

Female faculty: Why so few and why care?

Chemistry, Tulane University, New Orleans, USA, 2000



Gender issues in academia *but also related to diversity more broadly*



JML SEMINAR School of Architecture and the Built Environment, KTH
September 23, 2021 @ZOOM

PERNILLA WITTUNG-STAFSHEDE

Professor, Biology and Biological Engineering Department
Chalmers University of Technology, Sweden



We build our views from our experiences...

My scientific background



Caltech
Pasadena

Postdoctoral fellow
Los Angeles 1997-98

Professor
Houston 2004-08



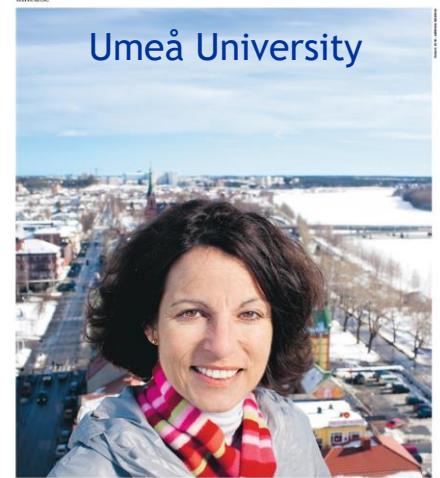
Rice University
Houston

Professor
New Orleans 1999-2003



Tulane University
New Orleans

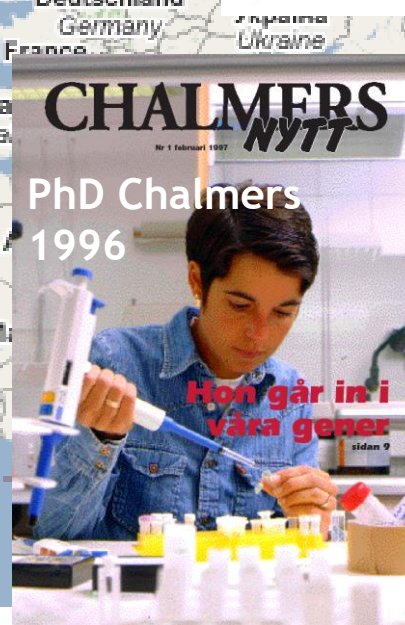
Professor
Umeå 2008-15



Umeå University

Pärilla Witting-Stefansson välde Umeå. Pärilla är professor i
Inområden vid Umeå universitet och specialiserad inom proteinforskning.
Efter att ha arbetat på ett forskningsinstitut i USA var det dags för en ny
plats med nya utmaningar och utveckling. En plats där hon kan
utveckla sin forskning och där hon kan bidra till den vetenskapliga
utvecklingen i Umeå. Pärilla vill ha barn och en familj i Umeå och
en plats där hon kan bidra till den vetenskapliga utvecklingen i Umeå.
Hon har varit i Umeå i flera år och har varit i Umeå i flera år.
Hon har varit i Umeå i flera år och har varit i Umeå i flera år.

UMEÅ. MER MÖJLIGHETER.



PhD Chalmers
1996

From Sept 1, 2015:
Professor Chalmers University, Sweden
Proteins, cancer, neurodegeneration - basic science research

Why do I talk about this?

- When in America, did not think much about gender inequality. Happy to do well in a male dominated world, feeling **special**
- I was foreigner (had to fight harder); but at Rice, started to 'see' more. My dean did not promote me because of kids; activities in ADVANCE program via NSF
- When back in Sweden 2008, surprised... Sweden thought to be ahead (problem solved) but inequality still existed
- Made me write my first debate article*



So, 'family friendly' but
not 'career friendly'...

