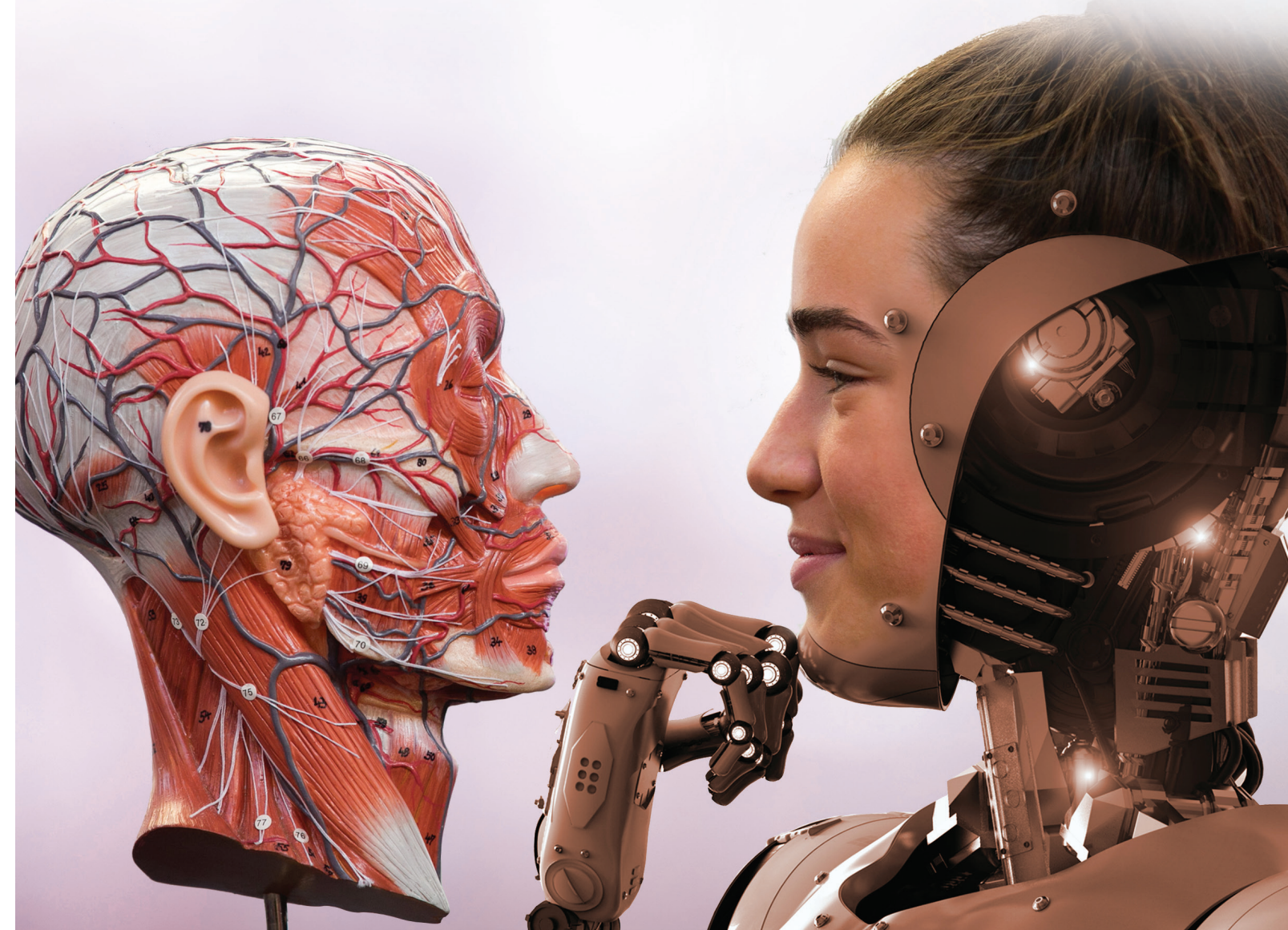




2018 Survey
of female students' attitudes to STEM

CHOICES CHANCES CHANGES



Core Message From IWISH Founders

IWISH is an evolving story inextricably linked to the lives of thousands of young women. I Wish meets these young women at a key transition point in their lives when they are considering subject choices and visualising career paths but often without all the tools to make STEM choices. In 2018 2,241 girls participated to our IWISH Survey making it one of the largest surveys of Irish secondary school girls on their attitudes to STEM.

