THE LINUX FOUNDATION
OPEN SOURCE SUMMIT JAPAN
AUTOMOTIVE LINUX SUMMIT

How to Inspire, Motivate and Form the Future Generation of Girls in STEAM

The Experience of Girls in Technology (Chicas en Tecnología) in Argentina - Mariana Varela, Chicas en Tecnologia

THE LINUX FOUNDATION

AGENDA

1- Introduction

2- Why there aren't many women in tech

3- How to influence in STEAM

4- How stereotypes affect us

5- Lack of gender diversity

6- What we do in Chicas en Tecnología

7- What you can do

CHICAS EN TECNOLOGÍA

We are a Civil Association dedicated to closing the gender gap in technology and entrepreneurship.

Melina Masnatta

Educational Science

Mariana Varela

Graphic Design

Carolina Hadad

Computer Science

Sofia Contreras

Entrepreneurship

+ 14 people team
permanent staff & volunteers per event of project

Fibertel
MEDALLIA
www.medallia.com.ar
MuleSoft

Fibertel

J.P.Morgan
Fibertel

<< Rewind

文部科学省奨学金

2012-2014

慶應義塾大学湘南藤沢キャンパス

政策・メディア研究科

SFC KEIO UNIVERSITY Graduate School of Media and Governance

An interesting talk with a good friend happened in Tokyo a couple of years ago

What kind of impact can we make in future services and products if there aren’t many of us around?

THE **PROBLEM**

Jobs in technology are the fastest growing ones in in the world. However, **girls are falling behind.**

While girl's interest in technology fades over time, the biggest drop occurs between the ages of **13 and 16** years old.

37%

In 1984, 37% of graduates in computer science and related careers were women

16%

At present, that number has dropped dramatically

THE GENDER GAP IN TECHNOLOGY HAS INCREASED SINCE THE 80'S

"They just don't care"

"Maternal instinct"

"The feminine touch"

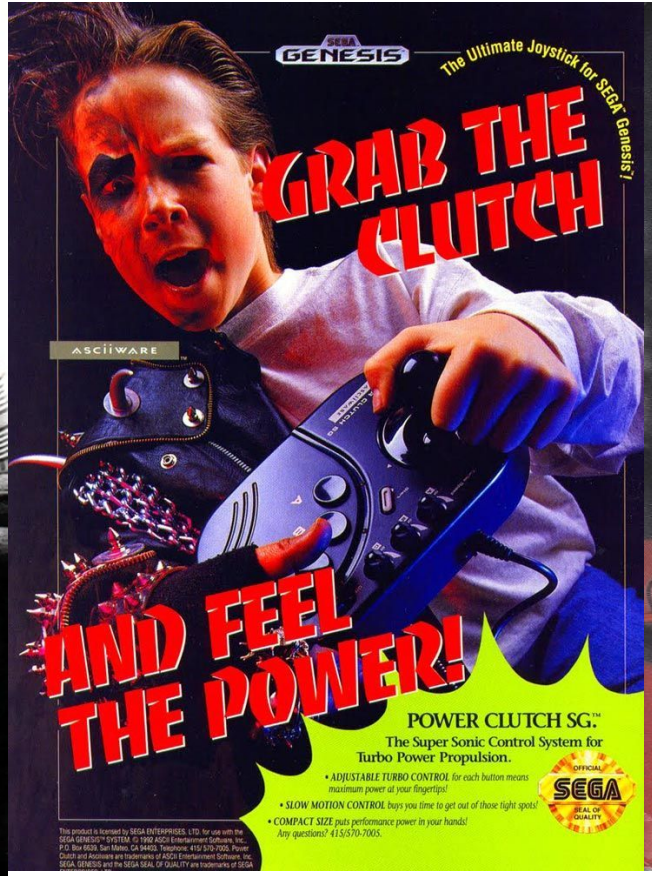
"Not good at math"

"better dealing with people, not machines"

"Their talents are somewhere else"

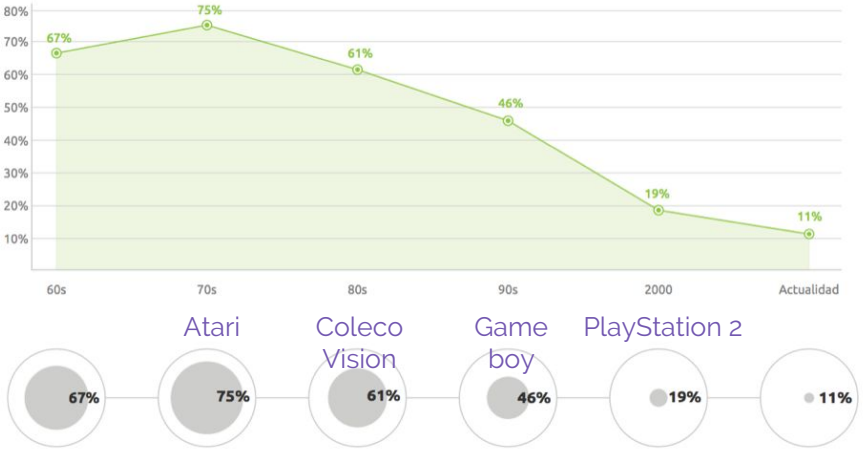
What did you play with when you were little?

