Empowering Women in STEM

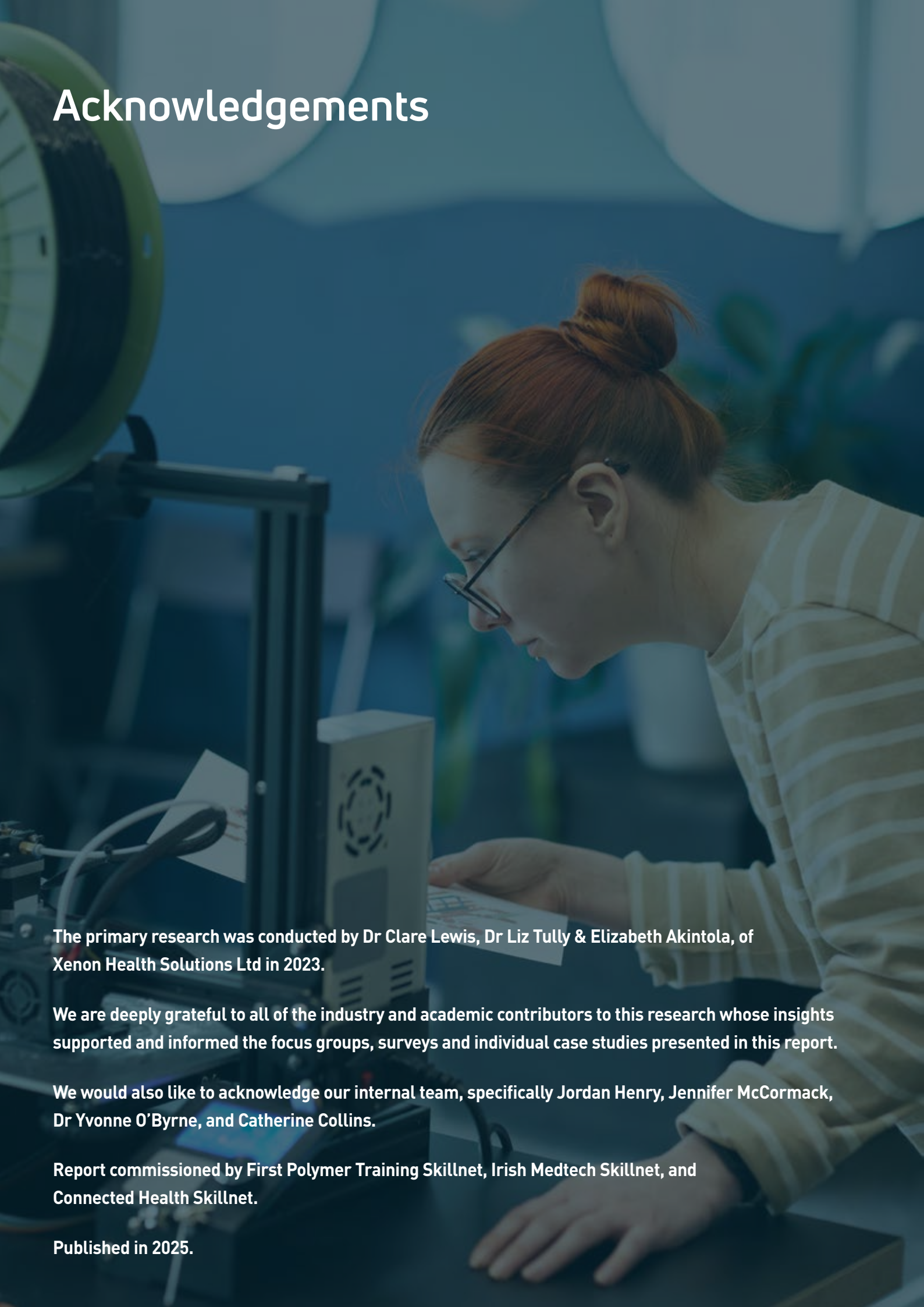
A Gender Representation Study for the Health Technology Sector in Ireland

Connected Health Skillnet

First Polymer Training Skillnet

Irish Medtech Skillnet

Acknowledgements



The primary research was conducted by Dr Clare Lewis, Dr Liz Tully & Elizabeth Akintola, of Xenon Health Solutions Ltd in 2023.

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Table of Contents

List of Abbreviations

CAO - Central Applications Office

CHS – Connected Health Skillnet

CSO - Central Statistics Office

DEIS - Delivering Equality of Opportunity in Schools

FPTS – First Polymer Training Skillnet

IDA Ireland – Industrial Development Authority Ireland

IMS – Irish Medtech Skillnet

iWISH – iWISH is a community committed to showcasing the power of Science, Technology, Engineering, and Maths to teenage girls.

KOL – Key Opinion Leader

KPIs - Key Performance Indicators

STEM - Science, Technology, Engineering and Maths

UCL- University College London

UNICEF - United Nations International Children's Emergency Fund

WiSTEM²D - Women in Science, Technology, Engineering, Math, Manufacturing and Design (A Johnson & Johnson initiative)

WITS- Women in Technology & Science

Foreword

On behalf of the First Polymer Training Skillnet, Irish Medtech Skillnet, and Connected Health Skillnet, I am pleased to present this important report: Empowering Women in STEM – A Gender Representation Study for the health technology sector in Ireland.

This report represents a collaborative initiative across our three Networks to better understand and address gender representation within Ireland's dynamic and evolving health technology sector. As this industry continues to grow in complexity and scale, it is vital that the opportunities it offers are inclusive, equitable, and reflective of the diverse talent pool available across the country.

The health technology sector spans a broad ecosystem—from medical devices and diagnostics to digital health and polymer-based technologies—supporting thousands of jobs and fuelling innovation that directly improves people's lives. While the sector has made notable strides in workforce development and innovation, there is a shared recognition that more must be done to ensure that women are fully represented, supported, and empowered to thrive across all roles and levels.

This study was commissioned with the specific goal of gaining a clearer, data-informed picture of where we stand today. Through in-depth research, industry consultation, and analysis, the report provides insights into current levels of female representation in technical and leadership roles, barriers to advancement, and opportunities for positive change. Importantly, it highlights practical steps that employers and educators can take to better support gender balance and equity throughout the breadth of the entire STEM talent pipeline.

Our Networks are committed to supporting this change. By understanding the landscape more clearly, we are better equipped to develop targeted, industry-led training and development initiatives that support women in progressing their careers and shaping the future of this sector. This work also aligns with Skillnet Ireland's broader mission to support enterprise-led talent development that drives competitiveness and growth. In empowering women in STEM, we strengthen not just individual careers, but the capability and resilience of the health technology sector.

We would like to thank all those who contributed to this study, including the many individuals and organisations who shared their perspectives and experiences. We hope this report will serve as a foundation for meaningful dialogue and action to support greater gender balance and representation across the health technology sector in Ireland.

Dr Ann O'Connell
Head of Funded Projects, Medtech and Engineering, Ibec

Executive Summary

The gender imbalance in the workforce generally and in leadership positions has been well documented over many years. The disparity in STEM related sectors is, if anything, even more pronounced.

The World Economic Forum Global Gender Gap Index benchmarks the state and evolution of gender parity across four key dimensions: Economic Participation and Opportunity, Educational Attainment, Health and Survival, and Political Empowerment. The 2024 report analysed LinkedIn data which showed that women remain underrepresented in STEM roles, comprising only 28.2% of the global STEM workforce compared to 47.3% in non-STEM sectors. There was also a marked difference in career progression with women accounting for just a quarter of leaders in non-STEM sectors but only about one-tenth in STEM.[1]

According to the Department of Education *Recommendations on Gender Balance in STEM Education 2022* report, out of almost 120,000 people working in STEM in Ireland, just one quarter are women.[2]

No specific research has been carried out into gender balance in the health technology sectors, but as a subset of the broader STEM related industry, it is expected this sector faces similar challenges. This is backed up by anecdotal evidence drawn from experience on the ground.

This gender imbalance poses significant challenges for both industry and society. Importantly, it highlights deeply rooted issues within the education system and the industry itself, which ultimately limit equal opportunities for girls and women. Such inequality seems unreasonable, and unsustainable in the long run.

From an operational perspective, it means that the industry is missing out on an important source of talent at a time of a pronounced STEM skills shortage. In addition, there is a growing body of research to show that more diverse workforces and leadership teams deliver superior performance and higher stock market valuations.[3,4]

Against this backdrop, the health technology sector Skillnet Business Networks, First Polymer Training Skillnet (FPTS), Irish Medtech Skillnet (IMS) and Connected Health Skillnet (CHS) commissioned research to examine the challenges and enablers of female participation in technical and leadership roles in the industry as well as to identify key actions for industry, academia and the Networks. These actions can support companies in achieving better gender parity in the future along with developing more diverse talent pipelines.

By understanding these barriers better, the Skillnet Business Networks can support and empower companies to overcome these challenges through training and sharing of best practice across the health technology sector.

The research was conducted by Xenon Health Solutions in 2023. The report was funded by the First Polymer Training Skillnet, Irish Medtech Skillnet and Connected Health Skillnet.

Unsurprisingly, the research reveals that the issue is multifactorial in nature. Put simply, too few girls are choosing STEM subjects at post-primary and higher levels. Despite recent progress, there have been historic barriers to female progression in the industry including childcare issues and the lack of flexible working opportunities. Additionally, the work environment in the health technology industry in Ireland, which is largely manufacturing based, has historically lacked gender parity. However, in recent years, there have been positive changes in this regard.

There are essentially two components to the solution: developing a stronger pipeline of female talent by encouraging more girls and young women to choose STEM subjects and careers and improving female recruitment, retention, and career progression within the industry.

In identifying actions to enhance and support increased gender representation in the industry, the research team set out to understand current practices, challenges, enablers and opportunities for both STEM educators and industry stakeholders.

In doing so, the team undertook rigorous stakeholder engagement and consultation, gathering insights through a mixed-methods approach which included:

- Individual interviews with 10 health technology industry senior managers/Key Opinion Leaders (KOLs) to inform insight gathering.
- Survey of 49 second level career guidance counsellors and STEM educators.
- Semi-structured interviews with a subset of 10 guidance counsellors and STEM educators.
- Survey of the wider health technology industry with 207 respondents.
- Focus groups with 29 health technology company representatives.