IWISH was conceived with a plan to bridge that INFORMATION GAP. IWISH is now for many young girls, a STEM gateway; a first step on the journey of exploration of possibilities and opportunities that, if taken, has the capacity to change their lives and shape a better world.

There is more work to be done however than simply addressing the INFORMATION GAP. Our 2018 cohort of students and teachers, have given us a very valuable insight into another key impediment to these girls realising their full potential through STEM, the CONFIDENCE GAP. Young women in 2018 don't always believe that they can change our world. This presents some difficult questions that we need to answer. Do we as a society default to stereotypical perceptions?

We are now beginning to see the emergence of the STEM GIRL, the girl who is more likely to defy the odds and pursue STEM subjects and careers. The IWISH surveys have opened a window into her life, what influences her and motivates her. We know she is now aware that STEM is a growing area of opportunity, she is motivated by strong job opportunities, an interesting career where she can help other people and she is likely to already know someone working in STEM; role models are important to her.

This insight gives us the information we need to encourage her to explore the CHOICES, CHANCES AND CHANGES delivered through STEM and to challenge our engagement with this next generation of leaders.

We invite you to embrace the challenge and opportunity with us.

#IFNOTYOUTHENWHO?

Caroline O'Donnell R Buckley Gillian Kelly



#IFNOTYOUTHENWHO?



IWISH 2018 survey

TEACH IT ZONE SURVEY :

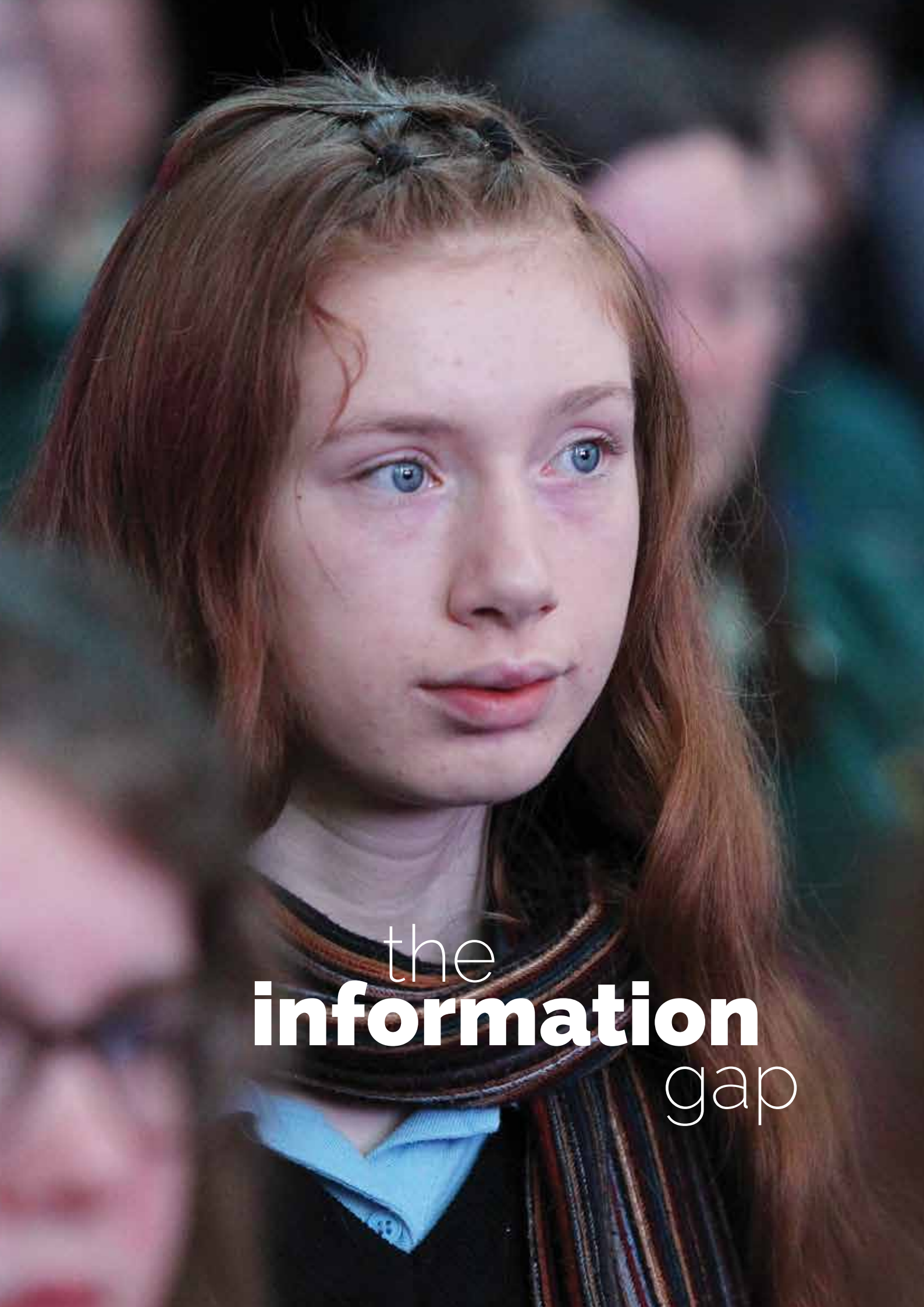
- **218** Teachers attended the event
- **98%** of teachers identified the level of awareness of STEM careers and opportunities as a significant challenge to the promotion of STEM
- **93%** identified students lack of belief in their own ability as a top challenge
- **90%** recommended workshops with girls to enhance their resilience and confidence in STEM
- **90%** recommended co-teaching of STEM subjects with experts from industry
- **90%** recommended student and teacher participation in regional STEM events that enable access to local industry

