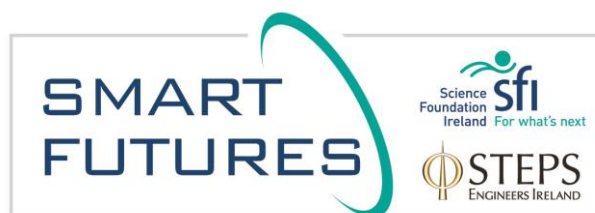


Exploring
STEM careers



Smart Futures 2014 – 2016

**Programme Performance and Evaluation Report
May 2017**



Smart Futures programme performance and evaluation 2014-16

This report is a synopsis and evaluation of what has been achieved since the launch of the Smart Futures strategy in 2013. It reviews how the programme has performed against its proposed targets and identifies where the greatest successes were achieved and where challenges occurred. Finally, the document offers some conclusions and recommendations about where the programme should focus going forward. Feedback on the programme has been sought at stakeholder meetings. The results of this report plus further consultation with stakeholders will be used to develop a blueprint for the next phase of the programme.

1. Background

1.1 What is Smart Futures?

Smart Futures is a collaborative government-industry-education programme that provides post-primary school students in Ireland with information about careers in science, technology, engineering and maths (STEM). Smart Futures gives students access to local people working in STEM careers, which has been facilitated via a volunteer programme for schools and through having a regular presence at career events nationwide.

It is coordinated and managed by Science Foundation Ireland, in partnership with Engineers Ireland, and is now supported by over 200 organisations from research and industry, as well as representative bodies like BioPharma Ireland, the Royal Society of Chemistry, ICT Ireland, the Irish Medical Devices Association (IMDA), the Institute of Physics, the American Chamber of Commerce, IDA Ireland and other stakeholder groups.

The website www.SmartFutures.ie provides an online portal of STEM career resources for post-primary school students and their influencers, such as parents, guidance counsellors and subject teachers, to explore.

The Smart Futures framework, as set out in the 2014-16 strategy, outlined the benefits of a collaboration between industry, academia and government, that would aim to:

- Effectively coordinate existing STEM careers promotion activities and avoid any duplication of effort by industry partners
- Leverage STEM careers activities that are taking place on a national scale for greater impact and to improve the evaluation of such activities
- Provide industry with support mechanisms such as volunteer training, careers materials, outreach activity tracking and performance evaluation etc.
- Highlight skills needs identified by STEM industry partners and areas of opportunity with a high demand for STEM graduates

- Showcase the positive story of STEM sectors that are thriving in Ireland and work with the media and other partners, to relay this story to parents, teachers and guidance counsellors
- Encourage and inspire a greater number of students to study STEM-related subjects and pursue STEM courses at third level
- Create a national framework that can be recognised on a European level, and where possible to connect with comparative European programmes

1.2 Why was Smart Futures set up?

Smart Futures began as a pilot initiative in early 2013, following a call from industry and policy makers to create more awareness of the opportunities STEM careers offer young people at a national level. This was directly aligned to identified national skills gaps. Smart Futures began with a specific focus on connecting teenagers and their influencers with real people working in STEM careers, to encourage them to consider STEM study and career paths. The Smart Futures Strategy was officially launched by Minister Richard Bruton T.D., in April 2014 as part of the first Action Plan for Jobs. The framework document formally set out the aims and objectives of the programme, and a series of targets to be achieved from 2014 to 2016.

Smart Futures has been managed by Science Foundation Ireland in close collaboration with the Engineers Ireland STEPS programme. The close alignment of the objectives and resources of both organisations has been essential to the delivery of STEM volunteer/role model engagement in Ireland. This has also been made possible by the extensive support and volunteerism received from industry and the research community.

2. Key elements of Smart Futures:

2.1 Industry/Academic Partnerships:

The Smart Futures programme was positioned as a key activity for any organisation with a strategic interest in a long-term and steady supply of high-quality STEM graduates in Ireland.

The benefits of participating in a national STEM volunteer programme were outlined for partners from the outset:

Why it matters?

Greater student engagement is needed to increase the number of students taking STEM related courses and to provide talented workers for the future. Research shows that the key factor influencing young people's career choices is that they will fit in. Together we need to challenge stereotypes so young people can see and identify with the diversity of people that work in STEM. Having a role model can be hugely empowering, encouraging them to explore opportunities they might otherwise miss.

How does your organisation benefit?

- ▶ By futureproofing your future talent needs
- ▶ By challenging STEM stereotypes you'll encourage a diversity of future new recruits
- ▶ Through free training and delivery your team develop communication, organisation and presentation skills
- ▶ Your organisation's reputation, trust and credibility within the community is enhanced
- ▶ Employees develop a fresh perspective and an understanding of how to deal with an audience, while boosting their confidence and self-esteem
- ▶ Motivate, engage and retain staff
- ▶ Employees gain a sense of achievement and make a difference within their local community

Excerpt from the Smart Futures partner brochure

There are now over 200 organisations supporting the Smart Futures initiative, ranging from relatively small indigenous companies to large multinationals across several sectors. This figure also includes twelve Science Foundation Ireland Research Centres, with each centre incorporating Smart Futures into their promotion of research careers to their respective local communities.



Sample of Smart Futures partners

2.2 Smart Futures Advisory Group

With the launch of the 2014-16 strategy an advisory group was set up to comprising of several industry, education and government representatives to shape and inform the programmes activities, meeting twice yearly.

The role of the group was:

- To input into the Smart Futures strategy regarding its goals, objectives and annual delivery plans
- To review past activities and propose new activities where appropriate
- To assist in recruiting additional industrial, academic or other partners
 - To disseminate any useful learnings from company outreach activities, particularly in other countries
- To consider and advise how industry and education can best engage and participate in STEM careers promotion

The Smart Futures Advisory Group comprised of approximately 24 rotating members, with just over 50% representing the STEM industry sector and the remaining members being made up of education and policy representatives.

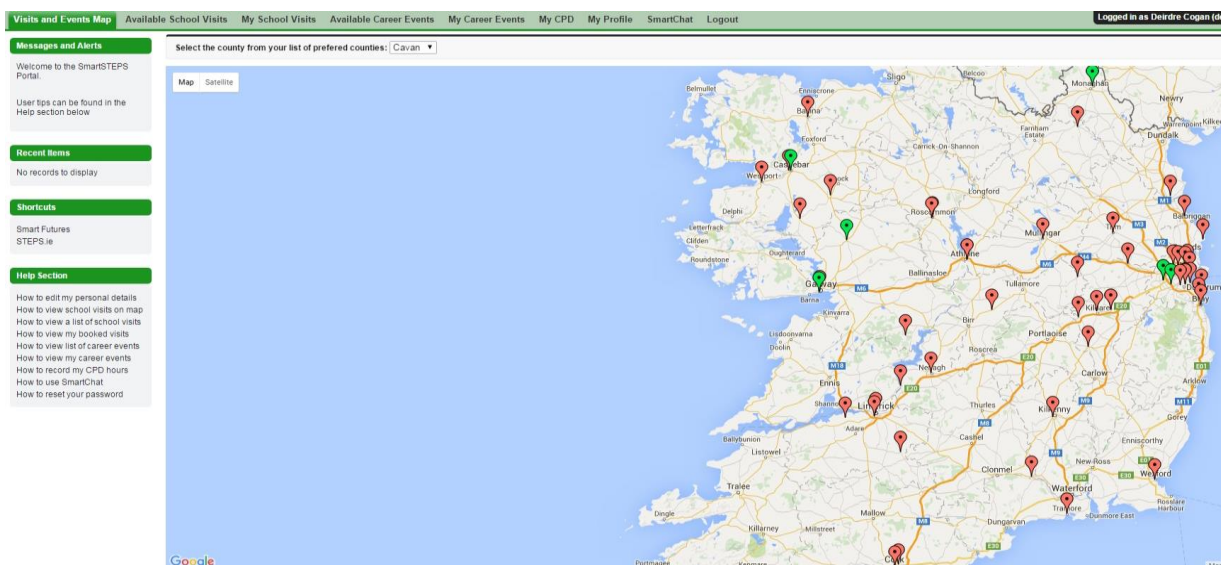
A key purpose for the group was to avoid duplication of effort, wasting resources and to identify collaborations where possible to create efficiencies and improve effectiveness when delivering access to STEM careers resources. Through this work Smart Futures has increased its reach to inform more students (and influencers) about STEM career routes. These networks and partnerships are listed in Appendix I.

2.3 Volunteer/School Programme:

In 2013-14, school visits were being manually matched by a Smart Futures administrator, with a single visit needing up to as many as eight communications/actions (email, phone call etc.) before a visit could be confirmed. The programme was formed to scale this to a national level and so it was clear that a semi-automated system would be required, to ensure the programme was sustainable.

In September 2015, a **new Smart Futures Client Relationship Management (CRM) system** was developed. Its purpose is to provide post-primary teachers with an online system to register for volunteer visits, and to enable volunteers to view these visit requests and track their own volunteering activity. The CRM system was created in partnership with Engineers Ireland through donated support from the Salesforce Foundation, and ENCLUDE, a non-profit organisation supporting web development for charity and education initiatives such as Smart Futures.

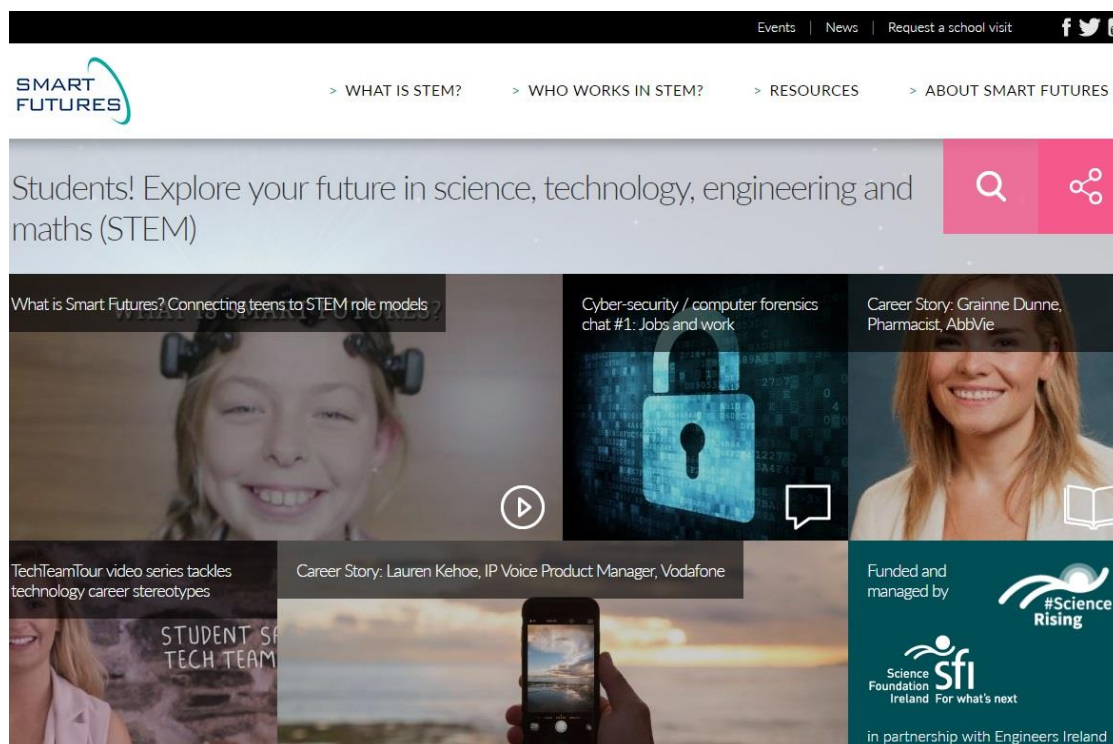
This system enables more accurate management and monitoring of school visits and volunteer activity, as well as providing a means for gathering feedback from both parties. Data such as where volunteers are going and when, as well as how many hours are being donated is now significantly easier to track, and allowing the programme to strategically scale. It is helping to better identify where the 'cold spots' are in the country, allowing Smart Futures to be more targeted in school or volunteer recruitment. The initial findings from the first year of the CRM are discussed in the programme performance section of this report.