BOY'S GAMES 1980



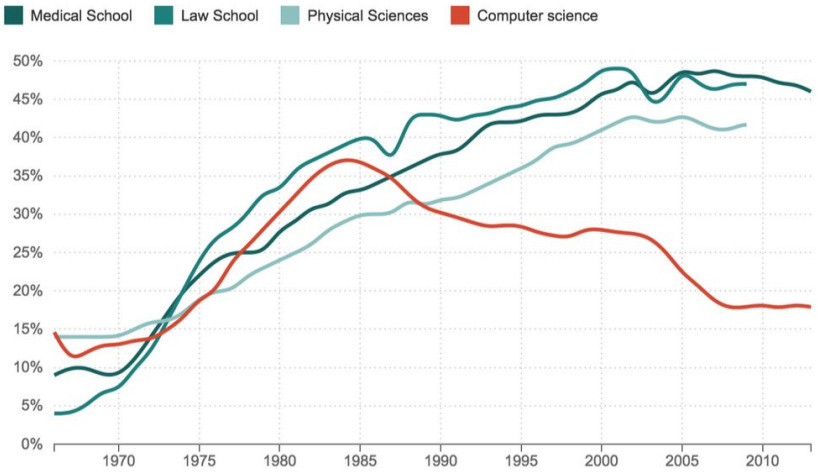
COLLATERAL DAMAGE

WOMEN IN COMPUTER SCIENCE IN ARGENTINA



Carreras de Ciencias de la Computación y Lic. en ciencias de la Computación

WOMEN IN COMPUTER SCIENCE IN USA



Source: National Science Foundation, American Bar Association, American Association of Medical Colleges
Credit: Quoctrung Bui/NPR

GIRL'S TOYS 1980 AND TODAY

WORDS RELATED TO TOYS

Words used in TV toy adverts featuring girls
www.lettoysbetoys.org.uk/tvads

Words used in TV toy adverts featuring boys
www.lettoysbetoys.org.uk/tvads

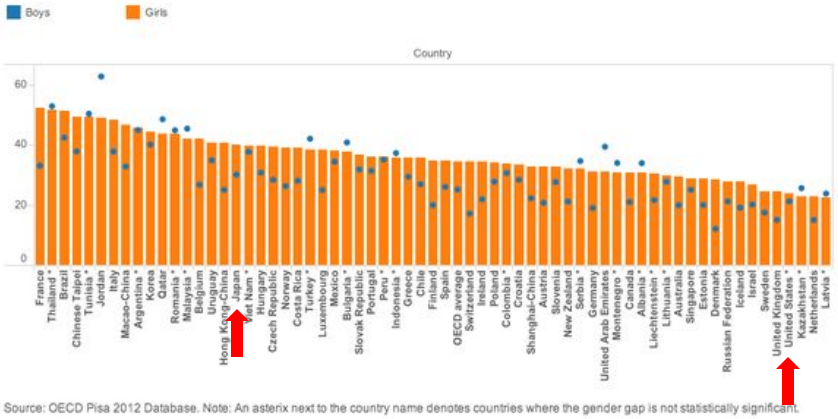
DON'T YOU HAVE ANYTHING
RELEVANT TO SAY?

Thinking too much gives you wrinkles.

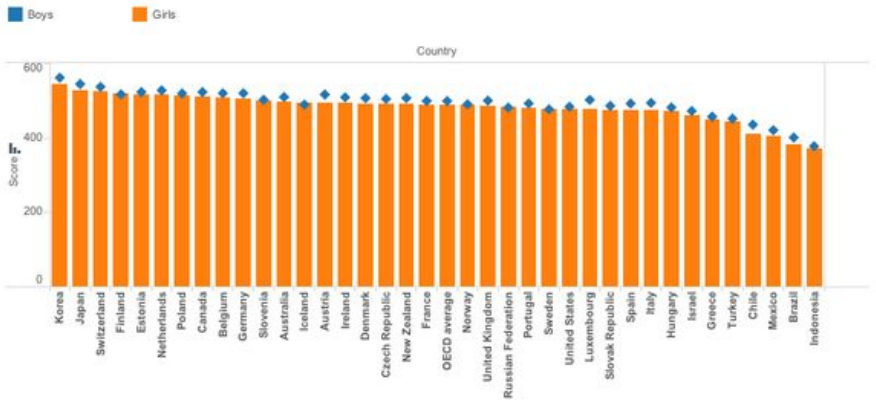
STACY:
Don't ask me. I'm just a girl.

Children's toys, games and movies influence in their career choices.

https://www.bbc.com/news/magazine-25857895



Source: OECD Pisa 2012 Database. Note: An asterix next to the country name denotes countries where the gender gap is not statistically significant.



Girls think they do bad at math….

… Reality shows that they do as good as boys

Organisation for Economic Co-operation and Development
https://www.oecd.org/pisa/pisaproducts/PIF-2014-gender-international-version.pdf

HOW TO INFLUENCE INTO STEAM

1- Encourage girls to find what they are good at and what feels is good for them.

2- Foster their attitude regarding science (if they think science is important, useful and interesting).

3- Introduce her to **role models,** stories of challenges and success.