In addition, the team undertook an extensive review of international evidence on gender representation within the health technology sector as well as an analysis of CAO STEM course applications by gender.

It is anticipated that this research report and its recommendations will serve as a resource for stakeholders within the sector, including business leaders and policymakers, to guide efforts toward fostering a more balanced representation of gender within the health technology ecosystem.

SECTION 1

Building the pipeline

What the literature tells us...

In line with many other countries, Ireland is currently experiencing a STEM skills shortage. The digitalisation of business and society has increased demand for people with the requisite skills and qualifications to support evolving business needs. Growing the STEM talent pool has therefore been a national economic priority for quite some time.[5]

This has served to highlight the gender imbalance in STEM related industries. As noted earlier, just one quarter of Ireland's STEM workforce are female, and the proportion diminishes with seniority.[1] Addressing this disparity will both improve diversity and provide the industry with a new source of much needed talent. However, the issue is not merely one of recruitment or employment practices. The pipeline of applicants is already heavily weighted towards males due to the much lower numbers of girls and young women choosing STEM subjects at school and in college.

In Ireland, 76% of junior cycle boys in post-primary school take a STEM subject other than science or maths, compared to just 29% of girls. This disparity is contributed to by a lack of equity in access to STEM subjects at post-primary level with only 68% of girl's schools offering STEM subjects other than science or maths, in comparison to 95% of boy's schools.[6]

Internationally, a UNICEF report "Mapping Gender Equality in STEM from School to Work" showed that only 18% of girls pursue STEM at higher education level compared to 35% of boys. In Ireland, the gap is even wider despite a slightly higher proportion of females choosing STEM[7]. In the latest figures from the HEA covering the 2020/21 academic year, 42.5% of males in the higher education system were studying STEM while the corresponding figure for females was just 19.2%.[8]

Ireland had the highest rate of STEM graduates in the European Union (EU27) in 2021, at 40.3 per 1,000 of persons aged 20-29, compared to an EU average of 21.9 according to the CSO. However, Ireland also had the largest gender differential with 53.0 male STEM graduates per 1,000 of persons aged 20-29 years compared with 27.4 female STEM graduates.[9]

The international evidence also points quite alarmingly to a risk of the pipeline weakening instead of strengthening. A McKinsey Digital study carried out in 2023 found that there has been an 18% drop in girls' uptake of STEM subjects at post-primary school level across the EU27. This was accompanied by a 15% drop in the number of girls enrolling for STEM programmes at higher education level.[10]

If the gender imbalance in the health technology industry is to be addressed, the pipeline of suitably qualified female applicants will need to be expanded quite significantly and this in turn will require increased efforts to influence more girls to choose STEM subjects at an early age and to follow through with them to higher education level. And the earlier the better. A large UK study carried out by a team at UCL Institute of Education and involving over 40,000 participants at primary school level found that aspirations of becoming a scientist were commonly formed by the age of 10.[11]

A 2020 study by the Irish Department of Education found that gender imbalance in STEM is influenced by factors like interest, engagement, enjoyment, motivation, and societal and cultural norms.

Key drivers for increasing girls' engagement in STEM include positive teacher influence and parental support, with parental praise boosting motivation and outcomes. Notably, at the primary level, role models had a stronger impact on girls' performance than on boys. It should be noted, in 2022, the Irish Department of Education's Gender Balance in Education Advisory Group brought forward a number of important recommendations aimed at ensuring "STEM education in Ireland is world class in improving gender balance, equity and inclusion effectively for our young people".[12] These recommended actions highlighted that in order to promote equity in STEM, schools should involve the whole community, equip early educators, broaden student access, and address gender barriers.

Bridging the gender gap

The research underpinning this report clarified that there are two dimensions to increasing the pipeline of female talent available to the health technology industries. The first focuses on steps the education system, in close partnership with industry, can take to increase STEM participation among girls and young women at post-primary and higher education levels. The second outlines actions by industry and supporting organisations, including the three collaborating Skillnet Business Networks (FPTS, IMS and CHS) and their affiliated Ibec trade associations Irish Medtech and Polymer Technology Ireland, to assist the education system and encourage more females to choose STEM subjects and pursue technical and leadership careers in the health technology sector.

Methods

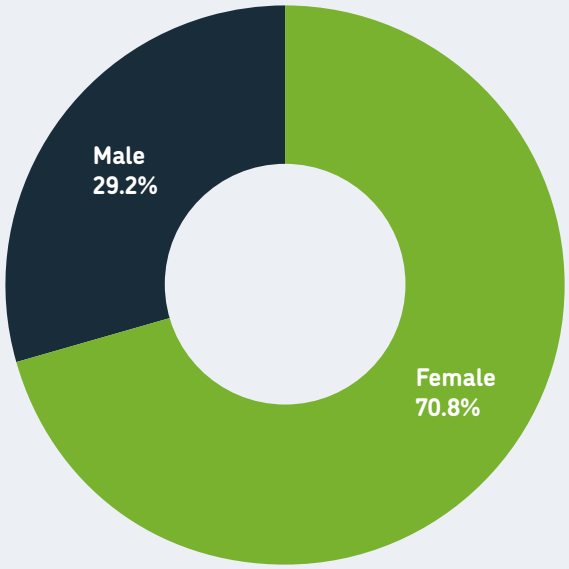
TABLE 1 ▸ Stakeholder Engagement and Insight Gathering

CAO Figures	Survey Design & Pilot	Quantitative Data Collection	Qualitative Data Collection
CAO Data from 2017-2023 was gathered and analysed in order to understand gender trends in third level STEM course acceptances.	Pilot survey was circulated to 10 individuals prior to wider distribution to ensure that questions in the survey were clear, reliably worded and aligned with the agreed project objectives.	Survey data was collected from post primary STEM Educators and Guidance Counsellors to understand the schools' perspective. The survey was distributed via selected national education bodies* and was completed by 49 participants.	10 post primary educators and career guidance counsellors participated in semi-structured interviews. Participant responses were anonymised and remain confidential in the reporting process.

Educator Survey Demographics – 49 respondents total

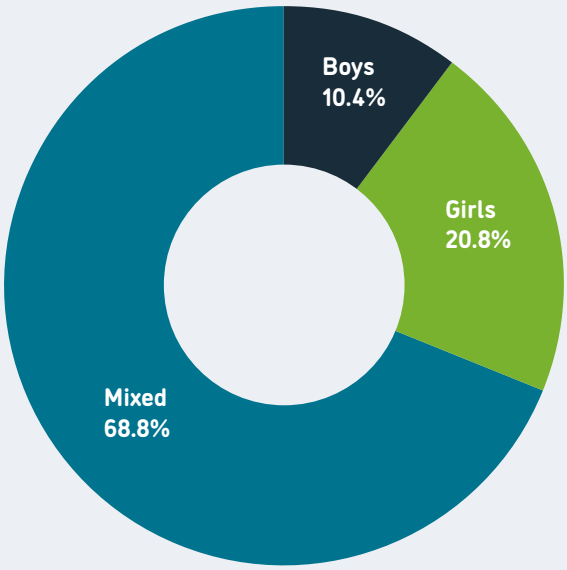
Gender of Respondents

FIGURE 1 ▸ Gender of participants to Educators survey



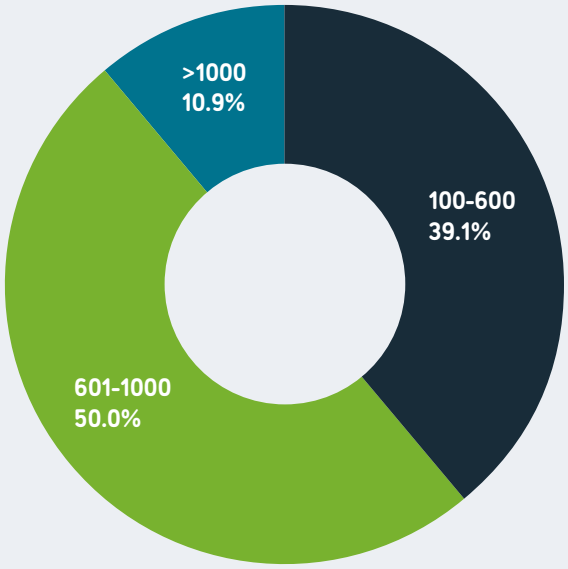
What gender stream is your school?

FIGURE 2 ▸ Gender stream of represented schools



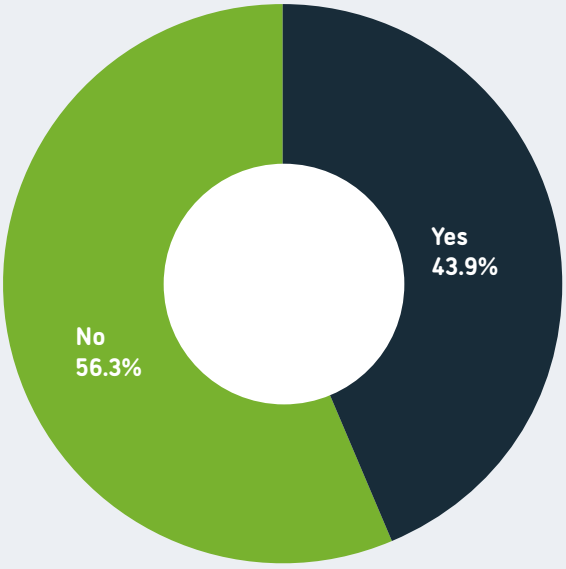
How many students are in your school?