Screenshot of the Smart Futures volunteer map-view of school visit requests

2.4 Website

The Smart Futures website is a key component of the programme, offering easy access to information for students pre-and post- a volunteer visit. It also allows volunteers to direct students to other role models and information outside of their own career story. The website, www.SmartFutures.ie, was redesigned in September 2015 which improved the user experience for students, parents and teachers. It offers a wide range of resources, with 160+ STEM career stories searchable by school subject and skillset, as well as information on typical STEM career pathways, videos, downloadable posters and infographics. It links to partners such as Transition Year Ireland and Careers Portal for access to work experience opportunities and college choices. Visitors can also sign up to the Smart Futures monthly e-Newsletter via the website.



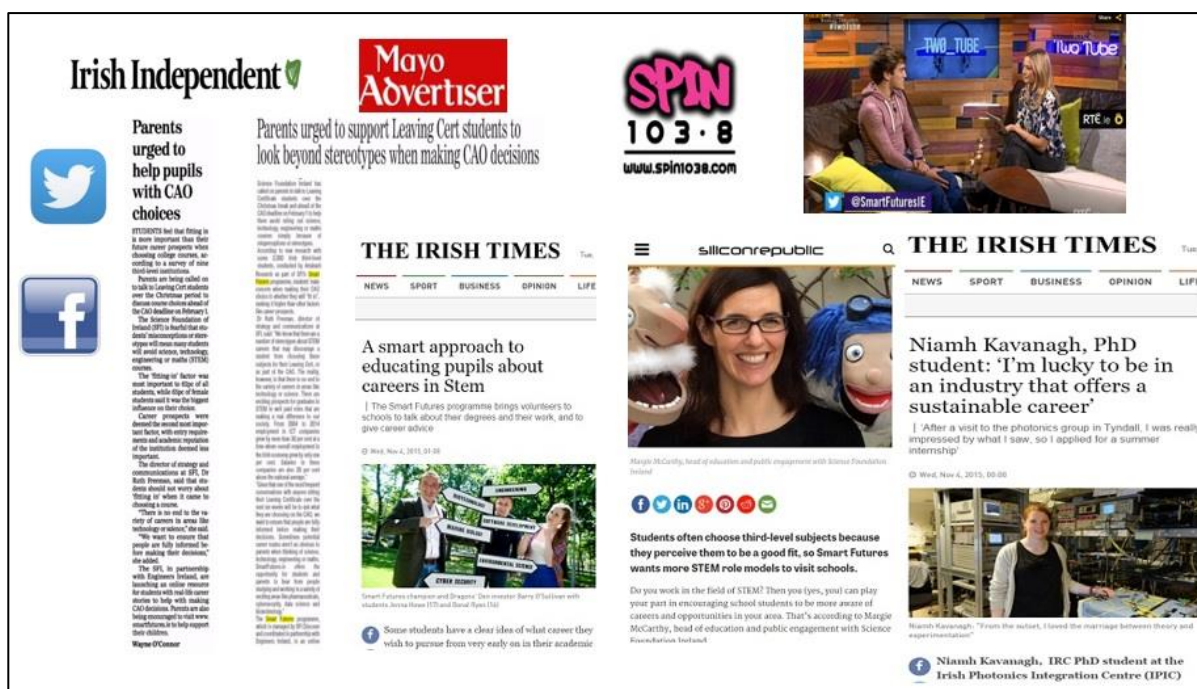
Screenshot of the relaunched Smart Futures website, 2015

2.5 Media activity – online and offline

The Smart Futures strategy recognised the important role the media can play in spreading a positive message about STEM careers to young people and their key influencers. From 2014-16 several media campaigns, including traditional press, broadcast and digital, were rolled out around key dates in the educational diary, such as the CAO application opening/closing period etc. when many conversations take place around the dinner table and at school about what subjects and courses will be chosen.

Smart Futures has worked to highlight the career opportunities in STEM areas during the wide range of public-facing awareness festivals, such as national Science Week, Maths Week, Engineers Week and Tech Week among others. In 2015, Science Foundation Ireland also began working with RTÉ and other partners to catalyse a transformation in scientific coverage and programming, particularly those that highlight Irish STEM career stories across all media platforms.

An analysis of the impact of these campaigns is discussed later in the programme performance section of this report and a summary of media coverage can be found in Appendix II.



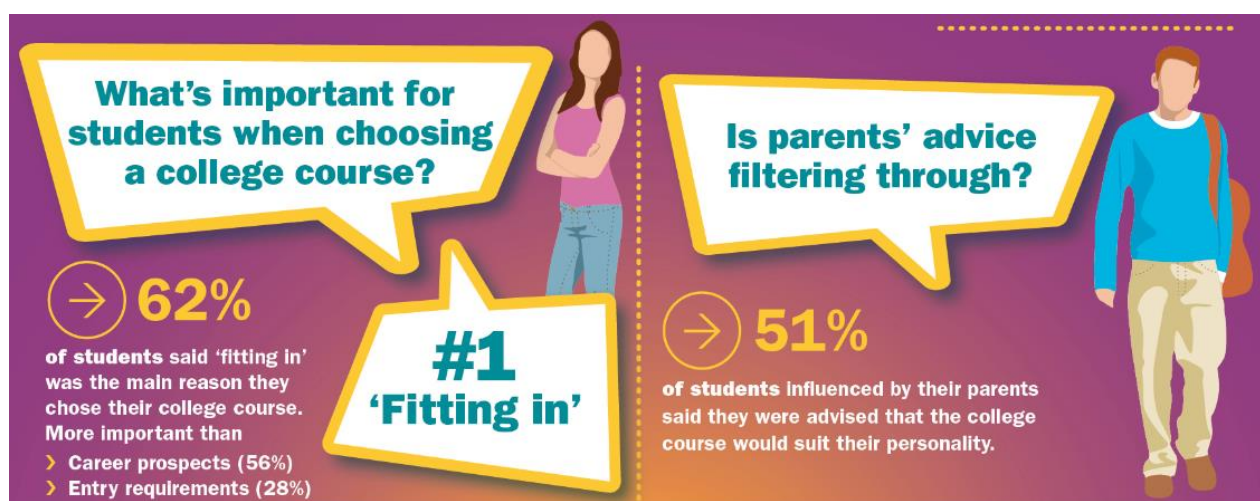
Examples of Smart Futures media coverage

2.6 Research

From the outset, the Smart Futures strategy identified the need to shape the programme informed by evidence and knowledge of what influenced young people's choices. The initial strategy included plans for a national survey of undergraduates in higher level education institutes to investigate the key factors that influenced their final course selection at third level.

In April 2014, Science Foundation Ireland commissioned Amárach Research to conduct this through an online survey, which was carried out by over 2,000 third level first year students, split almost evenly between STEM and non-STEM courses. Students came from nine colleges and Institutes of Technology across the country. The survey sample included 50:50 male/female and urban/rural participants. The main findings were:

- 62% of all students surveyed (STEM and non-STEM) identified feeling that they will 'fit in' as *the* most important factor in deciding what to study at third-level. The 'fitting in' factor is even more prevalent among female students, with 65% highlighting it as their biggest influence
- Career prospects were deemed the second most important factor (56%) with the entry requirements (23%) and academic reputation of the institution (28%) seen as less important
- 51% of students felt STEM courses offer good career prospects, with 84% of STEM third-level students surveyed confident they will find a job they enjoy after college
- Negative perceptions that STEM courses are difficult (51%) exist, while 49% believed they require too many hours' commitment per week
- 91% of students surveyed believed STEM is important for the development of the Irish economy



The Smart Futures research indicates that young people's career choices are strongly influenced by how much they can identify with a role, or with people involved in that career area. The challenge is to demonstrate that there is not a single 'type' of person or typical career route because there are so many pathways to follow, meaning all types of people can contribute. This research, in addition to lessons learned from international research, such as the ASPIRES research and the Wellcome Trust report on engaging with the disengaged, shaped the tactical plan for Smart Futures.

It was clear that exposure to role models working in STEM would provide students with a better sense of what the career can offer, helping them to make informed future choices based on real-life experience rather than stereotypes. It was also clear that role models, in a once-off engagement, can only open the door or pique curiosity of students. The website forms a vital backbone to the success of Smart Futures, providing access to further information following the interaction with the volunteer.

3. Programme performance:

The following section firstly reports on the key performance indicators set for the programme and then discusses performance in more detail.

3.1 Key performance indicators:

The table below sets out the performance against the KPIs outlined in the 2014-16 strategy:

KPI	Direct or indirect	Goal	Achieved
The number of partner companies that have signed up	Direct	To increase the number of partner companies participating by over 50% by 2016	Increased from 50 in 2013, to over 200 partner companies in 2016
The number of schools registered and the number of students engaged	Direct	To increase the number of schools and students participating by 30% by 2016	Number of school visits has increased by 75% over the three-year period and over 110,000 students directly engaged by volunteers via career events and school talks
The number of STEM volunteers registered and trained	Direct	To grow the database and deliver training to 450+ volunteers and be able to provide a Smart Futures visit to every secondary school in the country by 2016	There are now 1,638 volunteers in the programme, with 24% of these deemed active Introduction of the CRM has identified where 'cold spots' exist for both school visit requests and availability of volunteers.
The number of school visits recorded and feedback retrieved	Direct	To implement comprehensive evaluation across all Smart Futures-related activities	A CRM was developed and implemented into the programme in the 2015/16 academic year. This has allowed the production of data on the programme which is discussed later in this section. Feedback is gathered from volunteers and teachers via an automated system following every school visit. Students are also given feedback opportunities. Data from this is used to improve services.
The number of Smart Futures STEM careers roadshows and talks delivered	Direct	To deliver Smart Futures STEM careers roadshows to regional locations throughout the year	STEM roadshows have been carried out nationwide during Science Week and SciFest, with an average of 18 taking place annually. Smart Futures has also contributed annually to careers events including TY

			Expo, Higher Options, Student Slingshot and other national and regional events.
The availability of an online repository of hands-on activities	Direct	To create a repository of hands-on activities for volunteers to access and use during school visits - ideally mapped to the curriculum	<p>A new website was launched in 2015, with dedicated volunteer, teacher and parent resource pages.</p> <p>A partnership has commenced with Careers Portal to provide training on Smart Futures resources to Guidance Counsellors.</p> <p>Feedback from schools and volunteers indicated that hands-on activities are not feasible in the time allocated to a career talk. Attention was redirected to providing online video content and training on these to volunteers.</p> <p>Videos and profiles are updated on a regular basis.</p>
The level of uptake of STEM subjects at second and third level	Indirect	To contribute significantly towards halting the decline observed over 2007-11 and aim to increase uptake by 10% by 2016	<p>This KPI is indirect as it is not possible to claim any direct impact on these numbers without a significant longitudinal study. Those sitting Chemistry, Physics and Maths (hons) has increased over the lifetime of the Smart Futures strategy.</p> <p>STEM CAO applications have seen minimal changes overall, with some courses seeing significant increases, other experiencing decreases. Small increases in entry points for some STEM courses indicates some improved demand however overall the number of places and courses on offer also needs to be considered. Analysis here is still in process and is reliant on third party data.</p>

3.2 Performance on Partnerships:

Smart Futures was formed with the aim of supporting industry and education partners to create greater awareness of STEM careers amongst students, parents, teachers and guidance counsellors. A key factor to this was to improve the coordination of STEM careers outreach so that the combined effort could be better informed and directed to address nationally identified gaps.

Since 2013, Smart Futures has regularly engaged with business representatives, policy makers and industry partners to outline the benefits of the Smart Futures schools' visits programme and recruit partners. This has resulted in the involvement of over 200 partners within the programme.

Smart Futures has worked in conjunction with other organisations active in promoting STEM careers to young people, to help provide feedback on areas such as event logistics, timing and materials. It brought together groups with a similar agenda to maximise impact and to avoid duplication of effort. An example of this is the Women in STEM forum that has been brought together twice since 2015, to help organisations promoting STEM to young females to network and plan their events and activities more efficiently and strategically. In 2015 and 2016 this resulted in a start-of-year calendar of events being issued through the Department of Education and Skills to post-primary schools detailing STEM career promotion activities and contact points for that academic year.