"Young girls need to see role models in whatever careers they may choose. ... You can't be what you can't see."

Dr. Sally Ride, first American woman to travel in space

There are no innate or natural factors

Real numbers show the gender gap

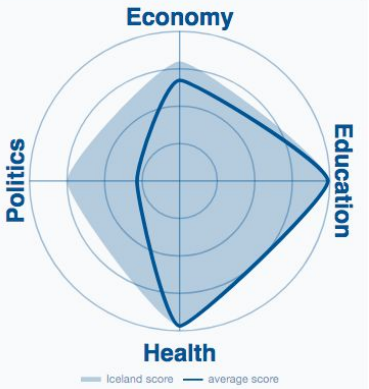
ISL

rank out of 144 countries **1**

score 0.00 = imparity 1.00 = parity **0.878**

AVG | ISL

SCORE AT GLANCE



KEY INDICATORS

GDP (US$ billions)	20.05
GDP per capita (constant '11, intl. $, PPP)	45,276.45
Total population (1,000s)	332.47
Population growth rate (%)	0.72
Population sex ratio (female/male)	1.01
Human Capital Index score	71.44

	2006		2017	
	rank	score	rank	score
Global Gender Gap sc…	**4**	**0.781**	**1**	**0.878**
Economic participation …	17	0.711	14	0.798
Educational attainment	50	0.991	57	0.995
Health and survival	92	0.968	114	0.969
Political empowerment	4	0.456	1	0.750

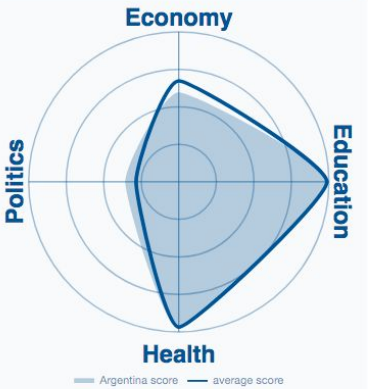
ARG

rank out of 144 countries **34**

score 0.00 = imparity 1.00 = parity **0.732**

AVG | ARG

SCORE AT GLANCE



KEY INDICATORS

GDP (US$ billions)	545.87
GDP per capita (constant '11, intl. $, PPP)	18,479.44
Total population (1,000s)	43,847.43
Population growth rate (%)	0.97
Population sex ratio (female/male)	0.96
Human Capital Index score	64.34

	2006		2017	
	rank	score	rank	score
Global Gender Gap sc…	**41**	**0.683**	**34**	**0.732**
Economic participation …	82	0.551	111	0.596
Educational attainment	29	0.997	44	0.998
Health and survival	1	0.980	1	0.980
Political empowerment	23	0.204	21	0.356

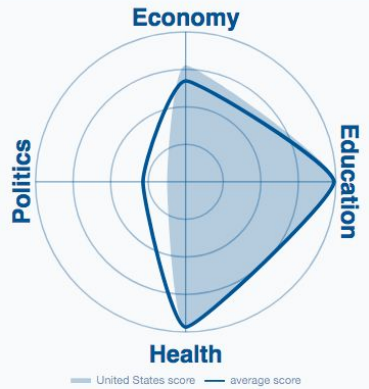
USA

rank out of 144 countries **49**

score 0.00 = imparity 1.00 = parity **0.718**

AVG | USA

SCORE AT GLANCE



KEY INDICATORS

GDP (US$ billions)	18,569.10
GDP per capita (constant '11, intl. $, PPP)	53,272.52
Total population (1,000s)	322,179.61
Population growth rate (%)	0.70
Population sex ratio (female/male)	0.98
Human Capital Index score	74.84

	2006		2017	
	rank	score	rank	score
Global Gender Gap sc…	**23**	**0.704**	**49**	**0.718**
Economic participation …	3	0.759	19	0.776
Educational attainment	66	0.982	1	1.000
Health and survival	1	0.980	82	0.973
Political empowerment	66	0.097	96	0.124

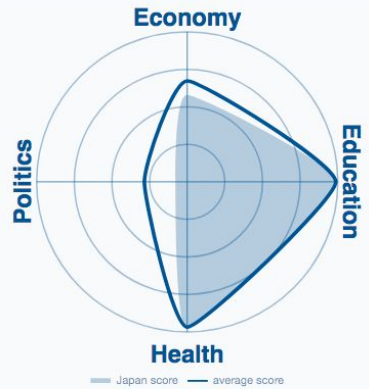
JPN

rank out of 144 countries **114**

score 0.00 = imparity 1.00 = parity **0.657**

JPN | AVG

SCORE AT GLANCE



KEY INDICATORS

GDP (US$ billions)	4,939.38
GDP per capita (constant '11, intl. $, PPP)	38,239.77
Total population (1,000s)	127,748.51
Population growth rate (%)	-0.19
Population sex ratio (female/male)	0.95
Human Capital Index score	72.05

	2006		2017	
	rank	score	rank	score
Global Gender Gap sc…	**80**	**0.645**	**114**	**0.657**
Economic participation …	83	0.545	114	0.580
Educational attainment	60	0.986	74	0.991
Health and survival	1	0.980	1	0.980
Political empowerment	83	0.067	123	0.078

http://reports.weforum.org/global-gender-gap-report-2017/dataexplorer/#economy=null

