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INSTITUTE OF COMPUTER SCIENCE



Deliverable 2

State of the art review report on DIE in research practice

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1. Executive Summary

Deliverable D2 of the MindGenGapICT project presents a comprehensive review of current knowledge, policies and institutional practices related to the integration of Diversity,Inclusivity, and Equality (DIE) within Computer Science research organisations. Building upon the baseline assessment conducted in Deliverable D1 of the MindGEnGapICT project, this deliverable examines international scientific literature, European policy developments, good practices identified through study visits, and the outcomes of internal capacity-building and awareness-raising activities undertaken at FORTH-ICS.

The review highlights that achieving sustainable DIE integration requires moving beyond isolated initiatives towards systematic institutional approaches embedded within governance, organisational culture, research practices and strategic decision-making. While gender equality remains a key priority due to the persistent underrepresentation of women in Computer Science and ICT, the literature increasingly supports broader and more intersectional approaches that recognise multiple dimensions of diversity and their contribution to research excellence, innovation and societal impact.

To complement the literature review, the project conducted study visits to leading European institutions with recognised expertise in gender equality and inclusion, organised internal workshops and awareness-raising activities, engaged with the leadership and Scientific Council of FORTH-ICS, and strengthened European collaboration through dissemination activities and the coordination of the European Research Consortium for Informatics and Mathematics (ERCIM) Working Group Inclusive Digital Futures: Developing Technology and Culture. These activities provided valuable insights into successful institutional practices and highlighted the importance of leadership commitment, stakeholder engagement, evidence-based decision-making and continuous organisational learning.

The findings presented in this deliverable demonstrate that sustainable DIE integration requires coordinated institutional action, including appropriate governance structures, continuous capacity-building, systematic monitoring and the active participation of the entire research community. Together with the baseline assessment presented in Deliverable D1, this deliverable provides the evidence base for the development of future institutional actions and the MindGenGapICT roadmap, supporting FORTH-ICS in creating a more inclusive, diverse and equitable research environment while generating knowledge and good practices that may be transferable to other Computer Science research organisations.

2. Introduction

The MindGenGapICT project aims to support the development of a more inclusive, diverse and equitable research environment within the Institute of Computer Science of the Foundation for Research and Technology – Hellas (FORTH-ICS). Building upon the institutional baseline assessment presented in Deliverable D1, which analysed the current state of gender representation and organisational practices within the Institute, this deliverable extends the project's work by examining international experience, emerging research and practical examples of successful DIE implementation in research-performing organisations.

While Deliverable D1 focused on understanding the current institutional landscape at FORTH-ICS, Deliverable D2 explores the broader context in which institutional transformation takes place. It reviews the scientific literature, European policy developments, institutional good practices and lessons learned

from study visits in order to identify approaches that can support the sustainable integration of Diversity, Inclusivity and Equality (DIE) within Computer Science research organisations. The deliverable therefore serves as a bridge between the baseline assessment and the development of future institutional actions and strategic planning under the MindGenGapICT project.

2.1 Objectives of the Deliverable

The primary objective of Deliverable D2 is to review the current state of knowledge and practice regarding the integration of DIE within research-performing organisations, with particular emphasis on Computer Science, Software Engineering and Artificial Intelligence. Through the analysis of scientific literature, European policy initiatives and practical institutional experiences, the deliverable seeks to identify evidence-based approaches that can inform organisational transformation at FORTH-ICS.

More specifically, the deliverable aims to:

- review the current state of the art on DIE in Computer Science research, Software Engineering and Artificial Intelligence;
- examine European policy developments and institutional frameworks that promote DIE within research and innovation;
- identify good practices and successful institutional interventions through study visits and case studies;
- analyse the lessons learned from internal capacity-building and awareness-raising activities implemented within the MindGenGapICT project;
- identify transferable practices and recommendations that can support the long-term integration of DIE within FORTH-ICS and other research-performing organisations.

Rather than proposing a prescriptive solution, the deliverable provides an evidence base that will support the design of future institutional actions and contribute to the continuous development of a sustainable DIE culture within the Institute.

2.2 Relation to WP2 and the MindGenGapICT Project

Deliverable D2 constitutes a key output of WP2, which focuses on strengthening institutional capacity and supporting the integration of Diversity, Inclusivity and Equality principles within research activities and organisational practices at FORTH-ICS.

The work presented in this deliverable complements the baseline assessment undertaken in WP1 by moving from the identification of institutional challenges to the exploration of potential solutions. Whereas Deliverable D1 established the current organisational baseline through a detailed analysis of gender representation, governance structures and institutional practices, Deliverable D2 investigates how similar challenges have been addressed internationally and identifies practices that may be adapted to the specific context of FORTH-ICS.

The deliverable also provides an important foundation for the subsequent stages of the project. The evidence, lessons learned and recommendations presented herein informed the development of the institutional roadmap and future implementation activities presented in D1, ensuring that proposed actions are grounded in both scientific evidence and practical experience. In this way, Deliverable D2

contributes directly to the overall objective of MindGenGapICT by supporting the transition from institutional assessment towards evidence-based organisational transformation.

2.3 Methodological Approach

The work presented in this deliverable is based on a multi-source methodological approach that combines scientific evidence, institutional learning and practical experience.

First, a comprehensive review of the scientific literature was conducted to examine recent developments in Diversity, Inclusivity and Equality within Computer Science, Software Engineering and Artificial Intelligence. Particular attention was given to evidence-based interventions, organisational transformation, intersectionality, responsible AI and emerging methodological approaches for integrating DIE within research organisations.

Second, the review considered the evolving European policy landscape, including Horizon Europe, the European Research Area (ERA), Gender Equality Plans (GEPs), Responsible Research and Innovation (RRI) and the *She Figures 2024* report. These policy initiatives provide the strategic context within which research-performing organisations are expected to strengthen diversity, inclusion and equality.

Third, the project incorporated knowledge gained through study visits to organisations with recognised experience in promoting DIE within research and higher education. These visits enabled the project team to examine successful institutional practices, discuss implementation challenges with practitioners and identify transferable lessons relevant to the FORTH-ICS context.

Finally, the deliverable draws upon the internal capacity-building and awareness-raising activities implemented during the project, including workshops, seminars, stakeholder discussions and engagement with researchers and institutional leadership. These activities provided valuable insights into organisational needs, facilitated dialogue across the Institute and supported the validation of the findings emerging from the literature review and study visits.

By combining these complementary sources of evidence, the deliverable provides a comprehensive overview of current knowledge and practice while identifying practical recommendations that can support the sustainable integration of DIE within FORTH-ICS and other Computer Science research organisations.

3. Conceptual Framework

3.1 Understanding Diversity, Inclusivity and Equality(DIE)

Diversity, Inclusivity and Equality (DIE) have become fundamental principles for fostering excellence, innovation and societal impact within research and innovation ecosystems. While these concepts are closely related, each addresses a distinct aspect of creating fair, accessible and high-performing research environments.

Diversity refers to the presence of differences among individuals within an organisation or community. These differences may include gender, age, ethnicity, nationality, disability, socioeconomic background, religion, sexual orientation, educational background, disciplinary expertise, career stage and other personal or professional characteristics. Within research organisations, diversity contributes to a broader

range of experiences, perspectives and knowledge that can enhance creativity, innovation and scientific excellence.