Smart Futures has worked with teen groups such as the Digital Youth Council, TY Student Slingshot Academy and TeenTurn, to provide advice and get feedback on youth-related outreach activities. STEM related Transition Year programmes are listed on the website and are included in the annual STEM events list issued to schools.

"I think this is a great initiative. I would recommend it to any member of staff as it is very rewarding and lets you feel like you gave something back. If it even helps only one student to identify where they want to go, well then for me, it is a success."

Several industry groups and individual organisations now work in association with Smart Futures including CWIT (Connecting Women in Technology) and the Ada Lovelace Initiative run by Verify Recruitment. Smart Futures has concentrated on addressing the skills gap in the ICT and technology sectors focussing on recruiting partners and volunteers that reflect the career opportunities available in this sector



Smart Futures Ambassador, Barry Sullivan (CEO, Altocloud) with secondary school students

Recognition and support of the programme is evident through its inclusion in several national policy documents such as the Action Plan for Jobs, the ICT Action Plan, IFS2020 (action plan for the financial services sector in Ireland) and most recently in the Department for Jobs, Enterprise and Innovation strategic plan, Innovation 2020.

3.3 Performance on Volunteer School Programme - Volunteer recruitment and training:

Over the academic year 2013-14, Smart Futures worked to expand on the already successful Engineers Ireland volunteer programme, by specifically recruiting volunteers with science and technology backgrounds. This combined effort meant that schools could draw from a full range of STEM-related volunteers.

Volunteers were provided with training to ensure consistency in the quality of school talks delivered and to enable them to demonstrate how other subjects and skills, such as communications, teamwork, business acumen, project management, art and design or languages, are also important to STEM careers. Training included briefing volunteers on the programme child protection policy.

The volunteer database has been 'cleansed' twice over the last two years, where volunteers were asked if they wished to stay in the database. If they were repeatedly inactive and not responding to communications, they were removed by the administrators.

At the end of the 2015/16 academic year there were **1,638 volunteers** in the database, located across the country. Of these, a significant number had yet to actively participate (figure 1). This is broken out as:

- 1,012 volunteers (688 inactive, 324 active in the last academic year) – largely engineers recruited through Engineers Ireland
- 626 volunteers (554 inactive, 72 active in the last academic year) – largely science and technology recruited through Science Foundation Ireland
- The number of total active volunteers is 24% (or 396 out of 1,638)

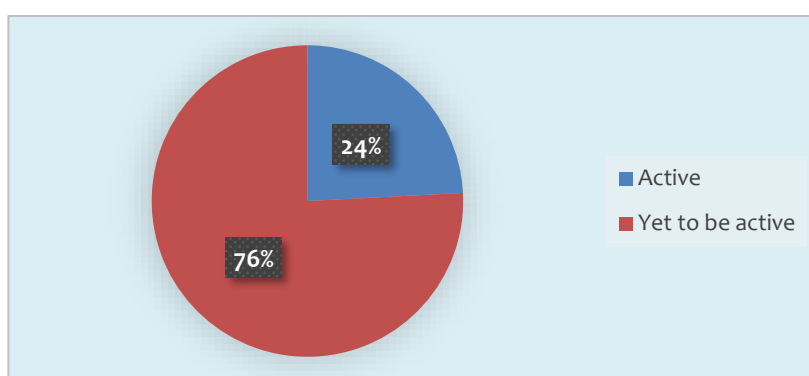


Figure 1. An overview of volunteer activity

There are several reasons for inactivity including conflicting school/volunteer schedules. This is discussed later in the document.

3.4 Performance on the Volunteer School Programme - School interaction

While Smart Futures has tried to access students within the Junior Cycle cohort, the requests from schools are largely asking for engagement with their Senior Cycle students (4th to 6th years) around STEM career options.

The online CRM system was introduced in September 2015 and post-primary schools across the country were invited to register online for free career talks and visits by Smart Futures STEM volunteers. This was issued through a Department of Education and Skills circular, as well as through direct email via school mailing lists to teachers, guidance counsellors and principals.

Direct mail efforts were reinforced through promotion to teachers at annual events such as the Irish Science Teachers Association Conference, Guidance Counsellors Conference, Higher Options Exhibition, TY Expo etc.

Smart Futures has encouraged local businesses to invite schools to register, invited volunteers to go back to their old school, and called on volunteers with children in post-primary schools to also call on schools to get involved.

Smart Futures volunteers have donated **5,000+ volunteer hours** to help inform students about STEM careers in Ireland since 2013

i. Year one of online booking system

At the end of the 2015-2016 academic year, there were 413 post-primary schools registered with Smart Futures across Ireland. Of these schools, 488 teachers registered with the programme, yet a high number of them remain inactive after registration (figure 2).

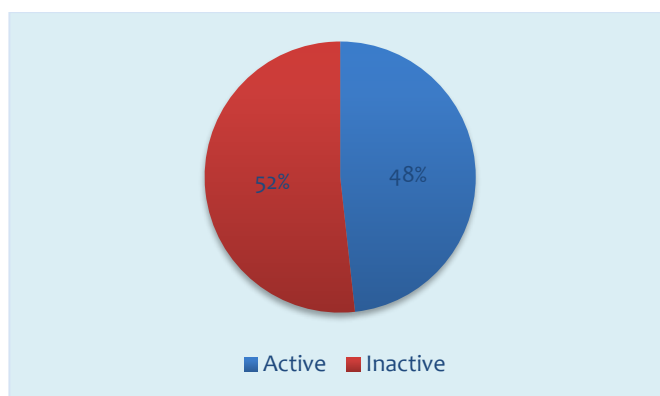


Figure 2. Post-primary teacher activity

For Example:

- 235 teachers had logged in and posted career talk requests (some on multiple occasions)
- 110 teachers logged in but did not go any further (to post talk requests)
- 143 teachers had never logged in to the system

Of the 217 school visits delivered to post-primary schools during the academic year 2015/16, two-thirds of these school visits were delivered to either girl's schools or mixed schools.

Figure 3 below shows the level of demand for volunteers from each discipline area in the last academic year.

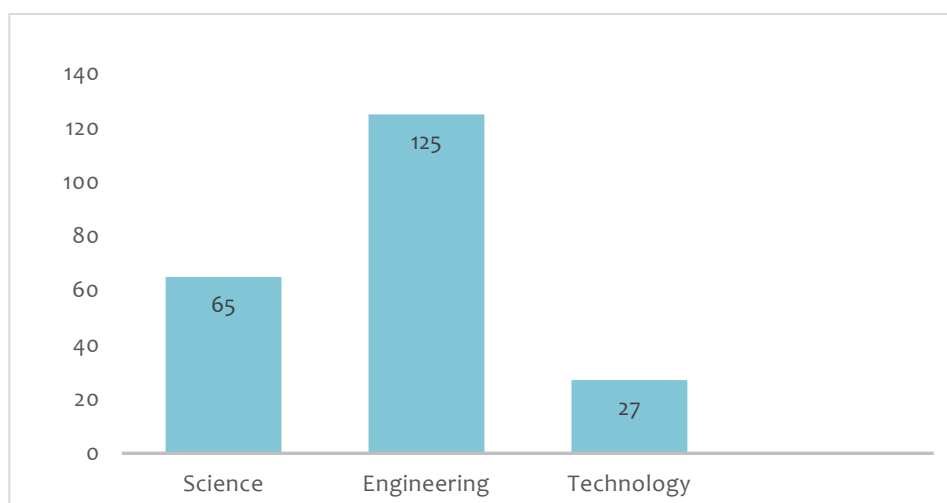


Figure 3. School visit requests by discipline (2015-16).

At the end of the 2015-16 academic year, 143 visits were still live and had not been successfully matched or accepted by volunteers (Figure 4). This has largely been down to timing issues, where school requests were made with very short notice for volunteers, or where requests came from rural locations with far fewer volunteers available. There were 23 visits cancelled by schools and 3 cancelled by volunteers.

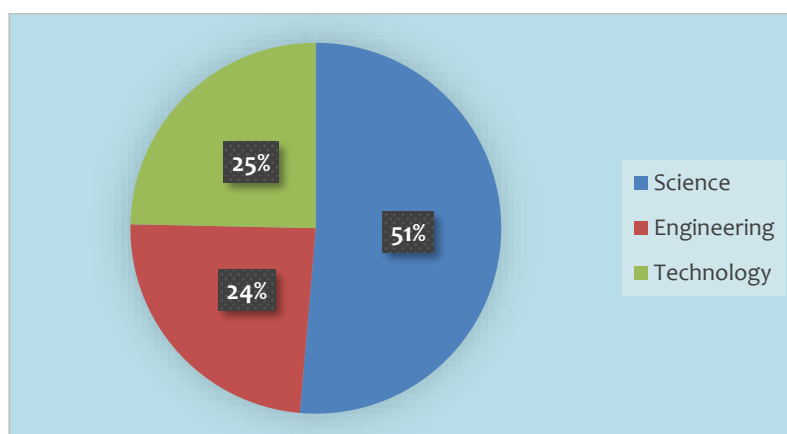


Figure 4. Unmatched school requests - year end 2015-16

*The Smart Futures programme is estimated to have directly reached approximately
111,675 students directly (2013-16)*

ii. **Non-classroom STEM careers outreach**

Smart Futures was either present or directly organised volunteer engagements at career events across the country, for example:

- 63 career events took place in 2015/16

- 12 SciFest Smart Futures career talks also took place across the Institutes of Technology
- 5 STEM career roadshows took place during Science Week 2015

The combination of classroom and non-classroom outreach activities reached approximately 29,000 teenagers in 2015-16.

Overall student engagement increased from 28,675 in 2012-13 school year, to 54,000 students in 2014-15, dropping again to approx. 29,000 in 2015-16. The introduction of the online system impacted on the numbers of direct school engagements in the last year. For the volunteer programme to scale and grow to accommodate the level of demand from schools, going digital was essential. However, between some resistance and discomfort among teachers to moving towards online registration, and limited volunteer availability during the similarly limited windows of time schools can receive visits, the number of class visits delivered decreased.

“This was an excellent event, the questions and answers session demonstrated how engaged the students were. The speakers were excellent advocates for their professions and I think it really got my students thinking about, and more interested in, careers in STEM”

– Teacher, Presentation College Cork

iii. Regional activity and identifying ‘cold spots’

Of the Smart Futures school visits that took place in the academic years from 2013 to 2016, Dublin has had the highest number of visits, closely followed by Cork and Galway. While Clare and Waterford have seen signs of improvement, the Dublin region has seen the most significant growth on previous years. The regional reach of the programme has still some way to grow with Carlow, Donegal, Kerry and Kildare seeing a decrease in activity. A full list of school visits per county can be seen in Appendix III.

Cavan, Leitrim, Longford, Mayo, Monaghan, Offaly and Roscommon continue to be ‘cold spots’ for the Smart Futures programme with very low levels of activity continuing into 2016. With most having no large educational institution in the county and a lower presence of STEM-related industry or research centres, these are areas worth focusing on more heavily in the future. Figure 5 shows a comparative graph of regional reach, each year since 2013.

