



UNITED WOMEN SINGAPORE

GIRLS IN STEM

Building a Supportive Ecosystem

Research Launch Event

Robertsbridge
STONEHAVEN

Understanding the context, barriers and pathways for girls in STEM

3 main questions we sought to answer through our research:

01

What are the myths and barriers that hold back further progress?

02

What do we need to do to debunk these myths?

03

What role can the wider ecosystem (business, parents, government, community) play in encouraging more women and girls into STEM?

Where are we today?

01

Singapore's STEM economy has advanced in the last decade, and progress has been observed to increase women's participation in the labour force, and in STEM industry

45%

OF WOMEN PURSUE A STEM-BASED DEGREE

6%

INCREASE OF WOMEN IN THE WORKPLACE SINCE 2010²

63%

OF SINGAPOREAN WOMEN ARE IN THE WORKFORCE³



¹ https://www.ntu.edu.sg/docs/default-source/default-document-library/powers/ntu_powers_stemgendergapinsingapore.pdf?sfvrsn=a2f34ed0_3/%20NTU_POWER_SSTEMGenderGapInSingapore%20.pdf

² <https://stats.mom.gov.sg/Pages/a-gender-inclusive-workforce.aspx>

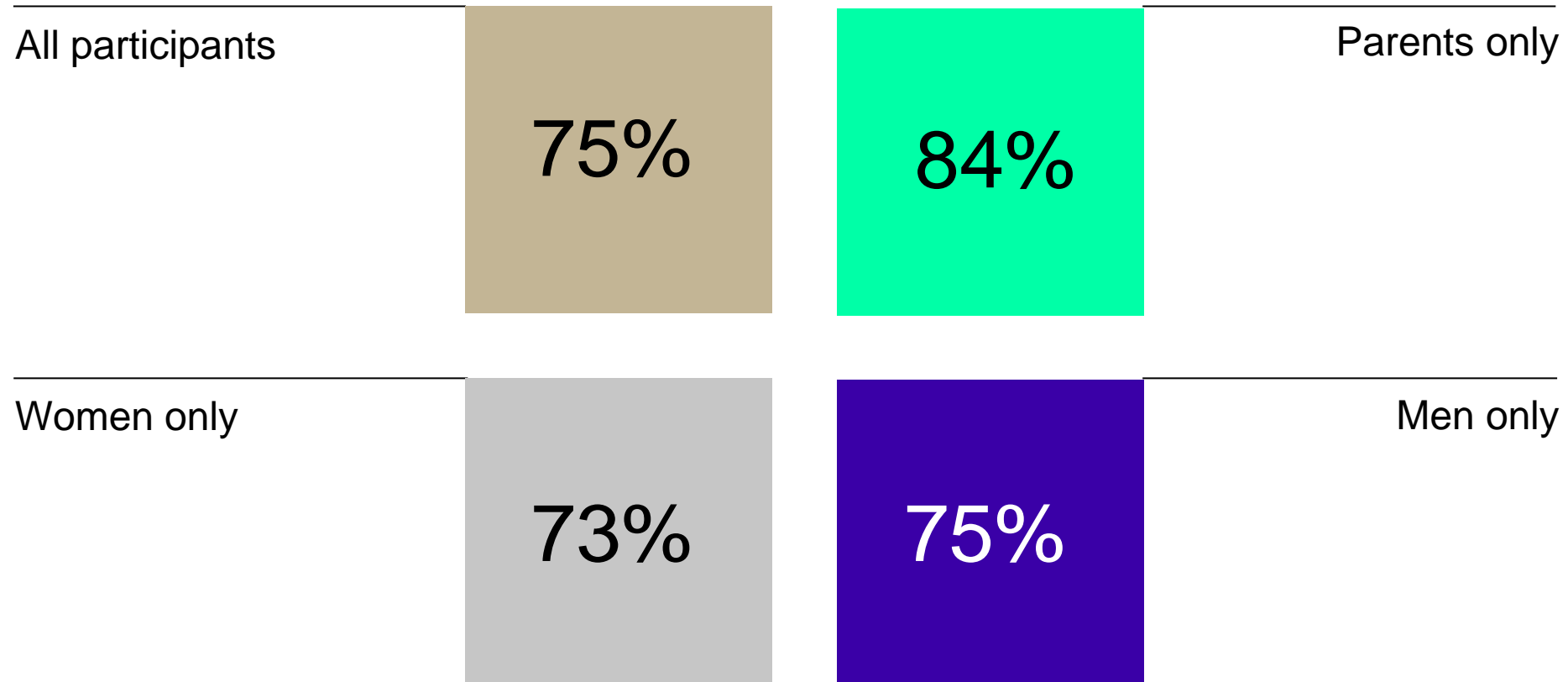
³ <https://www.channelnewsasia.com/singapore/employment-rate-singapore-women-rose-past-decade-share-among-pmet-ministry-manpower-2430196>