STUDENT SURVEY :

- **2,241** students participated in IWISH 2018 survey
- **11** Deis Schools attended
- **48%** say that they had not yet chosen their subjects for Leaving Certificate
- **81%** say that they would like a job where they can help other people
- **59%** say that they do not know enough about STEM

TEACHER SURVEY :

- Our teacher survey represented 47 schools in Ireland
- **100%** said they would recommend IWish
- **32%** said that science is not compulsory to Junior Cert
- **37%** of the teachers attending are STEM teachers
- **85%** of teachers indicated that physics is available to honours level
- **85%** say that the girls confidence in their ability is a big influence on the rate of STEM subjects take up



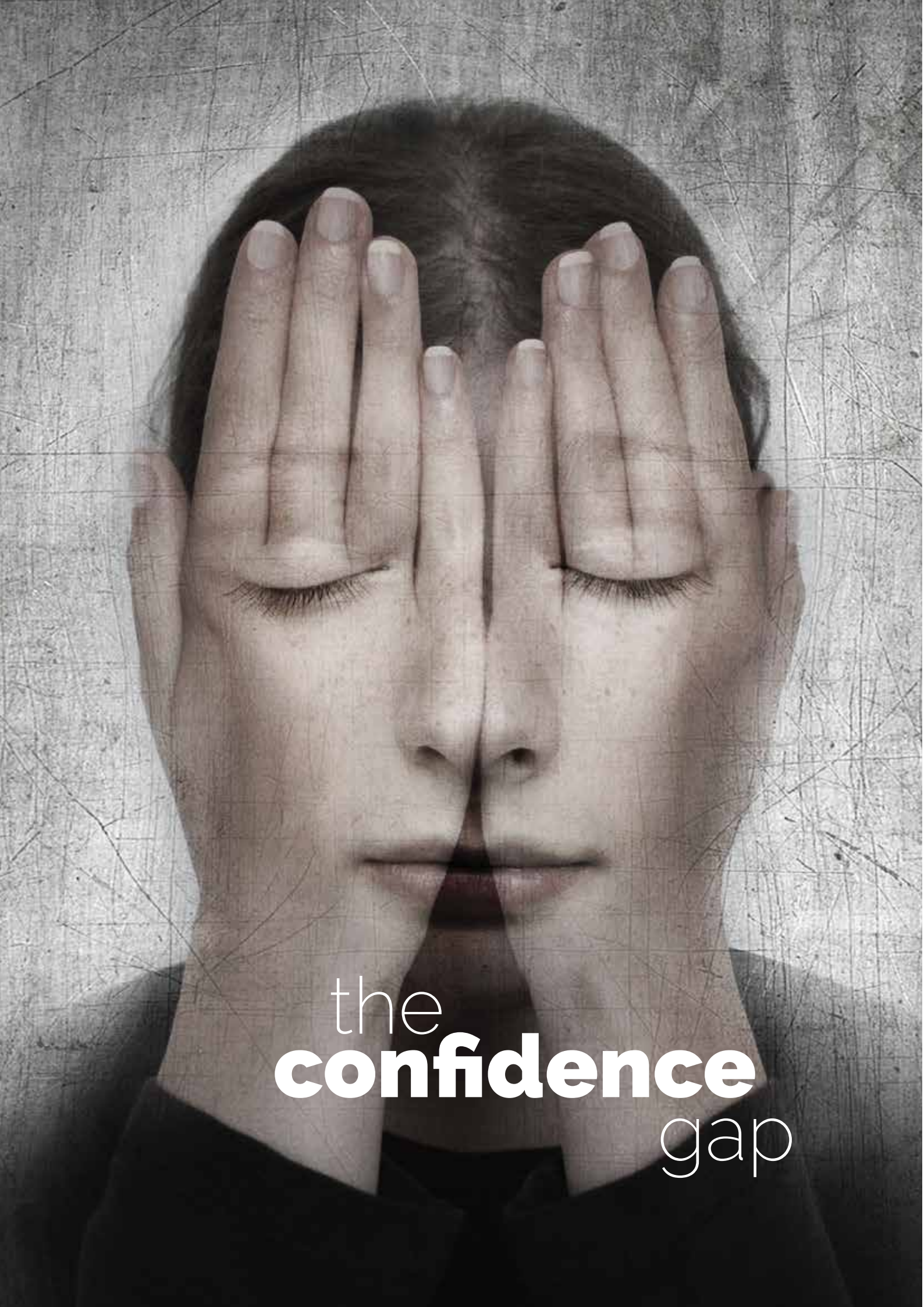
the information gap

59% of girls agreed or strongly agreed that they did not know enough about STEM

90% of teachers recommended co-teaching of STEM topics with industry.