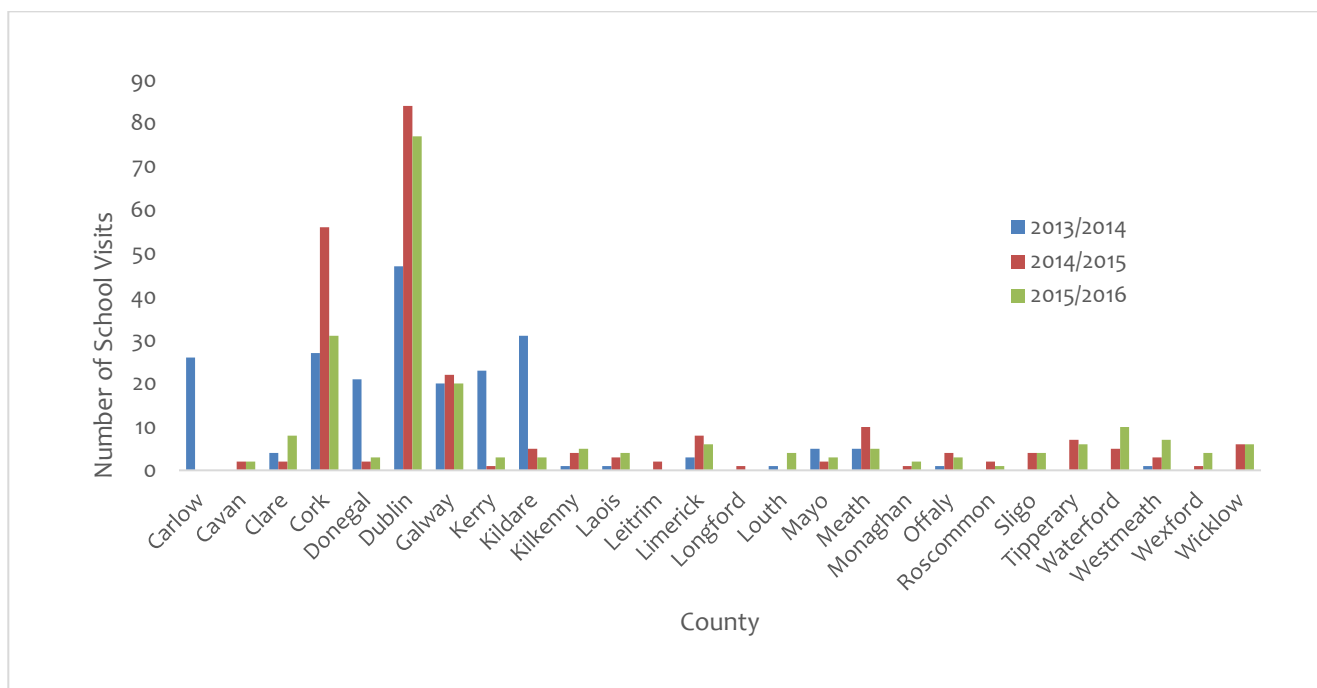


Figure 5: Spread of volunteer visits across the regions from 2013 to 2016

iv. Impact

The impact of the programme can be more closely seen through feedback surveys completed by students receiving talks in schools. In 2015-16, 151 students completed feedback forms to evaluate the effectiveness of engineering talks received. 84% of these students said the talk had changed their perceptions of what engineering was about, while 60% said they were likely/extremely likely to consider engineering following hearing from the volunteer.

3.5 Performance of media campaigns

The three-year strategy included the delivery of media campaigns to create greater awareness and recognition amongst target audiences. In trying to engage with a youth audience, social media was prioritised in media campaigns targeted at post primary students. Smart Futures doubled its social media following on Twitter in 2015 (from 2014) and almost doubled the number of page views on the website during the same period.

The new Smart Futures website was also nominated for two [Web Awards](#) in 2016 (best Science and Technology website and 'Most Innovative' website). The top ten sources of referral traffic for SmartFutures.ie include Careersportal.ie, careernews.ie, Qualifix.ie, Steps.ie, ISTA.ie, Her.ie and Sportsjoe.ie among others (figure 7).

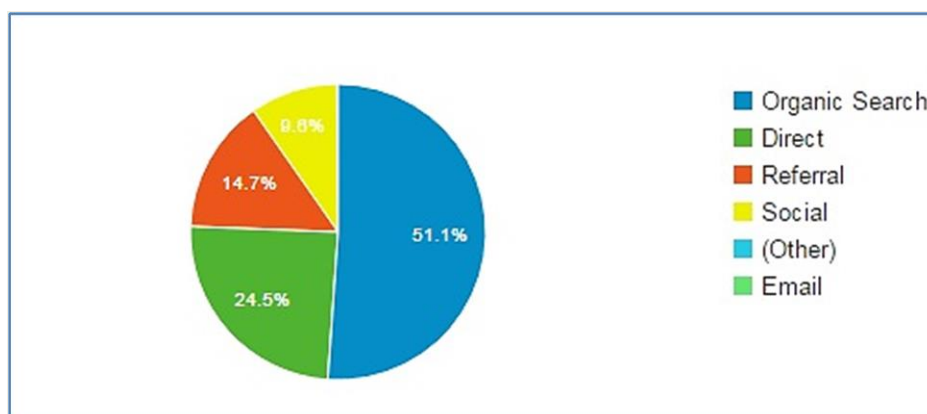


Figure 7: Sources of Smart Futures web traffic 2016

Table 1: Summary of media engagement (2013 – 2016)	
<ul style="list-style-type: none"> 77 print articles 109 online articles 21 radio pieces 3 television features (RTE news and Two Tube) 	<p>STEM Careers Week 29 April-3 May on www.SmartFutures.ie launched with a radio campaign on Spin FM, Spin South West and iRadio.</p> <p>Spin 1038 and Spin South West ran 272 ads combined over two weeks, plus 40 on-air mentions over one week. Spin 1038 Zoo Crew listenership is 29,000 and Spin SW Zoo Crew listenership is 23,000.</p>
Website (SmartFutures.ie)	<ul style="list-style-type: none"> 160 STEM career profiles Approx. 50% female profiles Approx. 5k unique website visits (pm) 130,246 unique visits (since 2013) 160,405 page views (since 2013) <p>Content partnership with MyKidsTime.ie to reach parents:</p> <p>48,147 unique visits per month 29,712 Facebook followers 20,450 mailing list subscribers</p> <p>Careersportal.ie content partnership:</p> <p>91k unique visits to site (approx. 20k for Smart Futures content) per month 3k newsletter subscribers per month</p>
Video (www.YouTube.com/DSEvideo)	<p>526 subscribers 477,575 video views 66 videos created since 2013 with STEM careers content</p>
Newsletters	1,595 subscribers to dedicated Smart Futures newsletter

Social Media	Twitter: 4966 followers
www.Twitter.com/SmartFuturesIE	Approx. 122k Accounts reached (per week)
www.Facebook.com/SmartFutures	Approx. 309k impressions (per week)
	Facebook: 743 followers
	Approx. 3,600 accounts reached (per month)
	Facebook paid-for campaigns:
	December 2015: 282,859 people reached / 207,523 engagements
	May 2016: 43,400 people reached
	June 2016: 64,700 people reached / 2,003 engagements
	June 2016: 68,000 people reached / 2,984 engagements

An advertisement, promoting Smart Futures and STEM careers, ran in cinemas across Ireland in November 2015, to coincide with national Science Week. The call to action was to log on to the website. During this period the website visits doubled on the previous year. This ad ran again over the Christmas period, in advance of the CAO submission deadline of the 1st February 2016. A longer version of the ad also ran in cinemas during Science Week 2016 and over the following Christmas period.

Working with media ambassadors such as Clare County hurler, Shane O'Donnell or Dragon's Den entrepreneur, Barry O'Sullivan helped to showcase the diversity of opportunities and types of people that choose a career path in STEM. However, the programme did experience some difficulty in gathering STEM career profiles from a full diversity of people in STEM, such as alumni of STEM-related apprenticeships. This has been addressed by requesting alumni profiles from groups such as Solas and associated training providers.

3.6 Performance - STEM education statistics

Statistics have begun to show signs of improvement in STEM subject uptake however, it is difficult to directly connect this to the efforts under the Smart Futures programme.

A breakdown of Leaving Certificate results and CAO applications figures can be seen in Appendix IV.

The total number of students sitting the Leaving Certificate grew by just less than 6% over the period 2012 – 2016, from 52,555 to 55,685. In that period, the growth in STEM subject Leaving Certificate sits (including Maths, Physics, Biology, Chemistry, Physics and Chemistry, Ag Science, Biology, Engineering, Construction Studies and Technology) was 6.3%. This was across the combination of ordinary and higher level examinations. This indicates a very slight growth in the overall numbers choosing STEM subjects, compared to the total number of students sitting the Leaving Certificate.

The following table looks at Chemistry, Physics and Maths (honours) specifically, as they are acknowledged as feeder subjects to STEM career choices. Over the same period, the numbers taking maths and biology have remained largely static, representing the largest portion of STEM subject uptake. However, when we look at chemistry, physics and honours maths, we see that the growth in these three subjects has been significantly stronger than the growth seen in the overall numbers sitting the Leaving Certificate.

It should be noted that bonus points were introduced for honours maths which would have directly impacted on the significant growth in this number.

Table 2: Leaving Certificate sits/subject area (2012 – 2016)

Year	Total Chemistry	Total Physics	Total Hons Maths	Total Leaving Cert Sits
2012	8,086	6,373	11,131	52,555
2013	8,156	6,448	13,014	52,713
2014	8,604	7,177	14,326	53,976
2015	8,938	7,508	14,691	55,006
2016 ¹	9,089	7,752	15,198	55,685
Growth 2012 – 2016	12.4%	21.7%	36.5%	6%

Source: State Examinations Statistics

Data gathered by the Higher Education Authority (HEA) in 2010 showed that the overall number of CAO applications in Ireland across all subject areas was 71,843. The number of total undergraduate new entrants into third level was approximately 40,800, while the number of undergraduate new entrants across the STEM-related courses (at all levels) was approximately 12, 600 (30%)² in the same year.

In 2015, the number of CAO applications across all subject areas increased to 74,424. The number of total undergraduate new entrants into third level was 42,464, while the number of undergraduate new entrants across the STEM-related courses (at all levels) was approximately 13,000 (30%) in the same year.

In 2016, 76% of the total number of students taking Leaving Certificate physics were boys, whereas boys accounted for only 40% of the total in biology. State Examinations Authority statistics accessed in August 2016, also point to the fact that the numbers of female students taking physics (24%), biology (60%), applied maths (23%) and engineering (6%) in 2016, remain virtually unchanged since 2015, indicating that there is still work to be done, collectively, to support and encourage young girls to experience and consider STEM career pathways.

Higher Education Authority data from 2016³ showed that one in four graduates in Ireland came from Natural Sciences, Maths and Statistics, ICT and Engineering, Manufacturing and Construction. New entrant, fulltime undergraduates from traditional STEM subjects accounted for 29% of the student cohort, while other areas such as agriculture, veterinary, forestry, fisheries, health, and business etc. almost all have some STEM-related content.

Areas experiencing the most significant graduate increases from 2010 to 2015, are Information and Communications Technologies, Natural Science, Mathematics (+42%); Agriculture, Forestry, Fisheries and Veterinary (+39%), while Education (-26%), Engineering, Manufacturing and Construction (-6%) saw a decrease, as seen in figure 8 below.

¹ CAO Application Statistics; http://www2.cao.ie/app_stats/pdf/appstats01feb2016.pdf Accessed 08/09/2016

² STEM figures do not include Health relating courses such as medicine, nursing and pharmacy. STEM figures do not include Health relating courses such as medicine, nursing and pharmacy.