A POSITIVE OUTLOOK

There is support to increase the number of Women in STEM

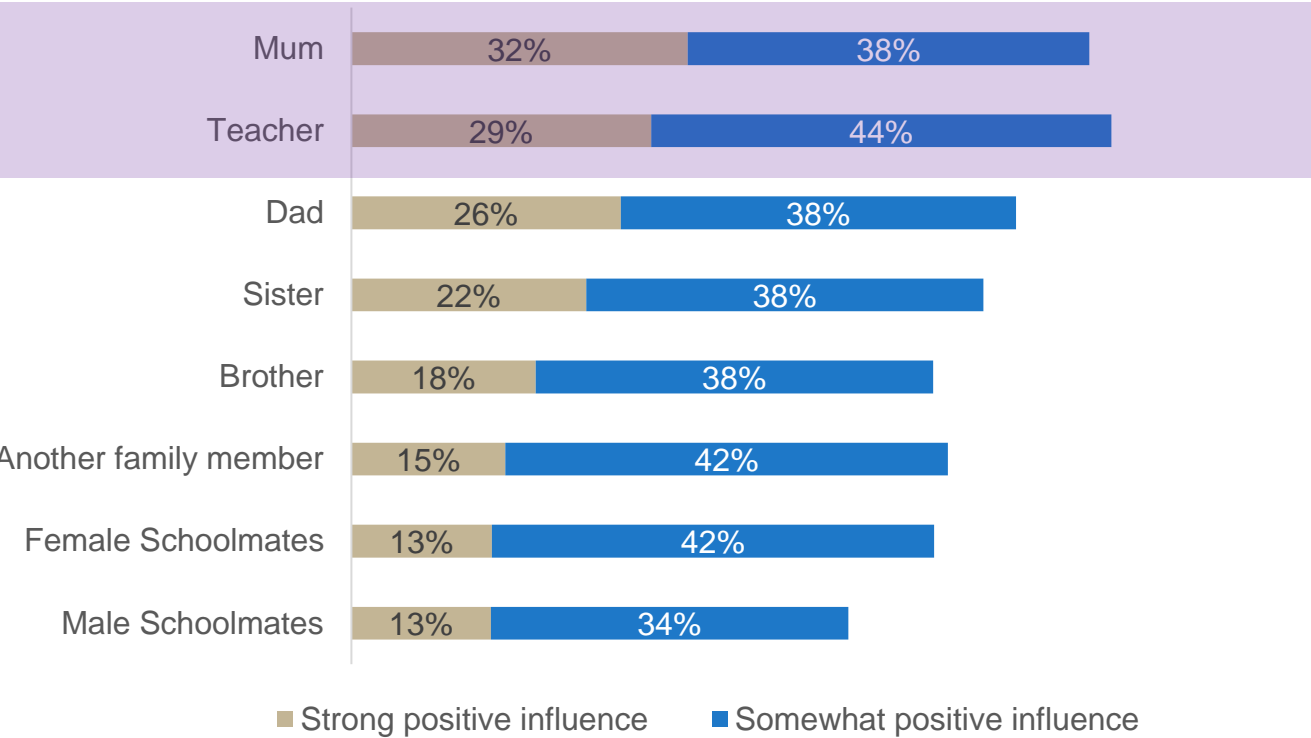
We are pushing at an open door

Q: "It is important that there is a more equal balance of women in STEM professions in Singapore". (Agree answers only)



Parents have a huge influence on their children’s career choices, and see STEM as a valued career choice for their children

Which of the following most impacted your choice of subjects at school?



