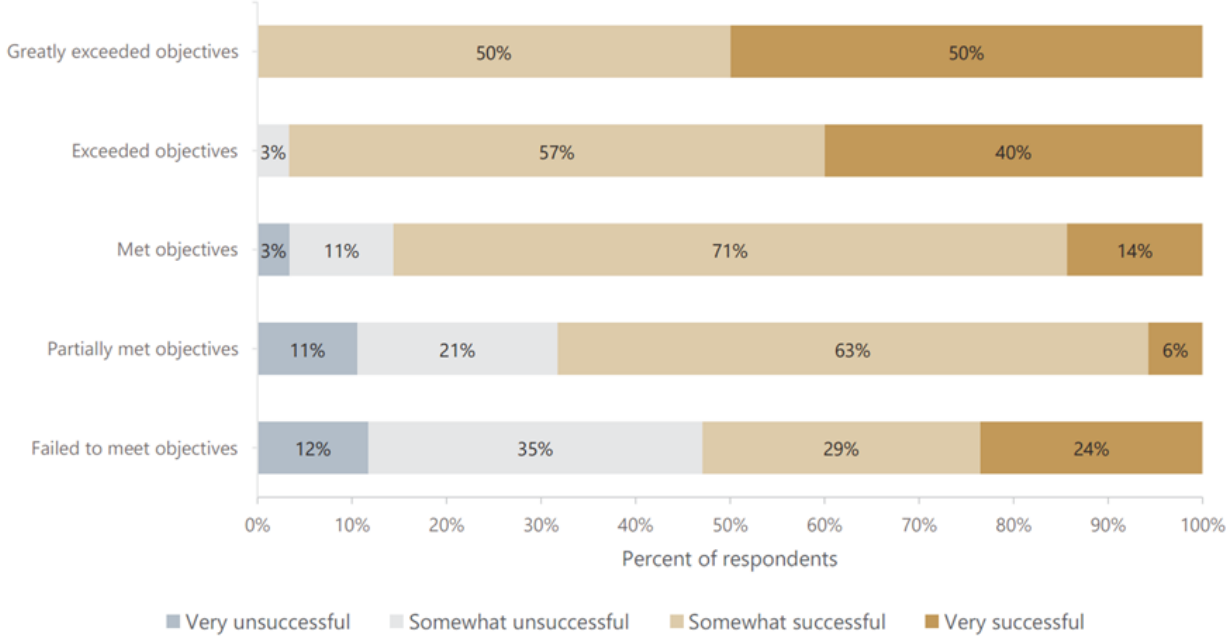
The study, which is aiming to provide lessons learned for change practitioners around the world reveals that some of the greatest obstacles regarding sustainment, amongst others, are that sustainment effort was ignored, and that leadership failed to support and engage with the change (Prosci, 2009). As the biggest obstacle to sustainability is identified the failure to address resistance (ibid.).

In this line of thought, in order to combat resistance and engage with the change, Schein (1980) emphasizes that organisations need also a “cognitive restructuring”, in the sense that people must realize and look forward to the change, enjoy the new outcomes and compare the benefits of the new practice introduced against the old and traditional way of doing things. This cognitive restructuring should facilitate the embedding of the change into the organisational culture and be practiced on a daily basis, aligning in this way people´s behaviour with the system (Schein, 1980). Thus, the degree to which changes are sustainable depends very strongly on social and cultural factors, which are often not directly visible and studying perceptions can provide better insight into this dimension (Dutch Ministry of Foreign Affairs, 2009).

The Netherlands Ministry of Foreign Affairs goes one step further in defining sustainability by acknowledging that it is an important aspect of effectiveness. It states that “an activity can hardly be considered effective if the effect it has achieved is not lasting” (Dutch Ministry of Foreign Affairs, 2009, P. 20). There is also a clear positive correlation between successful sustainment and meeting/exceeding project objectives as illustrated in Fig 2. and respondents in the study who reported success with sustainment were much more likely to meet and exceed project objectives than respondents who had unsuccessful sustainment efforts were (Prosci, 2009).

[1] The y-Axis reflects the percentage of respondents' projects that included a sustainment plan.

Fig. 2 Impact of successful sustainment on meeting project objectives



Source: Prosci, 2009

Understanding the strong correlation between meeting project objectives and successful sustainment is especially important for the Co-Change project, where most of the project objectives are longstanding and aspire to embed RRI principles in a way that does not depend on external funding. Sustainability is taken into account from the outset of all Co-Change initiatives and implies that consortium partners will be capable of supporting and expanding the achieved institutional changes beyond the funding period. Looking forward, partners are committed to continue integrating and synchronizing the outcomes of their Labs with the organizational and ecosystem environment until they become “permanent”, “the norm” or “the regular way of working” (Thomas & Zahn, 2010). In other words, the meeting of the Co-Change objectives cannot be considered successful if the implemented institutional changes are not lasting and durable.

Sustainability can be also defined as “maintaining a process of quality improvement” (Dale et al. 1997) and that eight to ten years may be required to embed new principles, practices, systems, attitudes, values and Culture (Dale et al. 1999). According to some authors sustaining organizational change can be even more complex and challenging than initial implementation (Dale et al. 1999). To overcome this complexity, change agents should aim to influence sustainability on different levels and ask some key questions (adapted from Buchanan et. al 2005):

- **Individual**: Is fear and uncertainty about the future absent, and are attitudes towards innovation and change welcoming?
- **Managerial**: Does management style encourage high-trust, high-discretion relationships? Are improvement tools and techniques used in a planned and integrated way?

- **Leadership**: Do senior managers enjoy staff confidence owing to their success, consistency and durable priorities?
- **Organizational**: Do human resource policies encourage teamwork, commitment and responsiveness? Does training address individual and organizational needs? Do finance policies encourage pursuit of long-term goals? Are there mechanisms for communicating and recognizing achievements? Are there procedures for monitoring problems?
- **Cultural:** Do employees share goals? Is continuous improvement a priority?
- **Processual:** Are responsibilities for change implementation clear? Is there strong improvement infrastructure with steering committee, facilitators and problem solving?
- **Contextual:** Is change an appropriate competitive response, meeting customer requirements and allowing recruitment and retention of skilled staff?

A key element in our theoretical framework is the review of the literature on sustaining organizational change described in the article by Buchanan et al. (2005). The authors suggest that the concept of sustainability may acquire different meanings in different contexts, and at different times and that there is a relative lack of research in this area (ibid.). Similar to Dale et al. (1999) they suggest that sustainability is a complex process and for most managers, the "next initiative promises more career value than continuing with established routines" (P.190). The authors identify eleven sets of factors affecting sustainability, summarized in Table 1. These factors are open and overlapping but are useful to illustrate that the process of sustaining change is dependent on the interplay of multiple factors on different level of analysis and timeframes. Thus, some of these factors can encourage further development (e.g., supportive management, available resources, establishing of favourable structures and policies) or decay (e.g., lack of long-term vision, instability, resistance).

Table 1. Factors affecting sustainability

Category	Outline definition
Substantial	Perceived centrality, scale, fit with organization
Individual	Commitment, competencies, emotions, expectations
Managerial	Style, approach, preferences, behaviours
Financial	Contribution, balance of costs and benefits
Leadership	Setting vision, values, purpose, goals, challenges
Organizational	Policies, mechanisms, procedures, systems, structures
Cultural	Shared beliefs, perceptions, norms, values, priorities
Political	Stakeholder and coalition power and influence
Processual	Implementation methods, project management structures
Contextual	External conditions, stability, threats, wider social norms
Temporal	Timing, pacing, flow of events

Source: Buchanan et. al 2005

Another useful theoretical concept focusing on factors is the toolkit developed by Scott Thomas, and Deborah Zahn (Thomas & Zahn, 2010). The main idea behind the toolkit is that to sustain outcomes of a change programme its strongest components or

“factors” should become institutionalized as a standard part of operating. The approach is presented in more detailed in Part 2 “Refining design through further specification” and used as a guideline for the development of the Co-Change sustainability plans.

The understanding of post-completion project sustainability is limited, and our conclusion is in line with the results of the previously mentioned study (Prosci, 2009) that sustainment effort is often ignored. To improve the approach to sustainability Co-Change agents should consider the above-mentioned factors affecting sustainability (Table 1) and use of the following questions for reflection and self-evaluation (adapted from Hutaserani, 2010):

- Does your organization have policies and procedures in place to promote the continuation of the Co-Change outcomes in the mid- and long-term?
- To what extent do the benefits of the projects continue after project implementation has been completed?
- How does your organization monitor and evaluate project sustainability? Do you undertake post-project monitoring/evaluation of benefit flows?
- What are the major factors affecting the achievement or non-achievement of sustainability?

Finally, the concept of system thinking can also be utilized to understand to complexity of sustaining changes in organisations, as it reveals the “various change processes, dynamics and conditions that can result in a successful RRI institutionalization” (Lehtinen et al., 2022, forthcoming). Continuous learning is a prerequisite for sustainable impact in complex systems (Stroh 2015, P. 21-22 in Lehtinen et al., 2022, forthcoming) alongside with the focus on “long-term value creation instead of short-term problem solving and that the success of an organization depends largely on the well-being of the broader system that they are a part of” (Senge, 2014 in Lehtinen et al., 2022, forthcoming).

2. Sustainability visions and plans

After identifying the theoretical framework, the objective of this section is to synthesize to most important theoretical issues into practical steps that can guide the Co-Change change agents into the construction of their sustainability visions and plans.