³ Higher Education Authority, Statistics 2014-2015 [<http://www.hei.ie/node/1557>] accessed 30 August 2016

Graduate Trend % Change 2010 to 2015

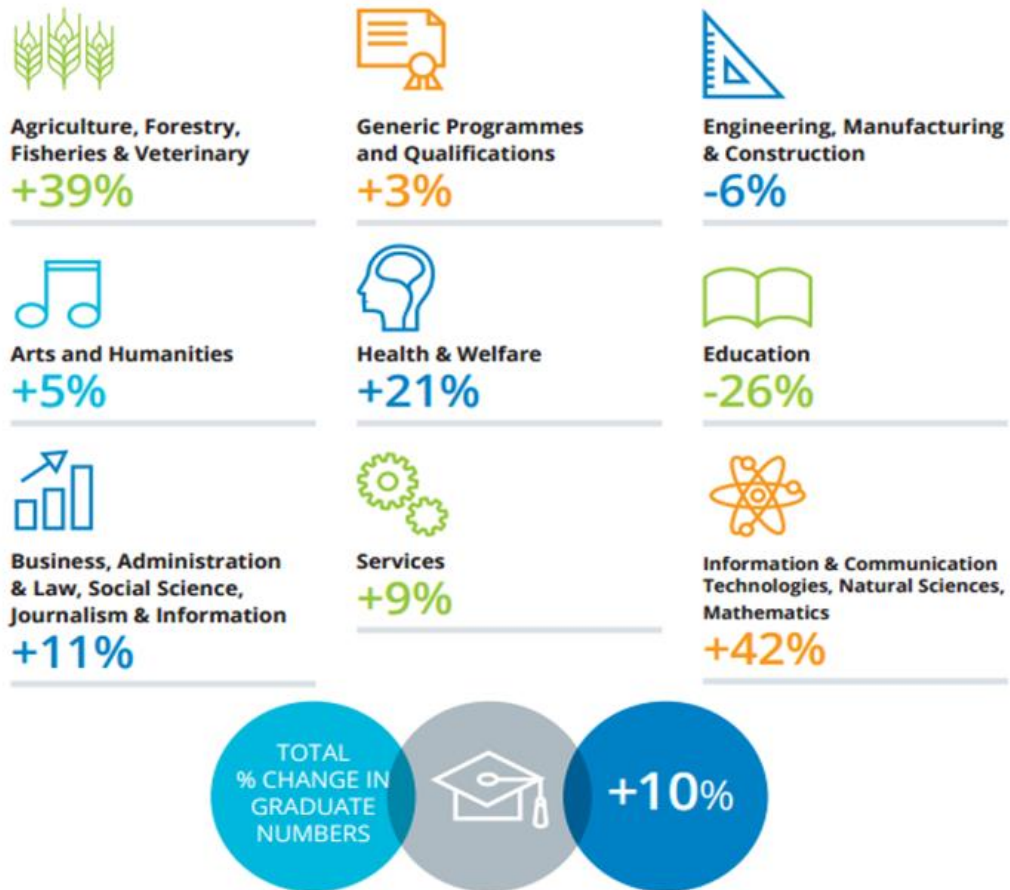


Figure 8: Graduate Trend % Change 2010 to 2015 (source: HEA 2015/16- Key Facts and Figures)

4. Learnings from initial strategy:

Since its inception Smart Futures has evolved in response to several key lessons and challenges, detailed below.

- **Education:**

Beyond the career guidance time allocated for Senior Cycle students, there is generally limited careers information provided to students in post-primary schools at Junior Cycle level where careers talks are seldom formally included in subject curricula. The 2016 STEM Education Review Group report expressed concerns that initiatives like Smart Futures are not being fully realised due to the lack of integration into the range of subject curricula or assessment instruments.

It is also a challenge to match volunteer availability with term time in schools, which exclude holidays and exam periods, making the delivery of school talks by volunteers an ongoing challenge. The rural location of some schools means they are often located some distance from STEM employers or third level education providers, and are more likely to experience longer waiting times for talks.

- **Parents:**

Several research studies have informed Smart Futures activity over the 2014 – 2016 period (Smart Futures Amarach study, Accenture and ASPIRES). The influence of parents is something that appears time and time again. Unconsciously parents can condition students through stereotypical beliefs that may impact on a young person's ability to identify themselves as capable or, interested in STEM subjects/careers. In 2017, Smart Futures commenced exploring with the National Parent's Council, the best methods of engaging with the parents of 6th class primary school children transitioning into post-primary education. A survey was carried out by Science Foundation Ireland in 2016, via the Council, to gather data on parent perceptions of STEM and how their children are making subject selections in school. The poor participation rate of the survey could indicate that parents do not feel equipped to give opinions on STEM subjects and careers, or do not see the relevance of them for their children.

In late 2016, Smart Futures began to pilot an activity, offering parent talks to its Industry partners, where all employees within the organisation could attend lunchtime talks about STEM careers and other STEM engagement opportunities. Feedback from these events was very positive.

Along with the above activities, Science Foundation Ireland is also working to provide opportunities to parents to engage with STEM together with their children at events facilitated via its SFI Discover Funding programme and at public events like the National Ploughing Championships and the St. Patrick's Festival Big Day Out.

- **Industry engagement**

Without the commitment and time offered by the Smart Futures partner organisations, the schools volunteer programme simply could not exist. Occasionally challenges can arise in keeping volunteers motivated and in managing their expectations and commitment. The school system often has inflexible schedules and Smart Futures needs help from partner organisations in helping volunteers to understand this more.

In 2016, Smart Futures held two very successful volunteer networking events that offered volunteers the chance to socialise with each other, become updated on programme developments, changes in child protection legislation and other areas of best practice. There is a continued need for industry to help identify and highlight role models with STEM careers that started with PLC qualifications or apprenticeships.

5. Summary of Programme

Following a call from industry and education partners, the Smart Futures programme has developed and delivered a significant amount of STEM careers resources since 2014. The following section outlines a summary its key achievements and learnings:

Key achievements

- Smart Futures has created an easy-to-use **website** dedicated to showcasing STEM careers for teenagers in Ireland and their influencers. www.SmartFutures.ie provides not only an online repository of 160+ STEM career stories searchable by school subject, but also career pathways information, STEM sector statistics, Transition Year opportunities linked to STEM, teacher and parent resources, free poster downloads, videos and STEM event listings. No other website of this nature existed previously and its creation has ensured that students and parents can access rich STEM careers data 24/7, from anywhere in the country.
- A **media campaign**, which saw the running of an advertisement on national television and across many cinemas, significantly increased awareness of the programme among teenagers and their influencers.
- Smart Futures has directly **engaged with over 110,000 teenagers** through its volunteers for schools programme, STEM career roadshows and presence at career events nationwide (2014-16). These face-to-face engagements provided students, that often had very limited access to careers guidance supports, with a valuable opportunity to ask practical questions of experienced STEM professionals. This has enabled a very significant number of students to gather meaningful career insights and help them make more informed study and career decisions for themselves.
- Smart Futures has helped to greatly **increase the profile of women** working in STEM careers in Ireland, encouraging young girls to look beyond negative stereotypes. Approx. 50% of the website's career stories are of females, while approx. 46% of the programmes' volunteers are female, ensuring female role models have been available to visit girls and mixed schools.
- Smart Futures developed and delivered a structured programme to meet the needs of industry and academia, to provide managed access to teenagers for the purposes of increasing the number of students taking up STEM subjects for Senior Cycle and at third-level. It is the only **free, structured STEM careers initiative** of its size, that could facilitate significant scaling up, offering ongoing tracking, evaluation and performance reporting. It has delivered tailored communications training sessions to hundreds of volunteers across the country, ensuring a high-quality service that met the needs of many corporate social responsibility and industry-education initiatives.
- Smart Futures, in partnership with Engineers Ireland's STEPS programme, has significantly surpassed its KPI relating to the recruitment of industry partners, developing relationships with **over 200 organisations**, spanning a huge diversity of STEM sectors. These include indigenous companies and a significant number of large multinationals, from IBM and Pfizer to Boston Scientific, SAP, Vodafone and many more.
- Since its inception, Smart Futures volunteers have donated **more than 5,000 volunteer hours** to informing post-primary school students about STEM careers in Ireland, where they may not have otherwise had that opportunity.
- Since 2014, **every post-primary school** in the Republic of Ireland has been contacted and **invited to avail** of free STEM career talks, as well as being provided with STEM careers resources such as posters and received follow up calls.

- Science Foundation Ireland's **research** on what influences young people's study and career decisions, carried out on behalf of the Smart Futures programme, included a sample size of over 2,000 undergraduates across Ireland. The findings provided significant evidence to support the programme's objectives, **placing importance on easy access to STEM role models** and their stories, to help young people see past negative stereotypes, so they might see themselves 'fitting in', where they may otherwise have discounted certain possibilities.

Key learnings

- Despite challenges such as there being no formal careers remit within schools, inflexible timetabling/limited windows to gain access (due to holidays, exam period etc.) and pressure on teachers to deliver a busy curriculum a **demand exists from post-primary schools to receive career talks**.
- While every post-primary school in the Republic of Ireland was contacted on multiple occasions over the three-year period, with the offer of a free STEM volunteer visit, a **significant number of schools** continued to **choose not to take up** the opportunity and the programme often struggled to activate schools.
- While a very large number of volunteer training sessions were delivered nationwide, at the request of supporting industry and research partners, Smart Futures still had **outstanding visits it could not match** with volunteers each year. Much of this was due to difficulties in **matching school availability with volunteer availability**, and the challenge of volunteer access to rural locations. It is clear that **commitment from the most senior level management** of an organisation is required, or at least support of an 'in-house' champion. Their role helps motivate volunteers and formalises volunteer support in terms of company time required to deliver a volunteer visit. Without this senior company support, it will continue to be an obstacle to meet the expectations of post-primary schools with largely inflexible time schedules. While it is accepted that a 25% active participation rate of any membership body is not unusual, it is not sustainable to manage such a large database that has an ongoing training and administration requirement, when the conversion to active volunteering is so consistently low. The challenge of time tabling and commitment must be overcome to ensure impact of the programme.
- While Smart Futures has examined the outputs of the three-year strategy in terms of deliverables and KPIs, a **longitudinal study following impact** on a specific group(s) of students and teachers **would be useful** as part of the longer-term strategy. This impact study should consider the long-term impact of one-off STEM careers engagements, such as in-class talks or careers event interactions. The objective of programmes such as Smart Futures is to deliver access to STEM role models, providing a starting point for students to consider more options, have their stereotypes challenged and enabling them to make more informed decisions about further and higher education routes. The Smart Futures website is the second part of any visit, offering access to a broader number of role model stories, videos and resources.
- There has been a significant increase in demand from post-primary schools to provide materials and volunteers to take part in **career events**. These often take the format of several schools coming together to run a careers fair, which parents and local industry can also attend. Grouping schools together for this purposes is an effective way of reaching schools and their students that otherwise have shown little interest in STEM careers.
- There is great momentum amongst STEM industry to engage with the future talent pipeline. However, much of what is taking place continues to be driven by individual champions. In these cases activity remains unevaluated and can potentially overlap or compete with other programmes of a similar nature, in some locations, while other schools receive little or no interventions. It is more important than ever to help channel this effort into a national programme so that the impact of STEM careers outreach activities can be properly evaluated and targeted. The management and balance of branding has been a challenge

over the duration of the strategy, whereby the proposal of using Smart Futures as an umbrella term did not manifest as intended. Smart Futures has partnered with Engineers Ireland and has worked with large CSR programmes such as Junior Achievement Ireland and Business in the Community over its three-year strategy to try to nationalise these efforts. Going forward, it should be considered whether Smart Futures should work with these national partners and pull back from coordinating visits with individual industry partners. Focus could then be diverted to engaging volunteers in delivering career events in cold spots around the country. Consideration must also be given to how Smart Futures can motivate industry to publicly support their partnership with Smart Futures so it becomes more widely recognised in the sector, in schools and amongst parents as a trusted voice in STEM careers promotion.

- Research carried out over the duration of the Smart Futures strategy by organisations like Accenture, iWish etc. has demonstrated that **a lack of awareness remains** about STEM career resources amongst **parents and teachers**, indicating that there is a continued need for Smart Futures, STEM careers promotional media campaigns and collaboration among industry and academia to reach as many people as possible.

6. Recommendations

- 6.1 Knowing aspirations are set between the ages of 9 and 11, Smart Futures should explore if a re-focus of the programme is required, specifically targeting late primary years and first year post primary students. This would be ideally carried out in conjunction with the Department of Education and Skills.
- 6.2 Smart Futures should continue to engage underrepresented groups with the promotion of alternative routes into STEM.
- 6.3 Given the difficulties outlined in this document, in relation to activating volunteers and managing inflexible schedules, Smart Futures should consider ceasing the coordination of in-class volunteer-school visits, concentrating effort instead on having a strong career event presence nationally and continuing to develop and disseminate high quality STEM careers information, online and offline. This needs to be accompanied by a strong media campaign supporting growth awareness amongst parents and teachers.
- 6.4 Given Smart Futures has access to comprehensive data on a county-by-county basis, of STEM subject uptake and participation rates in STEM outreach nationwide, the focus of volunteer activity going forward should be in counties with low levels of intervention/low STEM subject uptake.
- 6.5 Smart Futures should continue to leverage partnerships with existing networks (SciFest, Science Week, College Aware, Access network, CWIT etc.) to reach as wide a diversity of students as possible.
- 6.6 Smart Futures key targets should include increasing the online repository of STEM careers resources, especially video content, which have a gender balance and cover a diversity of people. We need to creating greater awareness of these via increased media coverage.
- 6.7 As a national programme, Smart Futures should occupy a remit of data collection, inviting key partners in the STEM careers promotion area to submit details of their outreach activities once a year for analysis.
- 6.8 Smart Futures should further develop its role in investigating best practice in STEM careers outreach, developing Irish-based research for international bench-marking, and for sharing amongst the wider STEM education community in Ireland.