“ Our parents believe that science-related courses can lead to a better future for us.”
FOCUS GROUP, GIRL CONSIDERING STEM

“ I see that fresh graduates who are getting the top salaries are all those that have computer science skills.”
FOCUS GROUP, MOTHER

“ For me, my daughter is good at maths and science so I will encourage her. When they do well, they are encouraged. But if they come back with bad scores, that impacts them.”
FOCUS GROUP, FATHER

But a challenge still exists.

Only 58% of females with STEM qualifications advance into STEM careers.

What are the barriers?

02

The research uncovered three key barriers to getting more young women into STEM

01 INTERGENERATION

Intergenerational personal experience can create a subconscious barrier

02 EXPOSURE

There is a lack of exposure to STEM careers and positive female representation

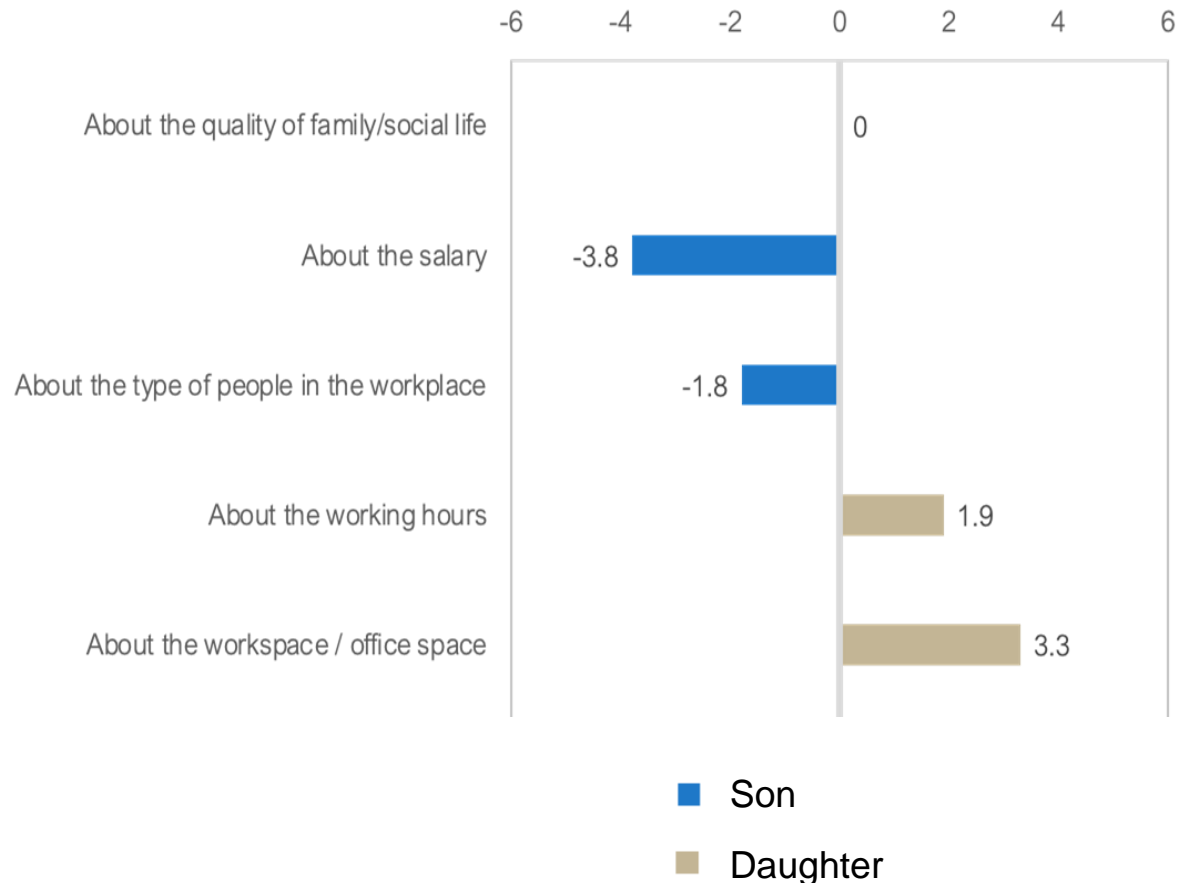
03 MISUNDERSTANDING

Misunderstanding about what a STEM career actually is

INTERGENERATION

Gender differences in types of career concerns

“What would you want to hear about a profession or career, to know it was a good idea for your son/daughter?”



“

