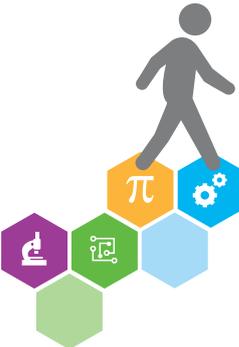


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Official Media Partner  
**THE IRISH TIMES**



**STEM**Paths   
Helping steer students to success

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# Introduction





AbbVie in Ireland recently hosted a Science, Technology, Engineering and Maths (STEM)-focused event in partnership with *The Irish Times*, which aimed to explore how Irish industry, educators, professional bodies, and other interested stakeholders, can work together to deliver optimum engagement in the STEM disciplines and help steer our students to future success.

At the roundtable meeting, entitled STEM Paths, organisations including Science Foundation Ireland (SFI), Engineers Ireland, BioPharmaChem Ireland, IDA Ireland, Pharmacists in Industry, Education and Regulatory (PIER), and representatives of some of

Ireland's leading universities discussed the current landscape of STEM in Ireland by reviewing the challenges and opportunities that exist in this area.

The meeting explored ways in which companies like AbbVie, in partnership with *The Irish Times* and other interested parties, can play a role in overcoming negative perceptions of STEM. Ultimately, the goal of those present at the event was to determine ways to help students see the myriad career opportunities that exist within STEM and companies such as AbbVie, as well as working to ensure the necessary talent pipeline is there for all companies active in STEM areas.

# Background

## **STEM AND IRELAND: A COMPLEX RELATIONSHIP**

In recent years, Ireland has steadily gained international recognition for its approach to investment in science and engineering, and the caliber of its research and workforce.

As outlined in Science Foundation Ireland's (SFI) *Agenda2020* report, the agency's aim is to position Ireland to overcome its current fiscal and economic challenges and emerge as a significant global player in the high-tech field over the next decade. The aim of SFI's Smart Futures initiative, which allows young people access to STEM career resources and industry volunteers, is to significantly increase the take-up of STEM in schools, as well as at third and fourth level.

There are, however, many challenges to be overcome if the potential of STEM is to be realised. In October 2015, SFI published its report '*Science in Ireland Barometer: An analysis of the Irish public's perceptions and awareness of STEM in society*'.<sup>1</sup> It found that:

- Just under half of Irish adults feel well-informed about research and development in science and technology. To a certain extent, many feel somewhat intimidated by science and STEM
- 70 per cent believe that STEM is too specialised for them to understand
- The manner in which the subjects are taught and the preconceived notions passed on by peers and parents can also have an impact. The report found 52 per cent of respondents were deterred from studying science and maths at third level, largely due to the way in which these subjects were taught at primary and secondary level.

Despite this, the research established that very few doubted the importance of STEM to society

and the economy at large. The majority (72 per cent) viewed careers in science as desirable and well-paid, while the supply of STEM graduates was considered vital to the future of the economy by the vast majority (88 per cent) of those surveyed.

## **INVESTMENT IN STEM**

In recent years, the government has consistently reaffirmed its recognition of the need for further investment in education, training and development in these fields. This has led to steady investment in STEM engagement and careers initiatives since 2013, including National Science Week and funding of €2.8m across 42 projects rolling out nationwide during 2016.

While recent initiatives such as the establishment of the STEM Education Review Group in 2013 are to be welcomed, not enough emphasis is being placed on STEM by the general public and it is clear that some demographics still feel that STEM careers are beyond their reach.

The Review Group has recently (November 2016) released a report outlining 47 recommendations as to how some of these issues might be addressed, including an emphasis on the need for scientific literacy.

Smart Futures is the national awareness programme promoting STEM careers in Ireland and is included in four government policy strategies. It has over 200 partners in industry and academia, including AbbVie, IBM, SAP, Twitter and Salesforce, among many others. The programme has been working closely with Campus Engage, the National Association of Principals and Deputy Principals, the Irish Guidance Counsellors Association, IDA Ireland, the American Chamber of Commerce, Business in the Community, and the Connecting Women in Tech group over the last two years to further develop access points



for young people to experience STEM and become more informed about career pathways. Since its inception, it has deployed more than 5,000 volunteer hours with STEM professionals engaging directly with post primary students.