Appendix I: Partner Organisations

Partner organisation/group	Output
Ada Lovelace Initiative	A collaborative infographic poster and video series promoting tech careers to girls
American Chamber	Industry events, company networking opportunities
Business in the Community	European comparative studies, mapping of school outreach
Careersportal	Content partnership and training/registering of guidance counsellors
CoderDojo	Collaborating on the creation of best practice relating to child protection and events such as DojoCon and Coolest Projects
College Aware / Access Network	Promoting STEM careers and alternative routes to disadvantaged schools and Access coordinators
Connecting Women in Technology	Collaborating on volunteer programme to put more female role models into female and mixed post-primary schools
Dept. of Education and Skills	Presenting to the Science Inspectorate, providing support on education-related queries
Engineers Ireland	Partner organisation helping to deliver Smart Futures, plus programmes such as the TY Week 'Engineering Your Future'
GirlsHack Ireland	Promoting Smart Futures to female students
GradIreland	Collaboration on the creation of STEM career paths information
IBEC	Collaborating on sourcing and training of volunteers across multiple sectors, such as BioPharma, ICT, and MedTech, as well as on events, careers materials, video, policy documents etc.
IDA Ireland	Providing support in informing multinational companies about the programme
Irish Guidance Counsellors Association	Proving access to regional branch meetings and providing support and endorsement of the programme
iWish	Promotion of Smart Futures and science careers to young female students
Junior Achievement Ireland	Collaborating on the delivery of a STEM careers module for JAI volunteers and schools nationwide
Science Gallery	Smart Futures has collaborated with the COOLEST JOBS programme promoting STEM careers to TY students local to the Science Gallery

Science Foundation Ireland Research Centres	Collaborating with education and outreach officers to recruit and train researchers as volunteers, to help promote careers in research in Ireland
SciFest	Collaboration on STEM careers promotion and a touring STEM careers roadshow visiting 12 Institutes of Technology's
TY Student Slingshot Academy	Collaboration on STEM careers promotion at six events across the country
TeenTurn	Promoting Smart Futures to female students from DEIS schools
TY Ireland	Promotion of Smart Futures volunteer visits and STEM careers to Transition Year students and their coordinators, as well as collaborating on events
Women in STEM Forum	A networking opportunity to help groups promoting STEM to young females a chance to network and plan events/activities more efficiently/strategically

Appendix II: Summary of media activity 2013

Date	Title	Headline
Jan	Grad Ireland	http://gradireland.wordpress.com/2013/01/15/developing-careers-in-medical-technology-one-of-irelands-most-dynamic-growth-sectors/
Feb	Business & Leadership	http://www.businessandleadership.com/marketing/item/39485-trend-micro-launches-what
7 May	Irish Examiner	Ireland's Skills Mismatch
1 May	Irish Independent	CAO: late applications close today; change your mind from Sunday
1 May	RTE News Now (throughout the day)	F1 / Smart Futures feature
30 April	RTE Six One News	F1 / Smart Futures feature
30 April	Radio Kerry – News (throughout the morning)	Demand for graduates in science, technology and engineering continues to outstrip demand
30 April	Highland FM – News (throughout the morning)	Demand for graduates in science, technology and engineering continues to outstrip demand
30 April	Irish Dev	'Smart Futures' start here!
30 April	Spin 1038 – News (throughout the day)	SFI launches Smart Futures STEM Careers Week
30 April	Spin South West – News (throughout the day)	SFI launches Smart Futures STEM Careers Week
29 April	Business & Leadership	Smart Futures STEM Careers Week connecting students with industry online
29 April	TechCentral.ie	Smart Futures invites students to consider jobs in STEM
25 April	Irish Independent	Late applications draw to a close as panels for science and maths open
22 April	Silicon Republic	Students prepare for STEM Week by asking career questions
April	Blog	http://blog.keitharkins.com/index.php/smart-futures-stem-careers-week/
April	FindaCourse.ie	http://www.findacourse.ie/news/smart-futures-career-week/
April	Monaghan Coder Dojo blog	http://monaghancoderdojo.com/2013/04/its-stem-careers-week/

April	Qualifax.ie	http://www.qualifax.ie/index.php?option=com_wrapper&view=wrapper&Itemid=22&Mainsec=events&Subsec=event_details&ID=5585
May	Irish Examiner	http://www.irishexaminer.com/archives/2013/0507/ireland/irelandapos-s-skills-mismatch--students-urged-to-reconsider-cao-230541.html
May	CPL Blog	http://www.cpl.ie/blog/post/stem-panel-discussions-careers-of-the-future/
May	CareersIreland.ie	http://careersireland.wordpress.com/2013/05/13/the-cao-change-of-mind-facility-is-open-until-1st-july-2013/
May	ISTA.ie	http://www.ista.ie/news/smart-futures-stem-week-29-april-3-may-2013
May	MyKidsTime.ie	http://www.mykidstime.ie/smart-futures-why-science-and-technology-should-be-your-career/
June	Cork Independent	http://corkindependent.com/20130606/news/cork-company-leads-the-way-for-internet-safety-S66577.html
Aug	Junior Scientist	http://www.juniorscientist.ie/smart-futures/
Oct	NUI Galway	http://www.galwayscience.ie/smart-futures-stem-careers-roadshow-for-secondary-school-students/
Oct	NCE-MSTL	http://www.nce-mstl.ie/news/science-week-at-ul-smart-futures-stem-careers-for-second-level-students.892.html
Nov	ClareFocus.ie	http://www.clarefocus.ie/index.php/component?option=com_jcalpro/Itemid,1/extmode,view/extid,18568/
Nov	Irish Independent	STEM supplement in Irish Independent for Science Week 125k circulation - delivered to every school in the country / + 150,000 digital ads on Education Pages on Independent.ie
Dec	Irish Independent	Science Christmas Special supplement

Summary of media activity 2014

Date	Title	Headline
17 April 2014	Business & Leadership	New three-year plan aims to boost Stem subjects uptake by 10pc
17 April	Spin 1038 – News (throughout the day)	There is call for more young people to take up science subjects in secondary school
	Spin South West – News (throughout the day)	There is call for more young people to take up science subjects in secondary school
17 April	98FM	Science Foundation Ireland launched a three-year plan to increase the number taking science
17 April	GalwayBay FM	Young people to take up science subjects in secondary school
18 April	Irish Times	Science Foundation encourages ‘Stem’ subjects

17 April	Silicon Republic	Irish Govt launches plan to woo more second and third-level students into STEM
18 April	IrishTimes.com	Science Foundation encourages 'Stem' subjects http://www.irishtimes.com/news/ireland/irish-news/science-foundation-encourages-stem-subjects-1.1765961
18 April	Irish Times	Science Foundation to push 'Stem' subjects
18 April	Irish Independent	Up and atom – hurling hero drives science initiative
18 April	Clare FM	Newspaper Review (piece included on Shane O'Donnell & Smart Futures)
18 April	The Herald	REACHING OUT TO STUDENTS
18 April	The Mirror	Clare All-Ireland Hero O' (photo) Donnell http://www.irishmirror.ie/sport/gaa/hurling/hurling-news/clares-all-ireland-hat-trick-hero-shane-3426093
18 April	Digitaltimes.ie	Teaching students subjects that matter
19 April	Newstalk – Off the Ball show	http://newstalk.ie/player/listen_back/10/9253/19th_April_2014_-_Off_The_Ball_Part_4 Begins at 47 minutes
22 April	TechCentral.ie	SFI outlines three-year second level STEM strategy
22 April	Evening Echo	Plan to boost interest in science
22 April	ClareChampion.ie	Shane O'Donnell makes a smart move
22 April	GotoCollege.ie	http://www.gotocollege.ie/blog/ict/getting-into-science-technology-engineering-and-maths/
24 April	Walton.ie	http://www.walton.ie/shane-odonnell-unveiled-as-new-sfi-smart-futures-ambassador/
25 April	Clare Champion	Clare Man new INTO President (Smart Futures mention)
1 May	MyKidsTime.ie (web banner advertising) & blog post	http://www.mykidstime.ie/challenging-stereotypes-shane-odonnell-smart-futures-ambassador/
19 May	Irish Times	http://www.irishtimes.com/sponsored/science-foundation-ireland-meeting-future-science-and-technology-needs-1.1798714

03 June	TheJournal.ie	http://www.thejournal.ie/readme/leaving-cert-cao-stem-1497391-Jun2014/
04 June	Irish Examiner online	http://www.irishexaminer.com/analysis/reaching-for-a-female-future-in-science-and-technology-270832.html
18 June	Irish Independent	Full page on Smart Futures + interviews with Ambassadors in CAO Change of Mind supplement
19 June	Silicon Republic	http://www.siliconrepublic.com/innovation/item/37336-sfi-launches-smart-futures
19 June	Spin 103	Radio interview with Arlene O'Neill and Shane O'Donnell talking about CAO & STEM options
19 June	TechCentral.ie	http://www.techcentral.ie/sfi-director-general-calls-on-undecided-leaving-cert-students-
19 June	BusinessWorld.ie	http://www.businessworld.ie/livenews.htm?a=3178586;s=rollingnews.htm
20 June	The Irish Sun	Small mention of SmartFutures.ie resource website for CAO Change of Mind promoting STEM
20 June	Near FM	http://nearfm.ie/podcast/dr-arlene-oneill-ambassador-for-smart-futures/
21 June	Clare FM	Radio Interview with Shane O'Donnell the 'Morning Focus' show
20 June	Today FM	Radio Interview with Shane O'Donnell on Last Word (Matt Cooper)
20 June	The Cork News	Article: Be Smart About Your Future http://edition.pagesuite-professional.co.uk/launch.aspx?pbid=ba473e7c-544d-4151-bc13-93e2a1d110a5
20 June	Clare Champion	http://www.clarechampion.ie/odonnell-says-be-smart-about-college/
24 June	Kildare Post	SFI Smart Futures provides valuable Study...
22 July	IDAIreland.com	Smart Futures: future proofing the pipeline of STEM graduates in Ireland http://www.idaireland.com/en/newsroom/smart-futures-future-proof/
13 Aug	Manufacturing Ireland	Smart Futures launched
14 Aug	Digital Times	http://www.digitaltimes.ie/more-irish-students-opting-for-smart-futures/

14 Aug	Silicon Republic	Employment bodies focus on STEM success as Leaving Cert results are revealed http://www.siliconrepublic.com/careers/item/37965-employment-bodies-focus-on/
14 Aug	Irish Examiner	http://www.irishexaminer.com/ireland/leaving-cert-special--the-results-279538.html
17 Aug	Sunday Business Post	Sunday Business Post Connected Podcast https://itunes.apple.com/ie/podcast/leaving-cert-special-dr-ruth/id903678261?i=317714071&mt=2
18 Aug	RTE Radio 1	Mary Wilson's Drivetime show: Interview with Ruth Freeman about take-up of science and STEM-related courses
4 Nov	IrishTimes.com	The appliance of science: home experiments with your kids http://www.irishtimes.com/news/science/the-appliance-of-science-home-experiments-with-your-kids-1.1981933?page=2
5 Nov	Irish Times	'Key objective of Science Week is to inspire young people to take up careers in area' article by Min Damian English
7 Nov	Teagasc.ie	Smart Futures STEM Careers Roadshows for Science Week http://www.teagasc.ie/news/2014/201411-07.asp
12 Nov	Irish Independent	STEM supplement: Ad + logo + 3 x chemistry career profiles + 'Opportunities for all' article by Tony Donohoe (IBEC) referencing SmartFutures.ie http://bit.ly/1xHx28h
18 Dec	CareersPortal.ie	Parents urged to support LC students in making CAO choices http://www.careersportal.ie/news/news.php?Heading=Parents+urged+to+support+LC+students+in+making+CAO+choices&ID=18121404#.VKpl1NKsV-M
18 Dec	TheJournal.ie	Stereotypes could be holding students back from embracing STEM courses http://www.thejournal.ie/stem-courses-stereotypes-1841983-Dec2014/
18 Dec	SiliconRepublic.ie	STEM is here to stay, students and parents told ahead of CAO deadline http://www.siliconrepublic.com/careers/item/39923-stem-is-here-to-stay/
19 Dec	Irish Independent	Parents urged to help pupils with their CAO choices http://www.independent.ie/irish-news/education/parents-urged-to-help-pupils-with-their-cao-choices-30849007.html
19 Dec	Campus.ie	http://campus.ie/surviving-college/parents-urged-help-pupils-their-cao-choices
19 Dec	www.ICS.ie	Students urged to include STEM courses on their CAO https://www.ics.ie/index.php?option=com_content&view=article&id=1336:students-urged-to-include-stem-courses-on-their-cao&catid=39:news&Itemid=238
23 Dec	Mallow Star	PARENTS URGED TO SUPPORT LEAVING CERT STUDENTS TO LOOK BEYOND STEREOTYPES
23 Dec	Waterford Mail	Most students just Want to fit in at college