Equality focuses on ensuring that individuals have equal rights, opportunities and access to resources regardless of their personal characteristics. Traditionally, equality initiatives have concentrated on removing discriminatory practices and promoting equal treatment in recruitment, career progression, funding opportunities and participation in decision-making processes. However, equal treatment does not always produce equitable outcomes because individuals may face different structural barriers throughout their careers.

For this reason, increasing attention has been given to **equity**, which recognises that different individuals and groups may require different forms of support to achieve comparable opportunities. Equity seeks to identify and address structural disadvantages by providing targeted measures that reduce existing inequalities and create fairer conditions for participation.

Inclusion complements diversity and equality by ensuring that individuals from diverse backgrounds are able to participate meaningfully within organisations. Inclusion extends beyond numerical representation by fostering environments where people experience belonging, recognition, respect and equal opportunities to contribute. An inclusive organisation actively values different perspectives and creates organisational cultures that enable all members to participate fully in research, innovation and decision-making.

Within this deliverable, the term **Diversity, Inclusivity and Equality (DIE)** is used to describe this integrated perspective. Although the baseline assessment presented in Deliverable D1 primarily examined gender representation within FORTH-ICS due to the significant gender imbalance identified across the Institute and current institutional priorities, the methodology developed within the MindGenGapICT project adopts a broader DIE perspective that can progressively incorporate additional dimensions of diversity as organisational maturity evolves.

DIE should therefore not be viewed solely as a human resources objective but as an organisational capability that influences research quality, innovation performance, institutional resilience and societal relevance.

3.2 Why DIE Matters in Computer Science Research

Computer Science and Information and Communication Technologies (ICT) have become fundamental drivers of scientific discovery, economic growth and societal transformation. Advances in artificial intelligence, data science, cybersecurity, digital health and intelligent systems increasingly influence every aspect of modern society. Consequently, ensuring that these technologies are designed, developed and governed by diverse research communities has become not only a matter of social justice but also a prerequisite for scientific excellence, innovation and responsible research (European Commission, 2024; Bjørn et al., 2023; Bano et al., 2024).

Despite considerable progress over recent decades, gender disparities remain a persistent feature of Computer Science and ICT worldwide. Evidence from Europe, North America and other regions consistently demonstrates that women continue to be underrepresented throughout the educational pathway, research careers and leadership positions, particularly within engineering-intensive and computing disciplines. According to the European Commission's She Figures 2024, although women now

account for almost half of doctoral graduates in Europe, they remain substantially underrepresented in ICT studies, engineering disciplines, senior academic positions and research leadership (European Commission, 2024). Similar patterns are observed globally, suggesting that gender inequality in computing is a systemic phenomenon rather than an issue confined to individual countries or institutions (NSF NCSES, 2019; UNESCO, 2021).

Rather than resulting from a single barrier, gender inequality in STEM and ICT reflects the cumulative effect of multiple structural, institutional and cultural factors operating throughout the research and career lifecycle. This phenomenon is commonly described as the "leaky pipeline", whereby women's representation gradually decreases from early education through higher education, doctoral studies, research careers, senior academic positions and institutional leadership (European Commission, 2024; NSF NCSES, 2019). Research consistently shows that each transition point introduces additional barriers, resulting in progressively lower participation of women at successive career stages (Cutrupi et al., 2025).

The origins of these inequalities often emerge long before individuals enter higher education. Studies demonstrate that gender stereotypes regarding science and technology are formed during childhood and adolescence, influencing educational aspirations, self-confidence and career expectations (Charlesworth, 2019). Media representations, educational materials and prevailing social norms frequently portray computing and engineering as predominantly male domains, while women remain underrepresented as scientists, engineers and technology leaders (Geena Davis Institute on Gender in Media & The Lydia Hill Foundation, 2018; Kerkhoven et al., 2016). These early experiences contribute to reduced identification with STEM subjects among girls and influence educational choices before university entry (Berwick, 2019; Terada, 2019).

The transition into higher education further reinforces these patterns. Although women constitute the majority of university students in many countries, they remain significantly underrepresented in Computer Science, engineering and several ICT-related disciplines. Moreover, women are more likely than men to leave STEM programmes before graduation, reflecting differences in institutional culture, perceptions of belonging, confidence, mentoring opportunities and exposure to inclusive learning environments (NSF NCSES, 2019; Cutrupi et al., 2025). Recent literature therefore argues that increasing participation requires not only recruitment initiatives but also institutional environments that support retention, engagement and long-term career development (Toti et al., 2024; Szlávi et al., 2025).

As researchers progress through academic careers, gender disparities continue to widen. Women remain underrepresented among senior researchers, professors, laboratory directors and institutional decision-makers, despite increasing participation at earlier educational stages. International studies consistently identify lower promotion rates, unequal access to research funding, limited representation in leadership positions and reduced visibility within scientific communities as contributing factors (European Commission, 2024; NSF NCSES, 2019). These patterns have been documented across both European and international research systems and are reflected in the findings of Deliverable D1, which identified significant gender imbalances within the leadership and governance structures of FORTH-ICS.

Importantly, contemporary research demonstrates that these disparities cannot be explained solely by individual career choices or differences in ability. Instead, they result from the interaction of organisational culture, unconscious bias, recruitment and promotion practices, access to mentoring and professional networks, work-life balance, recognition mechanisms and institutional governance (Bjørn et

al., 2023; Toti et al., 2024; Cutrupi et al., 2025). Increasing attention is also being given to workplace climate, with studies highlighting the impact of discrimination, microaggressions, harassment and exclusionary organisational cultures on women's retention and career progression within STEM and ICT (National Academies of Sciences, Engineering, and Medicine, 2018; Russell & Metcalf, 2019).

Recent research further emphasises the importance of adopting an intersectional perspective. Gender does not operate in isolation but interacts with other dimensions of diversity, including ethnicity, disability, socioeconomic background, age, nationality and caring responsibilities. Women belonging to multiple underrepresented groups frequently experience compounded barriers that cannot be understood through single-dimensional analyses (Szlávi et al., 2023). Consequently, contemporary IDE approaches increasingly advocate moving beyond gender-only interventions towards broader institutional strategies capable of addressing multiple and intersecting forms of inequality (Szlávi et al., 2024).

Beyond fairness and equal opportunity, there is growing recognition that diversity contributes directly to research quality and innovation performance. Diverse research teams bring complementary expertise, experiences and perspectives, fostering creativity, improving problem-solving and reducing the risk of homogeneous thinking (European Commission, 2024; Bjørn et al., 2023). In fields such as Artificial Intelligence and digital health, diversity among researchers is also essential for developing technologies that are fair, trustworthy and responsive to the needs of increasingly diverse societies. Conversely, homogeneous research teams may unintentionally embed biases into research questions, datasets, algorithms and technological solutions, thereby limiting both scientific quality and societal impact (Shams et al., 2023; Bano et al., 2024; Wang et al., 2025).