### THE REALITY

Despite the numerous initiatives already in place to promote STEM, the figures show Irish students are still choosing not to study these areas at third level due to negative perceptions of science and technology. Efforts in this space must be increased if we are to sustain the future of local industries falling under the four STEM disciplines, including companies active within the biopharma space.

The SFI report offers some thoughts as to why this problem exists. Margie McCarthy, Head of Education and Public Engagement, SFI, expanded on the potential impact of preconceived ideas of STEM at the meeting:

*“As parents, we need to be aware that unconsciously we can frame our child’s thoughts about a particular subject and potential career paths from a very early age without meaning to. Our research shows that when it comes to picking out third level courses, young people are overwhelmingly influenced by the idea of ‘fitting in’ and parents can be very influential in that regard from an early age,”* she said.

This situation represents a significant problem for Ireland Inc. if we are to stay competitive

as a country and achieve the ambitious plans the government has set out in documents such as the recently launched Future Skills Needs of the Biopharma Industry in Ireland report<sup>3</sup>, which was published by the Expert Group on Future Skills Needs (EGFSN).

Minister for Jobs, Enterprise, and Innovation, Mary Mitchell O’ Connor, launched this report in August 2016. It aimed to review the supply of and demand for skills in the biopharma industry. At the launch, the Minister cited the significant investment being made in Ireland by the biopharma sector and emphasised as critical the need to ensure that people with the right skills are available for the new jobs that will continue to come on stream.

It is anticipated that there will be 8,400 job openings in the biopharma industry alone, worth over €30 billion to the Irish economy in exports, for the period up to 2020. Meeting talent demands is key if Ireland is to maintain its position as a global hub in this space.<sup>2</sup>

In order to foster a lifelong interest in STEM and to ensure that Ireland continues to be seen as a hub of scientific excellence and achievement, it is clear that Irish students must be directly and meaningfully engaged with from a young age. It is hoped that the STEM Paths discussion and this report can serve as a starting point for collaboration amongst stakeholders across the industry, in working together towards achieving this ambition.

# Discussion Attendees

- **Chair: Dick Ahlstrom**  
Science Editor, Irish Times
- **Roseanne O’Leary**  
Acting STEPS Team Leader, Engineers Ireland
- **Matt Moran**  
Director, BioPharmaChem Ireland
- **Sophie Moran**  
BioPharmaChem Ireland
- **Dr Helena Kelly**  
Senior Lecturer, School of Pharmacy, RCSI
- **John Nugent**  
Business and Relationship Development Manager, Border Region, IDA
- **Margie McCarthy**  
Head of Education and Public Engagement, SFI
- **Professor Anne Marie Healy**  
Head of School, School of Pharmacy and Pharmaceutical Sciences, TCD
- **Dr Patricia Kieran**  
Associate Professor, UCD School of Chemical and Bioprocess Engineering
- **Dr Maura Kinahan**  
Founding Member, Pharmacists in Industry, Education and Regulatory (PIER)
- **Todd Manning**  
General Manager, AbbVie
- **Caroline McClafferty**  
HR Director, AbbVie
- **Marty Ryan**  
Intern at AbbVie Sligo



**Back Row (from L-R): Louise Clarke, AbbVie; Dr Patricia Kieran, UCD School of Chemical and Bioprocess Engineering; John Nugent, IDA; Dr Helena Kelly, School of Pharmacy, RCSI; Roseanne O’Leary, Engineers Ireland; Margie McCarthy, SFI; Sophie Moran, BioPharmaChem Ireland; Professor Anne Marie Healy, School of Pharmacy and Pharmaceutical Sciences, TCD; Marty Ryan, AbbVie. Front Row (from L-R): Dr Maura Kinahan, PIER; Caroline McClafferty, AbbVie; Dick Ahlstrom, Irish Times; Todd Manning, AbbVie; Matt Moran, BioPharmaChem Ireland**