FIGURE 3 Number of students in represented schools



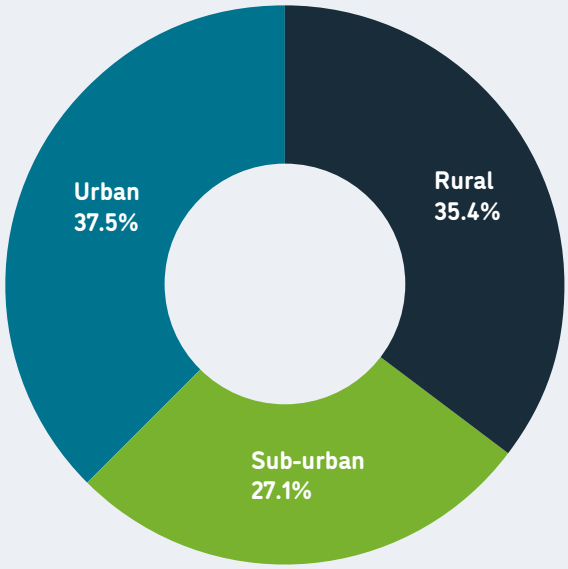
Is your school classified as a DEIS school?

FIGURE 4 DEIS school representation



Is your school in a rural or urban setting?

FIGURE 5 School settings



What our research found

Trends in uptake of STEM courses

For this report, data from the Central Applications Office (CAO) from 2017 to 2023 was analysed, though it's worth noting that acceptance figures might be higher than actual enrolment.

The analysis looked at acceptances into various fields of study related to the health technology sector, including:

- Biological and related sciences
- Physical sciences
- Mathematics and statistics
- Interdisciplinary programmes involving natural sciences, mathematics, and statistics
- Information and communication technologies
- Engineering and engineering trades
- Manufacturing and processing
- Medicine
- Pharmacy, including pharmacy technicians

The CAO data distinguishes between level 8 courses and level 6/7 courses. Gender differences in course acceptances were examined for these levels, as shown in Figures 6a and 6b.

By examining course acceptances in STEM subjects over a 5-year period, a consistent gender distribution can be observed, with only 35-40% of acceptances to level 8 courses being from a female cohort.

FIGURE 6a ▸ Level 8 STEM acceptances

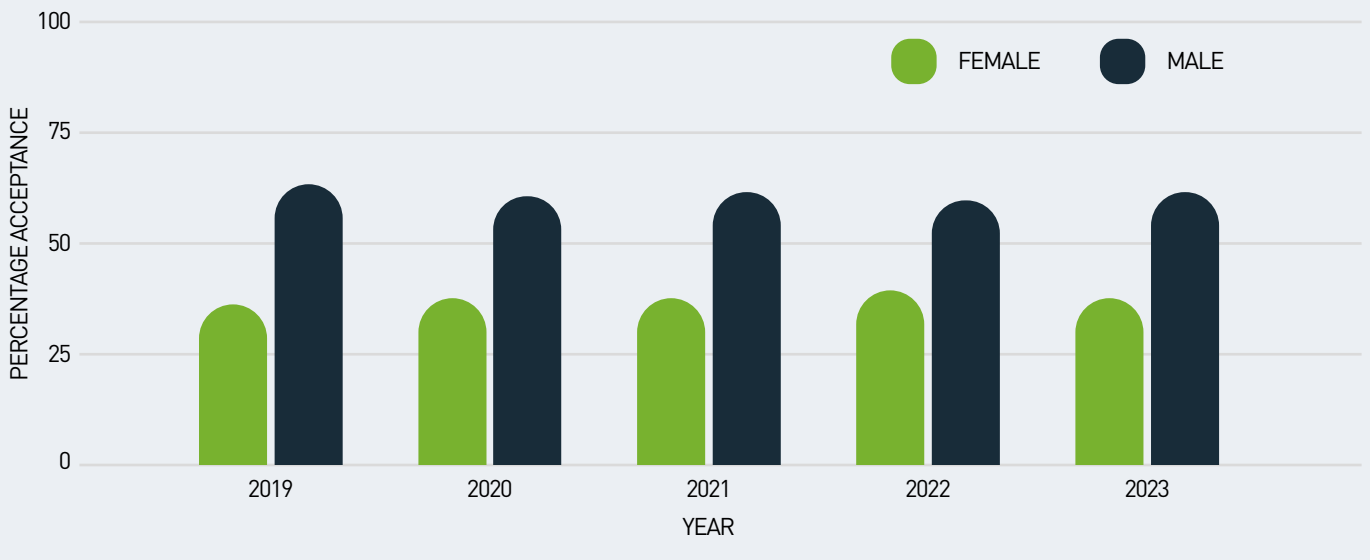
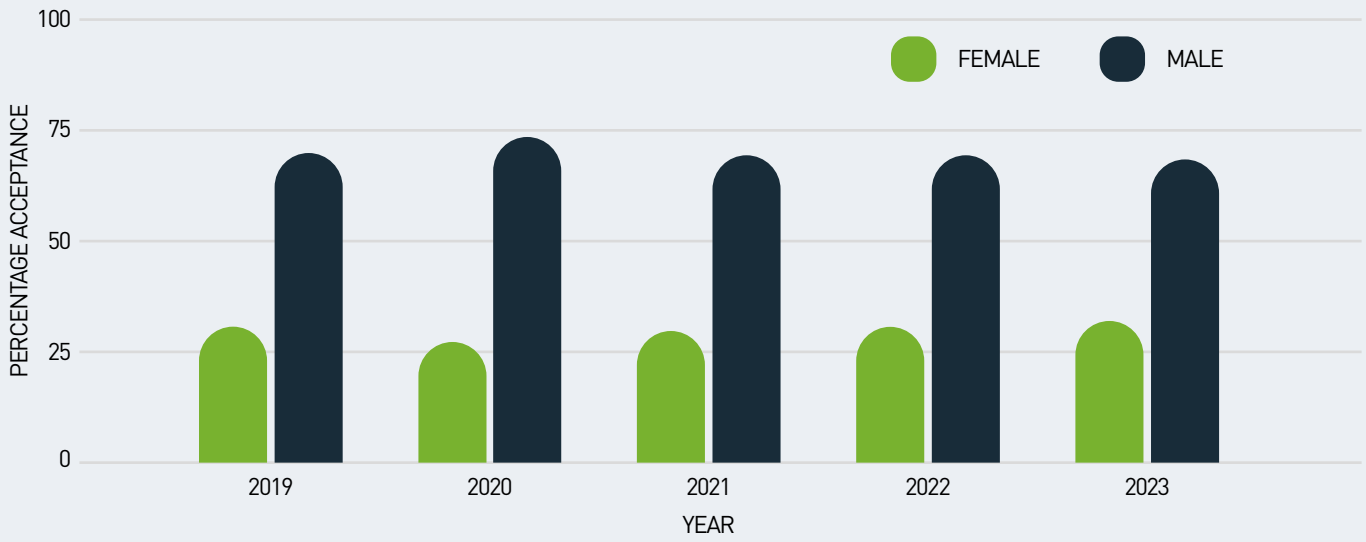


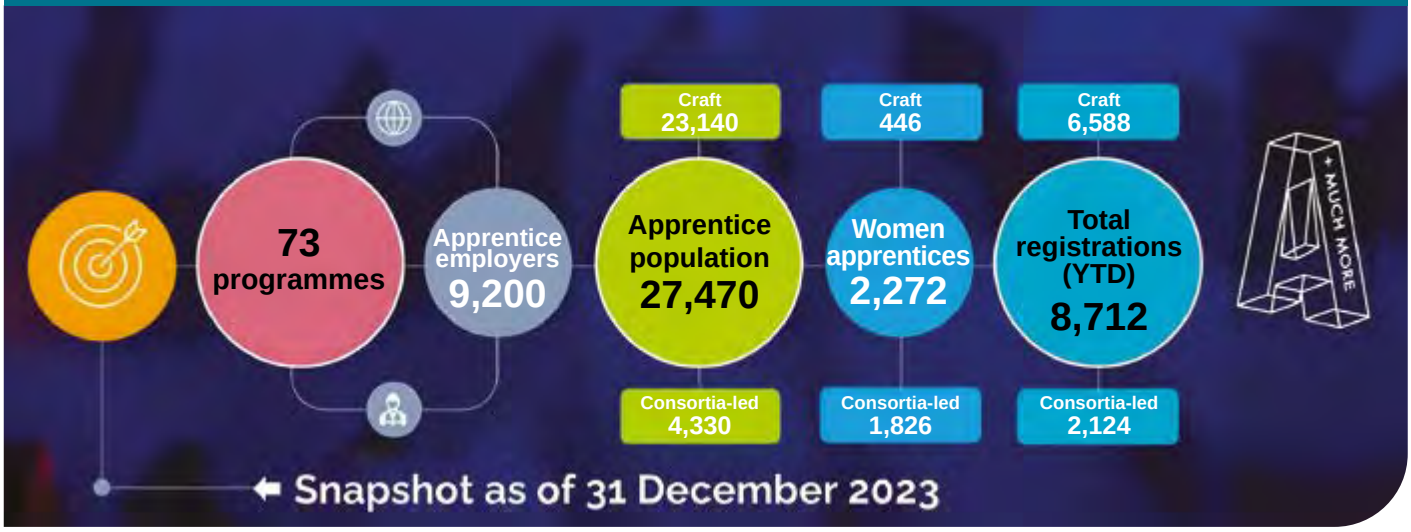
FIGURE 6b ▸ Level 6 &7 STEM acceptances



The gap was even more pronounced in acceptance rates for female students in level 6/7 STEM courses, remaining between 25-30% from 2017 to 2023.

As of December 2023, only 8% (2,272) of apprentices in training were female, with 446 women in craft apprenticeships out of a total of 23,140. However, the new consortia-led apprenticeships, which include apprenticeships up to masters (level 9) and PhD level (level 10) show a more promising trend, with 42% of apprentices in training identifying as female.[13]

FIGURE 7 ▸ Key Apprenticeship Data as of the end of 2023 [13]



The education experience

A total of 49 educators took part in the survey carried out for this report. 100% of the schools surveyed offered science as a subject choice at Junior Cycle level, but only 66% of schools surveyed deem it compulsory. Slightly over half of the schools monitor and evaluate participation in STEM subjects, but based on educators' observations, girls select optional STEM subjects at a significantly lower rate than non-STEM subjects at Junior Cycle. Only 12.5% observed girls choosing STEM subjects at a higher rate.

Interestingly, where STEM subject participation was actively monitored by schools, survey participants were nearly twice as likely to report that there were equal rates of girls choosing STEM subjects in comparison to non-STEM subjects.