These observations have significant implications for research-performing organisations. Sustainable improvements in diversity cannot be achieved solely through outreach or recruitment initiatives but require comprehensive institutional approaches that address organisational culture, leadership, governance, career development, research practices and continuous evaluation (FemTech.dk; Bjørn et al., 2023; Toti et al., 2024; Cutrupi et al., 2025). This perspective underpins the MindGenGapICT project and provides the rationale for developing evidence-based approaches capable of supporting long-term institutional transformation.

The baseline assessment presented in Deliverable D1 confirmed that many of these broader international trends are also evident within FORTH-ICS. While the assessment focused specifically on male and female representation due to the current institutional priorities and the significant gender imbalance observed across the Institute, it highlighted the importance of leadership commitment, governance structures, stakeholder engagement and systematic monitoring as essential components of sustainable organisational change. These findings, together with the international evidence reviewed in this deliverable, reinforce the need for institutional strategies that move beyond isolated interventions towards the systematic integration of Inclusivity, Diversity and Equality within research organisations.

3.3 European Policy Context

The growing importance of DIE within research and innovation is reflected in a series of European policies and strategic initiatives that encourage research-performing organisations to develop more inclusive and equitable institutional environments.

Within **Horizon Europe**, gender equality has become a cross-cutting priority and, since 2022, public research organisations and higher education institutions applying for Horizon Europe funding are generally required to have a **Gender Equality Plan (GEP)** in place as an eligibility criterion. Beyond compliance, the European Commission encourages organisations to integrate the gender dimension into research content, promote gender-balanced decision-making, support inclusive recruitment and career progression, and establish mechanisms for monitoring institutional progress.

More broadly, the **European Research Area (ERA) Policy Agenda** identifies gender equality, inclusiveness and diversity as essential components of an excellent and competitive European research system. ERA Actions encourage Member States and research organisations to strengthen institutional governance, improve research careers, enhance inclusiveness and promote responsible research environments capable of attracting and retaining diverse talent.

The European Commission's **She Figures** reports provide the most comprehensive evidence base regarding gender equality in research and innovation across Europe. The latest edition (She Figures 2024) demonstrates that although women's participation in higher education and doctoral studies has increased significantly, substantial inequalities remain in senior academic positions, research leadership, decision-making bodies and several STEM disciplines, including Information and Communication Technologies. These findings reinforce the importance of sustained institutional action that extends beyond recruitment to encompass career progression, leadership representation and organisational culture.

The European policy landscape also increasingly recognises the importance of integrating diversity considerations into **Responsible Research and Innovation (RRI)** and the development of trustworthy digital technologies. Policies related to Artificial Intelligence, open science, research assessment reform and research careers all emphasise transparency, participation, fairness and inclusiveness as essential characteristics of high-quality research systems.

For the MindGenGapICT project, these European developments provide an important policy foundation while recognising the need to adapt implementation to the realities of individual research organisations. Although FORTH-ICS currently focuses primarily on addressing gender imbalance, particularly in response to the findings of Deliverable D1 and the Institute's organisational priorities, the broader European policy context supports a gradual transition towards comprehensive DIE approaches that incorporate multiple dimensions of diversity. The work presented in this deliverable is therefore aligned with both current European policy priorities and the longer-term objective of fostering inclusive, diverse and equitable research environments capable of supporting scientific excellence and societal impact.

4. State-of-the-Art Review

4.1 Diversity, Inclusivity and Equality in Computer Science Research

Diversity, Inclusivity and Equality (DIE) have become increasingly important priorities within Computer Science over the past decade. Although the discipline has been a key driver of technological innovation and digital transformation, it continues to face significant challenges related to the underrepresentation of women and other underrepresented groups, particularly in research-intensive and engineering-oriented domains (Bjørn et al., 2023; Toti et al., 2024; European Commission, 2024). Traditionally, institutional initiatives have focused primarily on improving gender balance through recruitment

campaigns, outreach activities and educational programmes aimed at encouraging girls and young women to pursue studies and careers in computing. While these initiatives have contributed to raising awareness and increasing participation, recent research demonstrates that improving representation alone is insufficient to achieve sustainable institutional change (Cutrupi et al., 2025; Toti et al., 2024).

Contemporary research increasingly recognises that diversity should not be viewed solely as a demographic objective but as a fundamental component of research excellence, innovation capacity and responsible technology development. Diverse research teams contribute broader perspectives, enhanced creativity, improved problem-solving and technologies that better respond to the needs of society (Bjørn et al., 2023; Bano et al., 2024). Consequently, DIE is increasingly being integrated into discussions on research quality, Responsible Research and Innovation (RRI), ethics and trustworthy Artificial Intelligence, reflecting a broader understanding of diversity as a driver of scientific excellence rather than solely a social objective (Shams et al., 2023; Bano et al., 2024; Zowghi & Bano, 2026).

A significant contribution to this evolving perspective is provided by Bjørn, Menendez Blanco and Borsotti (2023), who argue that creating more inclusive Computer Science environments requires moving beyond numerical representation towards redesigning the environments in which computing education and research take place. Their work introduces the concept of design artefacts as practical mechanisms for fostering equity and inclusion, demonstrating how participatory activities, collaborative design methods and alternative approaches to engaging with technology can challenge traditional perceptions of who belongs in Computer Science. Rather than treating diversity as an additional policy objective, they position inclusion as an intrinsic characteristic of how computing itself is designed, taught and practised (Bjørn et al., 2023).

A practical example of this philosophy is provided by the FemTech.dk research programme at the Department of Computer Science, University of Copenhagen. FemTech.dk represents one of the first long-term institutional initiatives that combines research, education, participatory design, community engagement and organisational transformation to improve diversity within Computer Science (FemTech.dk, 2025). Rather than focusing exclusively on increasing female participation, the programme seeks to transform computing culture by fostering interdisciplinary collaboration, inclusive educational practices and continuous experimentation with new forms of learning and engagement. The programme illustrates that sustainable DIE integration requires long-term institutional commitment, dedicated resources and the active participation of researchers, educators and students across all organisational levels.

An important development within the literature is the gradual transition from a predominantly gender-focused perspective towards broader Diversity, Inclusivity and Equality (DIE) frameworks. While gender remains one of the most visible and measurable inequalities within Computer Science, researchers increasingly recognise that individuals experience multiple and intersecting forms of exclusion. Recent systematic reviews highlight that initiatives focusing exclusively on gender may unintentionally overlook barriers associated with disability, ethnicity, socioeconomic background, age, migration status, caring responsibilities and other characteristics that influence participation in research and education (Szlávi et al., 2023). Consequently, contemporary DIE approaches advocate adopting an intersectional perspective, recognising that sustainable inclusion requires addressing multiple and interacting forms of inequality rather than considering gender in isolation (Szlávi et al., 2024).

Alongside this conceptual evolution, increasing evidence suggests that organisational culture plays a more decisive role than isolated interventions. Toti et al. (2024) argue that although curriculum redesign contributes to creating more inclusive educational experiences, institutional culture ultimately determines whether students and researchers feel that they belong within Computer Science. Inclusive curricula should therefore be viewed as one component of a broader institutional transformation that also encompasses leadership commitment, transparent governance, mentoring opportunities, inclusive communication, fair recruitment and promotion practices, and supportive working environments. This represents an important shift within the literature—from encouraging individuals to adapt to existing institutional structures towards adapting institutions to better accommodate diversity (Toti et al., 2024; Bjørn et al., 2023).