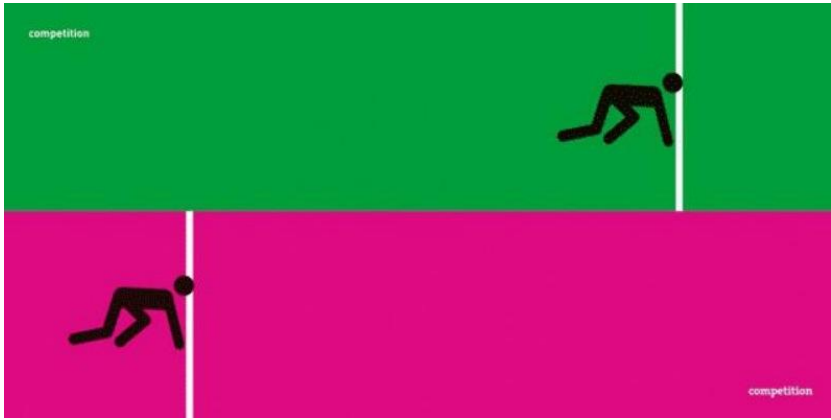
The Reshaping of the World: Vision from **#Japan** with **@AbeShinzo**. **#wef14** **@wef_jp** http://wef.ch/53494

http://reports.weforum.org/global-gender-gap-report-2017/dataexplorer/#economy=null

The Reshaping of the World: Vision from #Japan with @AbeShinzo. #wef14 @wef_jp http://wef.ch/53494

What causes gender barriers?

- Stereotyped gender roles
- Lack of policies
- Lack of professional opportunities
- Lack of knowledge and information
- Lack of communities and networks that incentivize



Equals, 2018

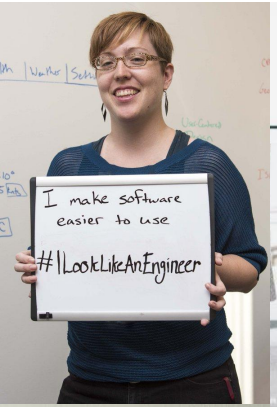
How do stereotypes affect us?

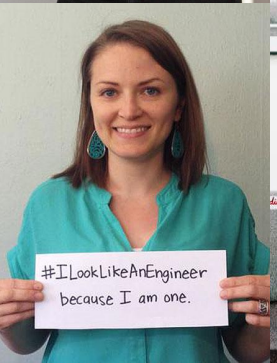
Women & the Leadership Labyrinth Howard vs Heidi

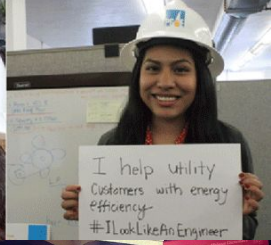
In 2002 a professor from the U. of Columbia takes the case of Heidi Roizen to compare results between two groups of students modifying a single word: change the name of Heidi to Howard. Then he surveyed the students and both groups and asked what they thought about Heidi and Howard...

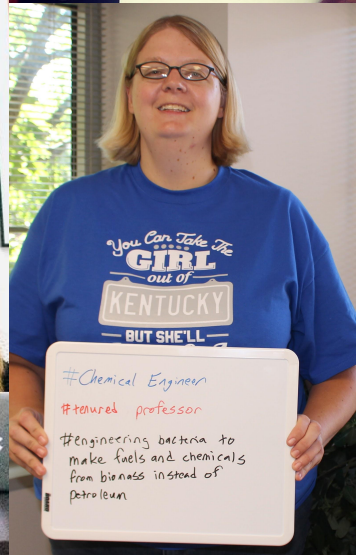
- Howard is a great guy, you want to work with him or even go fishing with him.
- Heidi is self-centered and has a political bias. You can not rest assured working with her.