The education system

> Educators were asked to consider factors that aid girls' aspiration and uptake of STEM subjects. Among the most frequently cited were family support, self-belief, and peer support. When it came to factors that can support girls to pursue a career in STEM there was a **strong focus on industry engagement with school participation in structured industry STEM programmes and access to industry supported mentoring programmes being the top two enablers identified.**

Within the education system itself, regular unconscious bias training for staff and the use of student experience surveys to understand participation in STEM subjects in school settings were also ranked highly by career guidance and STEM teachers as enablers to girl's aspirations and uptake of STEM subjects. However, over 80% of those surveyed as part of this research reported that they do not receive any form of unconscious bias training.

Only half (52.1%) of the schools surveyed use student feedback to influence practices around subject choices while the majority (60.4%) do not monitor the career trajectories of former students.

It should be noted, however, that some schools are taking proactive steps to promote girls' participation in STEM. One third of the post-primary schools surveyed offer STEM clubs as a means of promoting STEM to girls. While only 10.4% offer STEM mentoring, a quarter of the schools surveyed report engaging in STEM workshops and almost 28% participate in industry engagement initiatives.

Given the strong emphasis on industry engagement, it was not surprising that two thirds (66.7%) of the educators surveyed felt that formal coordination of this activity at a national and regional level would be helpful. The current approaches to industry engagement, many of which are described in the IDA Ireland report, 'Women in STEM, Ireland' are operating independently of one another.[14]

In semi-structured interviews, within the context of this research, educators identified a number of challenges that need to be overcome to achieve gender equity across STEM education. Some of the issues identified included a lack of resources, limited lab access, capacity issues, misconceptions about STEM subjects and a need to improve media representation to make STEM more appealing to female students.

The participants expressed concerns about the lack of compulsory Science, Technology and Engineering subjects in schools, especially for girls. They suggested that special initiatives, such as the STEM Passport for Inclusion, and practical engagement programmes to support the uptake

of STEM subjects among girls are necessary for meaningful change.[15] They also emphasised the importance of showing students that STEM is present in daily life and advocating for changes in cultural attitudes to encourage greater participation of women and girls in STEM fields. Irish publications such as 'Engineering in the World' with real world case studies and interactive activities are excellent resources to support post-primary educators in translating STEM subjects and skills into everyday applications that students can relate to.[16]

Educator participants to this study proposed a number of specific actions to address the challenges they face in cultivating interest in STEM subjects among girls. They included:

- Reframing and shifting the narrative from considering STEM subjects only for "smart" kids or specific careers.
- Introducing STEM concepts and topics at primary school level and creating excitement about these subjects through engaging and tangible activities as well as parent involvement.
- Challenging gender roles and biases from a young age.
- Introducing students to the diverse range of rewarding STEM careers and roles available to them, regardless of traditional gender expectations.
- Use of role models to allow girls to 'see it to be it'.

Curriculum change was mentioned by several survey and interview participants, but this is a complex undertaking and must be seen as an ambition for the longer term. In addition, further studies would be required to identify specific changes that could potentially have the effect of engaging more girls to opt for STEM subjects at post-primary level and higher education level.

The industry perspective on building the STEM education pipeline

There was strong support for industry outreach and engagement with the education system among industry participants in the surveys, interviews, and focus groups conducted as part of this report. However, the reality on the ground was somewhat more mixed with almost half of the participants in the industry survey reporting that their organisation engaged in some form of STEM outreach or educational initiatives, and just over 42% said that no such initiatives exist in their organisation. The remaining 7.7% were unaware if their organisation had such initiatives in place. It should be noted, however, that not all companies in the health technology sector have the scale or resources to engage in meaningful levels of outreach activity.

Outreach initiatives and engagement with industry were reported to be higher at post-primary and higher education level, with less engagement reported at primary level. That is unfortunate as research indicates that primary level engagement is critically important with many children forming subject and career preferences before the age of 10.[11] Of those organisations that do participate in STEM outreach initiatives, approximately half reported involvement in structured programmes. These programmes include workshops, engagement sessions, planned resources and mentoring.

Our statistical analysis indicates that there is a possible link between the level of outreach and engagement with education and the number of women in leadership roles in an organisation. Survey participants were two to three times more likely to report not having a school outreach programme if, in their opinion, there was a disproportionately low number of women in leadership roles within their company.

A similar correlation was noted in relation to the existence of gender policies. Where it was reported that gender equity policies or gender equity were not included in business priorities, participants were twice as likely to report that their organisation did not have a structured school STEM outreach programme.

When asked to consider actions to promote girls' uptake of STEM, working with schools and universities to develop initiatives where positive role models visited the schools was the most frequently cited solution by survey participants. Other actions included taking a strategic partnership approach to working with the educational system on improving gender balance in STEM specifically targeting primary/post-primary level education.

Recruitment initiatives involving schools and industry partners to help pupils understand the labour market and current trends and opportunities presented by STEM careers were also cited as important.

The industry focus groups also highlighted the importance of creating inclusive STEM education and training programmes that encourage and support women pursuing careers in this field. One industry focus group participant pointed to inclusive training within their company:

"I think what our company does, which is quite effective, is that once they've hit the ground running after the first six months or whatever, learning the particular role, there is an internal training programme, and it's open to everybody, and it can take you down a very specific technical route if you want to get really more focused on a specific area."

Focus group participants also noted the importance of female role models and mentoring programmes in encouraging women to pursue and thrive in health technology careers. Their shared view was that by showcasing successful women in the field and providing mentorship opportunities, the health technology industry can help more women break into and excel in technical and leadership roles. International research has demonstrated that mentoring programmes with schools and universities can have a positive impact on young people's choices. A study from Germany found evidence that a one year online mentoring programme positively influenced aspirations to pursue STEM.[17] Researchers also concluded that the quality of the relationship between mentee and mentor significantly contributed to the overall experience and to aspirations to pursue STEM careers.[17]

Recommendations for building the pipeline

The research findings along with the experiences of educators and industry form the basis for the following recommendations for actions to address the gender imbalance in the health technology sector by increasing the pipeline of female STEM talent coming out of our schools and higher education institutions.

Education and Awareness:

- **Girls' interest in STEM should be encouraged from as early an age as possible**, through hands-on activities, demonstrations, workshops, and exposure to female STEM role models. Long-term interest and confidence in pursuing STEM fields should be fostered through early engagement.
- **Girls' aspirations to pursue a career in STEM can be influenced by family support and encouragement.** STEM careers should be promoted to the wider public in order to enlist parents and families as advocates.
- **Support gender-neutral and inclusive teaching approaches** that focus on the learner in STEM subjects, reducing stereotypes and biases that can discourage girls' interest in these fields.
- Everyone can benefit from **regular unconscious bias training.** Efforts should be devoted to making it available to teachers in all primary and post-primary schools in Ireland.
- **Consideration should be given to making more STEM subjects compulsory** at Junior Cycle level in post-primary schools.
- Schools may benefit from **monitoring STEM subject uptake** to enable proactive measures to be put in place to address gender imbalances should they arise. This research has found that schools who do track and monitor STEM uptake are twice as likely to report that there were equal rates of girls choosing STEM subjects in comparison to non-STEM subjects.

Role Models and Mentoring:

- **Highlight successful women in STEM** through media, events, school and college visits, and online platforms to provide relatable role models for aspiring female students.
- **Establish mentorship programmes** to provide guidance, support, and insights into STEM career pathways, while connecting female students to experienced women in STEM fields. For example, Johnson and Johnson developed a very well received programme, WiSTEM²D, for young women at college and university level which is designed to tackle pipeline challenges of female talent by providing sponsorship to women to enhance their educational experience.[18] It provides access to mentorship programmes, and to various resources including networks of women in STEM, awareness of job opportunities, workshops and integrative degree programmes and scholarships. Another example in the Cork/Kerry regions is the STEM TY Challenge which is a STEM Initiative tailored for post-primary students in transition year that offers them the opportunity to work with an industry mentor, go on an industry site-tour, take part in an interactive skill development programme and work in a team to deliver an output which they can present at the annual showcase event and subsequently use to support their TY portfolio.[19]

Partnerships and Collaborations:

- **Strengthen Industry-Education Partnerships for STEM Delivery and Internships**

  Forge robust partnerships between educational institutions and industry to enhance STEM course delivery and internship opportunities. Programmes like the STEM Teacher Internship Programme (STInt), coordinated by Dublin City University, exemplify this approach by offering primary and post primary teachers paid summer internships in STEM roles. These experiences give educators valuable insights into current STEM applications, fostering industry-relevant teaching.

- **Enhance STEM Engagement Among Girls Through Collaborative Efforts**

  Encourage proactive involvement from companies to increase girls' engagement in STEM by supporting initiatives in collaboration with educators, and local communities. Programmes such as iWISH, Research Ireland Smart Futures, and the BT Young Scientist & Technology Exhibition are examples where schools and industries can work together to effectively demonstrate the diversity and impact of careers in health technology.

- **Dedicated Coordinator Role to Support Partnerships**

  Consider a formal coordinator role to organise and streamline industry-education partnerships, which would be particularly beneficial for smaller health technology sector companies. This role would facilitate participation in STEM outreach, allowing small companies to collaborate on structured regional or national engagement efforts.

SECTION 2

The industry perspective on reinforcing the female talent pipeline

What the literature tells us

While no specific statistics are available for the Irish health technology sector, the gender disparity is unlikely to be very different than that of the broader STEM sector where just one in four employees are female[1]. This is out of alignment with the proportions of STEM graduates coming out of the higher education system which, while still at an unacceptable ratio of almost two to one in favour of males, does suggest that many females are not choosing STEM careers when they have the option and are qualified to do so. [9]

Even when young women do choose a STEM career, progression to leadership levels may be difficult if the experience across the wider economy and internationally is anything to go by. According to the CSO Gender Balance in Business Survey for 2023, almost 1 in five (19%) Chief Executive Officers (CEOs) in large enterprises in Ireland in 2023 were women. There were also differences at senior management level, 30% of senior executives being female.[20] The US experience is quite similar. The Women in the Workplace study, conducted by LeanIn.org and McKinsey & Co in 2022, looked at 350 US based companies and found that while women held 45% of entry-level positions, only 19% progressed to C-suite roles.[21]

This evidence points to a classic leaky pipeline. In the broader workforce, the numbers of males and females at entry level will be close to equal. However, as can be seen from the CSO data, that changes quickly as people rise through organisations. Women are not progressing in the numbers that they should, and organisations are losing out on valuable skills and experience as a result.

