
Women towards success: organisational changes through Gendered Innovation Living Labs

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Abstract: Equal rights, responsibilities, opportunities, fairness, representation, and accessibility, are inextricably linked to Gender Equality and Diversity Inclusion, sowing a ground for innovation in which different perspectives can drive growth, maximising impact and promoting social justice. Built on Living Lab principles, GILL's collaborative learning hub includes useful and transferable open access resources for the development of fairer innovation and entrepreneurial cultures (IEC) within the quadruple helix. These directly address challenges faced by female entrepreneurs, innovators and researchers – who, even when they are invited 'to the table' may not be given the chances and respect needed to present their ideas. The paper firstly introduces the GILL platform, focussing on tools, methods and other resources, created to enable women and those from underrepresented groups to succeed in IECs and, secondly, provides example of how these can be applied to support gender sensitive organisational and cultural change.

Keywords: Living Lab, gender, smart innovation, entrepreneurship, women leadership, diversity, underrepresented, inclusivity

1 Introduction

Globally, there is growing recognition that if the wicked problems (Rittel and Webber, 1973) faced by all populations (e.g. climate change, poverty, gender inequality) are to be

overcome, we need to things differently. Adopted by world leaders in 2015, SDGs provide a global agenda to address ‘wicked’ social, economic, and environmental challenges. Gender equality and diversity inclusion are integral to the SDGs, especially SDG 5 – Gender Equality and SDG 10 – Reduced Inequalities, which focus on: achieving equality and empowerment for all women and girls, emphasizing the eradication of discrimination, ensuring full participation and involvement, and significantly reducing inequalities within countries and individuals. Despite the efforts and steps already required through the adoption of the United Nations Sustainable Development Goals (SDGs), a general framework for equal treatment in innovation and entrepreneurship, overcoming any gender or diversity-related issue, is still missing.

One strategy is to increase the diversity of people who can contribute to solutions and decision making, by increasing the opportunity for diverse perspectives to be heard and through leveraging the entire talent pool. However, many powerful and influential industries which could lead transformational innovations such as those dominated by STEM are slow and resistant to change, with traditional, conservative, and male dominated hierarchies. For example, the transport sector has a major role in meeting climate goals. The decarbonisation of transport, investment in green infrastructure and public transport are key to meeting climate goals, yet the industry is not only slow to change but deeply misogynistic (Woodcock et al, 2025). Organisational change is needed if they are to embed the principals of EDI in their workplace culture which can drive innovation

The figures cited below show that progress is being made, but that the rate of change is uneven and too slow especially in key STEM (science, technology, engineering and mathematics) fields.

Gender equality, diversity and inclusion (EDI) represent essential milestones towards achieving open innovation and entrepreneurial cultures – mechanisms through which changes can be made. They guarantee equal rights, responsibilities, opportunities, fairness, representation, and accessibility, favouring an environment where diverse perspectives can emerge and prosper. This is not just a matter of social justice but fuel for growth and innovation.

The EUs commitment to promoting gender equality and diversity inclusion is expressed through a variety of policies and strategies. The EU Gender Equality Strategy 2020-2025 had an ambitious goal to reach a gender-equal Europe by 2025. Achieving such a goal requires challenging gender stereotypes, bridging gender gaps in labour markets and achieving equal participation across sectors, enhancing gender balance in decision - making positions, and resolving the gender pay and pension gaps. To encourage a gender balance in decision-making and high-level positions, in 2022, the EU launched a directive that requires large companies to have at least 40% women on their boards by 2026, promoting gender balance in leadership. Figures show some slight positive changes/

In the political sphere, in Europe women now account for only 33% of members of national parliaments, 33% of senior ministers in Member State governments, and 5 Member States have a woman prime minister (EC, 2019).

In the economic arena, according to the World Economic Forum, advancing gender parity in entrepreneurship is not only a moral imperative but a crucial driver of economic growth and innovation. The Global Gender Gap Report 2025 states that bridging gender gaps in economic participation and opportunity will take over 134 years if the current trends persist. Economic participation opportunity and educational attainment are two out of the four strands that the report benchmarks.

In 2015, McKinsey, calculated that advancing gender equality could have increased the global GDP (Gross Domestic Product) by \$12 trillion by 2025. Women entrepreneurs have

the power to bring diverse perspectives and inclusive leadership and often develop solutions that can really address social and environmental challenges. They can act as catalysts for change, innovation, and economic prosperity within their domains and communities. Nevertheless, women and people from underrepresented groups face systemic barriers such as limited access to capital, restricted networks, and entrenched cultural biases. Breaking down these barriers would make innovation and entrepreneurship a viable pathway for all.

Although the gender gap is closing, 34% of board members of the EU's largest publicly listed companies, women still hold less than 1 in 10 board chair and chief executive officer positions. The Pipeline's (2023) report of gender dynamics within the executive committees of FTSE350 companies revealed that only 1 in 5 commercial roles on executive committees were occupied by women, only 9% of FTSE350 companies had a female CEO, and that despite comprising nearly half of qualified accountants, only 18% of FTSE350 companies have a female CFO. Despite annual improvements, in terms of funding for startups, in the UK male-founded startups secure an average of nearly six times more funding. female-founded businesses receive £1.05m in funding, compared to £6.2 million for a solely male-owned organisation and only 14% of Angel investors are female.

The EU has seen significant reductions in the gender education attainment gap demonstrated by the fact that 60% of university graduates are female and 41% are employed as researchers. Sadly, this is not matched by the percentage of women in positions of seniority and influence. Within leadership roles (Rosa et al, 2020), women accounted for only 24% of grade A professors (professorial chairs) and 22% of heads of institutions in the higher education sector across the EU in 2017. Women's representation diminishes significantly during their academic careers. The leaky pipeline results in fewer female academics attaining powerful positions; gender pay gaps; gender imbalance in the composition of research teams; and a higher proportion of women, especially those in junior academic positions or other positions, relying on third-party funding, employed on precarious working contracts (European Commission 2019). When it comes to grant funding to women, the average share increased from 29% in 2009 to 37% in 2022 and, publications involving women across all disciplines tend to be more multidisciplinary or collaborative than those developed by men (van der Linden et al, 2024).