Discussions on the components of the sustainability framework (Table 2) were started early in the stage of development of the sustainability plans (February 2022) and took place during the monthly meeting of the Labs. During the Monthly Lab Meeting in June 2022, it was decided that the major partners Austrian Institute of Technology (AIT), Technical Research Centre of Finland (VTT), Tecnalia Research and Innovation TEC and Delft University of Technology (TUD) were required to present three sustainability plans based on their three most significant institutional changes, while the smaller partners Royal Netherlands Standardization Institute (NEN), Faculty of Agriculture of the University of Novi Sad (PFNS), Council of the Tampere Region (PL), and Vienna Science and Technology Fund (WWTF) should present one sustainability plan per organisation. The sustainability framework below (Table 2) was elaborated and provided by Tecnalia to the Labs to guide them in the design of their sustainability plans.

Table 2: Co-Change Sustainability Framework

Title of the institutional change
Short description What are its expected long-term impacts?
Stakeholders Who could affect it or will be affected by it? Who will benefit from it in future? What do they care about?
Development Team Who will do it? Is there collaboration with other teams? Is management support provided?
Main actions Will it be further improved? How will it be sustained? How much time and resources will it take to implement?
Value What value will it offer? How will it contribute to the SDGs or the RRI principles?
Continuation at EU Level Will it be promoted at relevant European networks, platforms, and conferences? Will it be linked to other European projects?
Continuation on national level Will it be promoted amongst national, regional and local partners? Will it be presented at national events? Will it be used for organizational trainings and workshops?
Evaluation How will the sustainability be evaluated? What kind of evidence will be produced?

Sustaining the achieved institutional changes requires a holistic approach, studying the individual range of socio-economic factors influencing each Lab and considering long timeframes as most of the objectives depend on complex internal and external phenomena, which Labs can influence to a limited extent. Co-Change supports the implementation of institutional changes of R&I actors within and beyond the key areas and thus sustainability takes one step further than the actual changes, dealing with building of communities around the changes, developing guides for implementation, building interconnectedness of the developed strategies into the broader context, organization of public dialogues, metrics for monitoring and feedback, etc. The Labs aspire to sustain the changes not only within their own host organisations but also to reach out to actors in their innovation ecosystems, and this is also reflected in their sustainability strategies. Thus, the different sustainability measures include aspects such as capacity building, public engagement and science communication, co-creation procedures with other internal and external actors and involve relational dimensions for advancing transformation across sectors and disciplines.

By using the provided framework (Table 2), Labs described the most important aspects of sustainability of their institutional changes such as affected stakeholders, perceived value, management support, continuation on national and EU level through related RRI projects, networks or other forms of collaboration. The resulting plans are presented in continuation and are further elaborated in Part 2 through adding of specific design factors and in Part 3 through collaborative design and evaluation.

2.1 AIT Sustainability Plans

2.1.1 Open Access through the creation of a Zenodo Community

Zenodo is an open and public research data repository funded by the European Commission (through the OpenAire FP7 and Horizon 2020 projects), CERN and the Alfred P. Sloan Foundation. AIT, in collaboration with all other WP leaders, has created and maintains a Zenodo community called "Co-Change". This community on Zenodo allows all publicly available datasets, deliverables and publications of the project to be shared with anyone who has internet access and a device to read them. More specifically, the target audience for the project results is researchers in the RRI community and managers of research performance organizations (RPOs) and research funding organizations (RFOs) who want to implement RRI practices in their organizations. Thus, this platform ensures the free and immediate download and dissemination of the results of Co-Change, which could eventually inspire other researchers and managers to carry forward the spirit of the project.

To keep this momentum going, Co-Change intends to continue its efforts to date through clearly defined actions. Since the establishment of the community, AIT has been responsible for verifying that all publicly available datasets, deliverables and publications have been uploaded to the community. The actual upload is the responsibility of the respective main author/creator. In addition, ESSRG and AIT have created a guide for using the platform, which is available in the project's MS Teams folder and can be used by all Co-Change researchers.

At the final conference of the project, AIT will promote Zenodo so that the Lab coordinators, and the main authors of the publications commit to using Zenodo, especially for the upcoming publications that are likely to be not completed at the end of the project. To make this process as smooth and easy as possible, AIT will ensure that the Zenodo guide is promoted and accessible at the final conference. By safeguarding the use of Zenodo within the Co-Change project and more importantly beyond it, the Co-Change consortium addresses one of the five RRI keys by providing open access to its research data and results. Thanks to this data sharing platform and Co-Change's commitment to uploading the latest research, Co-Change works in its spirit of reflecting the values of science to advance and improve society.

2.1.2 "Digital Administration and Ethics" Project

The AIT AI Ethics Lab is a collaboration between two centres within AIT: Digital Safety and Security (DSS), mainly researchers with a background in software development and machine learning, and Innovation Systems and Policy (ISP), mainly social scientists working on how innovation can contribute to the transformation of our society. Due to the relationships that have grown within this interdisciplinary lab over the past two years and its outreach to the ecosystem, the two centres are now collaborating in a project commissioned by the Austrian Federal Ministry of Arts, Culture, Civil Service and Sport. The aim of this project is to develop a practical guide together with civil servants and researchers in several workshops between June 2022 and May 2023. This guide is intended to support the public service in making decisions about the use of digital solutions that consider issues of, e.g., data protection, transparency, traceability, legitimacy and legality.

While this guide is an initial assessment of the situation and the potential challenges and opportunities of digitisation and the use of AI, the Lab will pursue these activities through further projects. The ministry has demonstrated interest in exploring more areas of application of the guide such as offering AI ethics training for ministry staff and extending the practice to other ministries that are also confronted with the issue of digitalisation and AI. Thus, the Lab has already secured funding that has implications beyond AIT and will continue to explore more opportunities. Even if another contract cannot be secured by AIT alone, the AI Ethics Lab is a highly committed team that creates further impetus and continuity through this joint project. The Lab Team is highly motivated to continue working in the RRI area of ethics, promoting research principles such as societal acceptability, integrity, transparency, privacy and data protection. The Lab Manager will be responsible for monitoring the success of the project and the Lab’s overall impact in the future.

2.1.3 Ethical Decision-Making in Everyday Life and Software Development

The Lab's efforts so far have been successful as the AIT AI Ethics Lab has been invited to collaborate Data Science and Artificial Intelligence (DSAI) unit. In addition to the increased collaboration with DSAI, the AIT AI Ethics Lab is also working on other related activities, such as inviting researchers from other AIT units, talking with management about AI ethics, and the importance of creating guidelines, awareness, and training.

The Lab Team have learned that when talking about privacy, data protection and ethics in software development, a stronger focus on the application in practice is needed. Talking about ethics in too abstract ways prevents technicians from applying it to their daily practice.

AIT AI Ethics Lab will continue expanding its influence within AIT through involving researchers from the bottom up to discuss different ethics topics. Thus, for example, the AIT AI Ethics lab was invited to Tech Talk to give a presentation followed by a discussion on the topic of "Ethical Decision-Making in Everyday Life and Software Development". In this way, the Lab was able to create awareness of ethical issues and engagement of other researchers in other parts of the competence unit.

With this internal outreach from the Lab to other parts of AIT, the AI Ethics Lab aims to create a critical mass of researchers who actively address issues of data protection, privacy and ethics. As such, the Lab aims for AIT to become one of the first research centres implementing the "ethics by design" principle in actual AI software development. As represented in the RRI key "Research Ethics", the incorporation of ethics in AIT research projects and its everyday operations, lead to potential impacts on the future development of AI tools and applications. The ultimate goal is to develop AI tools and applications that are co-developed by software developers and social scientists (ethicists) to stimulate reflection on the use and impact of AI tools and applications so that they will have the positive impact on society as expected.

2.2 Tecnalia Sustainability Plans

2.2.1 Guiding Tecnalia towards greater Social Impact

One of the major envisioned institutional changes of Tecnalia was the creation of an internal expert group providing advice on issues related to RRI, ethics and social responsibility. An Expert group called “Shape Lab” was created a few months after the beginning of the project and since its launch it has been working on raising awareness, training, disseminating and implementing Responsible Research and Innovation good practices and advice. As a result, Shape Lab paved the way, together with other internal & external agents, for the launch of a new brand (Tecnalia Creating Growth: Improving Society) and New Organisational Strategic Plan (2021-2024), which aims to achieve a deep organisational transformation. The Strategic Plan focuses the organisation on impact and includes among others, the following aspects:

- Incorporating Tecnalia’s social impact into its economic impact.
- Rebalancing the short-term impact of the previous strategic cycle with the long-term impact.
- Shifting the focus on impact from inside the organisation to outside

As a result of the new strategic approach, an official role has been assigned to Shape Lab, positioning the group as policy and strategy experts for technology transitions and societal transformation in Tecnalia. One of the operational actions of the strategic plan is to create an “ad hoc” group for the implementation of the social impact roadmap. So far, Shape Lab has actively participated in the design of the initial roadmap and will continue to do so in order to guide the newly defined scopes of action

(Energy Transition, Smart Manufacturing, Sustainable Mobility, Digital Transformation, Personalised Health, Urban Ecosystem) towards a new value proposition. Likewise, Shape Lab will provide advice and support to the management of Tecnalia in the implementation of the following actions which contribute to objectives of the Social Impact Model within the New Organisational Strategic Plan:

- Creation of methodology for evaluating the generated social impact (Objective "Impact")
- Creation of an SDG impact methodology (Objective "Impact")
- Review of the Corporate Compliance Policies (Objective "Impact")
- Creation and implementation of new value generation mechanisms (Objective "Grow Intelligently")
- Development of the Tecnalia Equality Plan (Objective "People")

In the coming years, Shape Lab will continue to advocate for further transformations that bridge the distance between science and society. It will design and promote initiatives that exploit the potential of societal and ethical aspects in R&D not only in Tecnalia, but also within its innovation ecosystem. Shape Lab will actively promote an inclusive and participatory R&D approach and an effective transition to democratised and responsible science.