If they go into engineering the coworkers are most likely males, most likely they will have to do shift work, and once a woman gets married, usually the childcare duties fall on the ladies. They might be worried about the future. In order to convince them to take a career in engineering you have to convince them that if they have children and a family it will not affect them.

FOCUS GROUP, MOTHER

“

I was told to try and choose a career in an office where my weekends are more freed up which is helpful, when we have a home, and kids, it's easier. Young Woman in STEM

FOCUS GROUP, GIRL

INTERGENERATION

Parents' personal experiences create a subconscious barrier

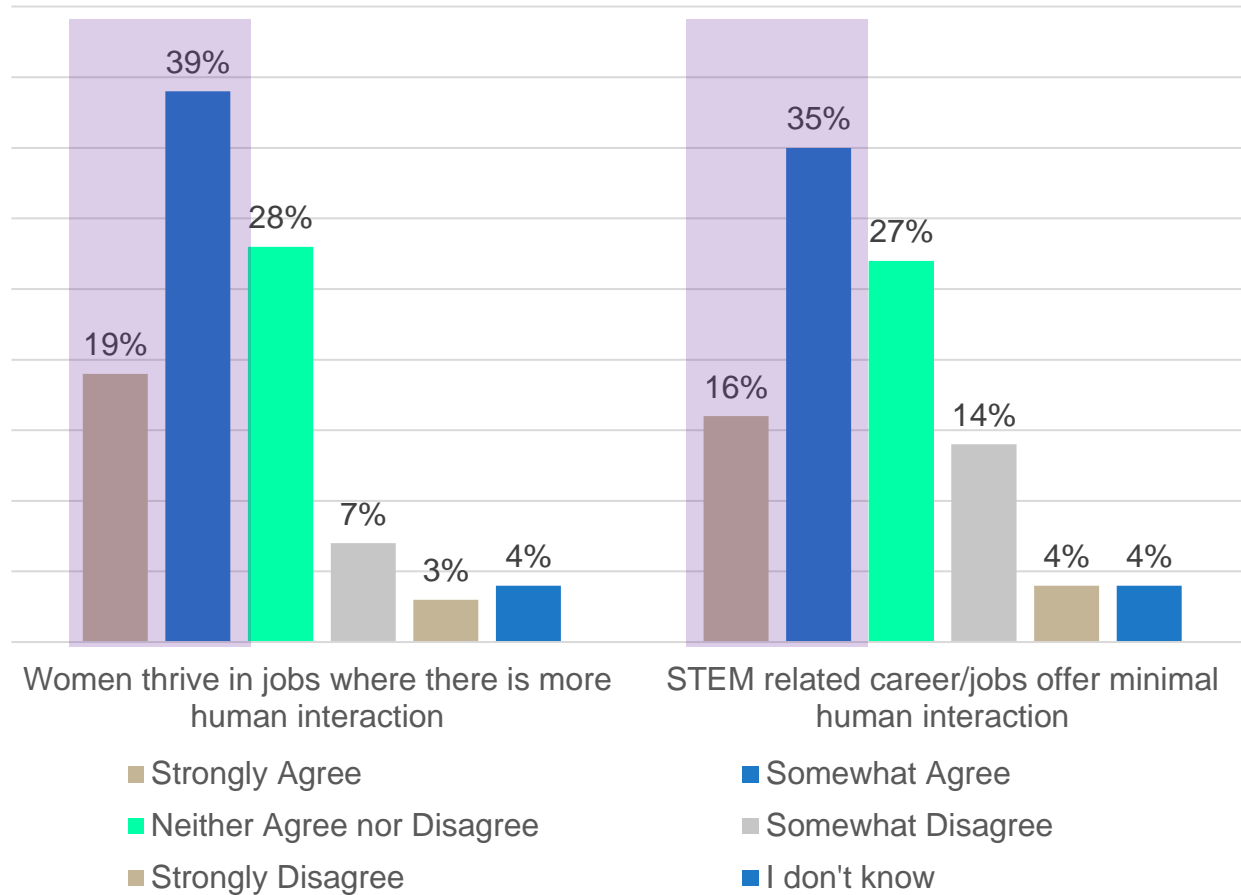
- When parents lack belief in their own ability at math, the data shows this is a driver in agreeing with the statement “I would encourage my daughter into STEM”.
- The strongest driver is the perceived lack of opportunity in STEM - this itself is probably a consequence of a generational problem with not enough women in STEM subjects when parents were growing up. Therefore the findings drive home the point that there needs to be more awareness created among today's parents about the opportunities that STEM education can create for their daughters.