The more senior I get, the more I
realize the problem. I am in a position
to speak up - I must do it, for younger
colleagues and for my kids

Iceland	(0)	1
Finland	(+1)	2
Norway	(-1)	3
New Zealand	(+2)	4
Sweden	(-1)	5
Namibia	(+6)	6
Rwanda	(+2)	7
Lithuania	(+25)	8
Ireland	(-2)	9
Switzerland	(+8)	10

2021 Global Gender Gap Top 10**:
USA position 30, Afghanistan last
on list at position 156

*<http://www.stemwomen.net/is-the-gender-gap-solved-in-liberal-sweden/>

**<http://www.weforum.org/>

So, when you talk about...

Gender issues...
Inequality...
Promotion of women...
Sexual harassments...
Family planning, childcare etc.

There are several common responses (or, truly, resistances)!

My approach:

Identify these responses and address them with **scientific evidence**

We have many personal stories; important to know there are real facts too

1 To find a woman you need Time and Money therefore:
 $Woman = Time \times Money$

2 "Time is money" so
 $Time = Money$

3 Therefore
 $Woman = Money \times Money$
 $Woman = (Money)^2$

4 "Money is the root of all problems"
 $Money = \sqrt{Problems}$

5 Therefore
 $Woman = (\sqrt{Problems})^2$
 $Woman = Problems$ (A+)

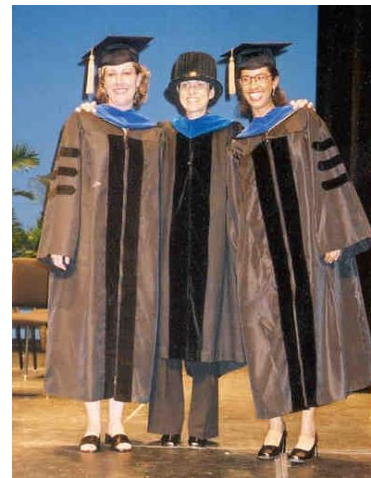
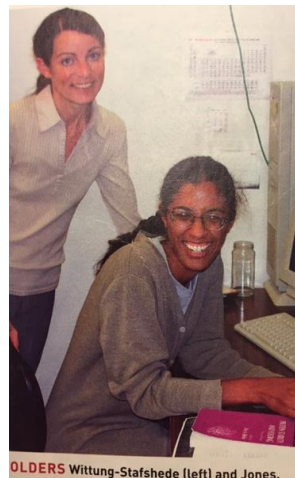
The most common responses

- There is no problem
Denial of anything wrong
 - It is a women's problem
Nothing I can do - it is biology
 - Not me, done training and follow policies
Today, everything equal (I am fair!)
 - It is not my problem
I do not care, does not affect me
 - Too much already
Complain about details
- Today:
- Show that these responses are wrong
 - Some suggestions for actions
 - What we started at Chalmers



There is no problem

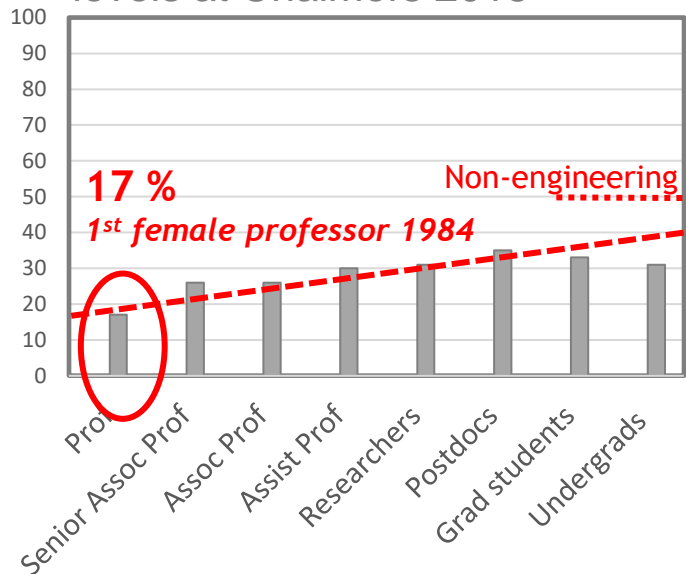
Well, there is!