The leaks in the pipeline begin even earlier, however. It is clear from the data that female STEM graduates are not entering STEM careers at the same rate as their male counterparts. While this issue may be addressed in part by the recommendations in Section 1 of this report, it is likely that recruitment practices also need to be addressed.

Furthermore, if there is a perception of an industry being male dominated, especially at leadership level, it is less likely to be very attractive to women. Fixing the leaks will therefore likely have a positive impact on the pipeline itself. On the other hand, there is little point in growing the pipeline coming through our schools and higher education institutions if the talent is going to be lost through continued leakage at industry level.

What our research tells us

Tilting the balance

A total of 207 health technology industry representatives participated in a survey as part of this research. According to survey participants, the most statistically significant challenge to recruitment and retention of women in the industry was the availability of childcare. Other important factors for attracting and retaining women to the workforce in their organisations included flexible working practices and having a strategic goal of improving the gender balance in the company with gender diversity embedded into the corporate strategy. Reskilling women in STEM and manufacturing roles and monitoring and tracking gender balance in technical and leadership roles were also identified as desirable by participants.

Survey participants were twice as likely to report challenges in the recruitment of women to their organisation if there was a lack of processes in place to monitor and track the number of women entering, moving through, or leaving the organisation. Participants also reported that a lack of monitoring and tracking of the number of women in posts across the business was strongly related to lower availability of leadership opportunities.

Less than a third (30.9%) of participants were aware of specific recruitment initiatives within their organisation to attract women. When asked if there are any factors that may be affecting the recruitment of women in their workplace, the top three responses were: flexibility in work practices; childcare issues; and work-life balance.

Respondents identified opportunities to improve retention of female staff by providing access to mentoring, facilitated career breaks, flexible working hours and additional childcare supports. Other points for improvement included customised career pathways that shift from the traditional career ladder to career lattice, allowing for lateral and vertical progression, creating multiple ways to gain experience through a choice of alternative work assignments.

In addressing gender equity within organisations, the most statistically significant responses to improve recruitment and retention were to embed gender equity policies within organisations, have flexible working practices and to have unconscious bias training programmes that are accessible throughout all levels of the organisation. While a significant number of survey participants (47.8%) were aware of access to unconscious bias training within their organisations, more than half (52.2%) either did not have access to or were not aware of such training within their organisation.

Adopting a strategic approach to gender equity within an organisation was reported as crucial in increasing female representation and was also linked to a reduction in recruitment challenges. Interestingly, participants were nearly twice as likely to report support with career break options if gender equity was included in the organisation's business priorities.

The Leadership Lens

Interviews with industry key opinion leaders (KOLs) explored measures which could improve gender parity in technical and leadership roles in the health technology sector.

Among the suggested actions identified by the industry KOLs were:

- Establish clear career progression pathways with defined milestones to provide a roadmap for women in STEM to understand the steps required to advance into leadership positions.
- Establish mentorship and sponsorship programmes to provide women with guidance, support, and opportunities to advance their careers. It was noted that mentorship can help women navigate challenges and build the skills needed for leadership roles.
- Promote flexible work arrangements and policies to accommodate the needs of women in STEM. This can help retain female talent and encourage leadership aspirations. In addition, flexibility, work-life balance, and family-friendly policies contribute to a more welcoming environment for women and indeed all employees in the health technology sector.
- Actively seek out and recruit diverse talent through targeted outreach efforts to universities, conferences, and professional networks.
- Use inclusive hiring practices, such as blind recruitment techniques to mitigate unconscious bias during the initial selection process.
- Raise awareness about and provide training in unconscious bias for employees at all levels and implement fair and inclusive practices to create more equitable workplaces where women can thrive and lead.
- Support targeted initiatives that address gender disparities in technical and leadership roles within your organisation.

Industry Insights

A series of three focus groups were facilitated with a total of 29 health technology industry representatives to explore the challenges and enablers to improve gender equity in technical and leadership roles. Among the key findings were that achieving gender equity in health technology demands active and intentional efforts from organisations in the form of development, implementation and ongoing evaluation of diversity and inclusion policies, alongside creating supportive workplace environments where women are encouraged to thrive.

It was agreed that efforts must focus on attracting, retaining and developing women at all career stages, from entry-level positions to leadership roles. This involves eliminating biases in hiring and promotion processes.

Discussions within the focus groups revealed that efforts are underway to actively change the status quo by implementing diversity and inclusion policies within health technology companies. These policies aim to create a more welcoming and equitable workplace environment for women in the industry.

Very significantly, it was also revealed that gender bias extends to various roles within the industry, from engineers and scientists to marketing and management positions. The presence of female role models and mentoring programmes is therefore crucial to encourage women to pursue and thrive in health technology careers. By showcasing successful women in the field and providing mentorship opportunities, the industry can help more women break into and excel in technical and leadership roles.

Industry Strategy

Irish Medtech formed the Ibec Medtech and Engineering Leadership Development Taskforce, an industry working group, in 2017. Their main aim is to help increase the number of women working in the medtech, engineering and manufacturing industries, and progressing to leadership, by learning from industry foresight and sharing best practice to help members make demonstrable progress. In addition, the Taskforce takes an active role in advocacy, benchmarking and sharing of best practice through networking events. In 2020, the Taskforce published the Inspiring Girls, Supporting Female Leaders strategy, which is underpinned by three key activities covering career guidance, diverse slates and flexibility.[4]

Career guidance

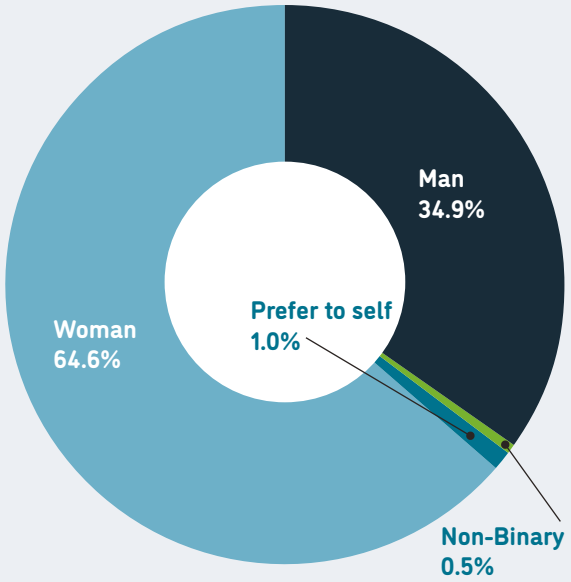
Access to mentorship programmes for women has been linked to better recruitment and retention rates for women, and greater opportunities for career progression. This requires manager training that can support and guide women and offer a choice of options for career development. It includes career lattice approaches that provide options to gain experience through a choice of assignments. This is important as lack of choice in gaining experience has been identified as one of the contributing factors to women choosing to leave health technology roles. To maximise the benefits of mentoring requires a change in the approach that goes beyond career guidance, to acting as an advocate for career progression. This includes access to networks and employee resource groups to improve knowledge, skills and improve career development.

Methods

Industry Survey Demographics – 207 respondents in total

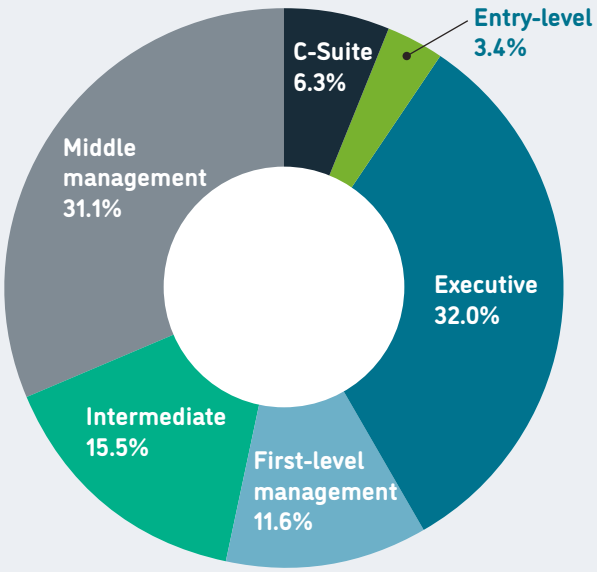
Gender of Respondents

FIGURE 8 Gender of industry survey participants



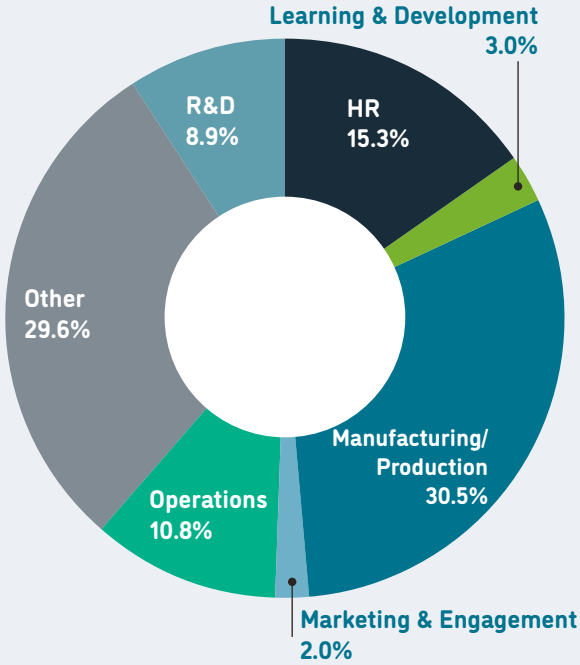
Which of these best describes your current job?