# Topics for Discussion

Chaired by the Science Editor of *The Irish Times*, Mr Dick Ahlstrom, the STEM Paths meeting was based around three central questions in relation to STEM. These questions, including key context on each topic, were as follows:

## 1. How does Ireland compare internationally in terms of recruiting and encouraging young people into STEM careers?

According to *The Irish Times* special report on American Business in Ireland<sup>3</sup>, published in February 2016, Ireland showed the fastest rate of growth in the proportion of workers in high-tech roles compared to four other countries featured in the report: the UK, France, Germany, and the Netherlands. The report also showed a 23 per cent drop in the gap between Irish employer demand and jobseeker interest in technology roles between 2013 and 2015.

## 2. What can employers do to attract more women to science careers and overcome the gender gap?

This is one of the most frequently discussed STEM topics in the media but the situation is rarely discussed in terms of a practical solution. Worldwide there is a disproportionately small

number of women studying and/or employed within the STEM disciplines. In Ireland, as in many other countries, only a quarter of people employed in science, technology, engineering and maths are women.<sup>3</sup>

A 2015 Accenture report surveyed 1,500 girls, aged 11-18, and 2,500 young women, aged 19-23, from Ireland and Britain. Almost half of those surveyed believed STEM subjects matched 'male' careers. Almost 30 per cent felt STEM subjects better fitted boys' brains, personalities and hobbies.<sup>4</sup>

## 3. How can AbbVie, as an industry partner, ignite a lifelong interest in the STEM disciplines amongst young people and students?

Integrating STEM teaching into the classroom can also be a significant challenge at primary level. What real-life issues at a primary level are getting in the way of introducing more STEM related education? Is the focus on the wrong subjects at primary level? Do we need to revisit the way primary school teachers are educated so that they can adequately teach science and other topics in the classroom?





# The Discussion

Following introductions from the chair Dick Ahlstrom, who outlined the topics to be discussed, AbbVie Ireland HR Director Caroline McClafferty opened proceedings by describing the STEM programmes which AbbVie currently supports.

AbbVie Ireland General Manager Todd Manning said AbbVie's position as a research-driven company meant it had a direct interest in the success of STEM graduate programmes and careers.

*"AbbVie creates new medicines for chronic, serious health issues by combining advanced science with deep knowledge of diseases. We harness Irish expertise in complex chemical and biological research, testing discoveries through*

*clinical trials, as well as manufacturing many of our medicines and delivery devices here in Ireland.*

*"Our aspiration is to help Irish students better see the potential that undoubtedly exists for successful, fulfilling careers utilising STEM disciplines in Ireland, with locally-based companies such as AbbVie. We believe that, as a research-driven innovative company, it is vital for us to be proactive so we can ensure a talent pipeline is in place for all companies active in STEM areas in Ireland," Mr Manning asserted.*

Ms McClafferty added, "One key objective for AbbVie is to help transform, promote and support STEM-related projects and activities, and AbbVie actively engages with schools,

colleges and industry partners to achieve this ambition. The work that organisations such as SFI have been undertaking in STEM to develop a future pipeline of talent is very reassuring and AbbVie has been actively involved in the Smart Futures programme, with 25 members of our team already signed up as volunteers. In addition to these initiatives, we attempt to actively encourage an engagement with science from an early age. This is something that AbbVie is also supporting through our partnerships with the charity Young Social Innovators (YSI) and through our own science programme, SEEK (Science Engineering Exploration Knowledge), with local primary schools,” she added.

### CAREER OPTIONS FOR STUDENTS

The products manufactured by the biopharma industry are highly innovative and have a huge impact on the health and wellbeing of millions of people worldwide. However, students and young people can be disconnected from this industry and find it difficult to understand what career paths are available to them in this field.

There was consensus amongst attendees on the need to make students throughout the educational system, from primary school all the way through to PhD and post-doc level, aware of the careers available within the pharmaceutical sector and in other STEM areas. Industry partners are being called upon to work together in a cohesive way under the Smart Futures umbrella to help give more students access to role models and careers information.