“Science and maths won't be important for my daughter in her career ”

- 01 There are fewer opportunities for my daughter to pursue STEM subjects at university
- 02 STEM related careers/jobs offer minimal human interaction
- 03 I would be pleased if my daughter had a job where she worked outdoors
- 04 It is more important for girls than boys to have a good work life balance
- 05 I wasn't very good at maths at school

MISUNDERSTANDING

Around 50% feel that STEM jobs are 'lonely' jobs, with minimal human interaction



“

Engineering feels like something men would do, it's more hands on but I think it is quite boring

FOCUS GROUP, GIRL

“

Computer science is a boring kind of job, computer scientists converse in algorithms ... are introverted ... and follow set routines.

FOCUS GROUP, MOTHER

“

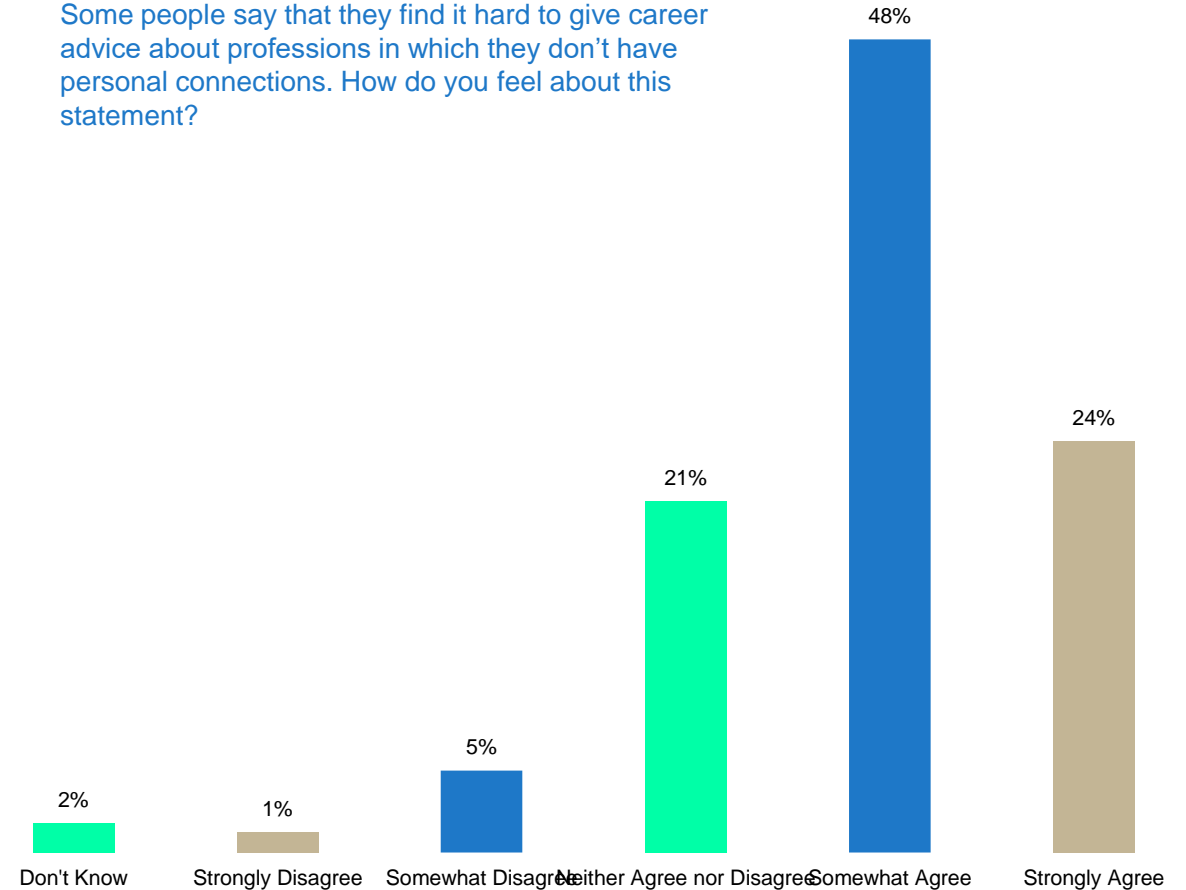