FIGURE 9 Job Level of industry survey participants



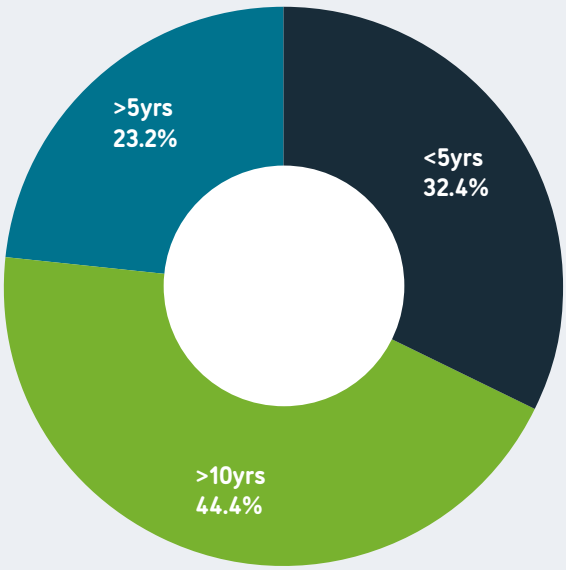
What business area are you in?

FIGURE 10 Business area of industry survey participants



How long have you worked at the company?

FIGURE 11 Length of time participants have worked with current company



Diverse Slates

The concept of diverse slates means recruiting from a diverse pool of candidates. The Irish Medtech report recommends that there be a minimum of one candidate from an underrepresented group in every slate to fill a vacant role. In addition, organisations should adopt diverse slates as part of standard practice and provide education and training for senior leadership and HR managers to understand how they work [4].

A key enabler to the adoption of diverse slates and improving gender balance is the provision of unconscious bias training. This supports companies to address gender bias both unconscious and conscious at all levels. This includes the delivery of targeted awareness training to explore attitudes and perceptions and challenge gender stereotypes.

Flexible Working

Flexible working is recognised as an important factor in the recruitment and retention of women in the workplace. Indeed, since the lifting of the Covid restrictions it has become important for the recruitment and retention of all employees, regardless of gender. However, flexible working is not suited to all workplaces. Manufacturing environments, for example, do not lend themselves to remote or home working for a significant proportion of employees. Where possible and practical, industry should work together to identify best practices and share knowledge and experience in implementing flexible working policies. In this context, it is important to ensure that those employees who do avail of remote working activities do not find themselves at a disadvantage when it comes to connecting with teams, participating in workplace activities, or availing of career progression opportunities.

Best Practice Checklist

The research carried out for this report has identified the following questions which companies aspiring to meet best practice standards in achieving gender balance at all levels should ask themselves. These questions will help to identify any gaps that need to be filled and help companies meet their gender equity objectives.

- ❑ Does your organisation have gender equity policies?
- ❑ Is gender equity included in business priorities?
- ❑ Are there appropriate technical and leadership training and education opportunities for women within your organisation?
- ❑ Is unconscious bias training available and promoted throughout all levels of your organisation?
- ❑ Does the organisation track and monitor the number of women entering, moving through, or leaving your organisation?
- ❑ Does your organisation use data on the number of women entering, moving through, or leaving the organisation to inform gender representation?
- ❑ Are job descriptions reviewed regularly to ensure language and approach encourages applications and maximises on talent?
- ❑ Are there flexible working programmes within your organisation, for example a work from anywhere approach, remote working, flexible hours?
- ❑ Are there childcare or caregiver support options within your organisation (this can include flexible work practices)?
- ❑ Are there opportunities for women to experience alternative work assignments and roles?
- ❑ Is there access to mentoring or allyship programmes within your organisation?
- ❑ Does your organisation have a structured programme to work with schools, colleges or universities?

Connected Health Skillnet

First Polymer Training Skillnet

Irish Medtech Skillnet

Recommendations for reinforcing the female talent pipeline in industry

In making recommendations based on this research, it should be noted that some of the challenges uncovered by the participants are not within the power of any individual company or indeed the health technology industry as a whole to overcome. For example, childcare costs and availability have become issues for employees and employers across every industry sector.

Flexible working is linked to the childcare issue. It can help to reduce the overall cost of childcare as well as assist parents in meeting childcare needs during school holidays and so on. Flexibility can also aid parents in sharing childcare responsibilities and much more. It has also become increasingly desirable for people who want to improve their work-life balance. However, as noted earlier, flexible working is not appropriate for every role and some employers, particularly those involved in manufacturing, may experience significant challenges in implementing it.

It should also be noted that some smaller companies in the health technology sector may have neither the resources nor the bandwidth to provide in-house unconscious bias training or mentoring within the workplace and these should be areas for the broader industry to address through the Skillnet Business Networks.

Flexible Work Arrangements:

- Where possible and practical, employers should consider providing flexible work arrangements, such as remote work options, compressed workweeks and family-friendly policies, to accommodate the different scheduling needs of a more diverse employee population.

Diverse and Inclusive Work Environments:

- Implement diversity and inclusion policies that promote gender balance and create safe and welcoming environments for all employees.
- Use inclusive hiring practices such as diverse slates to mitigate unconscious bias during the selection process.
- Provide access to training at all levels of the workplace to recognise and address conscious and unconscious biases that might affect hiring, promotions, and evaluations.
- Track and monitor the number of women entering, moving through, or leaving the organisation.

Workplace Equality and Advancement Opportunities:

- In addition to legislative requirements, such as Gender Pay Gap Reporting and the incoming EU Pay Transparency Directive, companies should support the implementation of talent strategies and initiatives that promote gender equity at all levels of the organisation.
- Review job descriptions regularly to ensure the language is inclusive and does not discourage applications from women.
- Establish clear pathways for career growth and leadership positions, with transparent criteria for promotion and advancement.
- Improve recruitment and retention rates by customising career pathways with access to mentorship and sponsorship programmes.
- Provide training and education opportunities for women with leadership aspirations to fill skills and qualification gaps that may be hindering their career progression.
- Implement lattice career approaches that enable women to experience alternative work assignments and roles to broaden their experience in preparation for progression to leadership roles.

Supportive Networks:

- Create platforms for women in STEM to connect, collaborate, and share experiences.
- Promote networking to provide a sense of community and help combat feelings of isolation. There are many existing national networks such as WITS – an independent, voluntary organisation supporting women in STEM; Connecting Women in Technology (CWIT) – an organisation founded by Accenture, Dell and Microsoft in 2009 with a mission to attract, retain and promote women in the technology sector and to achieve a 50/50 female workforce in the technology sector and 40% women in management across tech companies in Ireland; and others listed within this IDA Ireland resource [14]

Monitoring and Evaluation:

- Track and monitor progress towards gender parity with clear goals and KPIs.

SECTION 3

Conclusion and next steps

Addressing the gender imbalance in Ireland's health technology sector and broader STEM fields requires a comprehensive, multifaceted approach that encompasses education, industry policies, and societal support systems. While some progress is being made, gaps persist, particularly in recruitment, retention, and career advancement for women. Challenges such as limited flexible work options, childcare barriers, and rigid career pathways disproportionately affect female talent, leading to a "permeable pipeline" of women leaving STEM careers prematurely. To build a robust female talent pipeline, it is essential to inspire and retain women in STEM from a young age through to leadership positions. This requires concerted efforts from educators, parents, industry leaders, and policymakers.

Next Steps to support gender representation in the health technology sector in Ireland

1. **Inclusive Practices:**

   Companies should review their current practices using the checklist on page 25 and where practical and possible consider embedding gender equity in their business priorities. This can be achieved through enablers such as diverse candidate slates, flexible work arrangements, and unconscious bias training, to create inclusive workplaces that support women in all career stages.

   The Skillnet Business Networks will also support the sharing of the best practice checklist and real-world applications through the coordination and delivery of industry forums and workshops specifically for the health technology sector.

2. **Early Engagement and Education:**

   Encourage STEM interest among girls from primary school onward with hands-on activities, exposure to female role models, and parental involvement to sustain their interest in STEM through to higher education and into their careers in health technology and other STEM sectors.

   Companies should engage in the many national and regional programmes to support STEM outreach in schools. Many of these are listed in the IDA Ireland resource [14]

3. **Support Structures and Mentorship:**

   Establish and expand mentorship, networking, and sponsorship programmes to provide guidance, role models, and career progression pathways for women. Increase the visibility of successful women in health technology as inspirational figures for both young students and early-career professionals.

   The Skillnet Business Networks actively promote successful and inspirational women in the health technology sector through case studies, networking opportunities and events. The Irish Medtech Skillnet also offer a Professional Mentor training programme which is accredited by the European Mentoring and Coaching Council which can support women to achieve their full potential and pursue their leadership ambitions.

4. Strengthen Industry-Education Partnerships:

Develop and nurture partnerships between educational institutions and health technology companies, offering internships, workshops, and community programmes that connect students and teachers to real-world STEM experiences.

Skillnet Ireland and the Department of Education are among the agencies supporting the delivery of the national STEM Teacher Internship (STInt) programme. The programme seeks to inspire the next generation of female Science, Technology, Engineering and Mathematics (STEM) leaders. STInt offers interested teachers with unique opportunities to gain industry experience and skills to complement their academic expertise. Skillnet Ireland's deep roots with enterprise and industry, has helped foster additional STEM partnerships with industry and higher education, resulting in a lasting impact on the future workforce.

Skillnet Business Networks can also signpost companies and educational institutions to available supports and can facilitate introductions to foster and strengthen partnerships. First Polymer Training Skillnet provides an industry funded 2 day 'Polymer Study Tour' for Technology and Engineering Teachers, featuring lectures, hands-on sessions, and industry visits. It aligns to the post-primary curriculum and gives teachers enhanced confidence and lesson plans to teach polymer content and to promote careers in the sector to their students.

Further partnerships should be developed based on these models.

5. Collaboration and Co-creation:

Skillnet Business Networks will continue to facilitate meaningful collaboration between educators and industry to co-create curricula and develop new programmes to support women in the health technology sector.

For example, the RELAUNCH programme, co-created with industry by the Irish Medtech Skillnet delivers a curriculum tailored for women planning to return to the workforce.[22] Over the course of two mornings, the programme aims to develop participants' self-confidence and assists participants in developing their own 'personal brand', to help in pitching themselves more successfully. Through coaching and mentorship, the programme empowers women to further their careers and supports women to work towards personal development and career goals.