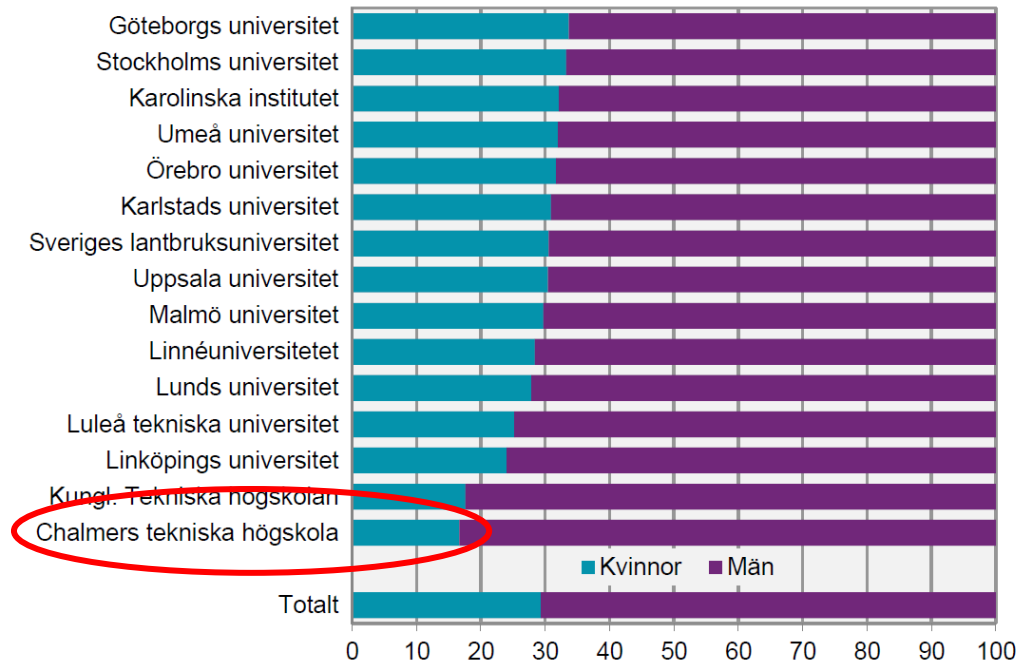
Few female faculty in Sweden

First Swedish professor: (state university) Nanna Svartz KI 1937; (private university) Sonja Kovalevsky Stockholm College 1889

Percent females at different levels at Chalmers 2018



% female professors at Swedish universities:



- The higher the rank, the fewer the women;
17% of professors are females 32 persons (worst in Sweden)
- Average Sweden: 29% female professors

1% increase in women per year

When 25% females at top reached, progression often stops, universal trend in many professions

Not lack of female candidates

- University students have been fifty-fifty (or a bit more females) in Sweden since the 1970s
- Thus, men are somehow enriched in academia...

Students and graduates from higher education in 1985/86, 1999/2000 and 2014/15

Sex distribution (%)

	1985/86		1999/00		2014/15	
	W	M	W	M	W	M
Undergraduate and graduate level						
Entering higher education	58	42	58	42	57	43
Students	57	43	59	41	56	40
Graduates	66	34	60	40	63	37
Postgraduate level¹⁾						
New doctoral students	31	69	45	55	47	53
Licentiate degree	22	78	37	63	39	61
Postgraduate degree	24	76	39	61	47	53