Importantly whilst this paper concentrates in particular in gender, we use a gendered lens to explore other dimensions of intersectional inequality, such as ethnicity, disability. With the spotlight being placed on gender, other inequalities may attract less attention, e.g. – ethnic minority representation has been growing at a much slower rate since 2013 than female representation (Webber, 2024).

Whilst the EU has provided targets and quotas these have to be underpinned by practical tools and methods and a willingness to 'act within the spirit of the directive to avoid tokenism. All too often women have been 'invited to the table' but find themselves unable to speak for fear of being ignored, ridiculed or discounted. They are given menial tasks, omitted from discussions, bonding and networking events. Enabling women to proactively fulfil these roles requires training and mentorship and organisational willingness and support for increasing EDI. The Horizon funded GILL project fits into this gap by providing resources, tools and methods which can be used to increase Equality, Diversity and inclusion for all 'underrepresented groups' and lead to Gender Responsive Smart Innovation and Entrepreneurship (GRSIE).

GRSIE is a reaction against one sided innovation that only consider the technological side, and which only benefits one group. GRSIE should be disruptive, reactive, and challenging. It provides a means of responding to real world challenges holistically and with new

indicators, in ways which prioritise and address gender and other intersectional characteristics together with material innovations. ‘Smartness’ is implied not only in the use of technology, but also in the mindsets and methods of those engaged in the innovation ecosystem. Products and systems are ‘smarter’ when they are integrated with, and build on existing solutions, when they are inclusive, i.e., benefitting everyone, not creating worse problems by prioritising the needs of one group, or innovation at the expense of others.

To facilitate this the GILL (Gender Innovation Living Lab) project (described below) provides a set of resources which can be used to create opportunities for EDI across a variety of contexts, disciplines and organisations. Critically as a ‘living lab, we have the opportunity to influence key actors across the Open Innovation Ecosystem (i.e. quadruple helix agents – industry, citizen, policy makers and the educational sector). In this paper, we concentrate primarily on a subset of GILL’s activities relating to organisational change.

Organisational change refers to transforming structures, processes, and cultures to meet new challenges or opportunities (Nienaber et al., 2023). In the context of gender, this often involves recognising and addressing systemic biases that impact decision-making, leadership, and innovation. Gendered organisational change aims not only to increase diversity but also to embed gender equity in core practices, values, and structures (Ely and Myerson, 2000). Organisational change is essential for lasting impact, especially when it addresses and corrects biases embedded in organisational cultures, paving the way for gender-responsive innovation to thrive.

Current organisational change processes should recognise how gender shapes institutional structures, processes, hierarchies, and practices. These are often not gender-neutral but can privilege men and traditional masculine norms, manifesting in gendered divisions of labour, unequal power relations, and exclusionary decision-making. Nienaber et al. (2023) highlight how gender dynamics within organisations, especially in male-dominated sectors, can hinder women’s advancement, with female change agents facing challenges in informal networks and political arenas. These environments require resilience, political astuteness and leadership skills. Addressing gender inequality thus requires changing how work, leadership, and authority are conceptualised, especially in innovation, where decisions often marginalise women’s contributions.

Gendered innovation tools, like those developed by the GILL project, aim to make these hidden gender biases visible and address them. Achieving gender equality requires a multifaceted approach involving policy reform, leadership training, and cultural shifts to create gender-conscious organisations. This approach goes beyond diversity metrics, such as counting the number of women in leadership roles, to fostering deeper organisational commitment to gender equality by embedding gender-responsive frameworks into cultures and decision-making processes.

For organisations in innovation and entrepreneurship, the role of organisational culture in fostering gender inclusion is critical. Innovation, often assumed to be neutral, is shaped by gender dynamics that influence who participates, what ideas are valued, and how they are developed into products or services. Gender-inclusive innovation challenges the idea that innovation systems are meritocratic and instead highlights that innovation processes are gendered. Creating a culture of gender-inclusive innovation goes beyond gender balance in teams to actively fostering an environment where diverse perspectives are integrated into the process. GILL tools help organisations assess and reshape their innovation practices to address these gender biases.

Organisations can maximise their impact and develop more comprehensive and effective solutions, through the integration of different viewpoints. Unfortunately, and with disappointment, in many organisations it is still the case that women and those from underrepresented/non-traditional groups within the sector face significant barriers to full

involvement and participation. Thus, limited access to equal resources, lack of representation in decision-making roles and processes, and cultural biases, weaken and undermine the voices and the contributions of women and underrepresented groups.

2 Review of Gender equality and diversity in innovation

Innovation flourishes on diversity. The combination of different perspectives, experiences, skills, and competencies has been proven as a key driver of creativity, problem-solving, and sustainable economic growth. Nevertheless, even though it has been heavily highlighted the importance of gender equality and diversity inclusion in fostering innovation, women and underrepresented groups still face limits that edge deeper participation in research, entrepreneurship, and technological advancements.

Within decision-making processes, the same barriers are in place and, also when women or individuals from marginalized groups are invited to join decision-making spaces, they frequently encounter challenges in having their ideas considered in a valuable way and implemented. Studies have shown that organisations and, more in general, societies that prioritise gender equality and inclusive innovation, have better performances in terms of societal impact and also of financial returns.

Institutional structures have shown that the development of gender diversity policies has improved the conditions of equality between women and men. However, the representation of women in the workforce is still an everyday and universal concern (Restrepo et al., 2021).