2.2.2 Creating of a portfolio of socio-ethical services

As mentioned before, Tecnalia´s future Social Impact Model incorporates social impact into its economic impact and aims to shift the focus on impact from inside the organisation to outside. To support these two objectives, Tecnalia´s Co-Change Lab called "Shape Lab" started developing and testing a portfolio of services that raise awareness and capacitate partners from the ecosystem of Tecnalia to operate in the field of RRI and social responsibility.

During the project, Shape Lab supported the newly created Spanish company QiArrow Green Deal Advisors in the development of its social dimension and as a result the company experienced a significant progress in defining its added value on the market by aligning better its economic and social goals.

After the end of the project, Shape Lab Team will continue this line of work with another starting SME, Social DinApp to explore how both companies can upgrade the social services of the Community of Madrid by merging their knowledge and capacities. The collaboration will be based on the development of digital tools that help public administration identify, prepare for and eliminate social risks such as school bullying, domestic violence, addictions, loneliness and social isolation of elderly people, etc. It furthermore aims to involve other technical working groups of Tecnalia as for example Artificial Intelligence, Augmented Reality, biomedical applications and devices, etc. With this, Shape Lab will continue enriching its portfolio, striving to promote social-ethical considerations as a standard practice in the tech industry as well as to raise awareness of this need within Tecnalia and its ecosystem.

Shape Lab will also continuously identify opportunities to improve its expertise and capacity to provide services to companies and institutions towards a more positive

relation with society. It will offer support to different stakeholders by providing network, guidelines, tools and recommendations. Its support and coaching to internal and external partners will include furthermore training, defining and prioritizing of aspirations and objectives, creation of a vision and roadmap, as well as progress monitoring over time. Shape Lab will also further develop and test the STIRRI method, which was established during the Co-Change Project and combines the Socio-Technical Integration Research (STIR) with the RRI framework with the aim to help innovators overcome the dilemma between socio-ethical and techno-economic aspects. The results will provide Shape Lab with expertise to continue after the Co-Change project its work as an internal “consultancy”, offering advisory services across a range of themes/sectors and across all stages of the R&D cycle.

2.2.3 Gender equality

Shape Lab is actively involved in the design and employment of the new Social Impact Model of Tecnalia, which also includes the implementation of the Gender Equality Plan.

The Equality Plan has been approved in December 2020 and includes a set of 65 actions. One of the objectives is to increase Social Responsibility in Research and Innovation, to promote and transmit values of equality between women and men through research activity, including gender as a key element in the creative and innovation process, as well as in the generation of new ideas and initiatives in Tecnalia. Shape lab is officially in charge for the developing this objective. In this context, it will take care that women and men will have the same opportunities for the development of their professional careers and a gender research perspective will be integrated within their daily work. It will also assist Tecnalia in the development of a tool, currently under development, that allows workers to report and anonymise any discrimination, mobbing or abuse. The development of the Equality Plan at Tecnalia will be deployed as a measure of talent retention and will help more women to break the glass ceiling and to occupy relevant positions at the management level.

A Shape Lab member takes part in the Gender Expert Group, which together with the Human Resources Department will continue developing the Equality Plan in the following years. The plan is valid for three years and is reviewed annually to monitor the fulfilment of objectives through indicators for each of the measures, as well as to gradually incorporate new innovative measures. The deployment of the Equality Plan will be complemented by the results of an upcoming Social Impact Study and will serve as a model for Tecnalia´s stakeholders. For this aim, Shape Lab will engage with relevant expert groups, policymakers, and citizens, through social events, conferences, workshops, and talks, in which Tecnalia is involved yearly. It will continue to actively promote the change and to disseminate the impacts with the aim to create an inclusive workforce within its ecosystem where both men and women are treated equally and can work to the best of their abilities.

2.3 VTT Sustainability Plans

2.3.1 Introduction of internal inclusive and participatory processes

The Inclusive and participatory process to develop and embed sustainability and responsibility at VTT started in 2021 with the organisation of open workshop series. The current Sustainability Programme extends to 2025 and it will be renewed in connection to VTT's strategy which is launched for the next 5 years period.

In terms of institutionalisation of RRI, the integration of responsibility and sustainability in the organisational level strategy indicates that responsibility is in the core of organisation's operations. However, interconnectedness to strategy does not guarantee that responsibility is embedded into organisation's culture, to all functions of research from top management to research personnel. One of the potential bottlenecks is that responsibility and sustainability are understood differently in different research areas and functions. Therefore, the Co-Change Lab will work towards harmonisation by leveraging existing terms and definitions and will seek to embed the evolving concepts of responsibility and sustainability into our organisational culture. To achieve this aim, the team will continue setting up a sustainability programme that will further develop the good practices of inclusive and participatory approaches. In practice, this means continuation of open workshops on building the programme, extending inclusion and diversity by engaging even more researchers from different fields and positions, open communication and dissemination of sustainability and responsibility related activities. VTT has a designated Responsibility Task Force which is supported by internal responsibility and sustainability experts and enthusiasts. The Co-Change Lab will keep this group attractive, inclusive and engaging forum for discussion, knowledge exchange and ethical advice to VTT and interested stakeholders in its ecosystem.

The vision is to make responsibility "everyone's business" at VTT by engaging personnel and increasing ownership of the sustainability programme. One of the direct beneficiaries are different research areas and in particular individual researchers. Additionally, responsibility expertise will indirectly transfer to external stakeholders, such as VTT's customers, citizens and government. Inclusive and participatory processes will make VTT's research services and offering more socially, environmentally and economically responsible.

The identified milestones for future success are:

- Improved awareness of responsibility and sustainability at VTT that can materialise in terms of discussion of these as well as of SDG related topics in VTT's internal channels.
- Continuation and renewal of VTT's actual Sustainability Programme.
- Increase in personnel working with responsibility titles and positions.

2.3.2 Research team level sustainability and responsibility dialogue

Responsibility and sustainability are in the core of VTT operations, and it has systematically invested resources in making sustainability and responsibility everyone's business at VTT since 2021.

One of the key actors in research and technology organisation are researchers in different levels and positions. To reach this important group of actors, VTT wants to improve responsibility and ethics related dialogues in the organisation. The kick-off of these dialogues is facilitated in research team level trainings in autumn 2022 and spring 2023. The training covers responsibility in combination of the code of conduct and ethics, so that the contents of the training are customised according to the needs of the research fields, given that some areas might have more research ethics substance while others have stronger social responsibility approach, e.g., gender and inclusivity.

It is acknowledged that one-time compulsory training is not sufficient to institutionalise RRI, but training will trigger diverse and inclusive responsibility dialogues in the research team and research areas, eventually cross-cutting the whole organisation. The dialogues are foreseen as an important supplementary mechanism to trainings in institutionalisation of responsibility and cover multiple scientific areas with their specific ethics questions. The Co-Change Lab will continue the internalisation of ethics and responsibility as an on-going and open process.

The training and especially the continued dialogue will raise awareness and knowledge of responsibility and ethics in research. The biggest impact is that VTT's researchers will conduct research responsibly by embedding the RRI principles in their daily routines. An example for this is the gender aspects that are fully integrated into its organisational framework and culture.

Dialogue will not happen on its own but demands partners to take part in it. The Co-Change Lab will take care for the organisation of this dialogue and will be working together with VTT's ethical committee and research area management to make them possible. VTT will also consider appointing an internal responsibility ambassador network which can guide researchers who have any sustainability or responsibility related questions.

2.3.3 Launching a citizen panel

Technical research organisations, like VTT, are important actors in national and international innovation ecosystems. One of the often-neglected stakeholders of the innovation ecosystem are citizens whose voices should be better engaged in technological development. It is essential that citizens are firmly integrated in the socio-technical dialogues. For this reason, VTT aims to launch a citizen panel to inspire confidence in citizens and facilitate open discussion.

The beneficiaries of the citizen panel are two-fold, on the one side (Finnish) citizens, and on the other side VTT researchers in particular, and national research scene in general. The aim of the citizen panel is not to reach a consensus or produce ready-

made solutions, but to increase understanding and trust in technologies. One such technology that currently would benefit of wider citizen involvement is Artificial Intelligence (AI) because it is topical and intertwined with multiple ethical challenges. Setting up of VTT's citizen panel is in initial stage, and a rigorous concept note will be developed. The aim is to launch the citizen panel in such format (e.g., reoccurring events but in different formats that support dialogue) that it is maintained and sustainable, and that it helps VTT to set up its responsibility agenda. The objective to launch a citizen panel is key issue of the VTT's responsibility programme.

To sustain the citizen panel, the Co-Change Lab envisages collaboration with European partners. The idea of the citizen panel is hardly new but could turn out to be a mechanism collectively designed with European RRI research and dissemination partners in their respective national contexts. The citizen panel concept improves co-creation, acceptability and desirability of new technologies in society, facilitates open and democratised science. In the longer run besides the value it brings to research, a well-functioning citizen panel concept will improve institution's image as a responsible public organisation.

2.4 Resilient Delta Sustainability Plan

2.4.1 Sustainable and socially responsible innovations and policies

Resilient Delta developed a living document "Resilient Delta principles and strategies", where it addresses complex social issues and a mission to understand and tackle them. The strategy as a mission-driven approach came into Resilience Delta' agenda in end of 2021 and will be updated in regular basis, as well as after completion of Co-Change project. The living document is an intervention-oriented document and focus on urgent transition issues such as transition to sustainable and socially responsible innovations and policies. With this strategy, Resilient Delta contribute substantial to the Convergence Alliance stakeholders, TU Delft, Erasmus MC, and Erasmus University Rotterdam.