1 Refers to calendar years 1986, 2000 and 2015

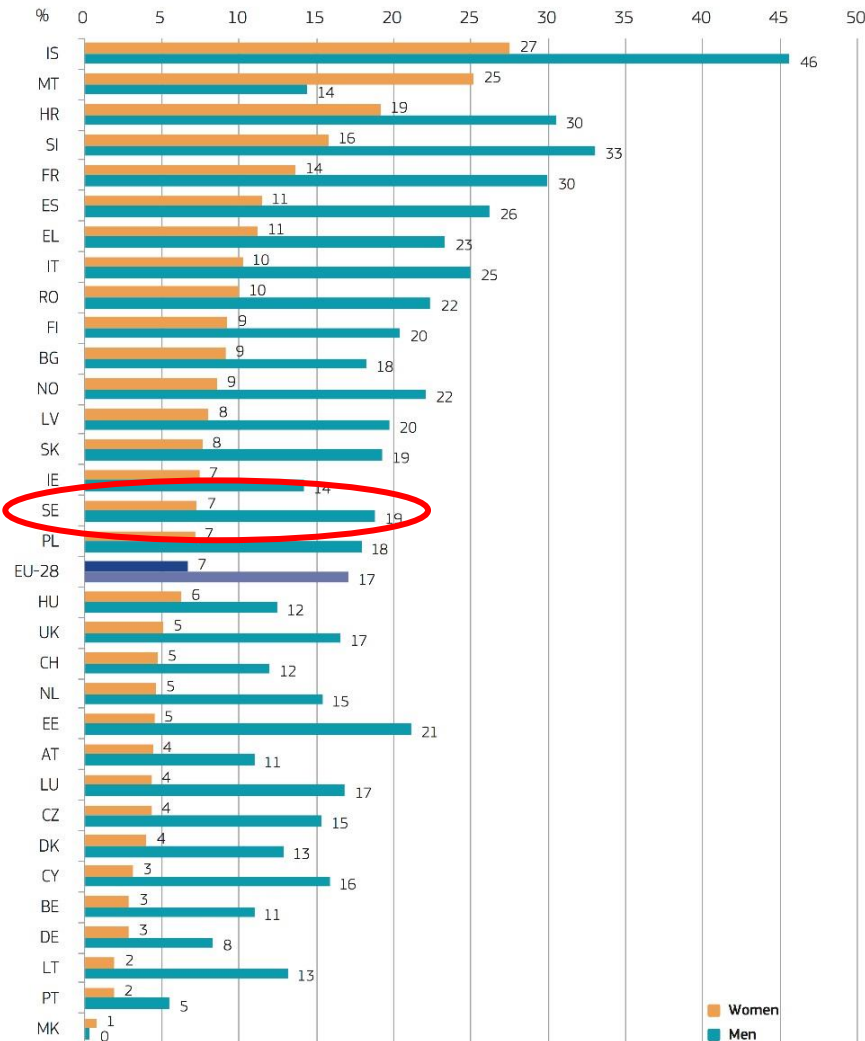
Source: Swedish Higher Education Authority



'Leaky pipeline' and 'glass ceiling'

...same trend in all of Europe...

Figure 6.4. Percentage of grade A staff amongst all academic staff, by sex, 2013

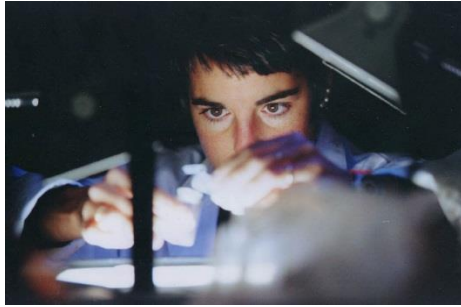


There is a problem!

- EU statistics: concentration women/men at highest academic position (professor) vs. countries
- Sweden is average in EU
Around 7 % of women in academia are professors, whereas 19 % of men in academia are professors

PS. Women often more responsibilities at home and also 'academic household work'...