These developments have significant implications for research organisations. Rather than viewing DIE as a standalone human resources activity, recent studies increasingly consider it an organisational capability that directly influences research quality, innovation performance, institutional resilience and societal impact (Bjørn et al., 2023; Toti et al., 2024; FemTech.dk, 2025). Sustainable DIE integration therefore requires coordinated action across governance structures, organisational policies, research practices, education, leadership and institutional culture. Such an approach is fully aligned with the broader European policy agenda on Gender Equality Plans (GEPs), the European Research Area (ERA), Responsible Research and Innovation (RRI) and the integration of the gender and diversity dimension into research and innovation (European Commission, 2021; European Commission, 2024).

Despite these advances, the literature consistently identifies an important methodological gap. Existing research provides numerous examples of successful interventions and institutional initiatives, including mentoring programmes, educational redesign, organisational reforms and responsible AI practices. However, relatively limited guidance exists on how research organisations can systematically operationalise DIE through structured methodologies that integrate institutional assessment, strategic planning, implementation, monitoring and continuous improvement (Bano et al., 2024; Cutrupi et al., 2025; Zowghi & Bano, 2026). Most published work addresses individual aspects of diversity—such as mentoring, organisational culture, software engineering or AI ethics—without integrating these elements into a coherent institutional framework. This limitation is particularly evident within Computer Science research organisations, where multidisciplinary research environments, complex organisational structures and rapidly evolving technological domains require flexible yet systematic approaches to DIE integration (Hyrynsalmi et al., 2025).

These observations provide the foundation for the methodology developed within the MindGenGapICT project. Rather than proposing another isolated intervention, the project seeks to contribute to the development of a structured and sustainable methodology that enables research organisations to assess their current DIE landscape, identify institutional barriers, implement evidence-based actions and monitor long-term organisational transformation. The following sections review the principal intervention areas identified in the literature and discuss how these inform the proposed methodological framework.

4.2 From Gender Equality to Intersectional Inclusivity, Diversity and Equality

Historically, efforts to address inequalities in Computer Science have primarily focused on gender. This emphasis reflects the persistent underrepresentation of women across many areas of computing,

particularly within research-intensive, hardware-oriented and leadership positions. Consequently, many institutional policies, European initiatives and research programmes have concentrated on increasing female participation through outreach activities, scholarships, mentoring programmes, awareness campaigns and Gender Equality Plans (GEPs). These initiatives have played a significant role in raising awareness and establishing gender equality as an institutional priority.

However, recent literature argues that addressing gender alone is no longer sufficient to understand or overcome the complex barriers affecting participation in Computer Science. Individuals experience multiple, interconnected dimensions of identity—including ethnicity, disability, age, socioeconomic background, nationality, language, sexual orientation, caring responsibilities and other characteristics—which can influence access to education, career progression, research participation and leadership opportunities. Contemporary DIE research therefore advocates for an **intersectional perspective**, recognising that disadvantage often arises from the interaction of multiple characteristics rather than from a single identity dimension.

The systematic literature review by Szlávi et al. (2023) demonstrates that although intersectionality has become an increasingly discussed concept within Computer Science, its practical implementation remains limited. Most published studies continue to examine gender as an isolated variable, while relatively few investigate how multiple forms of inequality interact within computing environments. The review concludes that greater methodological development is required to operationalise intersectionality in Computer Science research, education and organisational practice.

Building upon this work, Szlávi et al. (2024) argue that intersectionality should not simply be considered during data analysis but should actively inform the design of technologies, educational environments and institutional processes. Their work proposes principles for **designing for intersectional inclusion**, encouraging researchers and practitioners to anticipate diverse user needs, involve a broader range of stakeholders throughout development processes and recognise that inclusive solutions cannot be achieved through one-size-fits-all approaches. These recommendations reinforce the need for DIE considerations to be embedded from the earliest stages of research and technology design rather than being introduced retrospectively.

This shift is also reflected in broader discussions on institutional transformation. Bjørn et al. (2023) argue that inclusion should be understood as a characteristic of the computing environment itself rather than solely as an objective related to increasing participation. Through the concept of design artefacts, they demonstrate how educational practices, collaborative activities and participatory design methodologies can reshape the culture of Computer Science, making it more accessible to individuals with diverse backgrounds and experiences. Similarly, the FemTech.dk programme illustrates how long-term institutional initiatives can integrate diversity into teaching, research, community engagement and organisational development simultaneously, rather than addressing individual dimensions of diversity in isolation.

An important contribution to this discussion is provided by Toti et al. (2024), who emphasise that organisational culture represents one of the most influential factors affecting inclusion within Computer Science. While curriculum redesign, outreach activities and targeted interventions contribute to improving participation, sustainable change depends largely on whether institutions create environments in which diverse individuals experience belonging, recognition and equal opportunities for development.

Inclusive institutional cultures are characterised by transparent governance, supportive leadership, equitable career development, visible role models and mechanisms for addressing discrimination and unconscious bias.

The transition from gender equality towards broader DIE frameworks does not imply that gender should receive less attention. On the contrary, in disciplines such as Computer Science where significant gender imbalances persist, gender remains an essential analytical dimension and an important driver for institutional reform. Rather, the literature argues that gender-focused initiatives should be designed within broader inclusion frameworks capable of recognising additional forms of diversity and avoiding unintended exclusion of other underrepresented groups. This balanced approach enables organisations to address their most pressing inequalities while simultaneously developing more inclusive institutional environments.

Recent literature also highlights the importance of avoiding purely symbolic or compliance-driven diversity initiatives. Hyrynsalmi et al. (2025) describe the emergence of a "DEI backlash" within parts of the technology sector, where diversity programmes have increasingly been questioned or reduced. The authors argue that DIE initiatives are more likely to achieve long-term sustainability when they are clearly connected to research quality, innovation capacity, organisational excellence and societal impact rather than being perceived solely as administrative or political requirements. This reinforces the importance of evidence-based methodologies that demonstrate measurable institutional benefits and support continuous organisational learning.

Overall, the literature indicates that the field is undergoing a significant conceptual transition. Whereas earlier approaches primarily sought to increase participation of specific underrepresented groups, contemporary DIE research increasingly focuses on transforming the structures, cultures and practices that shape participation across the entire research ecosystem. This evolution has important methodological implications. Sustainable DIE integration requires frameworks that combine targeted actions for addressing existing inequalities—such as the persistent gender gap—with broader institutional strategies that recognise intersectionality, promote inclusive organisational cultures and embed DIE principles throughout research, education and innovation processes.

For the MindGenGapICT project, this perspective is particularly relevant. Although the baseline assessment presented in Deliverable D1 focused primarily on male and female representation due to the significant gender imbalance identified within FORTH-ICS and the current institutional priorities, the methodology proposed in this deliverable is intentionally designed to provide a broader foundation for future IDE integration. The approach recognises gender equality as the immediate institutional priority while establishing methodological principles that can progressively incorporate additional dimensions of inclusivity and diversity as organisational maturity and available data evolve.