6. Explore the creation of a National STEM Outreach Coordinator:

Based on the input from both educators and industry representatives involved in this report, there is a need for better coordination of industry partnerships with primary and post-primary schools. It was recommended that a dedicated coordinator role could be a mechanism to structure industry-education initiatives at a regional and/or national level. This would be particularly helpful to smaller health technology companies to enable them to engage effectively in structured STEM outreach initiatives.

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Quote from Industry Focus Group

"A lot of the international evidence would suggest that's a really good idea and that you have some sort of coordinating role... it's about having some sort of structured programme and really getting down to how a revised syllabus would prepare students for future work and allow them to play to their strengths."

7. Ongoing Monitoring and Evaluation:

Companies should track and assess progress on gender representation at all levels within their organisations, with clear metrics and goals to ensure meaningful improvements over time. Use this data to inform future policies and refine company strategies for long-term impact.

By implementing these initiatives, Ireland's health technology sector and other STEM industries can foster a more equitable, inclusive environment that retains female talent and strengthens the pipeline of future women leaders in STEM.

Read the full research report and findings

CASE STUDIES

CASE STUDY 1

Liga Grzibovska

Senior Validation Engineer at West Pharmaceutical Services

Liga Grzibovska's career journey is a shining example of what can be achieved with the right combination of talent, ambition, dedication and encouragement. Today, Liga works in a global role as a Senior Validation Engineer with West Pharmaceutical Services, having started with the company as a production operator at its Dublin manufacturing site in April 2016.

An opportunity for advancement came quickly, she recalls. *"I had been at West for a few months when my Production Group Leader (PGL) asked if I was willing to be trained so I could provide holiday cover as a back-up technician. The technician on the shift was going on holidays for a month and they needed someone who could be trained up very quickly."*

Liga had the skills and knowledge to take on the role from previous experience. *"I was a bit scared at first. I knew how to start and stop the machine, but I didn't understand the process at the time. My PGL was brilliant. He told me he thought I was capable of becoming a back-up technician. That encouraged me to say yes, and I've never looked back."*

This opportunity led Liga to complete a course with First Polymer Training Skillnet in Athlone. That was quickly followed by a full-time contract with West in February 2017, moving to the role of Process Technician with the company.

"I did a few more courses after that, including one more with FPTS. Then my manager encouraged me to do an Engineering Degree through the West Educational Assistance Programme . A few people in the company had completed degrees, but I didn't know if I was mentally ready. I knew I wanted to make a career at West, but I didn't really know what direction that would take me. Also, I was the only female doing the job at the time. There was a bit of unconscious bias on my own part. I was asking myself if I could do it. But my team at West was really supportive. They pushed me and encouraged me. They said things like 'you're really good, go for it, you can do it."

Bolstered with that encouragement, she embarked on an ATU Sligo Level 6 course in Polymer Technologies, followed by a Level 7 Bachelor of Engineering degree in Polymer Processing. Both of these programmes are supported by FPTS through funding and content delivery. *"I started in 2018 and graduated in 2021"*, she says. The next step in Liga's career was a promotion to the role of Process Engineer in November 2021.

"The encouragement was really important. You do doubt yourself. Especially when you go into something brand new. You are kind of afraid. You are working with millions of euro worth of equipment after all."

Liga wasn't finished there, and she went on to do a two-year BSc in Manufacturing Management at ATU, graduating in 2023.

Combining work with study can be challenging, she points out. *"Anyone who says it's easy is lying. When you're doing shift work as well, 12-hour shifts, nights and days, and trying to fit in lectures and course work – it is a lot. Also, English is not my first language. That makes it even more challenging. It's not just spoken English, it's the professional language and terminology. It can be done but you need to manage your time and prioritise."*

Her message to other women with ambitions to progress in the health technology sector is to *"go for it."*

"Make a plan," she advises. *"I had a five-year plan with a goal to become a process engineer at the end of it. I did it in four. You have to start somewhere. Take the first step. Trust yourself and your instincts. And never be afraid to ask for help. Start with your big ambition and work back from there. At West, regardless of who you are and your background, if you have the ambition, you can become anything you want to."*

She's taking a break from further learning and training, for the time being at least. *"At the start of this year I moved into a Senior Validation Engineer role. That's a global role and I don't need anything on top of that challenge at the moment."*

CASE STUDY 2

Niamh Hunt

Senior Director with the Joints Supply Chain of Johnson & Johnson MedTech

An early interest in STEM encouraged by her parents and teachers has led to a near three-decade career in Johnson & Johnson for Niamh Hunt. *"My father is an electronic engineer, so I was used to seeing lots of technology around the house,"* she explains. *"Teachers can also play a significant role in encouraging an interest or flexing any natural abilities in the STEM fields. I enjoyed science at junior cycle so went on to do physics and chemistry for my Leaving Cert. My teachers always made learning fun and interactive. Teachers really are so influential. We lived close to the University of Limerick, and so with the passion I had for science and technology I ended up doing Industrial Chemistry. At the time, when I started college, that course was very strong on the industrial and operational side, and it really suited me. I loved my time there."*

Today, Niamh is a Senior Director with the Joints Supply Chain of Johnson & Johnson MedTech. *"I have responsibility for all the technical operations parts of the business globally,"* she says. *"My team supports the daily manufacturing of our products, the delivery of new products as well as the development and introduction of innovative ways of working across the business."*

That business is involved in orthopaedics, replacement hips, knees and shoulders to be precise. *"Millions of people benefit from our products. It's very exciting to be part of something that keeps people moving"*.

"My team looks after all the manufacturing assets on our sites," she continues.

"If a piece of equipment goes down, we need to address that. We look at new products coming out of research and development and challenge, what is the best way to make them? What technologies do we need to do it? We are continuously exploring technologies like 3D printing, laser technology, and automation. We are constantly looking at new technologies and opportunities to be even more efficient."

Upon graduation, she began her career with Aughinish Alumina in Limerick taking on a project role within the Environmental, Health and Safety team. *"I had completed my co-op placement at the company, and I really enjoyed it. The role was incredible, hands-on, learn-by-doing and knee deep in the operational side of things, involving hard hats, mucky boots and so on. I had an amazing manager, and I learned a lot from her. On completion of the project, I was offered a role as a chemical engineer with the company, yet at the same time, I had seen a role advertised in Janssen Pharmaceuticals (now Johnson & Johnson, Innovative Medicine) for an environmental chemist and that's where my passion was. So, I moved to Cork and I haven't looked back since!"*

That was her entry to Johnson & Johnson.

"That's 29 years ago now. I spent my first 12 years in environmental, health and safety. I am very fortunate to work in a company that encourages diversity of experience, movement of people across functions, ultimately developing strong business leaders. I love the people side of the business, developing talent and an opportunity came up to move into HR supporting both of our pharmaceutical sites in Cork. This was a completely different experience but one that has stood to me, to this day."

The next phase of her career saw her move to the US. *"I got a call offering me an international development assignment at our sister site in Pennsylvania, working in Business Excellence. I decided it would be a great experience for me and moved in February 2012. While the original intent was to stay in the US for 2 years further opportunities arose and I later moved to Athens, Georgia as plant manager"*

Up until that point she had worked only within the pharma side of Johnson & Johnson but conversations with her mentors and senior leaders in the business drew her attention to the MedTech side.

"The common theme throughout my career here has been delivering life impacting and lifesaving products to people. Being involved in caring for people's health and improving their lives is a big motivator for me. As long as I have the opportunity to do that, I'm happy. For me it's all about the patient as our culture and values challenge each of us to put the needs and well-being of the people we serve first – in my case, that is patients, and it's my co-workers and team members."

That led her to apply for the role of Plant Leader with Joints Supply Chain in Raynham, Massachusetts. *"It's a very different business. I enjoy change, and new challenges and this move required a huge amount of personal learning. From a supply chain perspective, this business is much closer to our commercial partners and timelines are so much shorter"*.

Following her role in Massachusetts, she returned to Ireland in a strategic role and later transitioned to her current role.

Looking back on her career to date with Johnson & Johnson, she points to the level of support she received from within the company.

"Leaders in the business have always encouraged, coached, supported and mentored me to the same extent as my male counterparts." Nowadays, Niamh finds herself in that role, providing the encouragement to fellow team members. *"My passion for developing people continues. Other people supported me, and I want to feel that I am now doing the same for others. I mentor, coach and sponsor individuals right across the business and the globe. There is personal learning in that too. And it's great to give back."*

She believes collaboration between the industry and the education system is very important for encouraging girls and young women to take up STEM subjects and pursue related careers. *"Johnson & Johnson does a huge amount of work on STEM outreach programmes within schools, third level colleges and universities. Programmes like that can really engage and open young people up to STEM. They can be put off if they are not encouraged and motivated."*

Her advice to girls and young women considering STEM subjects or a career in the industry is to reach out for advice and support. *"They should reach out to companies like Johnson & Johnson or me to find out what day in the life here is like. Trust your instincts and don't hold back. Contacts like that are a win-win for us. We need to grow our talent pipeline to support the business. That's one of the reasons we collaborate with schools and third level colleges. I am happy for people to reach out to me directly. I'm on LinkedIn."*

CASE STUDY 3

Lara Kelly

Vice President Data Analytics & Global Business Implementation - Digital Health Technology at HealthBeacon

Today, Lara Kelly is the New York based VP Data Analytics & Global Business Implementation - Digital Health Technology with Irish-founded innovative health technology company HealthBeacon. But that career path almost didn't happen for her despite her interest in healthcare.

"My background is in engineering," she explains. *"I studied engineering and then biomedical engineering in TCD. I loved the biomedical part of it. Coming out of that I looked around at what I could do. I went to a talk in Accenture about their graduate programme and I got talking to their managing director about what working there involved. He said engineering was about solving problems and Accenture was about solving business problems."*

That conversation saw her join the firm where she led a team working on projects for a major bank. *"I spent three years there and I absolutely loved it. Going into consulting for a few years is a great foundation for a career. My passion is healthcare and there wasn't a huge number of opportunities in Ireland for what I wanted to do. But I knew I had to move on otherwise I would end up in a career in banking. I researched a lot of Irish start-ups and got introduced to HealthBeacon."*

The company creates tools to support patient adherence to medication prescriptions, specifically for injectables. *"People with chronic conditions may be on injections every fortnight or month for the rest of their lives but around 50 per cent of patients don't adhere to their prescriptions,"* she explains.