Almost 300 career talks were delivered by trained STEM volunteers in 2015; to teenagers in post-primary schools across the country, and at over 60 career events. In addition, more than 170 STEM career stories and many videos are made available via [www.SmartFutures.ie](http://www.SmartFutures.ie), which works in partnership with other career support services such as [CareersPortal.ie](http://CareersPortal.ie) and [CareersNews](http://CareersNews), to ensure STEM is well represented.

Ms McClafferty said a big challenge faced by the pharmaceutical industry in Ireland is in filling mid-level positions. Young people, even those studying scientific subjects at university level, are

not aware of specialist areas such as formulation science, for example, as distinct career paths.

Head of the School of Pharmacy and Pharmaceutical Sciences in Trinity College Dublin Professor Anne-Marie Healy agreed there was a lack of knowledge about the pharmaceutical industry within post-primary schools.

“Formulation science, for example, is an inherent part of a pharmacy degree,” Professor Healy explained. “But most students at secondary level would never have heard of formulation science. A student who aspires to be a pharmacist is aware of a career as a community or hospital pharmacist – but something like Formulation Scientist is an alien concept. They don’t understand what it has to do with a pharmacy degree and the possibility of a path into the pharmaceutical industry. Industry needs to work directly with schools to open students’ minds up to the multiple possibilities available to them within STEM,” she explained.

This also applies to PhD students and post-doc researchers. Senior Lecturer, School of Pharmacy, RCSI, Dr Helena Kelly, said that many researchers remain in academia because that is all they know. There is a reticence amongst this group to pursue a career in industry as they are not sure what the job may involve.

“A lot of post-doctoral researchers are future leaders who would be able to come in and upskill to managing big teams and big projects,” Dr Kelly said.

“It is what they have been doing if they have a couple of years’ post-doctoral research. But going into industry is just not in their mind-set. They are going to become academics and all they think about is an academic pathway. I would love to understand why that is. I keep asking all of our postdocs ‘why’? And the main answer I get is because it is what they know. Where they get more exposure to industry you see more interest in them going down an industry pathway. But if they are doing pure research and nobody is exposing them to that industrial environment, they are inclined to think it is going to be a bit industrial, it is going to be a bit grim,



*it is going to be a factory, partly because of the manufacturing history of Ireland. They do not view it as R&D orientated or exciting. I think this is potentially a catchment group we could target.”*

Professor Healy said that, in her experience, PhD students are more willing to pursue careers in industry due to the limited opportunities that currently exist in academia. She asked instead whether college courses are “*fit for purpose*” in terms of preparing students with the skills they would need in industry. This sentiment was echoed by Dr Maura Kinahan of PIER. She agreed that graduates needed to expand their horizons.

*“From our experience with pharmacy students, many are not aware of the numerous and diverse career opportunities available to them in the industry. While the academic institutions organise industry guest speakers and site visits which provide some limited insights into industry careers, it is important that interested students gain practical experience in an industry setting through structured work placements and internships. The AbbVie Summer Internship Program is an excellent example of such a programme,”* she said.

### **EARLY INTERVENTION**

It is widely agreed that engagement with school children from a younger age can help to ensure students become aware of the vast array of opportunities available to them. It was also noted that buy-in from guidance counsellors at post-primary level is vital to this change in thinking.

AbbVie has several school-based educational initiatives aimed at instilling an interest in STEM amongst children including SEEK, a global programme delivered by company volunteers. SEEK aims to spark a child’s interest in science and to hopefully, in time, play some role in creating Ireland’s next generation of leaders in this field. This global programme was piloted in Ireland and has since been implemented around the world. In Ireland, workshops are held annually at primary schools in Dublin, Cork and Sligo, areas in which AbbVie has a significant local presence.

AbbVie continues to refine its innovative educational outreach programmes. In 2016, SEEK adopted an engineering focus. A new engineering-centric module was developed for sixth class primary school students designed to stimulate an interest in and understanding of what engineers do. Programme exercises engaged students in an engineering challenge and then explored careers in engineering. Since its introduction, more than 160 Irish school children have participated in this new initiative in Cork, Dublin and Sligo.