Figure 1, Global support for female entrepreneurs

In recent years, the study of women entrepreneurship has experienced great growth, gaining a broad consensus among academics and contributing above all to understanding all those factors that explain the difficulty of women in undertaking an entrepreneurial career. Indeed, female entrepreneurs, represent the fastest growing category of entrepreneurship

worldwide and have received, especially in recent years, the attention of many academic (Cardella et al., 2020). Women can make significant contribution to entrepreneurial activities and economic development, in terms of enhancing the creation of new jobs and improving the gross domestic product (Bahmani-Oskooee et al., 2013). However, the percentage of women who decide to pursue an entrepreneurial career is lower than that of men and, this divergence clearly increases where the level of development of the country is higher (Coduras and Autio, 2013). This leads to the empirical conclusion that a woman's decision to start a business depends on her socio-cultural background (Ahl, 2006). The Global Entrepreneurship Monitor 2023/2024, indeed, states that in 37 economies, out of the 49 considered, the social support for women entrepreneurs is unsatisfactory. Only five economies have good social support for women entrepreneurs and same resource access compared to men, as shown in Figure 1.

The review of academic literature and reports, performed by GILL project, also focused on the identification of barriers and enablers of GRSIE – Gender Responsive Smart Innovation and Entrepreneurship. It has emerged that between 2013 and 2022, the interest round the topic of gender in entrepreneurship and innovation increased, reflecting the political and economic interests and relevance.

Enterprise Ireland in its 2020-2025 strategic plan for women in business, underlines the need for diversity in leadership roles and the fact that increasing the participation of women founding, leading and growing enterprises will result in better businesses.

2. The GILL project

GILL was born to address a very ambitious task: to create a fairer Open Innovation Ecosystem (OIE) to encourage effective participation, innovation, and thought leadership of women and other traditional underrepresented groups, all of whom have critical experiences that could shape the biggest and heaviest European and global challenges (e.g., digital divide, green transition, health and resilience, social and economic discrimination). It has been inspired the Gendered Innovations project (<https://genderedinnovations.stanford.edu/>) which championed the need to address gender inequalities in STEM with 'fixes' to the numbers, institutions and knowledge.

GILL is adding a fourth 'fix' - to change the culture around innovation and entrepreneurship, through a change to practice. The virtual, learning, collaborative hub, iteratively developed using Living Lab principles, is a useful tool that supports GRSIE to address the European and global priorities through supporting diversity and gender equality across sectors and professions.

The following sections introduce the Gendered Innovation Living Labs project, GILL, and the co-designed hub developed to support gender-sensitive organisational and cultural changes and the way in which its resources have been used and validated across 15 Action Oriented Experimentations.

Table 1, Overview of GILL's aims and objectives mapped on material available of on the hub

<u>Aim</u>	<u>Objective</u>	<u>Open access resources</u>
Enable organisational and cultural change	To support organisations within the quadruple helix addressing EDI using methods, tools, policies, and practices that allow actors from different	Information, resources, guidelines and methods to support this process.

	sectors to co—operate without bias or prejudice.	
Enhance professional development	To boost professional development of work group leaders/managers within the EIC, new and experienced entrepreneurs, innovators and researchers.	Targeted training, signposting existing training materials and networks, as well as providing access to specific resources developed in the project.
Increase integration of gender and diversity	To improve the integration of gender and diversity into product design, technologies, and innovations.	The hub offers resources that support the integration of gender and diversity into innovation processes, promoting new understanding and strategy
Allow gendered educational practices	To promote gendered educational practices from primary schools to Higher Education Institutions (HEIs), recognising the ethical and business cases for gender equality. This is also linked to co-creating practice-based recommendations to reduce gendered and intersectional biases	the platform can count on a strong collaboration among HEIs, Living Labs, museums, aimed at sharing knowledge and providing material that support gender-sensitive educational practice.

2.1 Target Audience: Identification of the Possible Primary Users of the Platform

The diverse resources proposed in the hub are designed to address the systemic barriers and biases faced by women and unrepresented groups, empowering them to overcome challenges, as well as to support professionals in innovation and entrepreneurship, enabling them to cultivate more equitable and inclusive work environments.

Therefore, the GILL hub aims at addressing a wide range of stakeholders, spanning from women and unrepresented groups in the innovation and entrepreneurship sectors, to the same groups dealing with equality, diversity, and inclusion issues in social contexts all over the world.

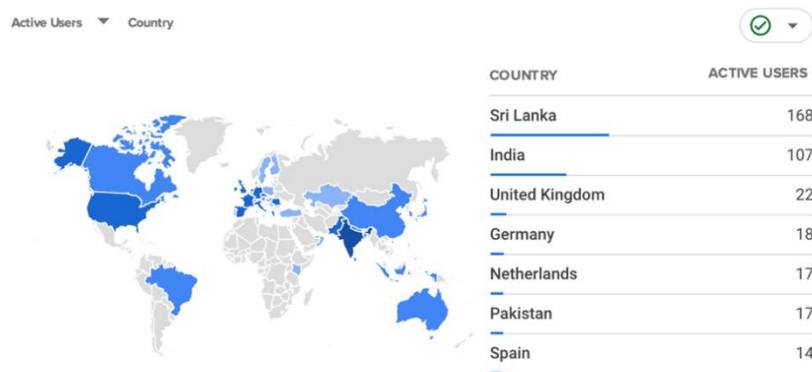


Figure 2, Active Users of the GILL Hub per Country from Google Analytics

Among all the primary users of the hub, it is possible to identify female entrepreneurs, a group central to the mission of GILL and its platform. Female entrepreneurs can benefit from the wide set of gender responsive tools, trainings, mentorship programme, and be inspired by the role models to support their success in the innovation and entrepreneurial world. The hub suggests methods to overcome the barriers they typically face in their sectors, such as unequal access to resources, network, and opportunities, and provides a collaborative space to grow their enterprises and promoting gender equity in their practices. Another target group for the hub will be researchers and academics, who can benefit from its innovative tools and frameworks to integrate gender equality in their work. For academics and researchers specifically studying the intersection between gender, innovation, and entrepreneurship, the hub provides case studies, research tools, and access to best practices to support the design and implementation of inclusive research methodologies.