90% of teachers recommended students and teacher participation in regional STEM events that enable access to local industries

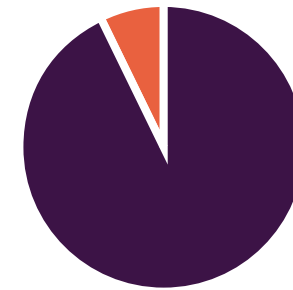
83% of teachers said they were better able to advise students on STEM and STEM careers following IWISH



the confidence gap

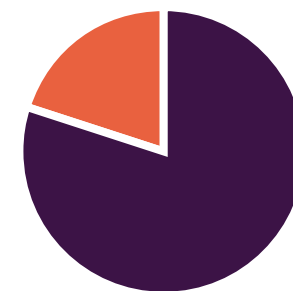
93%

of teachers ranked 'self-belief in the girl's ability' as a major challenge to the promotion of STEM in schools.



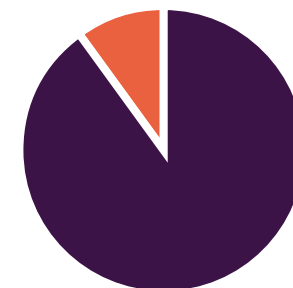
80%

of the girls indicate that the belief 'they will be good at it' is a key factor in their decision to pursue a career.

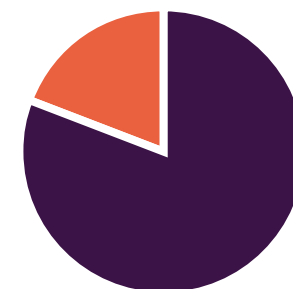


90%

of teachers recommended workshops with girls to enhance their resilience and confidence



81%





The phrase 'People think.....' was repeated over and over as the girls set out their reply to the open question.