Women tend to be more nurturing they tend to prefer to interact with something that is more human, rather than a machine ... so they are good with humanistic approaches, but when it comes to machines it is something very different for them.

FOCUS GROUP, FATHER

A lack of visibility of female STEM leaders and role models

- While on the surface the lack of personal connection is general - it underpins point that there is a lack of female representation in leadership in STEM, and this drives a lack of personal connection with people in these jobs.
- Establishing strong female leaders in STEM is therefore critical for breaking this narrative that 'lesser' jobs are for women

Some people say that they find it hard to give career advice about professions in which they don't have personal connections. How do you feel about this statement?



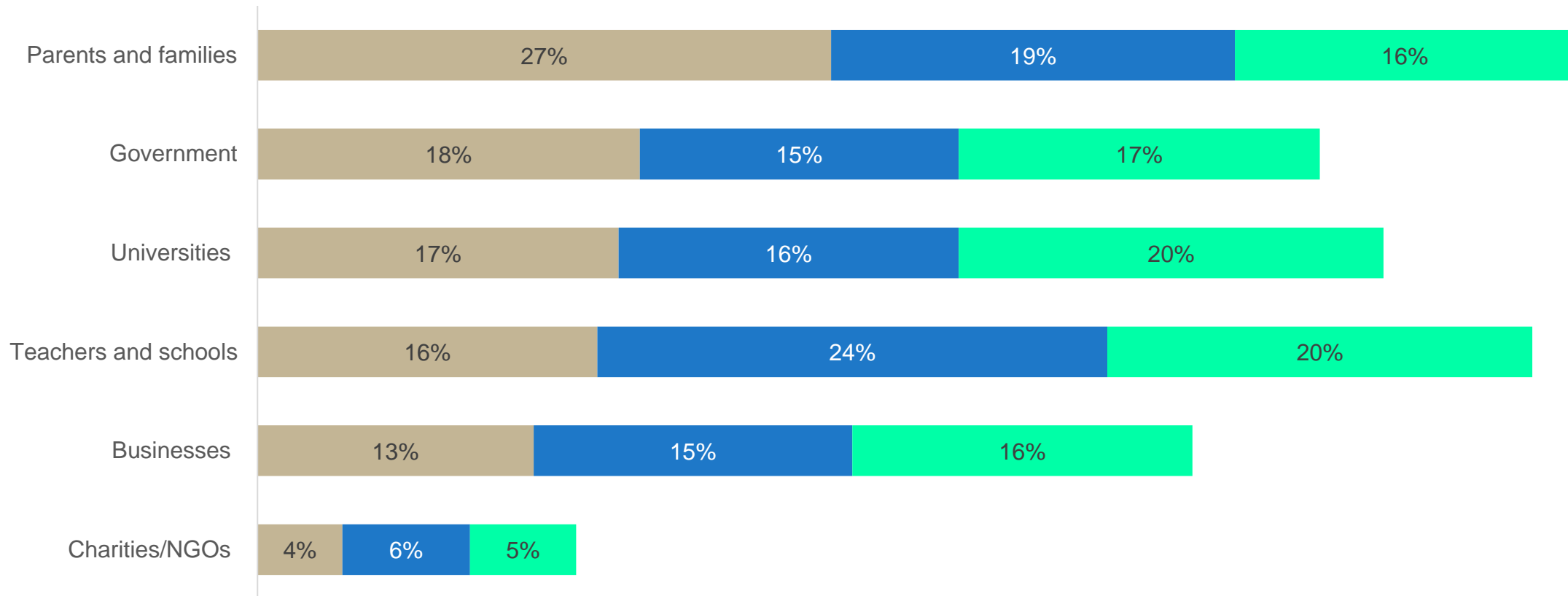
Overcoming the barriers:
What can the wider ecosystem do?