AbbVie has also partnered with Young Social Innovators (YSI) to run a series of school-based workshops across Ireland. Specially designed events challenge teenagers to harness their unique creative potential to play an active role in addressing societal issues that affect them and their peers.

In 2015, AbbVie began a new YSI initiative called the AbbVie Experience Day. It gave

employees the chance to interact with students from local communities. This exercise provided participating students with a direct insight into the work done at AbbVie and encouraged them to consider STEM disciplines as Leaving Certificate, third-level, and career options.

*“This experience has benefited AbbVie employees enormously. We have an opportunity to see first-hand, under the tutelage of YSI, young people using innovation in a social context,” Ms McClafferty explained. “Each of our visiting schools presents their social projects to AbbVie staff. This is a rewarding experience for all involved as it boosts the confidence of students while giving AbbVie employees real insights into the social issues that concern young people these days.”*

Since 2014, more than 150 AbbVie volunteers have assisted in the delivery of 63 Social Innovation Workshops and Experience Days to almost 1,500 students at 35 schools in Sligo, Dublin and Cork. The HR director said she believed that these types of interactions were key to demystifying the biopharmaceutical industry in Ireland.

*“Hopefully greater understanding will encourage an interest in science and engineering careers and, in turn, increase student interest in selecting third level academic programmes related to STEM,” Ms McClafferty added.*

AbbVie also supports engagement with student and graduate populations throughout the educational cycle and the company has a strong tradition of developing the next generation of employees through dynamic and well-constructed graduate programmes.

*“We seek to incentivise career progression within our organisation with novel initiatives such as our Intern of the Year award and the Operations Development Programme (ODP). The latter is a two-year global career support initiative which focuses on identifying high-potential talent and providing participants with a broad base of skills early in their AbbVie careers. Both programmes were recently praised at the gradireland Graduate Recruitment Awards,” the HR Director explained.*

Business and Relationship Development Manager with the IDA, Mr John Nugent, referred to a successful educational initiative the IDA conducted in Sligo with several local companies, including AbbVie.

The ‘*Engineering Dojo*’ was a free, voluntary programme which aimed to create an environment in which young people could learn some elements of engineering whilst having fun and sharing their interests with their peers. *“For kids to go off and discover this stuff, you just have to give them their wings,”* Mr Nugent said.



## Helping steer students to success

Such early engagement initiatives were strongly supported by other attendees, including Dr Patricia Kieran from the UCD School of Chemical and Bioprocess Engineering.

*“We need to make STEM subjects, like physics and chemistry, more accessible and appealing to our students and target them from a much younger age. We need to lower the barrier but we shouldn’t be looking to dumb these subjects down. However, we do need to make them seem more relevant and interesting to our younger cohorts, long before they are making their career and Leaving Certificate subject choices. One way of doing this is to make their laboratory experience more meaningful and more exciting,”* she said.

Participants agreed more funding is needed for schools to build laboratories that would allow students to conduct experiments for themselves, rather than simply observing demonstrations performed by teachers.

Companies are being called upon to work with the existing Smart Futures programme to further raise careers awareness among schools, and to create or strengthen relationships with local STEM industries. The programme offers

communications training for employees interested in giving something back to their community and a means for tracking and evaluating their activity. The programme, which is managed by Science Foundation Ireland in partnership with Engineers Ireland, has seen its volunteers donate over 5,000 hours over the last three years.

Roseanne O’Leary of Engineers Ireland said: *“More than ever we need to impress on kids, teachers and parents that being an engineer or a scientist isn’t just an occupation, it is a quality and a way of thinking that holds the key to all of our futures. During events such as Engineers Week we work with our partners in industry to emphasise this to parents, teachers and children alike.”*

Marty Ryan, an intern with AbbVie in Sligo, shared his experience of the educational system. *“I went to an all-boys school in Cork and only four or five of us ended up studying a STEM-related topic at third level. A lot of the talks we received at school would have been about commerce, accounting and related careers so my friends wouldn’t have been aware of the many alternative career opportunities out there. I was lucky as a family member was working within STEM and that is what spurred on my interest.”*



The participants felt that, in post-primary schools, better links might be established with career guidance counsellors, who may not be aware of careers within the pharmaceutical sector. As counsellors are under pressure to know about a variety of careers in very diverse fields, it was also suggested that science teachers might play a role in advising and informing students about science qualifications and potential career paths. Although science teachers are also extremely busy, their passion and enthusiasm for their subjects would put them in a strong position to offer impactful career advice.