The GILL hub also favours the support of innovators from diverse or unrepresented backgrounds. Whether working in the fields of technology, social entrepreneurship, or sustainability, these users will gain access to collaborative opportunities through the “Network” and “Forum” modules, as well as include new tools that encourage equitable innovation practices in their activities.

As reiterated multiple times, the hub doesn’t solely serve as a collaborative space and support GILL communities. In fact, policymakers and the public sector in general play a crucial role in shaping inclusive innovation and entrepreneurial ecosystems. For this reason, the resources of the GILL hub aim at helping inform the development of gender-sensitive policies that promote fairer and more inclusive innovation. By using the hub’s data and insights, as well as monitoring trends and discussions on the key thematic of the platform, policymakers can make more informed decisions that promote equality at the organizational and systemic levels.

Living Labs and Innovation Centres can be identified as potential primary users, too. Given their important role in advancing innovation through collaboration, the GILL hub can support these actors implement gender-responsive strategies and in their activities and daily management. Through access to practical tools, interaction with the main actors of the quadruple helix (i.e., citizens, industry, academia, and government) and the GILL Action Oriented Experimentations, these entities can foster inclusive environments that support the growth of gender-diverse innovation ecosystems.

NGOs and Civil Society Organisations focusing on gender equality, social justice, and inclusive innovation can be identified as potential users of the hub. The platform provides these groups with tools, resources, and opportunities to maximise their impact in the gender equality space.

Finally, students and educators interested in the innovation and gender sector, can constitute primary users of the hub by exploiting its functionalities as a learning tool. On one hand, students will gain access to a variety of multimedia training resources, including webinars and case studies; on the other hand, educators can incorporate these materials into different curricula to teach the next generation of innovators about gender-responsive approaches.

In conclusion, reflecting its mission to advance gender equality and diversity within innovation and entrepreneurship, the GILL Hub creates a platform that fosters equal opportunities for its diverse and inclusive audience, enabling them to drive positive change.

2.2 Living Lab principles: why the Living Lab principles are relevant to GILL

The Gendered innovations project highlighted the issue of user perspective and user driven innovation, linked to gender-blind research. The absence of a gender perspective and of a more in-depth gender dimension in technology design and development, is considered as a reason for the failure of many start-ups and innovations (Schiebinger and Klinge, 2013). Gendered innovation represents a multifaced approach, which embeds gender balance in research and innovation teams, and gender as an analytical category within the innovation process, to be considered throughout the whole research cycle, from the idea to the realisation.

Living Labs (LL) have been suggested as a solution to the ‘European paradox’ – referring to gap between high performance in research yet underperformance in exploitation, with a recognized gender gap in both research and exploitation (Schuurman et al, 2014). As Open Innovation Ecosystems they enable the cooperation among universities, industries, SMEs, start-ups, entrepreneurs, research centres, public authorities, involving end-users as actors rather than factors of the innovation process. Living Labs principles are integral to GILL project, as well as, to the development phase of the GILL hub and relevant because of:

User centric-innovation: Living Labs emphasize the involvement of end-users as active players in the innovation process. This concept is perfectly aligned with GILL’s main objective of integrating different perspectives (and gender perspectives), guaranteeing that innovation is inclusive and addresses all relevant needs.

Co-Creation: Living Labs foster the co-creation of values from the bottom up by all relevant stakeholders, ensuring higher adoption of innovations. This process also supports the development of gender-responsive solutions, acceptable and scalable.

Real-life setting: GILL, also through its different Action Oriented Experimentations, operates in real-life environments, enhancing the efficiency of gender-responsive solutions.

Orchestration: operating as a Living Lab means to act as the orchestrator within the ecosystem, linking and partnering with key stakeholders.

Multi-stakeholder participation: GILL aims at involving stakeholders from the quadruple helix model (academia, government, private sector, citizens) both internally, through the partners of the consortium, that outside of it, aiming at involving as much stakeholders as possible to address gender related issues properly and comprehensively.

Being the Living Labs principles at the core of GILL project, all the resources/outputs of the project are designed to support LLs and their stakeholders. Secondly the GILL hub was co-created to meet the needs of gendered innovation stakeholders in line with the principles

outlined above, and thirdly all Action Orientated Experimentations (AOEs) were required to work through 2 iterative development cycles (understand-co-design-implement-evaluate) to developed GRSIE solutions.

2.3 Action Oriented Experimentations

The 15 Action Oriented Experimentations, undertaken in 8 different countries, act as semi-autonomous pilot Living Labs in so far as they are required to follow the 5 underlying LL principles and contribute to and use the methods developed in the project. They each have their own spheres of interest as outlined in Figure 3. All focus on the need to improve GRSIE in at least one of the following domains namely, Green Transition, Digital Transformation, and Health and Resilience.

Importantly, AOE provide real-life environments where new approaches and knowledge about GRSIE are developed. In developing their work, each AOE is required to select, use and evaluate GILL tools and methods to help the understanding of the gender related issue they wanted to address, co-create a solution with QH stakeholders, implement it and finally evaluate their solution.