#ILookLikeAnEngineer



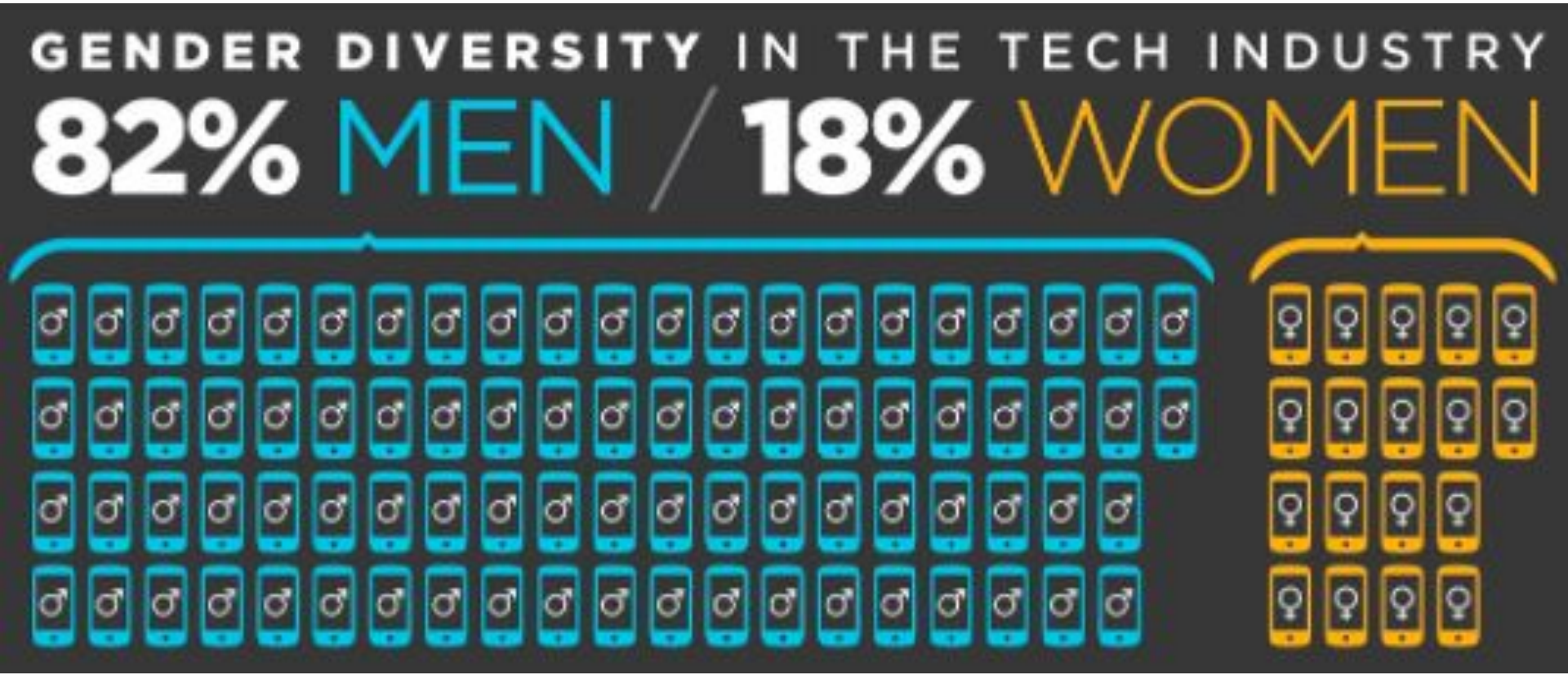




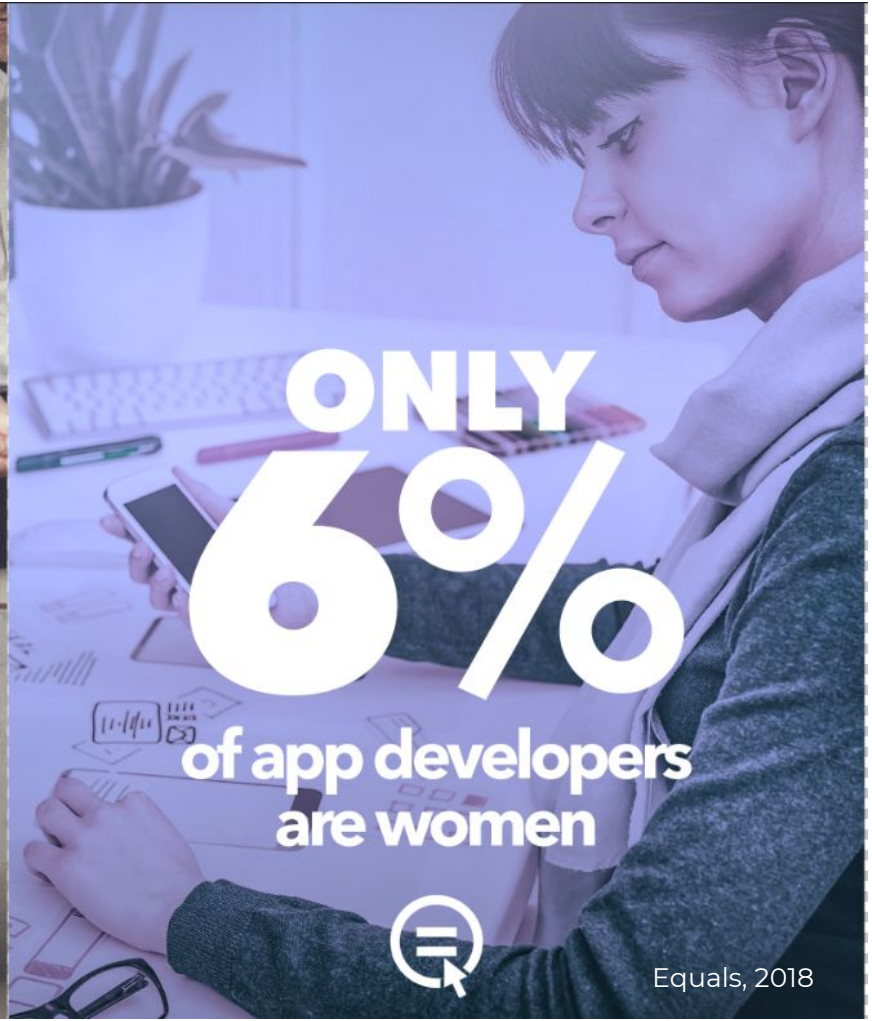


What happens when there is no diversity in teams?