And there is pay gap against women...
In Sweden: 13% (10% at Chalmers)



It is a women's problem



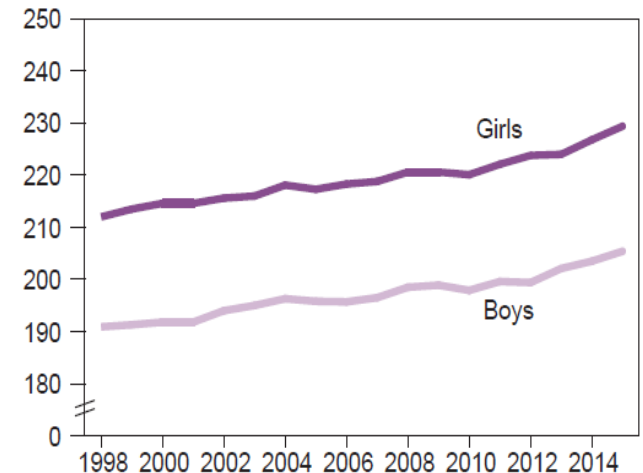
OK, let us be very clear

There are variations,
but as much within as
between the genders

ambition
intelligence quotient
analytical ability
cognitive performance
problem solving
verbal processing
social variables

NO GENDER DIFFERENCE

Grade point average



**NO BIOLOGICAL
DIFFERENCE IN ABILITY**

**CONTRARY, GIRLS DO
BETTER IN SCHOOL**

So what is it?

Gender similarities and differences, Annual Review of Psychology, 2014, 65, 3737
Dispelling the Myths of Gender 'ambition gap', Boston Consulting Group, 2017
Gender differences in problem solving, Journal of Psychology, 1991, 125, 327
Think again: Men and women share cognitive skills, 2014, <https://www.apa.org/>

Society, norms, culture!
‘Unconscious/Implicit Bias’

Popular term nowadays, many universities started such training. Sounds good, but does not work (more than 30 minutes)

Illustrate concept with a cat and a cucumber:

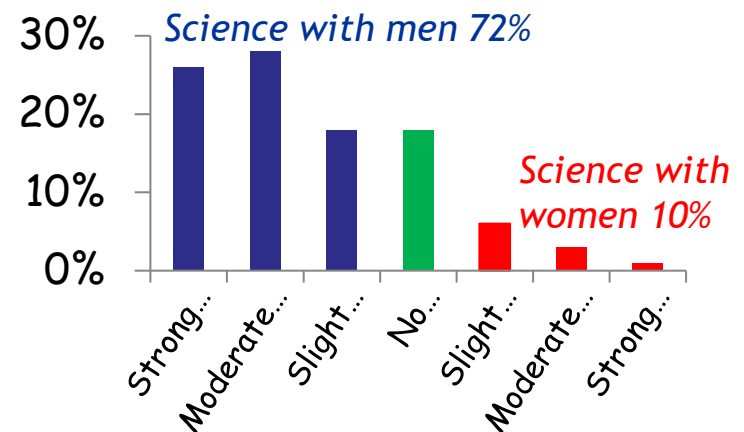
Jumping to conclusions...



<http://gph.is/1lhKI2G>

- We have built-in expectations
- Historical and **cultural norms** rule in society

Harvard implicit association test:



It is not a women's problem!

Not me...
done training and follow policies



I am fair!

Again, skewed norms rule

Sex Roles. 2007; 57: 509–514)



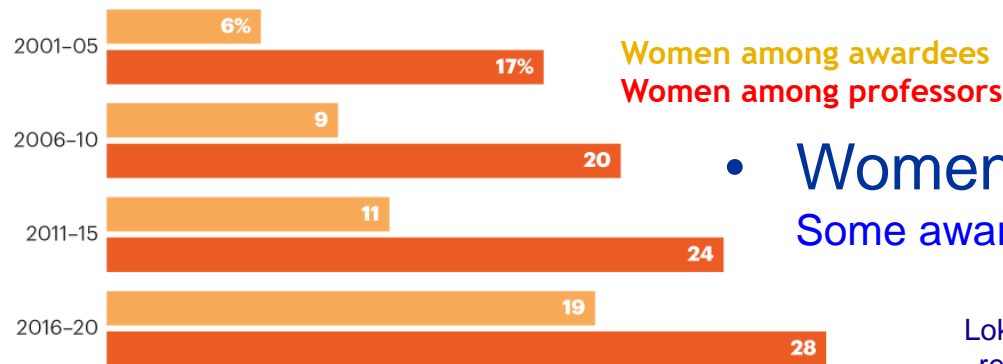
Male associated words



Female associated words

- Female teachers rated lower by students for same output in all fields
Female teachers often valued for looks, sexuality etc.