the emergence of the stem girl

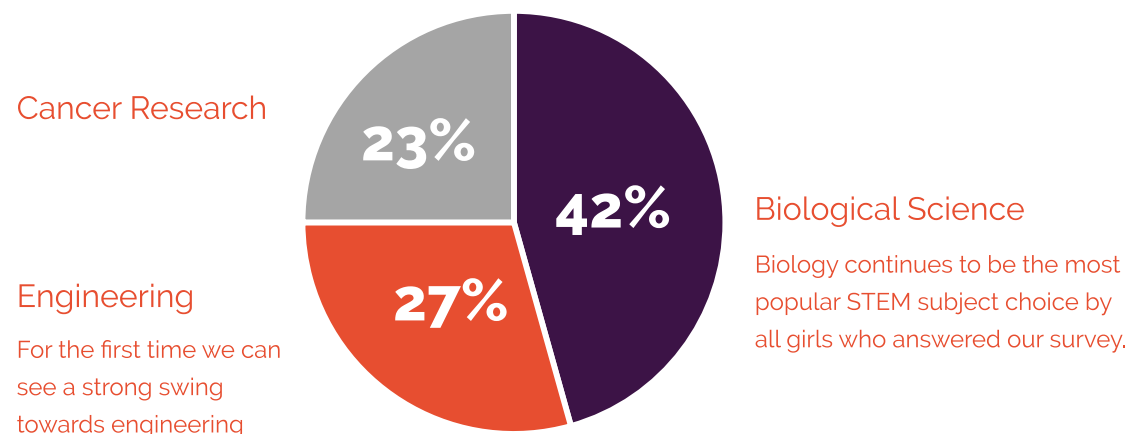
...and her perspective

This year we decided to give particular attention to the feedback from the newly emerging 'STEM girls'.

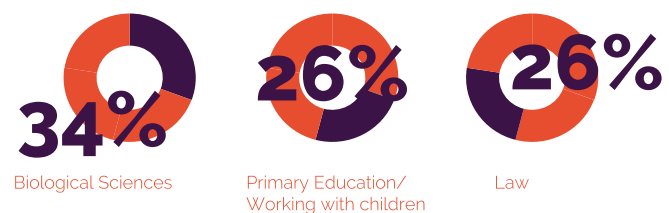
Who are the STEM girls?

These girls have attended 3 or more STEM events¹ or they have chosen 2 or more STEM subjects for their leaving cert.

The top three careers of interest to STEM girls are:



The other girls continue to favour more traditional career paths. Their top three career choices are:



40%

of these girls choosing STEM have a family member working in STEM.

79%

The STEM girls show a significantly higher percentage that plan to study honours maths to leaving cert at **79%** versus the other girls at **64%**.

86%

want an interesting career with excellent job opportunities

¹IWISH 2017 Survey - girls that attend 3 or more extra-curricular STEM events, 30% choose to take at least two STEM subjects to leaving cert compared to 20% who attend two or less

bridging the gap

There are ways to support the girls in making an informed choice.

Attendance at STEM events during transition year is a very positive way the school can enable this informed choice.

The positive influence of these experiential events appears to prevail regardless of the girl's location or socio-economic background.

After the IWISH showcase experience there was a 22% increase in the girls who choose to reject the idea that STEM is more suited to boys.

#ListenAndLearn

We need to really listen to what the girls are telling us in terms of what influences their subject and career choices.

Enjoyable subject 90%



Necessary for career 78%



Very good teacher 75%



Likable teacher 52%



Three of the top four reasons which influence a young girl to pick a subject are directly related to the teacher. The influence of the teacher and the school continues to be key.

When it comes to career choice the factors the girls consider are noteworthy.

They want an interesting career 90%



Excellent job opportunities 86%



They want a career where they can help other people 81%



They will be good at it 80%



Work/Life balance 78%





the teachers perspective

The teacher's perspective is particularly valuable. We know the teachers are the gatekeepers to STEM events

IWish 2018 was designed to incorporate a new zone, the Teach IT Zone. This was a direct result of the feedback from the girls and the teachers that attended IWISH in 2017.

Who Attended

The majority of the teachers who organise and attend these events are female : science teachers (37%) maths teachers (20%) or transition year teachers (22%).

The Teachers Survey

A few weeks after IWISH 2018 we conducted an on-line survey on the teachers that attended IWISH 2018. We received 53 responses from teachers representing 47 schools in Ireland and this is what we learnt.

What they said

32% answered that science is not compulsory to junior cert cycle in their schools .This is a consistent finding across the IWISH surveys over the years.

85% indicated that Physics is available to honours leaving cert .

Applied maths is available in only 27% of schools to leaving cert.