Decisions are made by a very limited / like minded group of people.


GENDER DIVERSITY IN THE TECH INDUSTRY
82% MEN / 18% WOMEN

ONLY
10%
of Silicon Valley tech jobs
are held by women


ONLY
6%
of app developers
are women

Equals, 2018

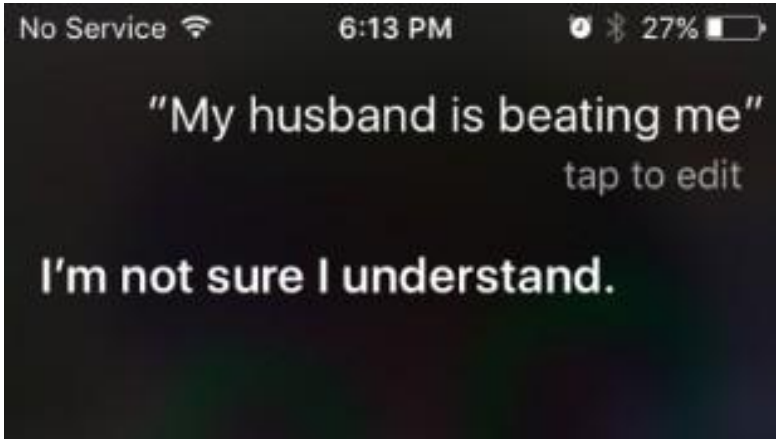
LACK OF GENDER DIVERSITY

Until 2003, Airbag tests were not carried out with female dolls or children.

BECAUSE THERE WERE NO WOMEN IN THE TEAMS

https://medium.com/hh-design/the-world-is-designed-for-men-d06640654491

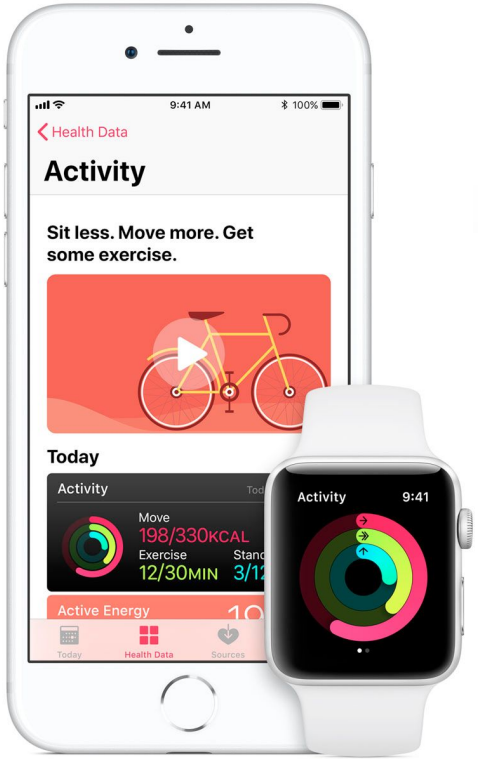
LACK OF GENDER DIVERSITY



LACK OF GENDER DIVERSITY

Apple 5th Avenue NY

LACK OF GENDER DIVERSITY



* After some controversy in 2015, menstrual cycles and reproductive health were included in iOS Health

BENEFITS OF DIVERSE TEAMS

Innovation

Different cultural perspectives **inspire creativity and innovation**

Competitive

Knowledge and understanding of the local market **make a company more competitive and profitable**

Skills

Different skills allow to offer a wider and more adaptable range of products and services

Talent

A culturally diverse talent pool allows an organization to **attract and retain the best talent**

Productivity

Diverse teams are more **productive and work better**

What we do in Chicas en Tecnología

THE SOLUTION

It is necessary to **break the stereotypes** that are generated around these areas and make more young women get interested in technology sectors from an early age. Not just as users, but also as creators and entrepreneurs