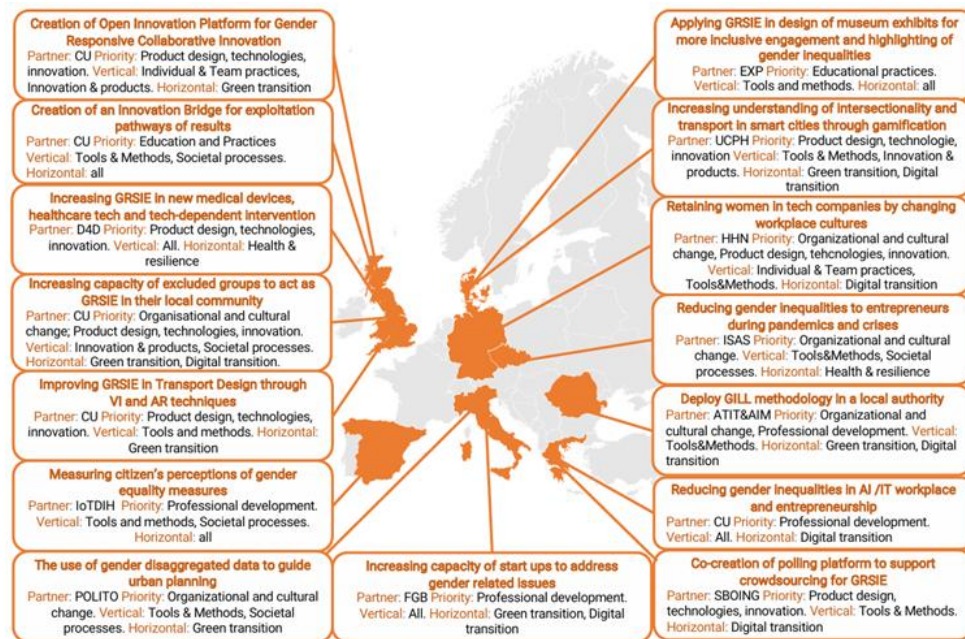


Figure 3, the GILL Action Oriented Experimentations

AOE outputs are designed over the course of the project, using 2 iterative design cycles each lasting approximately 12 months, and managed across 4 phases – understand, co-design, implement and evaluate. Final outputs vary in nature, and include apps, new networks, knowledge, working and design practices, serious games, tools and methods. These will have been iteratively developed and validated with real users, before being offered up to the wider ERANET. Examples include methods to increase EDI in organisations, place-based support network for new entrepreneurs, serious game to promote understanding of EDI and green transport, investigation of gender bias in social media and national guidelines to support female entrepreneurs.

At the time of writing, each AOE has completed their first cycle, so has developed and piloted a GRSIE-related solution with key stakeholders. As a natural part of this they would have used a selection of the tools and methods provided by GILL (and described below). After completing each phase, each AOE quantitatively evaluated their chosen methods in terms of efficiency, transferability, validity, inclusivity, and usability in fostering gender equity. Through this process the tools proposed on the GILL Hub are validated in action. Given the focus of this paper, on organisational change, we will focus on three of the fifteen AOE's that focus on this area - HHN (Heilbronn University), Experimentarium Museum and D4D (Devices for Dignity) - to show how they used GILL methods to bring about cultural changes within their organisations (also see Woodcock et al, in press; Ballesteros et al, forthcoming). These are briefly described in Table 2 and the following paragraphs

Table 2 Subset of AOE's working on organizational change

Case study/AOE	Methods selected	Rationale
D4D: Increasing GRSIE in new medical devices, healthcare tech and tech-dependent intervention.	Reflective Diaries, reflective interviews, monitoring airtime, fair meeting practices, Hear the Right Voices, Gender Impact Assessment, GenderMag.	Methods to ensure equitable participation and distribution of speaking time by changing organizational dynamics, engaging individuals outside the core team and facilitate collaboration.
Retaining women in tech companies.	Inclusive Communication, Gender Swapping, Mind Scripting, Hear the right voices, Sex-Disaggregated Data, Intersectional Analysis, Reflective journal, User Journey Map, Triple Diamond, Women Network, Signposting for evaluation during an event by participants, Reviews and Retrospectives, Analysis of field notes and observations.	Effective communication and collaboration, flexibility and inclusivity to ensure meaningful participation from all stakeholders, development of concrete everyday actions.
Improving EDI in museums	Mapping inclusion on organisational pillars, workshops, road maps for change, Effective communication and collaboration,, development of concrete everyday actions, 'stop, start, continue'; firecracker workshops, appointment of	EDI had not been considered across all parts of the organization.

	EDI team, 90-day projects, reflection.	
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Devices for Dignity

At Devices for Dignity, the emphasis is on addressing gender disparities in healthcare, particularly in the design and development of medical devices and technologies. The organisation's work focuses on clinical needs associated with chronic health conditions, many of which are overlooked and disproportionately affect women. Through the implementation of GILL tools, Devices for Dignity aims to increase awareness of gender health inequalities and promote gender-responsive innovations in the healthcare sector.

Experimentarium

The Experimentarium is a non-profit, Danish Science foundation dedicated to fostering public interest in science and technology. It embraced the GILL tools to enhance its role as a communal space that facilitates shared cultural experiences. The shift toward greater inclusion at Experimentarium is aligned with the broader role of museums in society, where inclusion is enacted through structured frameworks of awareness, practice, and agency. This paper analyses how Experimentarium's inclusive practices contribute to the institution's mission of promoting scientific literacy and technological engagement across diverse demographic groups.

Heilbronn University

In this case study the aim was to work with tech companies to prioritize addressing gender inequality by changing their team practices, designing methods, and developing tools to retain women in the innovation cycle and foster gender-responsive innovations. Methods used included hear the right voices, inclusive communication, gender swapping, mind scripting and sex disaggregated data.

2.4 Overview of the GILL hub and its resources

As previously discussed, the GILL Hub has been co-designed and iteratively developed by cross Europe representatives of the QH in order to meet the real needs of different gender innovation stakeholders, including existing innovation centres, Living Labs, female entrepreneur start-ups, technology transfer offices and researchers.

It comprises of 10 modules which together facilitate collaborative work, knowledge sharing and co-creation between scientists, formal organisations, and citizens engaged in open innovation cycles or gender innovation careers, while aiming at creating a strong community.