24 Dec	Weekly Observer	Parents urged to support Leaving Cert students to look beyond stereotypes when making CAO decisions
26 Dec	Galway Advertiser	Parents urged to support Leaving Cert students to look beyond stereotypes when making CAO decisions
27 Dec	Southern Star	Thinking About CAO?
27 Dec	Vale Star	PARENTS URGED TO SUPPORT LEAVING CERT STUDENTS TO LOOK BEYOND STEREOTYPES

Summary of media activity 2015

22/6/2015	Education.ie	Minister English calls on students to consider Tech careers ahead of CAO deadline http://www.education.ie/en/Press-Events/Press-Releases/2015-Press-Releases/PR15-06-22.html
22/6/15	Evening Echo	Call for Students to consider IT Options
23/6/15	Evening Echo	Rewarding IT Careers await, students told
22/6/15	Clondalkin News	Students encouraged to consider Tech careers ahead of CAO deadline
22/6/15	Tallaght News	Students encouraged to consider Tech careers ahead of CAO deadline
22/6/15	Lucan News	Students encouraged to consider Tech careers ahead of CAO deadline
22/6/15	Rathcoole & Saggart News	Students encouraged to consider Tech careers ahead of CAO deadline
24/6/15	Silicon Republic	STEM role models can help students 'fit' with Smart Futures https://www.siliconrepublic.com/portfolio/2015/06/24/stem-role-models-can-help-students-fit-with-smart-futures
24/6/15	Weekly Observer	Minister Calls on Students to Consider Tech Careers Ahead of CAO Deadline
25/6/15	Corkman	Drive to grow STEM among students across North Cork
25/6/15	Northern Standard	Students in the North-West urged to consider Tech ahead of CAO deadline
25/6/15	Sligo Weekender	IT urges students to consider careers in technology
26/6/15	Dungarvan Observer	Students should consider Tech
27/6/15	Nenagh Guardian	Students urged to consider Tech careers
27/6/15	Independent.ie	STEM to grow in Nth Cork schools http://www.independent.ie/regionals/corkman/news/stem-to-grow-in-nth-cork-schools-31327786.html

29/6/15	IBEC.ie	Students encouraged to consider science/technology courses http://www.ibec.ie/IBEC/Press/PressPublicationsdoclib3.nsf/vPages/Newsroom~students-encouraged-to-consider-science-technology-courses-29-06-2015#.VZOtxBtVhBc
30/6/15	Roscommon Herald	Students urged to consider Tech careers ahead of CAO deadline
1/7/15	Drogheda Independent	Schools Report 'consider technology'
1/7/15	Mid – Louth Independent	Schools Report 'consider technology'
5/7/15	Independent.ie	Smart futures can roll out the science message http://www.independent.ie/opinion/smart-futures-can-roll-out-the-science-message-31352080.html
12/7/15	Independent	The chemistry of empowering your children's imaginations – piece by Tony Daly, Pfizer http://www.independent.ie/business/technology/the-chemistry-of-empowering-your-childrens-imaginations-31369065.html
13/7/15	Irish Times Business	Barry O'Sullivan – Innovation Profile 'Educating students about the benefits of tech training' http://www.irishtimes.com/sponsored/educating-students-about-the-benefits-of-tech-training-1.2280423
1/10/2015	Careersportal.ie	http://www.careersportal.ie/news/news.php?college_id=755&sector_id=21&client_id=43&ID=1806201731#.VjyBwNLhCUk
13/10/15	Irish Times Careers Column (Brian Mooney)	http://www.irishtimes.com/news/education/ask-brian-how-can-i-nudge-my-daughter-towards-a-stem-career-1.2383892
4/11/15	Irish Times SW supplement	http://www.irishtimes.com/sponsored/a-smart-approach-to-educating-pupils-about-careers-in-stem-1.2403799
4/11/15	Irish Times SW supplement	http://www.irishtimes.com/sponsored/niamh-kavanagh-phd-student-i-m-lucky-to-be-in-an-industry-that-offers-a-sustainable-career-1.2403443
6/11/15	Careernews.ie	http://careersnews.ie/free-career-talks-in-stem-for-secondary-schools/
9/11/15	IrishTimes	http://www.irishtimes.com/business/technology/companies-urged-to-encourage-careers-in-science-1.2421924

Summary of media activity 2016

12/2/16	Careersportal.ie	FREE career talks can inform secondary school students on alternative routes to STEM http://bit.ly/1KJGNgl via @CareersPortal
4/3/16	Irish Examiner	http://www.irishexaminer.com/ireland/slideshow-academy-to-help-secondary-school-students-with-college-and-course-decisions-376894.html
4/3/16	IrishExaminer.ie	http://www.irishexaminer.com/ireland/slideshow-academy-to-help-secondary-school-students-with-college-and-course-decisions-376894.html
7/3/16	Evening Echo (Cork)	Career opportunities will follow from STEM (interview with Niamh Kavanagh, Tyndall & Smart Futures volunteer)
4/4/16	Irish Times	http://www.irishtimes.com/sponsored/niamh-kavanagh-phd-student-i-m-lucky-to-be-in-an-industry-that-offers-a-sustainable-career-1.2403443
4/4/16	Irish Times	http://www.irishtimes.com/sponsored/niamh-kavanagh-phd-student-i-m-lucky-to-be-in-an-industry-that-offers-a-sustainable-career-1.2403443

26/4/16	Irish Examiner	Students gain food career insights
28/4/16	East Cork Journal	Teagasc Supporting Smart Futures and SciFest
4/5/16	Bernie Goldbach blog	http://www.insideview.ie/irisheyes/2016/05/index.html
23/5/16	Irish Times	http://www.irishtimes.com/news/education/is-a-broad-stem-course-the-right-choice-for-you-1.2658766
10/6/16	Irish Times	http://www.irishtimes.com/news/education/leaving-cert-why-more-girls-need-to-study-engineering-1.2679035
13/6/16	ICS.ie	https://www.ics.ie/news/why-more-girls-need-to-study-engineering
16/6/16	Irish Independent	Special supplement – “Science Foundation Ireland looks to tackle gender imbalance in research funding”
27/6/16	Education.ie	Minister Bruton and Minister Halligan call on students to consider ICT careers ahead of CAO deadline http://www.education.ie/en/Press-Events/Press-Releases/2016-Press-Releases/PR2016-06-27.html
28/6/16	IrishTimes.ie	Career Opportunities – those set to knock in the future http://www.irishtimes.com/news/science/career-opportunities-those-set-to-knock-in-the-future-1.2702883
30/6/16	Careersportal.ie	STEM and the new careers of the future http://www.careersportal.ie/news/news.php?Heading=STEM+and+the+new+careers+of+the+future&ID=2501201959#.V3pcCdlrKUk
10/7/16	Ibec.ie	Ibec recommendations for a globally competitive digital economy in Ireland http://www.ibec.ie/IBEC/DFB.nsf/vPages/Digital~Policy_positions~can-ireland-take-a-bigger-byte!OpenDocument#.V44g1dlrKUk
15/7/16	CoderDojo.com	https://coderdojo.com/news/2016/07/15/how-to-encourage-girls-in-tech/
18/7/16	SiliconRepublic.com	Interview: Niamh Kavanagh, Smart Futures volunteer https://www.siliconrepublic.com/people/ghostbusters-scientists-women-researchers-photonics-tyndall-irc
7/8/16	‘In Business’ supplement	The Profit in Gender Diversity’ – piece on Ernest & Young, CWIT and Smart Futures is referenced
17/8/16	Engineers Journal	http://www.engineersjournal.ie/2016/08/17/engineers-ireland-urges-students-to-look-at-all-routes-into-engineering/
23/8/16	Irish Independent	http://www.independent.ie/opinion/comment/flexibility-is-the-skill-that-our-schoolleavers-need-the-most-34987203.html
25/8/16	Irish Times	http://www.irishtimes.com/sponsored/stem-graduates-are-qualified-for-just-about-any-job-1.2765869
30/8/16	IrishHub.biz	http://irishhub.biz/techteamtour-videos-tackle-technology-career-stereotypes/
31/8/16	Irish Tech News	http://irishtechnews.net/ITN3/techteamtour-videos-tackle-technology-career-stereotypes/
31/8/16	CareersNews	http://careersnews.ie/smart-futures-today-released-new-series-videos/
1/9/16	Education Magazine	How teachers can help inspire the next generation in STEM
4/9/16	Today FM	http://www.todayfm.com/player/shows/The_Sunday_Business_Show/59811/techteamtour

6/9/16	LMFM	TechTeamTour interview
8/9/16	Flirt FM	TechTeamTour interview (NUIG student station)
21/9/16	Careersportal.ie	New Videos Tackling Tech Career Stereotypes http://www.careersportal.ie/news/news.php?client_id=28&Heading=New+Videos+Tackling+Tech+Career+Stereotypes&ID=2501202093#.V-Jas4grKUK

Appendix III: Regional spread of volunteer visits (2013 – 2016)

County	2013 - 14 (pre-CRM)	2014 - 15 (pre-CRM)	2015 - 16	No. of schools per county
Cavan	26	0	2	11
Carlow	0	2	0	11
Clare	4	2	8	18
Cork	27	56	31	86
Donegal	21	2	3	27
Dublin	47	84	77	188
Galway	20	22	20	47
Kerry	23	1	3	26
Kildare	31	5	3	26
Kilkenny	1	4	5	16
Laois	1	3	4	8
Leitrim	0	2	0	7
Limerick	3	8	6	30
Longford	0	1	0	9
Louth	1	0	4	19
Mayo	5	2	3	27
Meath	5	10	5	21
Monaghan	0	1	2	13
Offaly	1	4	3	12
Roscommon	0	2	1	8
Sligo	0	4	4	14
Tipperary	0	7	6	31
Waterford	0	5	10	18
Wexford	1	3	4	22
Westmeath	0	1	7	15
Wicklow	0	6	6	22

Appendix IV: Breakdown of Leaving Certificate results 2012-13

2012 Leaving Certificate Statistics – Higher Level

	Female	Male	Total
Applied Maths	307	1,037	1,344
Physics	1,279	3,474	4,753
Maths	5,159	5,972	11,131
Chemistry	3,672	3,033	6,705
Physics & Chemistry	132	177	309
Ag Science	2,256	3,331	5,587
Biology	14,056	8,684	22,740
Engineering	172	3,647	3,819
Construction Studies	376	6,199	6,575
Technology	142	628	770
Total	27,551	36,182	63,733

Total STEM Higher Level 2012: 63,733

2012 Leaving Certificate Statistics – Ordinary Level

	Female	Male	Total
Applied Maths	52	94	146
Physics	302	1,318	1,620
Maths	17,199	16,717	33,916
Chemistry	672	709	1,381
Physics & Chemistry	29	67	96
Ag Science	393	909	1,302
Biology	4,467	3,329	7,796
Engineering	63	995	1,018
Construction Studies	133	1498	1,631
Technology	32	123	155
Total	23,342	25,759	49,061