HealthBeacon has developed a smart sharps bin for patients to dispose of syringes after use. Use or non-use of the device indicates adherence or otherwise. *"'The data being captured is the real key, it is an accurate reflection of real-world medication adherence data, and we have it in real time which makes it actionable. Patients get a reminder every time they need to take their medication. For patients who aren't adhering we can alert a medical professional – a pharmacist or a doctor depending on where the patient is in the world."*

She joined the company seven years ago while it was still in its infancy. *"I met Kieran Daly, one of the co-founders and we had great chat. I took a bit of a gamble and went in as a project manager. I was employee number 14 at the time. I'm here seven years now."*

She moved on from project management to set up the company's data team. *"That's what I'm most proud of. I moved onto looking after implementation. That has since expanded into business development and corporate development."*

Expansion into the US saw her move to New York. *"I moved to help grow the business in America. It's now our biggest market. Almost all of our biggest clients are here."*

The company was acquired in February 2024 by home appliance company Hamilton Beach. *"They have created a healthcare division for products for people to use at home and we are part of that,"* she says. *"We had been working with Hamilton Beach for a while and the integration after the acquisition was seamless. Our client base remained with us and continues to grow."*

She is grateful for the support she has received over the years. *"I've been very fortunate to have had lots of good leaders around me who always supported me. I went to an all girls school. I always loved science. I did chemistry, physics, biology, higher maths, and applied maths for my leaving certificate. People thought I was a bit crazy. I'm much better working on anything to do with facts and figures rather than subjective topics. I got a lot of support in school from my teachers. The applied maths class was like an after school club there were so few of us in it. The vice principal took it on as a special project.*

"Kieran Daly always backed me in my career", she continues. *"To be honest. there was a bit of imposter syndrome there in terms of running a data analytics team when I wasn't able to code. What he taught me was that if you can build an amazing team around you, you can lean on their skills. It doesn't matter if you can't do what they can at the end of the day."*

She has reached out to mentors outside of the workplace as well. *"In work, your mentors tend to have a bias towards business and your family members have their own biases. I've always tried to have personal mentors. Over the years I've gone to industry events and reached out to people I admire. It's great to have people like that who you can bounce things off."*

She advises young women to be prepared for a gender imbalance in engineering courses in college. *"The male to female ratio in college was about five to one. That male dominated atmosphere can be a bit overwhelming for some people. I never had a problem, but you need to be prepared for it. The biomedical engineering course is hard, and you need to have your eyes open. You work 9 to 5 every day with labs every morning. It's all worth it in the end and you make the best of pals because you are all in it together. I loved it!"*

Her advice to other women with ambitions for careers in health technology is to embrace different perspectives. *"You need to understand why the other person has that perspective,"* she points out. *"In the health technology industry, we try to design products and solutions for people, and you need different perspectives to be able to do that."*

She also advises women not to be afraid to back themselves. *"Women aren't always as confident as they should be and you need to back yourself,"* she says. And keep learning. *"Healthcare is moving in dog years, and you need to move quickly and continue to learn all the time."*

CASE STUDY 4

Niamh Storan

Director of Product Transfer at Stryker

Stryker Product Transfer Director Niamh Storan always knew she wanted to work in a STEM related area. *"I absolutely loved science when I was at school and I always wanted to work in an area that I was passionate about and that would involve improving people's lives and maybe even saving them,"* she says.

"I got a lot of encouragement from my parents," she adds. *"My father had an engineering background. I got a microscope for Christmas when I was about seven or eight. That was an unusual present for a child of that age. When I went to secondary school, my passion for science grew. My teachers and lecturers were always really supportive as well."*

That passion led her to do a degree in Pharmaceutical and Forensic Analysis at the Limerick Institute of Technology, now the Technological University of the Shannon (TUS). Following her graduation in 2006, she took up a quality control role with a major pharmaceutical company.

After two years with the company, she joined the Medical Bureau of Road Safety in UCD as a toxicology analyst where she was responsible, among other things for all chemical tests for intoxicants. *"I spent four years there,"* she recalls. *"I did toxicology tests on samples from people suspected of driving under the influence of drugs and prepared reports for the courts. A lot of drug testing in Ireland had been outsourced to the UK back them and I spent part of my time there setting set up the first in-house testing facility here in Ireland."*

She returned to her native Limerick in 2012 to take up a role with Stryker. *"I've worked in different roles with the company since then including as an Analytical Chemist and in Business Intelligence. My current role is Director of Product Transfer. I lead a global team spanning from the west coast of America to eastern Europe."*

The team's main function is cost optimisation, she explains. *"We take products that are already on the market and transfer their production to different sites or suppliers to drive cost savings. Our industry is fast paced, evolving and has a very wide portfolio of products. I look after five divisions within Stryker."*

She continues to live in Limerick but works out of Stryker headquarters in Cork. *"I also spent three years in Amsterdam."*

Her move into medtech from pharma and chemical analysis shouldn't be seen as in any way unusual, she believes. *"As my career evolved, opportunities came up in medtech space. My skills and knowledge are very transferable to many industries and allow me to have an impact in an area where I have passion."*

Looking back, she says she has never encountered any career barriers linked to being a woman. *"I've been very lucky. The pharma industry is quite gender balanced. There is some room for improvement in the medtech space. That was especially the case 10 years ago, but there has been a huge push over time to achieve greater diversity. When I look back, I have seen the number of female engineers in the industry grow significantly over the years. Stryker is very committed to encouraging women, and we have a number of Employee Resource Groups (ERGs) that focus on that. Joining Stryker accelerated my career as a woman. Our Women's Network ERG is focused on promoting women and our new ERG, Women in Science and Engineering, is aimed at enabling more females to become leaders in the organisation."*

She believes girls should be encouraged to take an interest in STEM from a very early age. *"We need to engage girls while they are in primary school and show them how STEM subjects can be applied to careers. We also need to showcase successful females in STEM careers to demonstrate how women can be successful in STEM."*

She advises girls and young women to focus on subjects or areas they genuinely care about. *"Also, don't be afraid to reach out to someone in the industry to learn more about what they do. Leverage opportunities in school and college to expand your network. When guest lecturers come into college or when you attend careers fairs, use them to learn about career opportunities in the area."*

For her, she says the pivotal point in her career came when she joined Stryker. *"The company has really strong mentorship and development programmes. There are great opportunities to continue your education and gain new skills. I did the Female Leadership Programme and a Diploma in Medical Device Design, for example."*

CASE STUDY 5

Ida Foley

Director of Regulatory Affairs, EMEA at Teleflex Medical

Self-doubt is among the main obstacles to women advancing in STEM careers, according to Ida Foley. *"I kept putting off doing my degree for years because of it,"* says the Teleflex Director of Regulatory Affairs, EMEA. *"I kept asking myself if I would be able to do it. I see imposter syndrome in females in the medtech industry all the time. You can see it at conferences. Females have a lot of discussions to make sure they get it right before they speak. Men just seem to be able to stand up and talk. They have that confidence. Women doubt themselves too much. We are hired for jobs not because we are female, but because we are capable of doing them. We need to have more confidence in our own ability."*

Her entry to the medtech industry was anything but conventional. She received no encouragement to pursue a STEM related career. *"I was advised to do childcare,"* she recalls. Despite that advice, she decided to do electronical engineering in college.

"I did my Leaving Cert when I was 17 and then went to the Regional Technical College in Limerick to do electronical engineering mainly because my brother was an electrician. But it was completely different, and it didn't work out. My parents advised me to go back to school or do a secretarial course or something similar. I did a secretarial course and got a job with a medtech company in Tullamore where I started work as a product builder. I did a few courses on quality control and quality systems at Athlone Institute of Technology and moved from the factory floor to the quality department."

She became a Quality Systems Technician within a few years. *"I really enjoyed it. It meant something to me to be doing something to help people. When the company I was in closed down I took a year out and got back into the industry by taking a temporary position with Teleflex for three months; I'm still here 13 years later and have been Director of Regulatory Affairs for EMEA for just under 3 years."*

She spent the previous 10 years in the quality department. *"Quality assurance and regulatory affairs go hand in hand,"* she notes. *"I was in quality for a long time, and I had seen it all and done most of it. I didn't know the regulatory side of the business so I did the Master's in Medical Technology Regulatory Affairs through ATU Sligo and the University of Galway. This programme, developed and subsidised by Irish Medtech Skillnet, enabled me to graduate in 2022 with a solid foundation in regulatory affairs. Teleflex was very supportive of that. It took a lot of dedication though. They were two tough years, and it was quite challenging to do it on top of my work. I was delighted to graduate. I really didn't think I would ever have a masters degree."*

The role of the regulatory affairs function is to ensure all the products sold are safe and effective and have the necessary permits including the CE Mark in Europe and licences in the Middle East, she explains. Teleflex Ireland is also the Authorised Representative in the EU for products produced in factories outside of Europe. As such it is subject to regular audits by regulators and notified bodies.

Her career with Teleflex has been a continuous learning journey. *"I was encouraged to become an engineer while with the quality function, but I didn't have a degree. I went back to college and got my Level 6 and Level 8 qualifications from Sligo IT in 2016 and 2018. Teleflex supported me every step of the way. It's a great place to work if you are willing to work hard and have drive. Teleflex provides you with opportunities, but you need to be driven and willing to take on those opportunities when they arise. I don't think other companies would have offered as many opportunities. Once I graduated with my engineering degree, I kept asking myself what's next. Today, I ask members of my team to tell me what you want, and I'll help you get there."*

Looking back, she says her love of STEM started when she was on the production floor. *"Understanding the products, where and how they were used, and the difference they made to people's lives along with my desire to make a difference and help people drove me to where I am today."*

Her advice to other women considering a career in the industry is to believe in their own ability. *"Don't allow yourself to be pigeonholed. You are just as good as any man. You can do any job just as well. If a role in medtech is what you want, go after it. The only person stopping you is yourself. I've been lucky enough to have had a number of female leaders and managers who have influenced me and shaped who I am today as a leader. I encourage males and females in my team to be ambitious. Having a person in a senior role encouraging you is very important."*

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