Head of Pharmacy in Trinity College Dublin, Professor Anne Marie Healy, said time should be protected in the curriculum to facilitate this. She added that her School runs a week-long transition year programme for students, accommodating three students per week throughout the academic year. As the programme is hugely oversubscribed, the School now also runs a single day-long programme, to accommodate some students who miss out on the full week.

Professor Healy also suggested that the pharmaceutical industry could collaborate with third level departments to facilitate students on placements or transition year programmes run by academic departments. This would give them experience of both academia and industry. Mr Manning agreed that transition year should be better structured in its approach to work experience.

Ms McCarthy also cited research from the UK which said that people make decisions on likely career paths at a very young age. This points to early intervention as being crucial and is one of the key drivers behind the Discover Primary Science and Maths programme, managed by Science Foundation Ireland. Ms Sophie Moran of BioPharmaChem Ireland said science at all ages and educational levels needed to capture *“people’s imagination or their interest”*.

*“I think it has to be about making science fun, part of their everyday activity. That involves students being able to do experiments and getting them actively involved so they*

*have a hands-on awareness of science at a primary level,”* according to Ms Moran.

### EXPOSURE TO INDUSTRY

There was consensus among those present that exposure to industry within science and pharmacy degrees should increase significantly and match that in other educational areas, such as in business degrees.

*“Where companies engage, we see a tangible improvement in the take up of science at second level,”* Director of BioPharmaChem Ireland, Mr Matt Moran explained.

*“We see more graduates and we see more jobs. So, it does work. Where the company is prepared to invest money, time, and often pushing uphill, it makes a difference. It is not an easy communication. But if companies are prepared to do this, they will see an impact.”*

Mr Moran also said academia, as well as industry, could do a better job in more clearly defining STEM career paths for graduates.

*“A lot of people do business and work for a big accountancy or consultancy company because they know there is a career track there. Where our industry probably doesn’t do a very good job, or perhaps doesn’t intervene as well as it might, is in this whole area of how we develop graduates,”* he argued.

Another issue Mr Moran raised was the lack of alternative pathways into industry.

*“If you look at Switzerland, if you look at Germany, there is the so-called vocational route, which is not really done in this country, so I think there is an opportunity there. We are very biased towards the academic-type routes, whereas Switzerland which has a very strong biopharma sector, has a very sustainable pathway that brings a different skillset to bear, that can be extremely useful, particularly in a manufacturing environment.”*

Mr Moran discussed a recent project BioPharmaChem Ireland conducted through Skillnets with the Department of Social Protection for graduates who were on the live registry.

The graduates partook in a three-month intensive placement in the Institute of Technology Tallaght and with a company. Mr Moran informed the meeting that many of these graduates are now employed in the biopharmaceutical industry.

*“We were surprised at how quickly we could get them up to speed and how basic some of the skills they are missing are,”* he admitted.

Ms O’Leary outlined how the Engineers Ireland STEPS programme has been established in order to facilitate collaboration with a number of stakeholders to promote STEM in a similar manner. *“STEPS works in strategic partnership with SFI on Smart Futures, a collaborative government-industry-education programme promoting STEM careers to post-primary students in Ireland. STEPS is managed by us in Engineers Ireland and is supported by SFI, the Department of Education and Skills, and a number of major engineering employers,”* she added.

Dr Kinahan commented that other organisations such as Junior Achievement Ireland also run STEM programmes. *“It would be important before any new initiative is considered that existing programmes in Ireland and abroad are reviewed and assessed for learnings and impact.”*

### FEMALE PARTICIPATION

Overcoming the gender gap was another key discussion point. One of SFI’s Agenda 2020 key performance targets is to increase the proportion of female award holders to 25 per cent by 2020. This contrasts with 19 per cent in 2012. The aim is to facilitate the retention of excellent female researchers within academia.