Teachers ranked the following five factors as the most important to girls when they are selecting their leaving cert subjects:

| | |
|--|-----|
| 1. It is necessary for their future career or study | 88% |
| 2. Teacher likability | 85% |
| 3. Subject is interesting | 85% |
| 4. The girl's confidence in her ability to do well in it | 85% |
| 5. Perceived as easy to do well in | 81% |

Teachers can help us bridge the Information gap and the confidence gap.
We must support and resource them to do this.



our recommendations

IWish surveys open a window into the lives of young women and gives us the opportunity to better understand what influences and motivates them. Armed with this information we have a responsibility to use it to support their FUTURE and enable and encourage the Emerging STEM girl

Recommendations:

- Joint initiatives between industry and education. "STEM in a Box"
- Training for teachers, including accredited placement programme in industry
- Incorporate confidence building exercises in to TY programmes
- Incorporate unconscious bias training in to teacher programmes
- Girls to attend 3 or more STEM events
- Address the information gap through building industry connections and partnerships

We all have a responsibility to create a more diverse and inclusive society.

When we talk to girls about their dreams and ambitions we need to inform and empower them to make considered choices, listen to their fears and be conscious of the impact of stereotypes, only then will we see real Choices, Chances and Changes.

The Impact of IWISH

Every year we ask both teachers and students what impact IWISH has on them and how we can improve. Using the IWISH App we asked a sample of the students 7 questions before they entered the IWISH exhibitor's area and they were asked the same 7 questions immediately after the event. This 'before and after' sampling on the day gives a true indication of the impact the IWISH Showcase has on the girls.

 **16%**

The number of girls who felt they didn't know enough about STEM fell from 59% before to 16% afterwards.

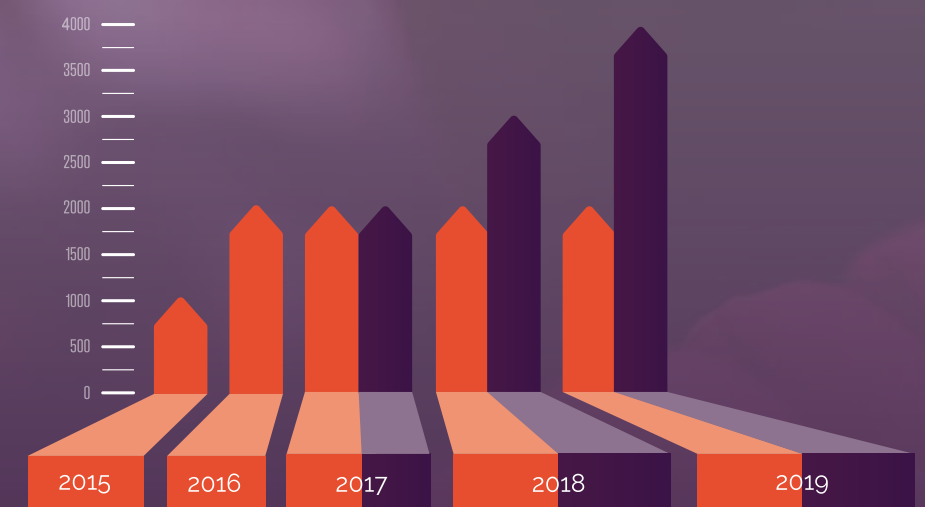
 **22%**

After the IWISH Showcase experience there was a 22% increase in the girls who choose to strongly reject the idea that STEM is more suited to boys.

 **137%**

27% of the girls strongly agreed that IWISH is an important source of STEM information before they entered the exhibitor's area but immediately after the interactive exhibitor's area this jumped to 64%, an increase of 137%

2015 – 1,000 Students in Cork City Hall
2016 – 2,000 Students in Cork City Hall
2017 – 2,000 Students in Cork City Hall
2,000 Students in The RDS Dublin
(IWISH went national)
2018 – 2,000 Students in Cork City Hall
3,000 Students in The RDS Dublin
2019 – 2,000 Students in Cork City Hall
4,000 Students in The RDS Dublin



The IWISH team would like to thank the hundreds of volunteers, private and public-sector partners, Science Foundation Ireland, Higher Education Institutes and IWISH ambassadors that have transformed IWISH from an ambitious plan to a movement which has to date positively impacted the lives of over 11,000 young girls.

IWISH is driven by a passion to EMPOWER the next generation of innovators and leaders by giving Choices, Chances and Changes. Special thanks to the team at Accenture for their invaluable assistance and guidance in extracting the valuable insights from our 2018 IWISH Survey and Dublin City University, CETB and AIB for their commitment to the Teach IT zone.

Our full survey questions are available on www.iwish.ie

100%

The variety of STEM careers represented on the day garnered a 100% approval rating

100%

of teachers indicated they would attend again.

100%

of teachers stated they would recommend IWISH to other teachers or other schools