4.3 Evidence-Based Institutional Interventions for Sustainable DIE Integration

The literature reviewed in the previous sections demonstrates that achieving sustainable DIE in Computer Science requires more than increasing representation through isolated initiatives. While considerable progress has been made in understanding the barriers affecting participation in computing, recent research consistently argues that meaningful change depends on long-term institutional transformation supported by evidence-based interventions, committed leadership and continuous organisational learning (Bjørn et al., 2023; Toti et al., 2024; Cutrupi et al., 2025). These conclusions closely align with the

findings of the MindGenGapICT baseline assessment (Deliverable D1), which identified significant gender imbalances within FORTH-ICS and highlighted the need to move from scattered institutional initiatives towards a systematic and sustainable DIE framework.

One of the strongest messages emerging from recent literature is that no single intervention can effectively address the complex structural barriers affecting diversity within research organisations. The comprehensive review by Cutrupi et al. (2025) examined gender diversity interventions implemented across software engineering in both academia and industry, identifying a wide range of practices including outreach activities, inclusive recruitment, mentoring, networking, leadership development, organisational policy reforms, curriculum redesign and awareness campaigns. Although many interventions report positive outcomes, the review concludes that most initiatives remain fragmented, short-term and insufficiently evaluated. Evidence regarding their long-term institutional impact remains limited, suggesting that sustainable change requires coordinated intervention strategies rather than isolated activities (Cutrupi et al., 2025; Toti et al., 2024).

This conclusion is particularly relevant in light of the findings presented in Deliverable D1. The baseline assessment at FORTH-ICS demonstrated that gender imbalance is reflected across multiple organisational dimensions, including career progression, leadership representation and institutional governance. Such findings indicate that isolated awareness activities or recruitment campaigns alone cannot address deeply embedded structural inequalities. Instead, interventions need to operate simultaneously across governance, organisational culture, research practices and career development.

Leadership commitment emerges consistently throughout the literature as one of the most influential success factors for institutional transformation. Institutions that demonstrate measurable progress in DIE typically integrate diversity objectives within their strategic planning, governance structures and decision-making processes rather than treating them as stand-alone equality initiatives. Senior leadership plays a central role in establishing institutional priorities, allocating resources, monitoring progress and fostering organisational accountability (Bjørn et al., 2023; Toti et al., 2024; FemTech.dk, 2025).

The baseline assessment conducted within MindGenGapICT strongly reinforces this observation. Deliverable D1 identified the complete absence of female representation in senior leadership positions at FORTH-ICS and highlighted limited participation of women in institutional decision-making structures. These findings suggest that leadership should not simply be considered an outcome of successful diversity initiatives but rather a prerequisite for achieving sustainable organisational change. Consequently, the proposed methodology places particular emphasis on leadership engagement and institutional governance as foundational components of DIE implementation.

Another recurring theme within the literature concerns the importance of organisational culture. Toti et al. (2024) argue that although curriculum redesign and educational interventions contribute to more inclusive learning environments, institutional culture ultimately determines whether individuals experience belonging, recognition and equal opportunities within Computer Science. Inclusive organisations are characterised by transparent decision-making, supportive leadership, psychological safety, equitable career development and visible role models. Conversely, organisational cultures that tolerate unconscious bias, informal exclusion or opaque promotion processes may undermine otherwise well-designed diversity initiatives (Toti et al., 2024; Bjørn et al., 2023).

Similar conclusions emerge from the work of Bjørn et al. (2023) and the FemTech.dk programme, both of which advocate moving beyond numerical diversity towards transforming the environments in which computing education and research take place. Their work introduces participatory design methodologies, collaborative learning environments and design artefacts that encourage broader participation while simultaneously challenging traditional perceptions of who belongs within Computer Science. Rather than adapting individuals to existing institutional cultures, these approaches seek to redesign organisational environments themselves, embedding inclusion within everyday educational and research practices (Bjørn et al., 2023; FemTech.dk, 2025).

This institutional perspective resonates strongly with the findings of Deliverable D1, where the analysis demonstrated that achieving gender balance requires coordinated engagement across all institutional levels, including leadership, the Scientific Council, principal investigators, researchers, technical staff, students and administrative personnel. Based on these observations, the baseline assessment recommended the establishment of a formal DIE governance structure capable of coordinating institutional actions, promoting stakeholder participation and ensuring continuity beyond individual projects or isolated initiatives.

Mentoring represents another intervention consistently identified as beneficial for improving diversity within Computer Science. According to Szlávi et al. (2025), structured mentoring programmes contribute to improved confidence, career development, professional networking and retention, particularly among women and early-career researchers. Mentoring also facilitates access to informal organisational knowledge and supports the development of professional identity through interaction with experienced role models. Nevertheless, the literature emphasises that mentoring alone cannot compensate for structural organisational barriers. Its effectiveness depends upon transparent promotion procedures, supportive supervisors, equitable access to opportunities and an inclusive institutional culture (Szlávi et al., 2025; Cutrupi et al., 2025).

Recent literature also highlights the growing importance of evidence-based governance and continuous institutional monitoring. Rather than measuring success through the number of diversity initiatives delivered, researchers increasingly recommend monitoring organisational outcomes through quantitative and qualitative indicators that capture changes in representation, career progression, leadership participation, institutional climate and perceptions of inclusion. Continuous assessment enables organisations to evaluate the effectiveness of interventions, identify emerging challenges and adapt institutional strategies over time (Bano et al., 2024; Zowghi & Bano, 2026).

This recommendation closely reflects the approach adopted within MindGenGapICT. Deliverable D1 established a comprehensive institutional baseline through the systematic analysis of gender representation across research laboratories, career levels, governance structures and decision-making bodies. This evidence-based assessment provides a reference point against which future progress can be measured and illustrates the importance of institutional data for supporting strategic decision-making. The methodology proposed in this deliverable therefore builds upon continuous assessment as a core component of sustainable DIE implementation.

At the same time, recent studies warn against implementing diversity initiatives solely as compliance exercises. Hyrynsalmi et al. (2025) describe an emerging "DEI backlash" within parts of the technology

sector, arguing that initiatives perceived as symbolic, externally imposed or disconnected from institutional priorities may encounter organisational resistance. To ensure long-term sustainability, DIE actions should therefore be directly linked to research excellence, innovation quality, organisational effectiveness and societal impact. When institutions recognise diversity as a contributor to scientific excellence rather than merely a regulatory obligation, DIE becomes embedded within their strategic mission and organisational identity (Hyrynsalmi et al., 2025; Bano et al., 2024).

Taken together, the literature and the findings of Deliverable D1 converge towards a common conclusion. Sustainable DIE integration requires coordinated institutional action rather than isolated interventions. Effective approaches combine leadership commitment, governance structures, stakeholder engagement, mentoring, inclusive organisational culture, transparent career development, continuous monitoring and evidence-based evaluation within a coherent institutional framework. These components reinforce one another and create conditions that support long-term organisational transformation (Cutrupi et al., 2025; Bano et al., 2024).