The modules offer a wide range of services, tools, and methods developed by GILL and other agencies which enable visitors to explore GILL's work to develop a greater understanding of gender sensitivity and awareness

- in practice (Action Oriented Experimentations, Good Practices, Gender Responsive Methods, Toolbox),
- through learning (Training Materials, Glossary),
- meeting and collaborating (Role Models, Mentoring, Network, Forum), and
- exchanging ideas with other parties related to the GILL communities and beyond (blog, and forum)

Given the aims of the paper, we will focus on the gender responsive tools and methods which can be used to lead to greater EDI and organisational change as exemplified by some of our AOE's (case studies).

2.4 Gender Responsive Methods

The Gender Responsive Methods interactive module enables visitors to select from over 40 methods <https://www.gillhub.eu/explore/gender-responsive-methods> (see Figure 4). Each method is mapped against 3 categories to aid someone who wishes to undertake work on EDI,

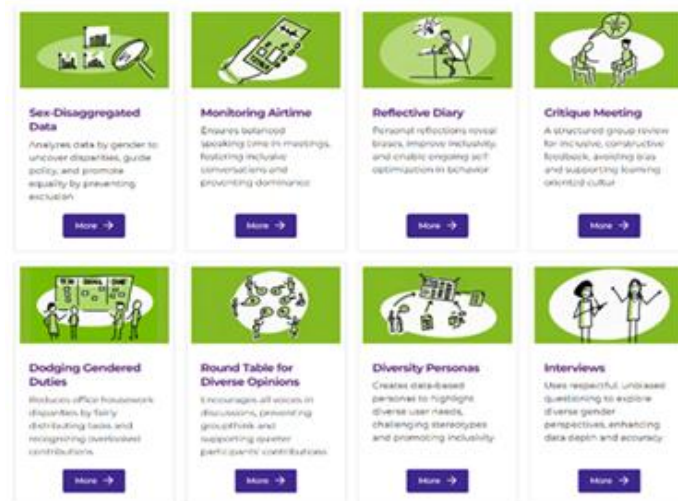


Figure 4, Sample of gender- responsive methods analyzed from the GILL Hub

- Visitor's objectives: seeking to make organizational and cultural changes increase EDI; for professional development; to inform product design, technologies and innovation; to inform educational practice
- Sphere of innovation: innovation and products; societal processes; tools and methods; individual and team
- Design phase: understand; co-design; implement; evaluate
- Focus: doing or reflecting.

Each method is accompanied by a detailed description (example in Figure 5), including its definition, relevance to gender responsiveness, step-by-step application guidelines, and potential spheres of implementation. Additionally, each entry provides references to relevant literature and further reading, ensuring that practitioners and researchers can contextualize and adapt the methods to their specific needs.



Figure 5, Screenshot of description of information related to the use of Sex Disaggregated Data

3. Description of GILL methods used to support organisational change

As previously described, all AOE freely selected from a combination of standard methods - such as workshops interviews, surveys and retrospective analysis of gender biases in previous work – and GRSIE methods to support their work. They were then asked to evaluate the usefulness of each method on 6 parameters (see table 3), in helping them understand gender related issues. The results from all AOE were collated providing a detailed picture of usage and usefulness. In general, the more traditional research methods (e.g. surveys questionnaires, interviews, workshops and focus groups) were the most popular, especially in the understanding and evaluating phases

Discussion of traditional methods has been omitted from this paper, instead we focus on 3 of the most frequently used, but less familiar methods which were used to support gender sensitive organisational changes (as indicated in Table 3, along with the ratings they received during the evaluation phase). Their use can affect immediate and powerful changes supporting EDI. The interested reader is referred to Ballesteros et al (forthcoming) who provide a detailed examination of Gill methods used in HCI environments, and Woodcock et al (2025) who link the use of the methods to a staged model of organisational change.

Table 3, The most highly rated 'GILL methods' used to support organisational change by AOE's

Method	Effective	Efficient	Inclusive	Transferable	Useful	Valid	Mean score
Team manifesto	4.7	4.5	4.5	4	4	4.2	4.32
Reflective diaries	4.3	4.6	3.4	5	4.5	3.6	4.32
Fair meetings	3.8	4.2	3.9	3.8	4	4	4.12

Reflective diaries are a highly transferable and useful tool. Drawing on autoethnography, in GILL a template was provided to quickly capture the meeting details, before encouraging the diarist to reflect deeply and honestly on gender issues they observed during an event (e.g. dominance of male speakers, self-deprecating/nonassertive female voices, use of gendered pronouns). This is resource-light but requires high levels of commitment if it is to be completed as soon as possible after an event. It also requires openness and honesty from the diarist about standpoints, attributions for these (e.g. why they perceive certain behaviors, outputs or organisational structures to have a gender bias) acknowledgments of bias and prejudice. A final section was also included in which the diarist was required to consider actions they could take to address the issues they had noted, e.g. to talk to the organizer of the meeting, have follow-up discussions with attendees, consider how they could enable other 'silent' colleagues to speak up. Reflective diaries were used widely by all AOE's and partner even though it was highlighted that "it is one author's standpoint and biases" but it was "still effective in un-covering systemic biases".

Ballesteros et al, forthcoming) provide a deta Methods such as the Team Manifesto were considered "very inclusive - it supports a team towards being inclusive, including the opinions of everyone in the team". Fair meetings is a tool that can be used to interrupt biases and gender imbalances in work meetings. It seeks to foster a culture which enables everyone to be able to speak up, not just those in more powerful positions. This not only shows respect and equality but also enables different opinions to be shared. It optimizes the meeting process, requiring clear objectives and focused discussion, equal sharing of administrative tasks equally and a consideration of the accessibility of the meeting (e.g. place, time, duration, digital provision). The practical organization of Fair Meetings requires planning to maximize efficiency. One important consideration flagged by one of the teams who practiced Fair Meetings regularly over the first cycle of their experimentation was that the size of the meeting is an important element to consider. It was more difficult to apply some of these techniques on a large group because it became time consuming and tiring for teams to include all partners into the conversation.