Resilient Delta expects its living document "Resilient Delta principles and strategies" to provide a long-term roadmap for the team. This helps Resilient Delta to see responsible innovation's knowledge integration as an indispensable task. The living document will be evaluated at least twice per year, so new principles can be included.

For the Delta regions, which are home to more than two-thirds of the world's largest cities and are at risk from rising sea levels owing to their geographical location, Resilient Delta expects designing resilience solutions based on this strategy plan in the real-world dynamics of their living lab, the Rotterdam delta.

For the institutions involved in the Resilient Delta programme, the convergence between them, with their close physical proximity and complementary expertise, will allow for long-term resilience and responsive solutions for the challenges of the delta. This would be part of the lab strategy plan.

2.4.2 Setting up a methodology working group

Resilient Delta set up a methodology working group in spring 2021 around the the topic of resilience. Methodological innovation is required to move beyond knowledge fragmentation and address societal challenges and build resilience. The methodology working group designs and develops methods and processes to bring together diverse scientific disciplines, academic and non-academic (public and private) partners, and taking residents along in a co-creation process.

The Resilient Delta methodology working group has a focus on methods for knowledge integration in a trans- and/or interdisciplinary setting, therefore, they have already reviewed and considered some Responsible Research and Innovation (RRI) methods. The working group uses a science system perspective that aims at understanding the feedback between different systems at different spatial levels and temporal scales.

Resilient Delta expects its methodology working group to run in the coming years after Co-Change project is completed and to identify more clearly the relation between design and knowledge integration.

2.4.3 Citizen Engagement

Resilient Delta started a project in spring 2022 called “Citizen’s engagement in the Resilient Delta -how to meaningfully, respectfully and reciprocally integrate citizen’s knowledge in academic research projects”. The project is one of three studies in the RDI Methodology Impulse-program Integration Expertise. Resilient Delta commissioned a “contract-study” in 2022, executed by a PhD with multiple years of experience in citizens science-projects. The project gave Resilient Delta an idea of the form and challenges that citizen’s engagement takes, how “integrateable” that knowledge is. The Citizen’s engagement in the Resilient Delta project actively involves citizens in scientific endeavour that generates new knowledge or understanding.

The Citizen Engagement in the Resilient Delta project will be first of its kind to address local, national, and international issues in the Delta regions through citizen engagement, which has the potential to influence policy. The project will continue in the coming years as part of the RDI Methodology Impulse-program Integration Expertise.

2.5 NEN Sustainability Plan

2.5.1 Webtool SME “innovationbroker”

Standardisation is structured as an inclusive process that invites stakeholders to negotiate on agreements that are only diffused once consensus is reached. In practice, however, it proves difficult to include Small and Medium Enterprises (SMEs). Standardisation research suggests that this is partly the result of SMEs’ unawareness of the existence of standardisation and the potential benefits it can provide them with. In addition, SMEs tend to be unaware of the state-of-the-art of standards and hence frequently overlook relevant norms and requirements for their innovations. To address

this issue, NEN has developed the webtool SME “innovationbroker” (sometimes referred to as “NENnovationfunnel”). This webtool can be understood as their personal standardisation advisor and intermediary and clarifies frequently asked questions. The tool can be used throughout the whole innovation process, from the orientation phase to the diffusion phase. The tool offers unique services per phase. In the orientation phase, for example, it refers SMEs – and other small entities – to the relevant standardisation committees, parties, or individuals. The innovation broker furthermore advises on how SMEs can use standards, standardisation, and the associated network for strategic purposes. The webtool has been introduced in 2021, and consists of a various tools, assessments, and video testimonials. NEN expects that this will make standardisation processes more inclusive leading to better and more adopted standards. Furthermore, by including SMEs, there will be a greater chance their input is echoed to the European level of standardisation, i.e., CEN. The webtool has been well received by the target group, and NEN intends to continuously offer this tool. Furthermore, NEN will structurally acquire feedback to understand how the webtool can be improved based on the experiences of its users.

2.5.2 Adjustments in standardisation

Standardisation is generally considered a lengthy process by both NEN and stakeholders. It is not uncommon for standardisation processes to take 3 years before standards are developed and diffused. During the COVID-19 pandemic, it became evident that NEN struggles to quickly respond to urgent societal challenges. To become more responsive, NEN has developed the fast-track NEN-SPEC. This is a new type of standard and standardisation process that is much quicker to establish. By means of this new standardisation processes, NEN has developed two standards during the pandemic that were both developed under 3 weeks – a new all-time record. These standards were designed for facemasks (NEN-SPEC 1) and office safety protocols (NEN-SPEC 2). This quick establishment was possible due to various adjustments in standardisation. For example, consensus on what the standard should look like is not required for the NEN-SPEC. Nevertheless, NEN finds consensus highly desirable, and NEN-SPECs are therefore considered provisional standards that need to be revised in a consensual manner after 6 months of its diffusion. This new approach allows NEN to quickly respond to societal challenges while learning along the way. Because of its success during the pandemic, the NEN-SPEC is now fully available for stakeholders to initiate standardisation processes for other purposes as well. More recently, a NEN-SPEC was for instance developed on single-use medical products (NEN-SPEC 3). NEN is able to monitor how many NEN-SPEC are, and will be, developed in the future. It will acquire feedback on how to further improve this service. Overall, NEN expects that the NEN-SPEC broadens the societal relevance of standards with its unique value proposition. Future research on standardization could reveal this relevance, and such standardization research is encouraged through NEN’s research network: their Research, Education, Normalisation & Standardisation Foundation (SOONS, Stichting Onderzoek, Onderwijs, Normalisatie & Standaardisatie). SOONS is currently especially interested in the societal impact and relevance of standards.

2.5.3 Responsibility-by-design guidelines (CWA17796)

NEN is an innovation intermediary in the sense that it brings together stakeholders in order for them to innovate and establish standards. These standards are interwoven in most sectors and markets, and therefore have a huge impact on the innovative performance of the Netherlands. To enable all sectors and markets to innovate responsibly, NEN has developed the Responsibility-by-Design guidelines so that stakeholders can develop long-term strategies (roadmaps) to innovate responsibly. This guideline was developed in close collaboration with a variety of experts, researchers, and ethicists. It enhances the reflective, anticipatory, inclusive, and responsive innovation capacities of its users, and builds forth on adjacent standards/guidelines such as the ISO26000 (Social Responsibility), ISO31000 (Risk Management), ISO9001 (Quality Management), and ISO56000 (Innovation Management).

As such, it aligns the social responsibility of organizations with their core task, creating value. The Responsibility-by-Design guidelines support its users through 6 steps: Top management commitment and leadership (1); Context analysis (2); Materiality (3); Experiment and engage (4); Validate (5); and Roadmaps´ design (6). This guideline is, and will remain, widely available for the public. NEN will monitor the number of times it will be used in the future. It will acquire feedback from its users to further improve the guidelines. Furthermore, NEN aspires to “upgrade” the guidelines to an NTA (Netherlands Technical Agreement). This would mean that more stakeholders can get involved and support the guidelines’ development. NEN believes this is important because this will lead to better and more widely used standards. Subsequently, the more it is used, the more organizations will align their innovations with the values and worldviews of European citizens.

2.6. Council of the Tampere Region Sustainability Plan

2.6.1 Standardized RRI evaluation

The embedding of RRI evaluation criteria in proposal funding at the Tampere Region did not go as originally planned. Instead of embedding separate RRI criteria, it turned out to be more beneficial to transform the whole assessment process in a way that it takes responsibility and sustainability deeper into account. Thus, the transformation will affect data collection, data analysis as well priorities setting in the design of future funding calls. Likewise, the change will impact the culture of the organisation and it will create a lasting impact on the commitment of its employees to meet better the expectations, values and needs of society.

Impact assessment development will also affect all funding calls launched from the council. Thus, the Tampere Region will be able to offer more transparency and accountability to the applicants and the public in general, as funded projects will be assessed against more social criteria to create the most responsible and sustainable value for the region.

The change will be implemented by a group of monitoring and funding experts together with the management. After the implementation, the Council is planning to communicate its renewed responsible innovation policy and funding criteria to the interested stakeholders and the policy makers.

The impact assessment will be further developed after 2023 to find its best format. It will be the base for the whole data collection, monitoring and analysis of the European Regional Development Fund ERDF funding scheme for the period 2021-2027. As impact assessment is a priority topic within innovation policy makers, the Co-Change Lab of the Council of Tampere Region Co-Change Lab will create a lasting impact withing and beyond our innovation ecosystem though institutional change.

2.6.2 Regional RRI community

The Regional RRI Roundtable was created as an institutional change resulting from the Co-Change Lab of Tampere Region. The RRI Roundtable brings together stakeholders who are not usually connected with each other and aims to promote the principles of RRI in their activities. The Council, together with Tampere University, VTT, Tampere University of Applied Sciences (TAMK), and possible other new members will have a common forum to share ideas and create synergies in the newly created RRI community with the objective to convert it into a regional network.

The council will continue running the RRI Roundtable together with VTT after Co-Change project. The RRI Roundtable will deepen the cooperation with local RRI community by offering the forum for RRI related discussions and future cooperation. The RRI Roundtable will offer a possibility to connect with other European RRI communities to share good practises and create joint initiatives. It will aspire to capacitate the Tampere region as a leading regional RRI partner and to disseminate active work of its stakeholders.