For the MindGenGapICT project, these findings provide the conceptual foundation for the proposed methodology. Rather than introducing another stand-alone diversity initiative, the methodology seeks to operationalise DIE through a structured institutional process that integrates baseline assessment, governance, stakeholder participation, intervention planning, implementation, monitoring and continuous improvement. By combining evidence from international literature with the specific realities identified within FORTH-ICS, the proposed approach aims to provide a practical and transferable framework for supporting sustainable DIE integration within Computer Science research organisations (Bano et al., 2024; Zowghi & Bano, 2026).

4.4 Diversity, Inclusivity and Equality in Artificial Intelligence and Digital Technologies

Artificial Intelligence (AI) has rapidly emerged as one of the most influential technological developments of the last decade, transforming research, healthcare, education, industry and public administration. While AI offers significant opportunities for scientific discovery and societal benefit, it has also intensified discussions regarding fairness, transparency, accountability and inclusivity. Consequently, DIE has become an increasingly important dimension of responsible AI research and innovation, extending beyond workforce diversity to encompass the entire lifecycle of AI systems.

Recent literature identifies a dual relationship between AI and DIE. On one hand, AI systems may unintentionally reinforce existing societal inequalities when trained on biased datasets, developed by homogeneous teams or deployed without considering the diversity of end users. On the other hand, AI can actively support DIE by identifying hidden biases, improving accessibility, promoting inclusive communication and assisting evidence-based decision-making. This distinction between **DIE in AI** and **AI for DIE** has become a central theme within contemporary research.

A comprehensive systematic literature review conducted by Shams, Zowghi and Bano (2023) demonstrates that research on AI and diversity has expanded rapidly during recent years. Their review highlights that existing work has primarily concentrated on algorithmic fairness, bias detection and ethical AI, while considerably less attention has been given to organisational diversity, multidisciplinary development teams and inclusive AI development practices. The authors conclude that diversity should be viewed not only as a property of AI systems but also as a characteristic of the research and development processes through which these systems are created.

Building upon these findings, Bano, Zowghi and Gervasi (2024) argue that diversity and inclusion should be **operationalised throughout the AI development lifecycle** rather than being addressed retrospectively during system evaluation. They propose a vision in which DIE considerations are embedded from the earliest stages of AI development, including problem definition, stakeholder identification, requirements engineering, data collection, model development, validation, deployment and continuous monitoring. Such lifecycle-oriented approaches represent a significant shift from reactive bias mitigation towards proactive inclusive AI design.

This lifecycle perspective has gained increasing support across the broader AI community. The work of Zowghi and Bano (2026) further emphasises that diversity, equity and inclusion are becoming fundamental components of responsible AI governance. The authors argue that future AI systems should not only satisfy technical performance criteria but should also demonstrate fairness, accessibility, transparency and societal relevance. Achieving these objectives requires multidisciplinary collaboration among computer scientists, social scientists, domain experts, policymakers and end users throughout the research and innovation process.

An important practical contribution to this field is provided by the CSIRO Diversity and Inclusion in AI research programme, which investigates methods for integrating diversity and inclusion principles into AI research, development and deployment. The programme emphasises participatory design, stakeholder engagement, inclusive datasets and interdisciplinary collaboration, illustrating how responsible AI requires organisational as well as technical innovation.

Beyond mitigating bias, recent research also explores the potential of AI as an enabler of DIE. Zamani et al. (2025) examine emerging applications of AI that support diversity initiatives, including automated accessibility tools, inclusive educational technologies, adaptive learning systems, bias detection, decision-support systems and personalised user experiences. Similarly, Kondra et al. (2025) discuss the potential of AI to facilitate inclusive communication by reducing language barriers, supporting accessible information delivery and assisting organisations in identifying discriminatory language or biased organisational practices. Nevertheless, both studies emphasise that these benefits can only be realised when AI systems themselves are developed using inclusive principles and subjected to continuous human oversight.

The healthcare sector provides one of the most important application domains for these discussions. Wang et al. (2025) conducted a comprehensive scoping review examining the integration of equity, diversity and inclusion throughout the lifecycle of healthcare AI systems. Their findings demonstrate that although demographic fairness is increasingly considered during algorithm evaluation, substantially less attention has been paid to diversity within development teams, stakeholder participation, implementation environments and post-deployment monitoring. The review concludes that DIE should become an integral component of the complete AI lifecycle, ensuring that healthcare technologies provide equitable benefits across diverse patient populations while avoiding the amplification of existing health inequalities.

Collectively, these studies illustrate an important conceptual transition. Early AI research primarily concentrated on identifying and correcting algorithmic bias after systems had been developed. Contemporary approaches instead advocate **inclusive-by-design** principles, whereby diversity considerations are embedded throughout the complete research, development and deployment process.

This transition closely mirrors developments within the broader DIE literature, where sustainable inclusion increasingly depends upon redesigning institutional processes rather than implementing isolated corrective measures.

The implications of this literature extend beyond AI itself. Many of the principles proposed for responsible AI—including stakeholder participation, transparency, multidisciplinary collaboration, continuous monitoring and evidence-based evaluation—are equally applicable to broader research management and organisational governance. Consequently, AI research provides valuable methodological insights for operationalising IDE within research-performing organisations.

These developments are particularly relevant for Computer Science research institutes such as FORTH-ICS, where AI, data science and digital technologies constitute major research activities. As demonstrated in Deliverable D1, sustainable institutional transformation requires DIE to become embedded not only within organisational governance but also within research practices and technology development processes. Integrating DIE principles into AI and digital research therefore contributes simultaneously to research excellence, responsible innovation and societal impact.

For the MindGenGapICT project, the emerging literature on AI reinforces the importance of adopting a lifecycle perspective towards DIE implementation. Rather than treating diversity as a separate organisational objective, the proposed methodology considers IDE as a cross-cutting principle that should inform institutional governance, research design, technology development, stakeholder engagement, implementation and continuous evaluation. This approach aligns with the evolution of responsible AI and provides a foundation for embedding DIE throughout the research lifecycle within Computer Science organisations.

4.5 Existing Methodological Frameworks and Research Gap

The literature reviewed in the previous sections demonstrates significant progress in understanding the challenges associated with Diversity, Inclusivity and Equality(DIE) within Computer Science, Software Engineering and Artificial Intelligence. Research has evolved from documenting gender disparities towards investigating organisational culture, intersectionality, inclusive technology design, responsible AI, mentoring, institutional governance and evidence-based interventions. At the same time, several practical frameworks and institutional initiatives have emerged, illustrating how DIE principles can be translated into organisational practice. Nevertheless, despite these advances, important methodological gaps remain.

One of the principal observations emerging from the literature is that existing studies tend to address individual dimensions of DIE rather than providing comprehensive institutional methodologies. Educational research primarily focuses on curriculum redesign, outreach activities and student participation. Software engineering research concentrates on interventions such as mentoring, recruitment, leadership development and organisational culture. AI research increasingly examines fairness, transparency, bias mitigation and lifecycle governance, while organisational studies investigate institutional policies, leadership commitment and diversity strategies. Although these contributions are valuable, they are generally developed independently of one another and rarely integrated into a unified methodological framework.