Fair Meetings were widely adopted and recommended, but their rating reflects some of the issues encountered by the teams when implementing these changes in their workflows. Teams needed to learn how to work differently, and that required investment in time and effort. One partner reported that "at the beginning, there wasn't much optimization because the team was not used to it. With time it became better." While it was considered "an excellent method that can be useful for many teams and organizations", celebrating meetings that are truly inclusive requires extra preparations beforehand.

Monitoring Airtime is a simple intervention which starts by tracking the amount of time each speaker takes in meetings. Based on the findings, agreements can be made to avoid

interruptions and monologues, for active listening and ways to invite others to share their perspectives. Those who have used this method report how swiftly it can change the atmosphere within a meeting and the expectations of participants. Even the simple exercise of measuring and monitoring the amount of airtime that each person takes in a meeting has been a transformative initiative for the teams who used it. It brings into the open the extent to which these imbalances play a role in the day to day of organizations, groups, and labs. Team Manifestos can be used to achieve a shared agreement on how to work together, how to establish work processes and good practices that every team member agrees with, and what was important to change or to dedicate more time to. These provide a useful means for teams to discuss and agree on the importance of prioritizing inclusivity and gender equality in the way they do things. However, they require individuals to acknowledge that need for change and accept that there is space for improvement in the way that things are done. Reaching a consensus is not always easy to achieve if there is disagreement on the relevance to changing even simple procedures to address inequalities. Often, the transformative power of these methods rests on the team's commitment to apply them meaningfully and upholding them through their work. It is important for the impact for the buy in of all members of the team (not just the junior members, women or those who traditionally hold less power) is needed.

These findings align with existing research on diverse teams, which emphasize that the benefits of varied perspectives—such as enhanced innovation, higher-quality outcomes, and improved decision-making—stem not simply from diversity itself but from intentional efforts to create an inclusive and collaborative environment. Prior studies have recognized that fairness requires time and strategic investment, as inclusive practices and equity-driven methods must be actively cultivated to be effective. While these efforts demand additional resources, they are essential to unlocking the full potential of diverse teams and fostering the fair collaboration needed to sustain their advantages (Hunt et al, 2018).

Conclusions

The paper highlights the transformative potential of gender-sensitive methods in fostering organisational change, as well as, the importance of integrating these methods at grass roots level, leveraging horizontal and vertical support across the organisation. Challenges in adoption, such as resistance to cultural change and the time-intensive nature of some methods, indicate the need for institutional support and iterative adaptation. This should be regarded as a long-term strategy, not as a quick fix.

With regard to the AOE considered in this process, HHN works to change the team culture and processes in HCI organisations. The AOE leaders, in Experimentarium and D4D, are fortunate because they can influence practices in their own organisations. Experimentarium has actively engaged with all the members of the staff who have embraced the opportunity to put forward suggestions on how to make Experimentarium more inclusive. EDI is now embedded at a strategic level and is an ongoing process. D4D interrogated its own practices and discovered, unexpected gender biases, which they did not imagine, but once known can be rectified – and as part of a wider network they will be able to influence other health tech innovation centres.

Our analysis also reveals that while many methods are transferable across projects, their successful implementation depends on contextual factors, including team commitment, organizational culture, and available resources. Methods such as Hear the Right Voices illustrate the value of structured interventions that amplify underrepresented perspectives and disrupt exclusionary practices. Additionally, findings suggest that some methods require complementary strategies to enhance their inclusivity and intersectional awareness.

This paper contributes to both theory and practice in gender equality and organizational change. On the one hand, it enriches our understanding of how targeted tools and methodologies, such as those developed by GILL, can address deeply embedded biases within institutional structures. By examining the implementation of GILL tools in diverse contexts, it offers a framework for analysing the processes that drive gender-responsive innovation. On the other hand, this paper provides insights into how organizations across various sectors can adopt and adapt these tools to cultivate a more inclusive and diverse environment.

This study also considers the broader implications of these organisational changes, highlighting the ways in which diversity and inclusion practices influence downstream processes and outputs in both institutions. The goal of embedding inclusivity into the cultural fabric of these organisations extends beyond achieving diversity metrics; it seeks to create environments where all individuals—regardless of gender, race, ability, or background—are not only represented but also empowered to contribute meaningfully. By examining these transformations, this paper provides insight into how gender equality and inclusive innovation can be systematically embedded within organisational practices, ultimately leading to more equitable and effective outcomes.

Internationally it is recognized that the solution to global problems requires the input, knowledge and experience of all citizens. In this paper we have just focused on approaches to increase EDI in organisations (educational or industrial). Living labs, through their engagement with all QH agents in the real-world situations have the opportunity to ensure all citizens voices are heard and can shape the future. The application of GILL methods and tools provides a means of increasing EDI across a range of events – not just those based in formal organisational structures.

The project and its hub represent a step forward embedding gender-responsive innovation within organization practices in Europe. Through the integration of the Living Lab methodology, focusing on co-creation among different stakeholders, GILL is aiming at demonstrating the transformative potential of gender-sensitive tools and methodologies. Looking at the future, the insights gained through GILL can support forthcoming European initiatives, linked to gender equality and organizational changes. Gender equality is a cross-cutting priority also in Horizon Europe and touches all parts of the programme. In the next years, thus, many efforts will be devoted at drastically reducing and, possibly, at eliminating gender inequality, intersecting social inequalities (e.g., ethnic or racial origin, LGBTIQ identity, etc.) throughout the R&I systems, including by addressing unconscious biases, stereotypes, and systemic structural barriers. The successful integration of the gender dimension into R&I content will still be a default requirement across the whole programme; this is extremely important to properly address global challenges, such as biomedicine and healthcare, online violence, artificial intelligence, climate change mitigation and adaptation, etc. (Horizon Europe Strategic Plan 2025-2025).