2.7 University of Novi Sad Sustainability Plan

2.7.1 Gender Equality Plan

One of the most significant institutional changes that was implemented at Faculty of Agriculture, University of Novi Sad, Serbia (PFNS) during the Co-Change project is related to Gender Equality (GE plan and GE board). Long-term effects of this change reflect in active implementation of gender component in everyday practice, improved confidence of female staff to apply for managing positions and male staff members genuinely accepting the change, freedom of individuals to report any kind of gender-based discrimination and developed mechanisms to sanction it, as well as available mechanisms to prevent misuse of possibility to claim gender-based discrimination.

The change itself will affect not only faculty and university staff members, but also students, and wider community. All actors at the faculty will benefit at several levels – personal wellbeing, satisfaction of being employed at well-positioned institution eligible for different project calls, experience on change institutionalization. The value is that there will be an equally favourable environment for each staff member at PFNS,

regardless gender. Female teaching and scientific staff members will be inspired to apply for managing positions due to the fact that balancing family and work will be promoted and supported at critical period that significantly affect ambitions of most women.

Also, GE board members will be actively involved. There is a close cooperation with GE teams from other scientific institutions as well as with organization SRNA (Serbian Association of Female Scientists) which gathers female scientists from Serbia and promotes scientific activities of young female students. Currently, all GE activities are strongly supported by top management at the faculty, so further improvement of GE at PFNS is planned beyond the Co-Change project lifespan. It will be sustained by active work of GE board and experts in charge of GE at the faculty. They will jointly make annual analyses of GE state and work on solutions that could improve detected gaps. With the aim to develop GE ideas at the very basic level of educating future experts, closer cooperation with agricultural students at national and international level is envisaged in the coming years.

To improve its impact the Co-Change Lab & the GE board aspire furthermore to collects insights concerning the role of young girls and women in rural environment. Different events such as workshops, discussions and promotion of scientific events are planned to change the mindset of staff members, and the general public. GE in agriculture will be promoted at relevant European networks, and there will be initiatives to link it to other similar European project operating on the territory of Serbia. Considering that there are many public events in which PFNS is nationally involved, dissemination and impact creation events will be organized also at a national level. The Co-Change Lab members will be in charge of further development and sustainability of gender equality activities and will aspire to secure funds for their successful continuation. The change will be monitored through annual reports on GE at PFNS, as well as by updates on GE plan.

2.8 WWTF Sustainability Plan

2.8.1 Open Science Policy

As part of the Co-Change Lab work, Vienna Science and Technology Fund developed a timely Open Science (OS) policy, based on a thorough stakeholder involvement process. The OS policy came into force in early 2022 and will be applied to all future WWTF projects. In a nutshell, the newly developed OS policy regulates openness for WWTF, WWTF researchers and research organizations with a focus on Open Access publications and Research Data. With this, the institutional change will contribute a substantial value to the local Vienna research community.

The Co-Change Lab expects its newly developed OS policy to have long-term impact for WWTF, especially on its internal funding processes. This will affect how WWTF frames its funding calls, how it identifies new topics and how it assesses projects in future calls. The OS policy will be evaluated in 2027, so potential changes can be implemented. WWTF Programme-Managers are responsible for operationalizing and further developing the OS policy. After the first evaluation, the Co-Change Lab plans to regularly adapt the OS policy accordingly.

The Co-Change Lab expects to see meaningful impact on researchers, their working groups and research routines, especially on the way they deal with handling and curating of data (e.g., FAIR). Connecting excellence in research and openness through this policy has the potential for substantial individual changes or changes within research teams. A spill over effect to younger generations is expected, as many WWTF-funded projects employ early career researchers.

Even though many research organizations already developed their own OS policy, the Co-Change Lab expects that its policy will have a significant awareness-raising effect through project funding.

On a national level, the Co-Change Lab will act as a role model for other research organizations. On a European level, it will aim to bring in expertise for other research funders via exchange and mutual learning.

3. Refining design through further specification

This section addresses the need for further development of the above presented individual sustainability plans to facilitate the practical implementation in the host organisations and their ecosystems. As argued in the theoretical framework section, improved outcomes achieved during the implementation phase of a project do not automatically result in lasting improvements and organisations should invest time and resources in planning their sustainability. After a literature review, a tool that provides a framework for further specification was identified and adopted to the sustainability approach of the project, as it allows the Co-Change Labs to work on different rates and to select different paths according to their priorities.

The selected toolkit (Thomas & Zahn, 2010) seeks to help individuals and organizations that formally plan for sustaining institutional changes in order to ensure that a specific change becomes permanent, or "the norm", and will not need ongoing support to make it continue. More specifically, it focuses on the "sustainability of improved outcomes", where "improved outcomes" are defined as "measurable improvements" (P.2) as a result of specific organisational interventions such as trainings, system changes and policy developments.

The main objectives at this stage are that by using the provided model, Co-Change Labs specify their sustainability interventions and gradually embed the institutional changes into their organisations and ecosystems, so that these become permanent. The Co-Labs were encouraged to use the described factors for internal self-assessment, for clarifying the goals and context of their specific changes, as well as for identifying strengths and monitor progress over time. The factors and the application strategies are useful also for the purpose of organizing workshops and discussions, for disseminating the changes within the ecosystem and searching for alliances.

The framework provides flexibility to the Labs to further elaborate their individual sustainability plans as it offers a variety of strengthening factors (perceived value, leadership, community fit, etc) and examples of application. The authors state that the factors are a "menu of options, not a to-do list" (Thomas & Zahn, 2010) and even focusing on just a few sustainability factors can have a positive impact. They recommend focusing on only three to four factors in the beginning to develop a more in-depth vision on each one and then make adjustments during the implementation. This model was used also as a base for the collaborative design of the Labs, which is discussed in more detail in the following chapter.

The presentation of the following 12 sustainability factors includes a definition, a suggestion on how to use the factor to influence the sustainability of the institutional changes, and an example of how that suggestion might be implemented. To provide coherence with the Co-Change terminology, the term "new ways of working and improved outcomes" was substituted by "institutional changes".

Table 3: Sustainability Factors

Factor	PERCEIVED VALUE
Definition	Acknowledged value by those affected by the institutional change.
How to use the factor to influence sustainability	Conduct specific activities to increase your target stakeholders' perception of the value of your work and its outcomes.
Examples	Give regular feedback on your institutional change to key stakeholders; present data at meetings with leadership.
Factor	MONITORING AND FEEDBACK
Definition	Information on the institutional change is collected and communicated to target audiences.
How to use the factor to influence sustainability	Tack and communicate your institutional change to your target audiences on a regular basis and in easy-to-understand formats.
Examples	Host quarterly information-gathering calls to monitor project outcomes; display charts and graphs of the institutional change in locations within an organization where target audiences will see them.
Factor	LEADERSHIP
Definition	The degree to which leaders, including decision-makers and champions, are actively engaged in the implementation stage and beyond.
How to use the factor to influence sustainability	Ensure that leadership is involved in program development and activities.
Examples	Have leaders present updates on the institutional change at regular management meetings; invite leaders to participate in planning meetings.
Factor	STAFF
Definition	Staff have the skills, confidence, and interest in continuing the institutional change.
How to use the factor to influence sustainability	Provide staff trainings, technical assistance, and feedback on the success of the program.
Examples	Train staff on a new referral system and provide updates on its impact on patients; staff experience a new curriculum as more effective in achieving better outcomes.
Factor	SHARED MODELS
Definition	Continued use of a shared model among those involved in the institutional change.
How to use the factor to influence sustainability	Use a commonly accepted model to plan, implement, and evaluate program progress
Examples	Use the Chronic Care Model at planning meetings to determine gaps in implementation; use the 40 Developmental Assets model to coordinate staff activities.
Factor	ORGANIZATIONAL INFRASTRUCTURE
Definition	Degree to which organizational operations support the institutional change.
How to use the factor to influence sustainability	Embed changes to the organization that are difficult to get rid of.
Examples	Revise job descriptions to include new job roles; allocate resources to the institutional change.

Factor	ORGANIZATIONAL FIT
Definition	Degree to which the institutional change matches the organization's overall goal and operations.
How to use the factor to influence sustainability	Ensure that staff and administrators view the institutional change as an important part of the organization's identity and operations.
Examples	Incorporate the institutional changes into the organization's strategic plan; train staff on the purpose and importance of institutional change.

Factor	COMMUNITY FIT
Definition	Degree to which your institutional change matches the communities' interests, needs, and abilities.
How to use the factor to influence sustainability	Ensure that community members and/or organizations view the institutional change as helpful and important to their communities.
Examples	Provide health screenings at locations accessible to community members and available at convenient times.

Factor	PARTNERS
Definition	Involvement of partners who actively support the institutional change.
How to use the factor to influence sustainability	Ensure that partners have an active role in both decision-making and the provision of resources.
Examples	Develop agreements with partners to continue to contribute staff or resources after the implementation phase.

Factor	SPREAD
Definition	Expansion of the institutional change to additional locations.
How to use the factor to influence sustainability	Ensure that multiple locations incorporate the institutional change.
Examples	Expand a new protocol for conducting foot exams for patients with diabetes from one community health center site to other sites.

Factor	FUNDING
Definition	Funding beyond original project period.
How to use the factor to influence sustainability	Obtain additional funding to assist with the continued implementation of the institutional change.
Examples	Obtain second-year grant funding for school-based asthma education because it was effective and well received in the first year of implementation.

Factor	GOVERNMENT POLICIES
Definition	Degree to which the institutional change is supported by government policies.
How to use the factor to influence sustainability	Policies are enacted that make it easier to conduct institutional change.
Examples	Secure reimbursement for providers to conduct smoking cessation with specific populations.