OUR PROGRAMS

WE INSPIRE, MOTIVATE AND FORM GIRLS IN HIGH SCHOOL AGE

BREAK WITH STEREOTYPES AROUND WHAT IT MEANS TO WORK IN THE TECH FIELD

WE APPLY, DEVELOP AND VALIDATE WORK METHODOLOGIES

WE IMPACT ON LOCAL AND NATIONAL COMMUNITIES

+1000

to graduate in 2018

ALL OF OUR PROGRAMS ARE FREE

Programando un Mundo Mejor

Clubes CET

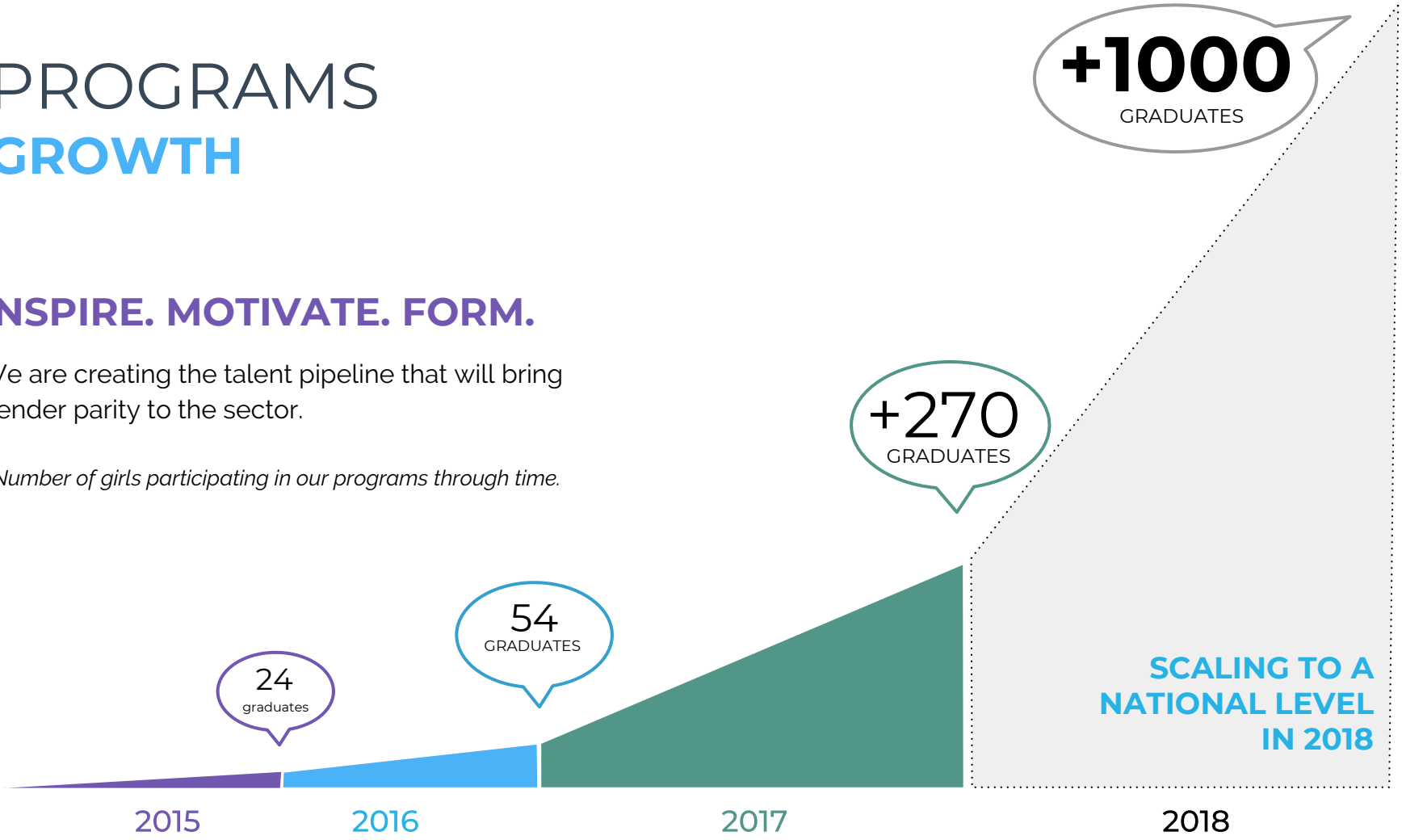
Comunidad CET

PROGRAMS
GROWTH

INSPIRE. MOTIVATE. FORM.

We are creating the talent pipeline that will bring gender parity to the sector.