Total STEM Ordinary Level 2012: 49,061

Total STEM for both levels 2012: 112,794

2013 Leaving Certificate Statistics – Higher Level*

	Female	Male	Total
Applied Maths	337	1133	1,470
Physics	1,243	3,589	4,832
Maths	6,069	6,945	13,014
Chemistry	3,658	3,099	6,756
Physics & Chemistry	131	199	330
Ag Science	2,384	3,567	5,951
Biology	14,182	9,251	23,433
Engineering	156	3,586	3,742
Construction Studies	392	6,180	6,572
Technology	158	786	944
Total	28,710	38,335	67,045

Total STEM 2013 Higher Level: 67,045

2013 Leaving Certificate Statistics – Ordinary Level*

	Female	Male	Total
Applied Maths	31	98	129
Physics	278	1,338	1,616
Maths	16,271	15,894	32,165
Chemistry	670	729	1,399
Physics & Chemistry	24	69	93
Ag Science	408	1,055	1,463
Biology	4,478	3,586	8,064
Engineering	77	1,062	1,139
Construction Studies	131	1,410	1,541
Technology	24	106	130
Total	22,392	25,347	47,739

Total STEM 2013 Ordinary Level: 47,739

Total STEM uptake across both levels in 2013: 114,784

* Figures from State Examinations Board Annual Report 2013

https://www.examinations.ie/about/2013_Annual_Report.pdf Accessed 09 September

2014 Leaving Certificate Statistics – Higher Level*

	Female	Male	Total
Applied Maths	412	1157	1,569
Physics	1,474	3,925	5,399
Maths	6,722	7,604	14,326
Chemistry	4,061	3,165	7,226
Physics & Chemistry	167	194	361
Ag Science	2,554	3,775	6,329
Biology	14,963	9,479	24,442
Engineering	203	3,969	4,172
Construction Studies	451	6,396	6,847
Technology	187	796	983
Total	31,194	40,460	71,654

Total STEM 2014 Higher Level: 71,654

2014 Leaving Certificate Statistics – Ordinary Level*

	Female	Male	Total
Applied Maths	28	109	137
Physics	303	1,475	1,778
Maths	16,505	15,923	32,428
Chemistry	674	704	1378
Physics & Chemistry	18	87	105
Ag Science	408	1,189	1,597
Biology	4,681	3,833	8,514
Engineering	73	958	1,031
Construction Studies	165	1,397	1,562
Technology	21	98	119
Total	22,876	25,773	48,649

Total STEM 2014 Ordinary Level: 48,649

***Total STEM uptake across both levels in 2014: 120,303**

* Figures from State Examinations Board Annual Report 2014 <https://www.examinations.ie/misc-doc/EN-AU-30240294.pdf> Accessed 09 September

2015 Leaving Certificate Statistics – Higher Level*

	Female	Male	Total
Applied Maths	432	1297	1,729
Physics	1,568	4,196	5,764
Maths	6,996	7,695	14,691
Chemistry	4,257	3,276	7,533
Physics & Chemistry	171	266	437
Ag Science	2,502	3,565	6,067
Biology	15,910	9,685	25,595
Engineering	249	4,159	4,408
Construction Studies	560	6,317	6,877
Technology	197	970	1,167
Total	32,842	41,426	74,268

Total STEM 2015 Higher Level: 74,268

2015 Leaving Certificate Statistics – Ordinary Level*

	Female	Male	Total
Applied Maths	44	146	190
Physics	307	1,437	1,744
Maths	17,317	15,949	33,266
Chemistry	685	720	1,405
Physics & Chemistry	37	78	115
Ag Science	418	1,187	1,605
Biology	4,528	3,741	8,269
Engineering	75	893	968
Construction Studies	116	1,275	1,391
Technology	36	124	160
Total	23,563	25,550	49,113

Total STEM 2015 Ordinary Level: 49,113

***Total STEM uptake across both levels in 2015: 123,381**

* Figures from State Examinations Statistics <https://www.examinations.ie/?l=en&mc=st&sc=r15> Accessed 09 September

2016 Leaving Certificate Statistics – Higher Level*

	Female	Male	Total
Applied Maths	446	1,471	1,917
Physics	1,574	4,429	6,003
Maths	7,165	8,033	15,198
Chemistry	4,246	3,412	7,658
Physics & Chemistry	195	243	438
Ag Science	2,614	3,565	6, 270
Biology	15,536	9,676	25,212
Engineering	219	4,270	4,489
Construction Studies	626	6,461	7,087
Technology	210	1,034	1,244
Total	32,831	42,594	69,246

Total STEM 2015 Higher Level: 69,246

2016 Leaving Certificate Statistics – Ordinary Level*

	Female	Male	Total
Applied Maths	29	143	172
Physics	294	1,455	1,749
Maths	15,740	16,810	32,550
Chemistry	704	727	1,431
Physics & Chemistry	39	101	140
Ag Science	435	1,189	1,624
Biology	4,814	4,076	8,890
Engineering	79	811	890
Construction Studies	136	1,330	1,466
Technology	21	150	171
Total	22,291	26,792	49,083

Total STEM 2016 Ordinary Level: 49,083

***Total STEM uptake across both levels in 2016: 118,329**

* Figures from State Examinations Statistics <https://www.examinations.ie/?l=en&mc=st&sc=r16> Accessed 12 September

HEA CAO Analysis report – 1st preferences 2014

**Table 3a: Level 8 First Preference Application by Discipline
2010 – 2014**

Discipline	2010	2011	2012	2013	2014
Engineering	2,594 (4.2%)	2,674 (4.3%)	2,774 (4.5%)	2,926 (4.8%)	3,215 (5.1%)
Construction	1,824 (2.9%)	1,379 (2.2%)	1,188 (1.9%)	1,040 (1.7%)	1,166 (1.9%)
Computing	2,920 (4.7%)	3,288 (5.4%)	3,931 (6.4%)	3,904 (6.4%)	4,311 (6.9%)
Science	4,194 (6.8%)	4,029 (6.6%)	4,337 (7.0%)	4,570 (7.5%)	4,916 (7.9%)
Total Technology	11,532 (18.6%)	11,370 (17.7%)	12,230 (19.8%)	12,440 (20.5%)	13,608 (21.8%)
Agriculture and Veterinary	1,431 (2.3%)	1,665 (2.7%)	1,862 (3.0%)	1,848 (3.0%)	1,881 (3.0%)
Nursing	5,541 (8.9%)	5,585 (9.1%)	5,775 (9.3%)	5,807 (9.6%)	5,490 (8.8%)
Medicine	3,755 (6.0%)	3,591 (5.8%)	3,719 (6.0%)	3,480 (5.7%)	3,276 (5.3%)
Dentistry	347 (0.6%)	298 (0.5%)	295 (0.5%)	287 (0.5%)	282 (0.45%)
Other Healthcare	3,583 (5.8%)	4,068 (6.6%)	4,217 (6.8%)	4,415 (7.3%)	4,561 (7.3%)
Arts and Humanities	15,851 (25.5%)	15,395 (25.0%)	14,688 (23.7%)	14,424 (23.7%)	14,651 (23.5%)
Education	6,608 (10.6%)	6,652 (10.8%)	6,081 (9.8%)	5,558 (9.2%)	5,468 (8.8%)
Business and Law	9,216 (14.8%)	8,547 (13.9%)	8,509 (13.8%)	8,461 (13.9%)	9,368 (15.0%)
Social Services	2,311 (3.7%)	2,367 (3.9%)	2,375 (3.8%)	2,033 (3.3%)	1,931 (3.1%)
Services	1,907 (3.1%)	1,930 (3.1%)	2,095 (3.4%)	1,986 (3.3%)	1,825 (2.9%)
Total	62,082 (100%)	61,468 (100%)	61,846 (100%)	60,739 (100%)	62,341 (100%)

Source: CAO

**Table 3b: Level 8 First Preference Application by Discipline
One year and five year Change**

	2010	2013	2014	% of applications	1 year change	5 Year Change
Engineering	2,594	2,926	3,215	5.1%	9.8%	23.9%
Construction	1,824	1,040	1,166	1.9%	12.1%	-36.1%
Computing	2,920	3,904	4,311	6.9%	10.4%	47.6%
Science	4,194	4,570	4,916	7.9%	7.6%	17.2%
Total Technology	11,532	12,440	13,608	21.8%	9.4%	18.0%
Agriculture and Veterinary	1,431	1,848	1,881	3.0%	1.8%	31.4%
Nursing	5,541	5,807	5,490	8.8%	-5.5%	-0.9%
Medicine	3,755	3,480	3,276	5.3%	-5.9%	-12.8%
Dentistry	347	287	282	0.45%	-1.7%	-18.7%
Other Healthcare	3,583	4,415	4,561	7.3%	3.3%	27.3%
Arts and Humanities	15,851	14,424	14,651	23.5%	1.5%	-7.6%
Education	6,608	5,558	5,468	8.8%	-1.6%	-17.3%
Business and Law	9,216	8,461	9,368	15.0%	10.7%	1.6%
Social Services	2,311	2,033	1,931	3.1%	-5.0%	-16.4%
Services	1,907	1,986	1,825	2.9%	-8.1%	-4.3%
Total	62,082	60,739	62,341	100%	2.6%	0.4%

Leaving Certificate results summary*

Subject	Candidates 2015	% of Cohort 2015	Candidates 2014	% of Cohort 2014	Candidates 2013	% of Cohort 2013
Mathematics	53,570	97%	52,381	97%	50,856	96%
Biology	33,865	62%	32,957	61%	31,500	60%
Chemistry	8,938	16%	8,604	16%	8,156	15%
Construction Studies	8,268	15%	8,408	16%	8,113	15%
Ag Science	7,672	14%	7,926	15%	7,414	14%
Physics	7,508	14%	7,177	13%	6,448	12%

Leaving Cert 2015:

- 25% of all physics Leaving Cert students are female
- 60% of all biology Leaving Cert students (ordinary and higher) are female
- 25% of all applied maths Leaving Cert students (ordinary and higher) are female
- 6% of all engineering Leaving Cert students (ordinary and higher) are female

Leaving Cert 2016:

- 24% of all physics Leaving Cert Students are female
- 60% of all biology Leaving Cert Students are female
- 23% of all applied maths Leaving Cert students are female
- 6% of all engineering Leaving Cert students are female

HEA 2014 - 2015

- 17% of undergraduate new entrants into Information and Communication Technologies (ICTs) are female
- 17% of undergraduate new entrants into Engineering, Manufacturing and Construction are female
- 39% of STEM undergrad new entrants are female (figure excluding Health relating courses such as medicine, nursing and pharmacy)⁴
- 31% of all undergraduate new entrants chose a STEM-related course (figure excluding Health relating courses such as medicine, nursing and pharmacy)

HEA 2013 – 2014

- 19% of undergraduate new entrants into Information and Communications Technologies (ICTs) are female.
- 16% of undergraduate new entrants into Engineering, Manufacturing and Construction are female
- 40% of STEM undergrad new entrants are female (figure excluding Health relating courses such as medicine, nursing and pharmacy)

*Higher Education Authority, Statistics 2014-2015 [<http://www.heai.ie/node/1557>] accessed 30August2016

* Engineering figures include Manufacturing and Construction new entry figures

* Agriculture figures include Horticulture new entry figures

* 2015 Math figures include interdisciplinary programmes involving natural science and mathematics

* % out of a total of 41,840 and 42,464 new entries in 2014 and 2015 respectively, STEM figures do not include Health relating courses such as medicine, nursing and pharmacy

*Refers to full time undergraduate new entrants

- 31% of all undergraduate new entrants chose a STEM-related course (figure excluding Health related courses such as medicine, nursing and pharmacy)

	Education	Science	Maths	ICT	Engineering*	Agriculture*	Total new STEM entries	Total % STEM Entries*
2013 Full-time Undergraduate New Entrants	193	4,327	258	3,036	4,703	677	13,194	32%
2014 Full-time Undergraduate New Entrants	150	4,333	235	3,103	4,652	659	13,132	31%
2015 Full-time Undergraduate New Entrants	92	4,038	660*	3,031	4,589	630	13,040	31%

*Refers to full-time undergraduate new entrants