Furthermore, the European Union aims at establishing policy dialogues with non-EU countries and regions specifically targeted to gender equality and diversity, underlining the global relevance of such issues.

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References

- Ahl, H. (2006). Why research on women entrepreneurs needs new directions. *Entrepreneurship* 30, 595–621. doi: 10.1111/j.1540-6520.2006.00138.x.
- Bahmani-Oskooee, M., Kutan, M. A., and Xi, D. (2013). The impact of economic and monetary uncertainty on the demand for money in emerging economies. *Appl. Econ.* 45, 3278–3287. doi: 10.1080/00036846.2012.705430.
- Ballesteros, O.E., Sellin, E., Marsden, N. and Woodcock, A. (under review). Implementing Gender-Sensitive Design Methods for Inclusive Innovation, HCI2025
- Bienkowski, P. and McGowan, H. (to be published in 2025) "Leadership of Inclusive and Sustainable Cultural Organisations, A practical Guide. " Routledge, UK.
- Cardella, G.M., Hernànde. B.R. Sánchez, J. C. and Sánchez, G. (2021) Women Entrepreneurship: A Systematic Review to Outline the Boundaries of Scientific Literature, *Frontiers in Psychology*, 11, Available online at: <https://doi.org/10.3389/fpsyg.2020.01557> Accessed 6/2/2025.
- Coduras, A., and Autio, E. (2013). Comparing subjective and objective indicators to describe the national entrepreneurial context: the global entrepreneurship monitor and the global competitiveness index contributions. *Investig. Regionales* 26, 47–74. Available online at: <http://hdl.handle.net/10017/26972>. Accessed 6/2/2025.
- Ely, R.J. and Meyerson, D.E. (2000) "Theories of Gender in Organizations: A New Approach to Organizational Analysis and Change", *Research in Organizational Behaviour*, 22, 103-51.
- Enterprise Ireland (2020) Enterprise Ireland 2020 Action Plan for Women in Business; Fueling growth through diversity, Downloaded from <https://www.enterpriseireland.com/documents/action-plan-for-women-in-business-en-92306.pdf>. Accessed 6/2/2025.
- European Commission (2019) SHE figures 2018, European Commission, Luxembourg
- European Commission (n/d) Achieving gender balance in decision making, Available online at https://commission.europa.eu/strategy-and-policy/policies/justice-and-fundamental-rights/gender-equality/equality-between-women-and-men-decision-making/achieving-gender-balance-decision-making_en#women-and-men-in-economic-decision-making. Accessed 6/2/2025.

- Fauth, J., De Moortel, K., and Schuurman, D. (2024). Living labs as orchestrators in the regional innovation ecosystem: a conceptual framework. *Journal of Responsible Innovation*, 11(1). <https://doi.org/10.1080/23299460.2024.2414505>.
- Götzmann, N., and Bainton, N. (2021) Embedding gender-responsive approaches in impact assessment and management. *Impact Assessment and Project Appraisal*, 39, 3, 171-182.
- Horizon Europe Strategic Plan 2025-2027 [Strategic plan - European Commission](#)
- Hunt, V., Prince, S., Dixon-Fyle, S., and Yee, L. (2018). Delivering through diversity. McKinsey & Company, 231, 1-39. <https://www.mckinsey.com/capabilities/people-and-organizational-performance/our-insights/delivering-through-diversity>.
- Nienaber, A.-M., Woodcock, A., Soares, A. E., Searle, R. and Tietmeyer, J. (2023) “The role of women as change agents in a male-dominated context: Empirical findings from the transport and mobility industry,” *Work*, 76, 853-865.
- The Pipeline (2023) Empowering Change: Explore the Women Count Report 2023, Available online at <https://www.excepipeline.com/women-count/women-count-2023/>. Accessed 6/2/2025.
- Restrepo, N., Unceta, A. and Barandiaran, X. (2021) Gender diversity in research and innovation projects: The proportion of women in the context of Higher Education, *Sustainability*, 3, 9, 5111; Available online at <https://doi.org/10.3390/su13095111>. Accessed 6/2/2025.
- Rittel, H. and Webber, M. (1973) Dilemmas in a general theory of planning, *Policy Sciences*, 4, 2, 155-169.
- Rosa, R., Drew, E., Canavan, S. (2020) An overview of gender inequalities in EU universities, In book: *The Gender-Sensitive University A Contradiction in Terms?* License [CC BY-NC-ND 4.0](#) Downloaded from https://www.researchgate.net/publication/342688307_An_Overview_of_Gender_Inequality_in_EU_Universities; Accessed 6/2/2025.
- Schiebinger, L. and Klinge, I. (2013) *Gender Innovations: How gender analysis contributes to research* (Luxembourg: Publications Office of the European Union).
- Schuurman, D., Baccarne, B., Marez, L., Veeckman, C. and Ballon, P. (2014), Living Labs as open innovation systems for knowledge exchange: Solutions for sustainable innovation development, *International Journal of Business Innovation and Research*, DOI: 10.1504/IJBIR.2016.074832, Accessed 6/2/2025.
- van der Linden, N., Guillaume Roberge, G. and Dmitry Malkov, D. (2024) *Gender Equality in Research & Innovation – 2024 Review* - Elsevier BV
- Webber, A. (2024) Women and ethnic minorities ‘on B roads’ to top jobs, Downloaded from <https://www.personneltoday.com/hr/women-and-ethnic-minorities-diversity-top-jobs-green-park/>. Accessed 6/2/2025.

Woodcock, A., Roseanu, S., Constantin, I. and Damboianu, C. (2025) Barriers to women's employment in the transport sector in Europe *Open Research Europe*, <https://doi.org/10.12688/openreseurope.16123.1>. Accessed 6/2/2025.

Young, H. (2024) Gender funding gap narrows for second year in a row Downloaded from <https://startups.co.uk/news/gender-funding-gap-2024/> Accessed 6/2/2025.