** Number of girls participating in our programs through time.*



METHODOLOGY

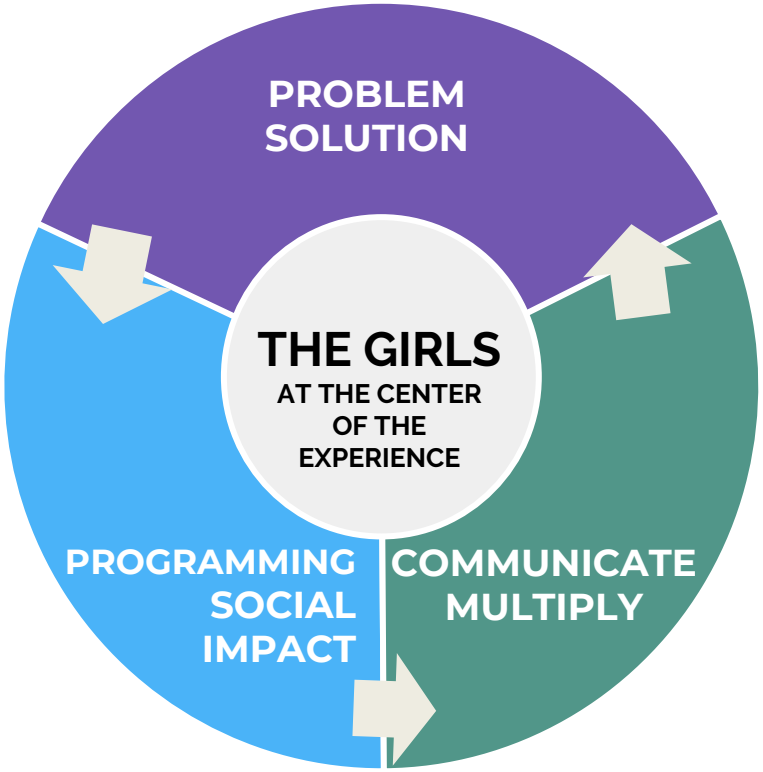
EDUCATION

ENTREPRENEURSHIP

GENDER

TECHNOLOGY

LEADERSHIP



THEIR DEVELOPMENTS

Some of the APPS with social impact developed by the girls

Contectad@s

don.ar

5contar

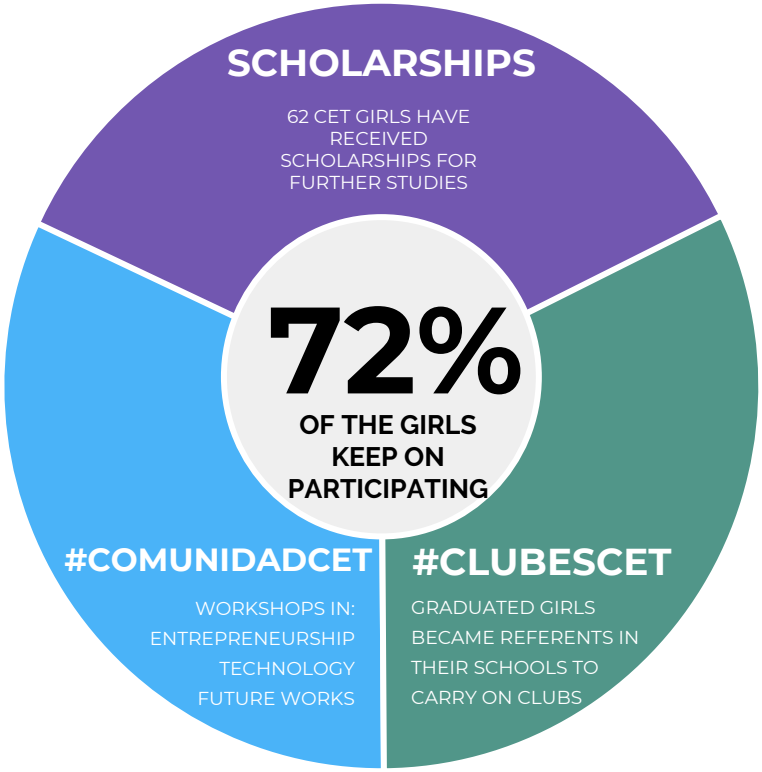
Mascotify

I'm Here

StopBull

...and many more

SUSTAINABILITY



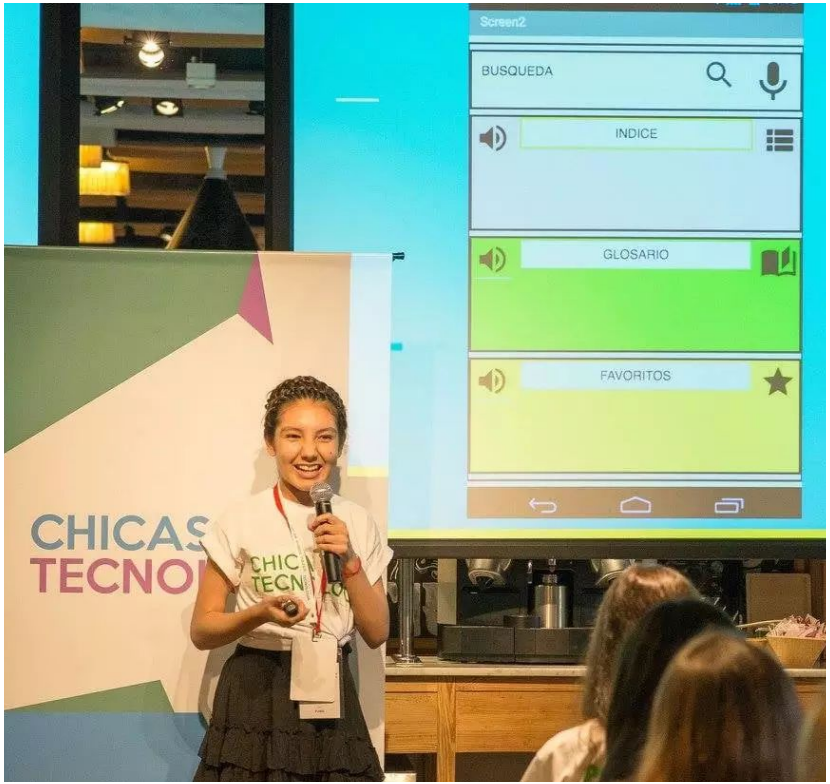
What can you do to bring more women to your company/community

STUDY YOUR ECOSYSTEM

Find **specific data** about women, where they are, how many. Set goals.

Report their problems: Harassment, discrimination, stereotyping.

Raise their voices: Find them, celebrate them, bring them to panels and talks.



ACT AND WAIT FOR IMPACT

Organize workshops: Technical & Non-technical. Bring girls & women together.

Rise awareness: Talk about this issue in conferences like this ;) +friends +coworkers

Articulate **concrete actions** to end stereotypes like we do in CET.

CHICAS EN
TECNOLOGÍA
どうもありがと
うございました。
http://bit.ly/CETreport2017EN
www.chicasentecnologia.org
@chicasentec
/chicasentecnologia