Source: Adapted from Thomas & Zahn, 2010

4. Collaborative Design

The final step towards the creation of the sustainability plans was a collaborative design process at Co-Change Forum 4 where the Labs worked together with the Advisory Board members and other related stakeholders. After the Labs got familiar with the toolkit presented in Part 2, they had time to reflect on the specific sustainability factors for the planning of more elaborated and targeted sustainability interventions. The collaborative design described below reflects a process of creating collective responsibility and understanding, contextualization of the common obstacles and drivers, as well as the generation of a holistic view of the different sustainability aspects. Participants used this safe space to explore each other's cultural, social, and normative perspectives to provide honest opinions on the Labs inputs.

The collaborative design included setting up of a common vision and joint design of further sustainability interventions.

4.1 Vision setting

To facilitate the collaboration, the teams were settled by grouping Lab's members that bring related objectives/organisational backgrounds together with experts from the Advisory Board or from other Labs from dissimilar backgrounds to hold different views of the group's purpose.

Below in Figure 3 are presented graphically the outputs of a visioning exercise, where the participants were required to provide characteristics of the "ideal" sustainability plan by asking them to generate ideas that begin with each letter of the alphabet. The aim of the exercise was also to elevate the creative thinking of the group, to raise its spirit, and to generate initial thoughts for the next step.

Fig. 3: Characteristics of a sustainability plan, Group 1

A vision is the foundation of the sustainability plan and seeks to outline where the organisation is headed and what core values are guiding that journey. As core values in the different teams are to mention, among others, “ethical”, “openness”, “SDGs”, “human”, “diversity”, and “consciousness”. The vision reflects values, but also provides direction and this is reflected in some of the teams’ keywords such as “joining”, “year-by-year”, “mandatory”, “binding” and “commitment”.

Fig. 4: Characteristics of a sustainability plan, Group 2

The output demonstrates also that the sustainability plans serve as a guide for choosing the future audiences and courses of action, among these are to find “Y-generation” and “Z-generation”, “local” and “worldwide” and also “tension”. There are answers to que question of “how?” or “How will we conduct our activities to achieve these goals?” in keywords such as “keys-related”, “x-ray-visioned”, “novel”, “anticipation”, “unique”, “resilient” and “z-compromise”. The core objective of the Co-Change project and the commitment of the partners to give continuity of its results are reflected in “questioning practices”, “journey”, “pathways”, “durability” and “institutional change”.

Fig 5: Characteristics of a sustainability plan, Group 3

After collecting insights about the visions of the different Labs on the future of their institutional changes, we proceeded to the second step of the process, where we asked the participants to move from the imaginary and inspirational level to the stage of selecting a challenge. In this second step they were required to add focus to their ideas by using the sustainability factors presented previously in Part 2.

In the first part of the exercise, they were invited to reflect on the question "What is the pressing need or challenge you would like to solve (keeping in mind the 12 sustainability areas)?". When deciding on which areas to focus, two questions were indicated as important to the Labs: 1) The importance of the factor to their institutional change and 2) The degree to which the Lab can influence the factor. Each factor presents a group of challenges and can be assessed specifically or generically. Thus, if a Labs decides to work on the Monitoring and Feedback area, it can focus only a specific target group (ex. agricultural students and young rural population in the case of PFNS) or on all stakeholders. Another tip which was provided to the Labs was to use factors to strengthen factors. An example for this is that if a Lab decides to improve the Monitoring and Feedback dimension, it can add factor "Infrastructure" to achieve better Monitoring and Feedback.

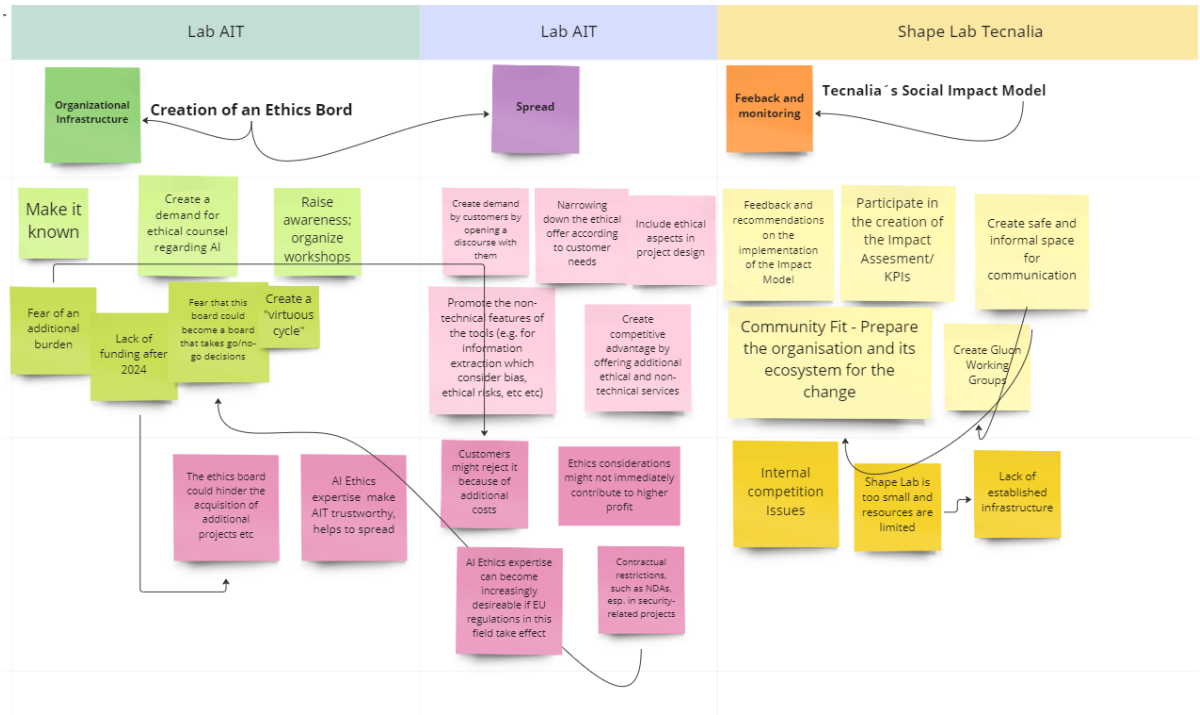
Below are presented the outcome of the different groups. The first row reflects the selected areas for improvement or "challenges" of the Labs, where each group had to select to work on three from the twelve areas. The "Monitoring and Feedback" area,

which deals with the information on the institutional change, which is collected and communicated to the target audiences, turned out to be the most attractive area and was present in all groups. It was followed by “Organisational Infrastructure”, reflecting the degree to which the organisational operations support the institutional change, and “Spread”, indicating the expansion of the changes to new areas and locations, were present in two of the three groups.

4.2 Sustainability Factors exercise: Group 1 (Tecnalia and AIT)

The first group consists of Lab members from AIT and Tecnalia, with a notetaker from AIT and a facilitator from Tecnalia and a representative from FFG to provide opinions and recommendations from a different perspective. During the reflective process AIT Labs focuses on the areas of Organisational Infrastructure and Spread of its institutional change in the area of the creation of an Ethics Board and Shape Lab Tecnalia concentrates on the Feedback and Monitoring of its newly launched Social Impact Model.

Fig. 6 Collaborative work on Sustainability Strategies, Group 1



4.1.1 AIT: AI Ethics Lab, Organizational structure and Spread

In the long term the AIT AI Ethics Lab is aspiring to create functions of an AI Ethics Board (perhaps first within the lab itself, later on perhaps in the form of a dedicated board) and the team was initially contemplating the factors “Shared Models”, “Spread”, “Organisational Infrastructure”, contrasting the differences between them and articulating the details of their sustainability plan. After creating a common understanding of how and what is trying to be sustained, the participants agree that the AI Ethics Lab should be part of the “Organisational infrastructure”, which in the

beginning could start operating as the AI Ethics Lab providing nonbinding advice and recommendations. The AIT AI Ethics Lab should provide training, raise awareness and stimulate sensibility related to ethics in AI and act as a "safe space" where software developers can openly discuss controversial subjects of ethics without fear. After gaining experience and influence, the benefits of the ethics support would become more apparent, e.g., since AIT's reputation could suffer damage if ethics recommendations get ignored. The team stays with "Spread" as the second major criteria for the success of their plan. It agrees that in the future the AIT AI Ethics Lab could serve as a participatory ethics body, and it could gradually expand its services to more AIT areas and divisions and also offer services to external stakeholders and clients. Over time, recommendations could become more influential, and an ethics protocol could be permanently embedded into AIT structures and its ecosystem ethics norms and culture. As a strategy for spreading, the AIT team puts a strong focus on the creation of a demand by opening a dialogue with customers and highlighting the importance of AI Ethics. To be competitive and efficient, the AI Ethics Lab should gain a deep understanding of the problems it is trying to solve and bring AI ethics conversations with clients to concrete and actionable solutions.

As main barriers for the sustainability of the AI Ethics Board are mentioned:

- AIT currently doesn't see the creation of a dedicated Ethics Board important for its activities
- An Ethics body can be seen as hindering the acquisition of additional projects
- Customers might reject the additional cost related to ethics analyses
- Ethics considerations might not immediately contribute to higher profit
- Additional administrative challenges can be expected such as contractual restrictions, non-disclosure agreements, restricted list of people who have access to certain information within projects, etc.