03

Responsibility for change is a all-of-society effort

Which of the following have the most responsibility for encouraging more women into science and engineering?

■ Ranked 1st ■ Ranked 2nd ■ Ranked 3rd



Factors most important in driving girls to STEM subjects and careers

AWARENESS

Fostering STEM career awareness.

- Highlighting jobs, career paths and opportunities in the field.
- Dispelling myths about careers in STEM.
- Highlighting latest trends and emerging areas in STEM through events.

CONNECTIONS

Improve outreach to families and students

- Facilitate STEM industry connections.
- Create an 'ecosystem of support' for students who do not have the support at home.
- Exposure to role models, mentors and workplaces.

POLICIES

- Improve flexible policies and working arrangements and develop organisation culture to reflect supportive, family-friendly environment.
- Instigate role-modelling and mentorship at leadership level.

CULTURAL

- At a society level, there needs to be a mindset shift about equally sharing household and caregiving responsibilities.

Factors most important in influencing parents to promote STEM to daughters

Our survey presented three key factors that relate to a belief that STEM is a better option for daughters

OPPORTUNITIES

- To have career progression in prestigious & well-paid STEM jobs.
- Increased chances for women to take up STEM education, and contribute to STEM labour force.

SOCIALISATION

- To still have a social life and time for friends and family outside of work.
- To have adequate social interaction and human connections in the workplace.

ASPIRATIONS

- To be able to achieve success through their careers.
- Success that is quantified by external recognition, status, prestige, and impact.

Considerations for stakeholders in the ecosystem

Turning barriers into solutions - catalysing the mindset shift

01

There is a misunderstanding about what a STEM career actually is

- There is a role for business and government to collaborate with schools and community organisations to create awareness and advocate STEM to parents and young women.
- There is a role for all stakeholders to highlight that STEM jobs are no longer isolated jobs, and that through science and technology, one can make a difference to community.

02

There is a lack of exposure to STEM Careers and a lack of representation

- There is a role for business to showcase role models and what working in the industry is like.
- Business will need to step in and create opportunities to connect families and schools with STEM contacts.

03

Intergenerational personal experience can create a subconscious barrier

- Businesses have a role to play in improving flexible policies and working arrangements, developing organisation culture to reflect supportive, family-friendly environment, and instigating role-modelling at leadership level.
- To bring about the mindset shift away from men being the primary breadwinner while the woman is the primary caregiver in a family, and encourage household and caregiving responsibilities to be shared equally.



Thank you

Robertsbridge
STONEHAVEN