To this end, SFI is focusing on streamlining gender initiatives across all its programmes by providing supporting schemes and measures that can facilitate the retention, re-entry, retraining and career advancement of women in STEM research.

Head of Education and Public Engagement with Science Foundation Ireland, Ms Margie McCarthy, said the initiatives have already had a positive impact. There was agreement that companies within industry should be supportive

and flexible with their female employees regarding maternity cover and time-off.

*“I think where companies are prepared to be flexible, women are eager and willing to work with them,”* said Associate Professor at the UCD School of Chemical and BioProcess Engineering, Dr Patricia Kieran.

Ms McClafferty said it was AbbVie’s policy to offer this flexibility to women with young families. Her view, however, was that fewer females are interested in studying science through to Leaving Cert, and then studying science subjects and courses into third level. *“We are aware of a major gap, and we simply don’t see increased numbers of females choosing to study the discipline to begin with,”* according to Ms McClafferty.

*“It is really about trying to get role models out there, aspirational role models who will say that it is actually cool to work in science, and it is cool to be on a science-related course.”*

### ROLE MODELS

Indeed, this concept of positive role models and their capacity to entice young people, especially females, into science careers was discussed at length at the meeting. Scientists in particular were noted to be ‘missing’ from the public discussion. Successful scientists in their 30s are, the group felt, not often seen or showcased in the mainstream media.



One way this might be changed is by industry proactively presenting role models from all areas of STEM that both young men and women may find inspiring. Ms McClafferty highlighted how AbbVie is already involved in such activity through its Women Leaders in Action (WLA) programme;

*“AbbVie aims to support and develop current female employees, as well as future generations, in the areas of leadership and STEM to ensure we consistently nurture our pipeline of top talent. Our WLA programme involves female leaders from AbbVie working directly with secondary schools and third level institutions to promote careers and inspire young women,”* she explained.

AbbVie believes that positive role models could play a critical role in getting young people, especially females, interested in science.

*“Industry can potentially play a massive role as we have fantastic female leaders that we can send out to schools, that we can send out to the third level institutes, so they have those role models. That personal connection is a powerful one and sometimes, if the role models in question are from the same area or region as their audience, they can visit them on an ongoing basis,”* she said.

The round-table attendees agreed that the Smart Futures programme has been a massive help

in this regard. Smart Futures is a government-industry initiative providing information about STEM careers to students, teachers, guidance counsellors and parents in Ireland. It aims to encourage consideration of the STEM areas, such as technology, engineering and energy, pharma, and medical devices as potential career options.

Ms McCarthy quoted Smart Futures research showing more than 60 per cent of first year college students chose their course because they felt they would “fit in”. Their parents reinforced this by advising the course would suit their personality. This need to fit in emphasises the importance of providing access to STEM role models to young people.

*“Smart Futures provides a trusted interface for companies and schools with trained volunteers and an easy to use system.”* she explained.

*“Smart Futures doesn’t end with a one-off visit either. Our volunteers attend career events throughout the year to answer students’ questions and share practical insights, while the programme website [www.SmartFutures.com](http://www.SmartFutures.com) showcases a multitude of STEM career stories, searchable by school subject. Students, teachers and parents alike can find a wide range of resources there to get them started in exploring potential pathways.”*



# Conclusions

Ms McClafferty explained that AbbVie had convened the event to discuss ways in which the company and other peers could play a partnership role in overcoming negative perceptions of STEM amongst school-goers.

The HR Director added that the event had proved productive, with a number of interesting ideas floated.

*“I think some of the suggestions made might improve long-term engagement in science or introduce mechanisms that can help companies like AbbVie be confident in terms our industry-specific talent needs. This is an issue that has been identified in recent months by several organisations as a potential impediment to growth in the sector for everyone with a stake in ensuring that Ireland continues to be optimally positioned as a competitive location in all aspects of the biopharma industry,”* Ms McClafferty added.