Similarly, many institutional initiatives provide examples of good practice without offering transferable methodologies that can be systematically adopted by other organisations. Programmes such as FemTech.dk demonstrate the value of long-term institutional commitment, participatory design and interdisciplinary collaboration, while design-oriented approaches proposed by Bjørn et al. (2023) illustrate how inclusion can be embedded within educational and research environments. However, these initiatives are strongly influenced by their specific institutional contexts, making it difficult for other organisations to directly replicate or adapt their approaches.

The literature also demonstrates that most interventions focus on a particular stage of the organisational lifecycle. Outreach programmes primarily address recruitment into Computer Science. Mentoring initiatives support early career development and retention. Leadership programmes aim to improve representation in decision-making positions. Responsible AI frameworks concentrate on technology development processes, while Gender Equality Plans often focus on institutional policies and compliance with European requirements. Comparatively little attention has been given to connecting these interventions into a continuous organisational improvement cycle that spans assessment, planning, implementation, monitoring and evaluation.

A second important limitation concerns operationalisation. While there is broad consensus regarding the importance of DIE, relatively few studies provide practical guidance on how research-performing organisations should systematically implement, monitor and continuously improve DIE initiatives. Recent work by Bano et al. (2024) represents an important step towards operationalising diversity and inclusion within AI by proposing lifecycle-oriented approaches. Likewise, the CSIRO Diversity and Inclusion in AI programme demonstrates practical mechanisms for integrating inclusion into technology development. Nevertheless, equivalent operational frameworks remain largely absent at the organisational level, particularly for Computer Science research institutes where research, education, innovation and technology transfer coexist within complex institutional ecosystems.

Another recurring observation concerns measurement and evaluation. Many published interventions report positive outcomes but employ heterogeneous evaluation methods, making comparison between studies difficult. Longitudinal evidence regarding organisational transformation remains limited, and relatively few studies propose comprehensive indicator frameworks capable of monitoring institutional progress over time. The literature increasingly recommends the development of measurable Key Performance Indicators (KPIs), continuous monitoring mechanisms and evidence-based governance structures; however, practical methodologies describing how these components should be integrated into institutional decision-making remain scarce.

The findings of Deliverable D1 further reinforce these observations. The baseline assessment of FORTH-ICS revealed that gender imbalance cannot be understood solely through numerical representation but is influenced by governance structures, leadership composition, career progression, organisational culture and institutional practices. While the baseline assessment focused primarily on male and female participation due to the significant gender imbalance currently observed within the Institute and the present institutional priorities, it also recognised that sustainable transformation requires a broader DIE perspective capable of progressively incorporating additional dimensions of diversity as institutional maturity evolves.

Importantly, the baseline assessment demonstrated that meaningful organisational change requires a structured process rather than isolated interventions. The recommendations emerging from Deliverable D1 highlighted the importance of leadership commitment, the establishment of an DIE governance structure, stakeholder engagement across all organisational levels, integration of DIE into research practices, systematic monitoring through measurable indicators and continuous institutional evaluation. These recommendations closely align with international literature while simultaneously reflecting the specific characteristics of the FORTH-ICS research environment.

Taken together, the international evidence and the findings from Deliverable D1 reveal a common methodological gap. Although numerous studies describe successful interventions and institutional initiatives, there remains limited guidance on how research-performing organisations can systematically progress from **institutional assessment to strategic planning, implementation, monitoring, evaluation and continuous improvement** within a single integrated methodology. Existing approaches frequently concentrate on isolated activities, specific stakeholder groups or individual organisational domains without providing a coherent framework capable of supporting long-term institutional transformation.

This gap is particularly significant for Computer Science research organisations, which operate within multidisciplinary, rapidly evolving and technology-intensive environments. Unlike many educational institutions or commercial organisations, research institutes simultaneously undertake scientific research, technology development, innovation, education, technology transfer and international collaboration. Consequently, DIE methodologies for such organisations must address multiple organisational dimensions while remaining sufficiently flexible to accommodate different research cultures, laboratories and disciplinary contexts.

The MindGenGapICT project addresses this need by proposing a structured methodology for sustainable DIE integration specifically designed for Computer Science research organisations. Rather than introducing a single intervention or policy recommendation, the methodology combines institutional baseline assessment, stakeholder engagement, governance, strategic planning, implementation of evidence-based interventions, monitoring through qualitative and quantitative indicators, and continuous evaluation within an iterative improvement cycle. In doing so, it bridges the gap between conceptual DIE principles and their practical implementation within research-performing organisations.

The methodology proposed in this deliverable is therefore not intended to replace existing Gender Equality Plans or institutional diversity policies. Instead, it complements and operationalises them by providing a practical framework that enables organisations to translate strategic commitments into measurable institutional actions. While developed using the experience and baseline assessment of FORTH-ICS, the methodology has been designed with transferability in mind and may therefore provide useful guidance for other Computer Science research organisations seeking to embed DIE within their governance structures, research activities and organisational culture.

5. Study Visits and Insights

Overview of organisations visited:
Name, country, expertise, relevance.

Visit methodology:
Interviews, workshops, observations.

Key Lessons Learned:
How they address DIE in research design, project teams, stakeholder engagement.

Transferability:
Which practices could be adapted to FORTH-ICS context.

Study visit NTNU

Study visit Linz

https://www.jku.at/en/committee-for-equal-opportunities/

https://www.jku.at/en/department-of-equality-equitable-opportunities-and-diversity/

6. Internal Capacity-Building and Awareness-Raising Events

6.1 Overview of Internal Capacity-Building and Awareness-Raising Activities

A central objective of the MindGenGapICT project was not only to assess the current state of gender representation within FORTH-ICS but also to strengthen institutional awareness and build internal capacity regarding Diversity, Inclusivity and Equality(DIE). Recognising that sustainable organisational change requires the active participation of the entire research community, the project implemented a series of workshops, seminars, scientific discussions, dissemination activities and networking initiatives targeting researchers, research managers, institutional leadership, students and administrative personnel.

The capacity-building programme was designed to promote dialogue across different organisational levels, disseminate current knowledge on DIE in Computer Science, encourage stakeholder engagement and facilitate the exchange of experiences with leading European institutions. Activities combined internal awareness-raising with external dissemination and international networking, ensuring that lessons learned from the project were shared both within FORTH-ICS and with the wider European research community.

Table 1 summarises the principal capacity-building and awareness-raising activities implemented during the reporting period.