4.1.2 Shape Lab: Social Impact Model, Feedback and Monitoring

Tecnalia decides to focus on the role of the Shape Lab in the future design and implementation of recently developed Social Impact Model of the organisation. The initially considered areas of sustainability are "Organisational Fit", "Organisational Infrastructure", "Leadership" as all these fit the overall purpose of Tecnalia to achieve greater social impact by transforming its structure and value proposition to customers and to society in general. After an initial reflection the Shape Lab recognizes that the degree to which it can influence the above-mentioned factors is limited and agrees to focus on "Monitoring and feedback". The Shape Lab defines its purpose in the future as a supportive body to the management that will collect information on the advances of the new model and strategy and communicate it within the ecosystem of Tecnalia, positioning in this way Tecnalia as a socially responsible R&D organisation. The vision of the Shape Lab in this context is to construct narratives from the transformation of Tecnalia that social and ethical values are part of the criteria for excellence. Shape Lab will also collect valuable data from the experience of Tecnalia in creation of evaluation methodologies in terms of social impact and SDG, will construct lessons learned from the creation and implementation of the new value generation

mechanisms[2] and will track and communicate these institutional changes to universities, research centres, public bodies and the general public in easy-to-understand formats, such as more graphics and videos, all while using simplified terminology.

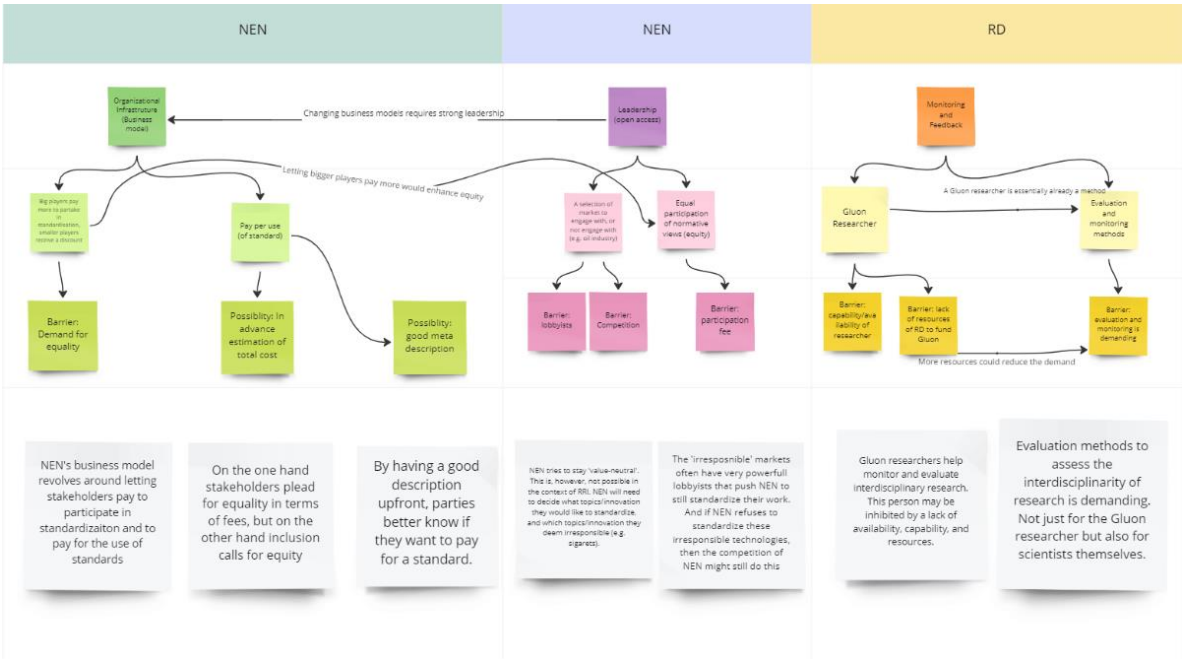
As main barriers Shape Lab identifies the following issues:

- Coordination and internal competition with the rest of the departments working on areas related to social impact
- Lack of established infrastructure for collecting of information on regular basis
- Limited resources and network of Shape Lab.

4.2 Sustainability Factors exercise: Group 2 (NEN and RD)

The second group consists of Lab members from TU Delft, with a representative from ESSRG and one member from the Advisory board, guided by a facilitator from Tecnalia and a notetaker from AIT. After a deliberative process TU Delft participants select two factors for NEN and one for Resilient Delta.

Fig. 7 Collaborative work on Sustainability Strategies, Group 2



[2] One of the new strategic objectives of Tecnalia "Grow Intelligently" includes the aim to explore the creation and implementation of new value generation mechanisms.

4.2.1 NEN: Business Model, Organizational Infrastructure and Leadership

TU Delft participants engage in some serious reflections about the standardising process and its criteria throughout the first part of the session. Participants attempt to draw connections between their thoughts and the proposed factors. Following a lively discussion on open access and neutrality as fundamental keys, TU Delft participants agreed to focus on two factors: "Organisational Infrastructure" and "Leadership," since it is believed that new business models require strong leadership.

NEN's business model revolves around letting stakeholders pay to participate in standardisation and pay for the use of standards. It is critical for NEN to provide a solid description upfront, which enables effective cost estimation and a strong meta-description and thus helps parties to better know if they want to pay for a standard, giving NEN a competitive advantage over its competitors.

During the debate it is mentioned that NEN is considering letting big players pay more to partake in standardisation, while smaller players could receive a discount. Letting bigger players pay more would enhance equity. Stakeholders advocate for fee equality on the one hand, while inclusion necessitates equity on the other hand. This is also related to the equitable involvement of normative perspectives (equity).

However, there is currently an extensive debate in NEN Lab about whether NEN should exclude specific markets to foster responsible standardization. To safeguard the future of the institutional change, it is vital to choose which markets to engage with or avoid (e.g., the oil business). Although NEN conventionally strives to be "value-neutral" this is untenable in the framework of RRI. NEN would need to determine which topics/innovations they would like to standardise and which they deem irresponsible (e.g., cigarettes). During the debate it is acknowledged that "irresponsible" markets frequently have extremely powerful lobbyists who press NEN to continue standardising their work and if NEN refuses to standardise these harmful technologies, NEN's competitors may still do so.

As a result, the following are the primary barriers identified by TU Delft Lab participants for the changing of the Business Model of NEN:

- Demand for Equality vs. Equity: there is a deep debate. Whilst equality is desirable, what is needed is equity.
- Lobbyists, which exert their pressure to maintain the establishment.
- Competitors, which would (continue to) issue the certificates for those self-vetoed markets for NEN.
- Participation Fee: The service's fee may prevent some businesses from using it.

4.2.2 Resilient Delta: GLUON Researcher, Monitoring and Feedback

For the Resilient Delta, “Monitoring and feedback” factor are easily selected and agreed upon by participants from the TU Delft Lab.

As the GLUON Research is a new method, the group points out the need for mechanisms for evaluating the GLUON researchers' work and impact. Gluon researchers contribute to the monitoring and evaluation of interdisciplinary research and their relation to RRI but are hampered by the lack of previous studies and available resources. The Resilient Delta Lab participants point out that assessing research interdisciplinarity is a challenging issue as it involves research as well as non-research activities.

The key barriers mentioned by Resilient Delta participants are as follows:

- Insufficient capability and availability of the GLUON researchers to implement the method in practise
- Dependence on future funding
- Evaluation and monitoring are difficult as they require knowledge, time, and effort.

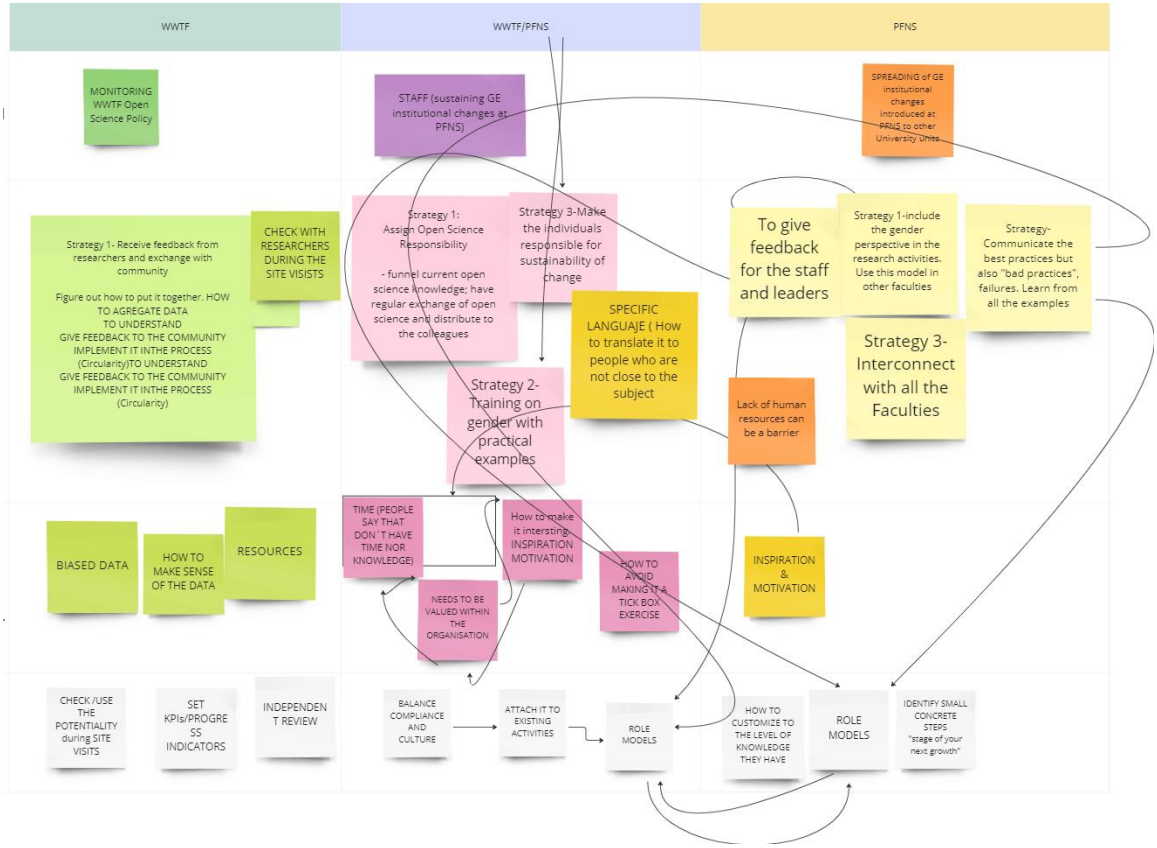
4.3 Sustainability Factors exercise: Group 3 (PFNS and WWFT)

The third group consists of Lab members from PFNS and WWFT, with a representative from the Advisory Board and a note taker from AIT and a facilitator from Tecnalia. WWTF decides to work on the area of Monitoring of its Open Science Policy and PFNS on the area Spreading of the University Gender Equality Plan. Finally, both teams decide to focus also on Staff, and they work collaboratively.