Drawing on the meeting’s key themes as he began his summation, chairperson Dick Ahlstrom, *The Irish Times* science editor, suggested that fundamental “societal change” was needed to increase interest levels in STEM education and careers:

*“Some of the suggestions made by this group could, if activated, improve long-term educational engagement in STEM disciplines at all levels. The respect for STEM is there. Now we need to demystify it and whet the appetite of a future generation by showing them how a career in science or engineering can improve society hugely, as well as open many doors for them on a professional and personal level.*

*“The future is bright for Irish students but we all need to play our part and work collaboratively to guide them towards these potential careers paths that they may otherwise not consider,”* he concluded.



## SUMMARY OF SUGGESTIONS AND INSIGHTS

- Continue to drive awareness of existing initiatives at primary and post-primary level that will encourage early intervention, for example, The National Discover Primary Science and Maths programme.
- Develop better working relationships with post-primary guidance counsellors on career paths into and within STEM.
- Recognition that science teachers at post-primary level are an untapped resource for career advice; greater engagement with these key individuals.
- Explore reasons why certain STEM subjects (such as physics and chemistry) are not readily available for Leaving Cert students in all schools in Ireland; research must be carried out in this area to gain a better understanding of the issue.
- Greater exposure to industry should be facilitated through Transition Year programmes.
- Targeted interaction with third and fourth level students to encourage them to think beyond academia.
- Requirement to work in partnership with media to highlight young role models working within STEM disciplines.
- More funding needed for schools to build laboratories for post-primary STEM programmes. These laboratories could potentially be developed as shared resources within a community.
- Pharmaceutical companies and other stakeholders should improve relationships with local schools, working together to identify opportunities for representatives to visit classrooms to inform students about future career opportunities.
- The need for more organisations to support the Smart Futures programme and promote it to local schools as a resource to access industry role models.



# About AbbVie

## ABBVIE IN IRELAND

AbbVie is a global research-based biopharmaceutical company formed in 2013. It delivers world-class discovery, production and supply of critical medicines. AbbVie has a significant footprint in Ireland that's focused on novel and breakthrough therapies for tough-to-treat diseases and unmet medical needs, with a reputation for quality.

In Ireland, AbbVie employs close to 600 people at five different manufacturing and commercial sites across the country. The company's commercial headquarters is based at Citywest in Dublin with a separate international manufacturing and engineering services centre also located in the capital at Santry.

AbbVie has two manufacturing plants in Sligo, one of which is a global centre of excellence for medical devices. The company also has a third manufacturing centre in Cork.

AbbVie is committed to developing and manufacturing cutting-edge therapies and innovations that hold the potential to improve health care worldwide. Meeting these ambitious health goals involves combining advanced science with deep knowledge of diseases and Ireland plays a central role across all stages of this process.

The company also understands that addressing complex health challenges requires a comprehensive and responsible approach, and this also extends to supporting education in the communities that the company has a presence.

## ABBVIE'S COMMITMENT TO RESEARCH

AbbVie is committed to research in Ireland. In 2015, a joint investment of €10 million by the Department of Jobs, Enterprise, and Innovation through Science Foundation Ireland (SFI) in a partnership with AbbVie was announced involving two new therapeutic research partnerships in Ireland.

The collaborations, which will each investigate disease markers and potential targets against which new drugs could be developed, involve serious illnesses such as Crohn's disease, rheumatoid arthritis, psoriasis and multiple sclerosis. Researchers at the SFI APC Microbiome Institute in University College Cork (UCC) and at the Trinity Biomedical Sciences Institute in Trinity College Dublin are involved.

In early 2017, AbbVie announced a research partnership with Genomics Medicine Ireland (GMI) and WuXi NextCODE to undertake a landmark population genomics alliance in Ireland.

The 15-year project aims to sequence the genomes of 45,000 participants to identify novel targets and advance the clinical development of better treatments for a range of serious diseases. The collaboration will focus on key AbbVie therapeutic areas including oncology, neuroscience and immunology that affect hundreds of thousands of people in Ireland and hundreds of millions worldwide.



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