Activity	Date	Type	Target Audience	Main Objective

Steps Forward: More Inclusive FORTH-ICS Workshop (Keynote: Dr Anna Szlávi)	30–31 March 2026	Internal Workshop	Researchers, PhD students, postdoctoral researchers, administration, FORTH Gender Equality & Anti-Discrimination Committee	Introduce contemporary DIE concepts and discuss institutional challenges and opportunities
1st Inclusion, Diversity and Equity Coffee Hour	31 March 2026	Informal discussion	FORTH-ICS personnel	Encourage dialogue and community engagement around DIE
Meeting with the Director and Scientific Council	31 March 2026	Strategic meeting	Director, Scientific Council, project team	Presentation of project progress, baseline assessment and proposed institutional interventions
Presentations of MindGenGapICT	Up to May 2026	Internal & External Dissemination	Research community	Dissemination of project objectives and preliminary findings
ERCIM DIE Working Group Kick-off	18 May 2026	Invited presentation	European Computer Science community	Presentation of DIE dimensions in ICT research
Network Gender & STEM Conference	July 2026	Conference presentation	International research community	Dissemination of the MindGenGapICT approach
World Conference on Gender and Women's Studies	July 2026	Scientific paper	International research community	Presentation of the FORTH-ICS methodology
Photonics Meets Biology Summer School	August 2026	Invited lecture	Early-career researchers	Raising awareness of DIE within interdisciplinary ICT research

Women and AI Programme	Ongoing	Awareness programme	Women and girls	Promote AI literacy and women's participation in AI
ERCIM Working Group "Inclusive Digital Futures"	Ongoing	European networking initiative	European ICT research organisations	Promote collaboration on DIE in Computer Science

Beyond these events, the project also established permanent communication mechanisms to support continuous institutional awareness. These included the creation of a dedicated DIE section within the FORTH-ICS website, a quarterly DIE column in the Institute's newsletter, regular internal bulletins highlighting recent developments in Computer Science and DIE, social media dissemination activities and the organisation of a final public event aimed at engaging both the FORTH-ICS community and the wider public.

The project further strengthened its European dimension through two international study visits: the Department of Computer Science at the Norwegian University of Science and Technology (NTNU) in Trondheim (November 2025) and the Institute of Women's and Gender Studies at Johannes Kepler University Linz (January 2026). These visits complemented the literature review by providing direct exposure to institutional practices and governance approaches supporting DIE implementation.

6.2 Content and Outcomes

The activities implemented during the project addressed several complementary themes reflecting the evolving discourse on DIE in Computer Science. Discussions focused on gender imbalance within ICT, intersectionality, organisational culture, leadership commitment, mentoring, inclusive research practices, responsible Artificial Intelligence, European policy developments and institutional governance mechanisms.

Particular emphasis was placed on demonstrating that DIE should not be perceived solely as a human resources issue but as a strategic component of research excellence and innovation. Presentations highlighted the relationship between diversity, creativity, interdisciplinary collaboration and responsible technology development, while also introducing evidence from the literature review and the baseline assessment conducted within Deliverable D1.

The *Steps Forward: More Inclusive FORTH-ICS* workshop represented the cornerstone of the internal capacity-building programme. Through keynote presentations, interactive discussions and exchanges with the FORTH Gender Equality and Anti-Discrimination Committee, participants explored current challenges facing Computer Science research organisations and discussed potential institutional interventions applicable to FORTH-ICS.

The meeting with the Director and members of the Scientific Council provided an important opportunity to present the preliminary findings of the project and discuss potential institutional measures. These discussions facilitated direct engagement with institutional leadership and reinforced the importance of leadership commitment for the successful implementation of future DIE actions.

Participation in international conferences and scientific events further validated the project's approach by exposing the methodology and preliminary findings to the wider European research community. Feedback received through conference discussions confirmed the relevance of the FORTH-ICS experience while highlighting the broader need for practical methodologies supporting DIE integration within research-performing organisations.

The establishment of the ERCIM Working Group *Inclusive Digital Futures: Developing Technology and Culture* significantly expanded the project's impact beyond the institutional level. Coordinated by FORTH-ICS, the Working Group provides a European platform for researchers interested in advancing DIE within Computer Science through collaborative research, knowledge exchange and the development of shared good practices.

6.3 Lessons Learned and Emerging Institutional Needs

The capacity-building activities confirmed many of the observations identified through the literature review and the baseline assessment. First, there is increasing recognition among researchers that DIE is directly linked to research excellence, innovation quality and organisational sustainability rather than representing solely a social or compliance issue.

Second, discussions revealed considerable interest in practical guidance for integrating DIE within everyday research practice. While awareness of gender equality has increased substantially, many researchers expressed uncertainty regarding the broader concepts of diversity, inclusion, intersectionality and their application within Computer Science research. This highlights the need for continued training and practical guidance tailored to research-performing organisations.

The activities also demonstrated the importance of engaging institutional leadership alongside researchers and administrative staff. Meetings with the Director and Scientific Council confirmed that sustainable organisational change requires clear governance structures, institutional ownership and long-term strategic commitment supported by measurable objectives and continuous evaluation.

Finally, the project identified the importance of maintaining permanent communication channels capable of sustaining awareness beyond the duration of the project. The establishment of the dedicated website, newsletter column, internal bulletins, European networking activities and public dissemination initiatives represents an important step towards embedding DIE within the institutional culture of FORTH-ICS.

Overall, the capacity-building programme demonstrated that awareness-raising, stakeholder engagement and continuous dialogue constitute essential components of sustainable institutional transformation. Together with the literature review, study visits and baseline assessment, these activities contributed to developing a shared understanding of DIE across the Institute and generated valuable insights that will inform future institutional planning and implementation activities within the MindGenGapICT project.

7. Conclusions and Recommendations

This deliverable has reviewed the current state of knowledge and practice regarding the integration of Diversity, Inclusivity and Equality(DIE) within Computer Science research organisations. By combining a

review of the scientific literature, the European policy landscape, study visits to leading institutions and the experiences gained through the MindGenGapICT capacity-building activities, it provides an evidence-based foundation for strengthening DIE at FORTH-ICS.

The findings consistently demonstrate that sustainable DIE integration requires a shift from isolated equality initiatives towards a strategic, institution-wide approach. While gender equality remains a priority due to the persistent underrepresentation of women in Computer Science and ICT, the literature increasingly advocates broader and more intersectional approaches that consider multiple dimensions of diversity. Successful institutional transformation depends on leadership commitment, inclusive governance, stakeholder engagement, continuous awareness-raising and systematic monitoring of progress.

The study visits and internal activities confirmed that there is no universal model for implementing DIE. Instead, successful organisations adapt evidence-based practices to their own institutional context, culture and priorities. The experience of the MindGenGapICT project further highlighted the importance of engaging researchers, management and administrative staff in an open dialogue, creating shared ownership of institutional change and fostering a culture in which DIE is recognised as an integral component of research excellence and innovation.

Based on the evidence gathered throughout this deliverable, several recommendations emerge for FORTH-ICS. These include strengthening institutional governance for DIE, maintaining leadership commitment, embedding DIE considerations into research and organisational practices, investing in continuous capacity-building and awareness-raising activities, promoting mentoring and inclusive career development, and establishing measurable indicators to monitor progress over time. While current efforts focus primarily on addressing gender imbalance, future actions should progressively adopt a broader DIE perspective that incorporates additional dimensions of diversity through an intersectional approach.

Together with the baseline assessment presented in Deliverable D1, the findings of this deliverable provide the knowledge base for the next phase of the MindGenGapICT project. The lessons learned from the literature, study visits and internal engagement activities will directly inform the development of the institutional roadmap, supporting FORTH-ICS in implementing sustainable and evidence-based actions that promote a more inclusive, diverse and equitable research environment.

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