4.3.1 WWTF: Open Science Policy, Monitoring and Feedback

WWTF developed a timely Open Science (OS) policy, based on a thorough stakeholder involvement process during the Co-Change project lifespan. The OS policy came into force in early 2022 and will be applied to all future WWTF projects. An important factor for the Lab in terms of sustainability is to build in policy monitoring scheme, which should define how to aggregate the data. The objective is to monitor the internal and external applications of the new Open Science Policy, and to reflect on its overall impact and particularly on impact on the transparency of the research processes.

Fig. 8 Collaborative work on Sustainability Strategies, Group 3



During the reflection it is mentioned that WWTF is a very small organisation (3-4 staff members) dealing with 4 research funding programs, so the organisation needs continuous feedback and information exchange with the local community, universities and researchers. Thus, the strategy developed in the session is to have a regular exchange with these stakeholders on open science policy to understand the needs of the different communities and to check what is going on the field, in a circular way, so it will be framed both bottom up and top down. WWTF mentions that it organises yearly site visits with researchers and this channel will also be also used for receiving feedback on the progress of the policy. The group agrees that setting KPIs/Progress Indicators and independent reviews are important for the area of Monitoring and effort and resources should be dedicated to this task in the future.

Barriers for the implementation are related to the lack of resources, the possible biased data from the self-monitoring and lack of tools to interpret the collected data. One of the main concerns is to avoid turning the monitoring process into a burden or into a “ticking-the-box" exercise.

4.3.2 PFNS: Gender Equality, Staff and Spread

One of the most significant institutional changes that was implemented at Faculty of Agriculture, University of Novi Sad during the Co-Change project is related to gender equality (Gender Equality Plan and Gender Equality Board). An important factor to make the Lab sustainable is to spread the idea further and showcase it to the rest of

the university, staff and beyond. In this regard, the staff is a very important factor to consider, and the challenge is to prepare the employees for spreading the change in such a big organisation. PFNS Lab participants point out as a positive starting point that the cooperation between the PFNS staff members is good and together they feel empowered to continue the change.

During the discussions several strategies are designed:

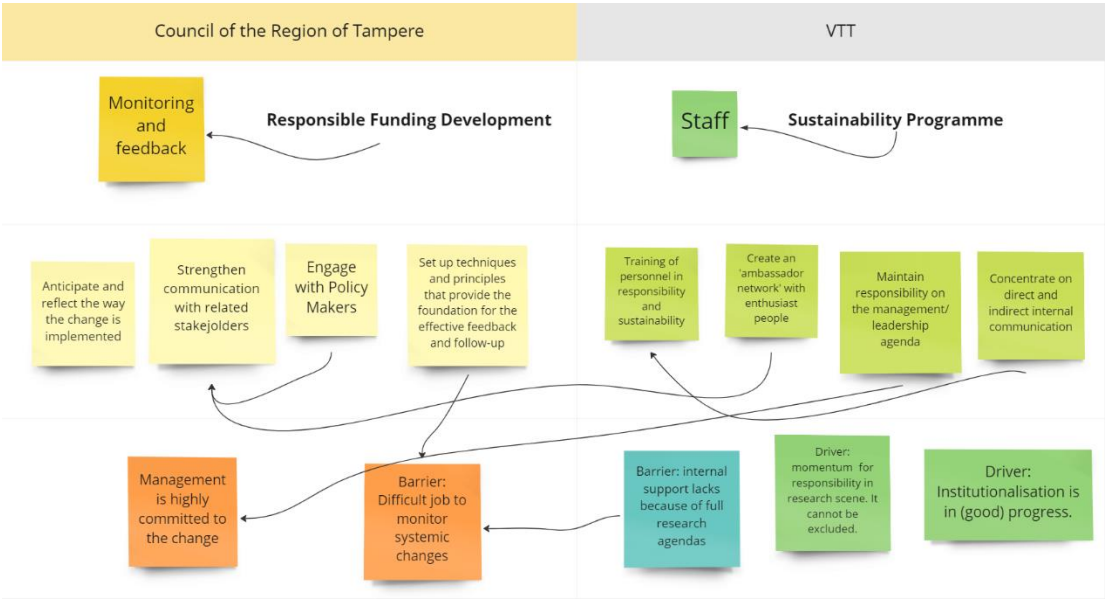
- Organise a set of staff-oriented volunteer training activities, with practical and real examples to make the organisation close to the gender equality. The idea is to start involving closer staff from the faculty and then start spreading the word to other faculties. The Lab mentions the importance to communicate the best practices but also "bad practices" and failures from all the examples.
- Make individuals responsible for sustainability of change.
- Make staff members part of this change is crucial to get them inspired and motivated for the change. Individual responsibility is a key factor to sustain any change, make the change durable after the project is over.
- Set up role models and cultivate influencers in gender diversity. Their effect is based on the concept ‘Seeing is believing’.

Possible barriers are connected to the lack of interest, personal motivation and inspiration and skills and time. Cultural factors are also important, as well as language issues, special attention is put on the need to translate results to the common language of people who are not close to the subject.

4.4 Sustainability Factors exercise: Group 4 (VTT and PL)

The fourth group consists of VTT and the Council of the Region of Tampere, which completed the reflection exercise online in collaboration with Tecnalia.

Fig. 9 Collaborative work on Sustainability Strategies, Group 4



4.4.1 PL: Responsible Funding Development, Monitoring and Feedback

The Council of the Tampere Region selects to work on the factor Monitoring and Feedback with the aim to provide assessment of the development of the responsible and sustainable regional funding and thus be able to reflect on the changes and to anticipate the future impacts of this change. For this aim the Council will strengthen the communication with related stakeholders, especially with policy makers, on the evaluation of this institutional change. Development of monitoring and feedback channels and infrastructures is considered as the greatest weakness. As a strong point is mentioned the commitment of the Council´s top management to sustain the change over the long term.

4.4.2 VTT: Sustainability Programme, Staff

VTT's responsibility programme aims to increase understanding and create successful conditions to embed responsibility and sustainability practices in all levels of RTO. For this reason, the Lab selected "Staff", although they contemplated other two factors, namely "Organisational infrastructure" and "Leadership", as well. The Lab realised that if it takes a broader view, "Staff" encompasses leadership in the case of VTT, as leaders need to build their understanding first, similar to other personnel, before they can confidentially and skilfully promote institutionalisation in the organisation. "Organisational infrastructure" was partly neglected for the same reasons as "Leadership", but the main driver for not selecting it was that the Lab has less power to intervene in changing the infrastructure than influencing to staff's knowledge accumulation.

The main advantage for institutionalising responsibility at VTT is that process is strongly in motion internally and externally which helps embedding responsibility and

sustainability practices in the organisation. VTT has for example dedicated task force for Responsibility programme, trainings are implemented regularly, and internal communication is strong, and at the same time responsibility and sustainability actions are gaining increasing momentum from the external R&I environment.

As the main barrier for sustainability of VTT's responsibility programme is lack of internal support to the task force and leadership because of research teams (both those who have knowledge and expertise of responsibility and those who do not yet have capabilities in responsibility) have full research agendas, and do not find time to help and to be involved in the co-creative process of sustaining responsibility.

5. Conclusions

Many of the solutions to the problems addressed by the project are long-term and require a deep understanding of how the sustainability of the implemented initiatives can be influenced in a positive way. Sustaining outcomes in many cases can be more difficult and complex than executing the initial changes, as this requires consistent support and monitoring measures and infrastructures, as well as widespread understanding and adoption. As specific aspects such as market mechanisms, national innovations systems, structures and organisational proprieties are of high importance for the future success of institutional changes initiated in the Co-Change project, influencing factors are examined on an individual basis.

The sustainability plans were developed by the Labs on a case-by-case basis. In this process, reflection and self-evaluation of the human, organisational and broader social and economic factors play a key role. In the continuous work with the Labs, it became apparent that many of them have difficulties making detailed, binding long-term commitments, mainly because of issues that extend beyond the control of their teams and require effort from other working groups, departments and partner organisations. Another important observation is that sustaining institutional changes demands managing internal and external uncertainty of the ever-changing environment and it is challenging to guarantee that the proposed sustainability plans will resonate with the strategies of the host organisations in the near and far future.

To address these complex issues and still provide descriptions of the honest effort of the Labs to give continuity to the achieved outcomes, the Labs were supported by providing them with nonbinding reflective questions that served as a basis for raising organisational awareness and collective determination on the level of involvement in the different change initiatives. The Labs kept developing their sustainability plans through iterative cycles of reflection and action, and through a conscious and flexible approach. Instead of being obligated to stick to fixed pathways, the teams felt motivated to flexibly choose their own strengthening factors and application strategies. A further round of collective reflection on the visions of sustainability produced thought-provoking results and helped the consortium encourage a culture of joint commitment and responsibility. It was broadly acknowledged that commitment requires not just planning, but also the creation of a new mindset, which is a process of constant learning and adaption.

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