Important, this data often used in promotion cases...



- Words used in recommendation letters
- We would all hire the man...



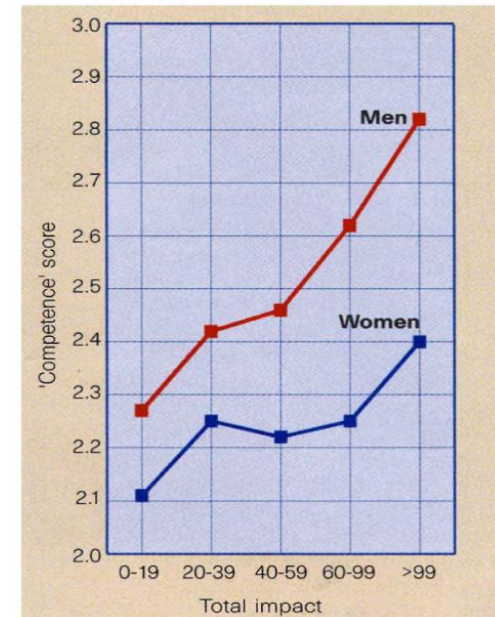
<http://thinkprogress.org/education/2015/02/07/3620571/rate-my-professor-sexist/>

- **Women less likely to win major awards**
Some awards *never* given to a woman 141 awards studied

Lokman I. Meho; The gender gap in highly prestigious international research awards, 2001–2020. *Quantitative Science Studies* 2021

Bias against women all over

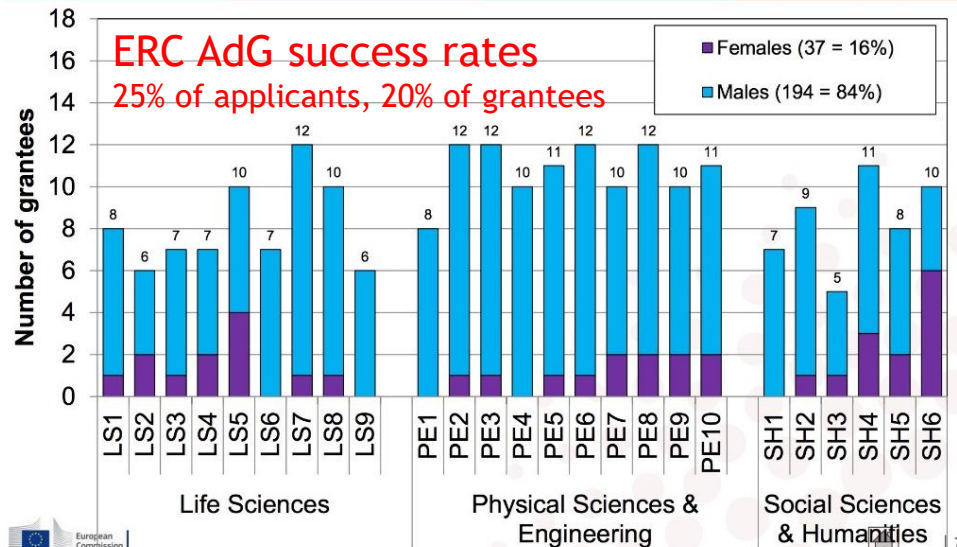
- Women needed **double nb. of publications** to get same competence score for Swedish research council grants
Wennerås & Wold, Nature 1997
- Many (prestigious) granting agencies have **lower success rates** for women



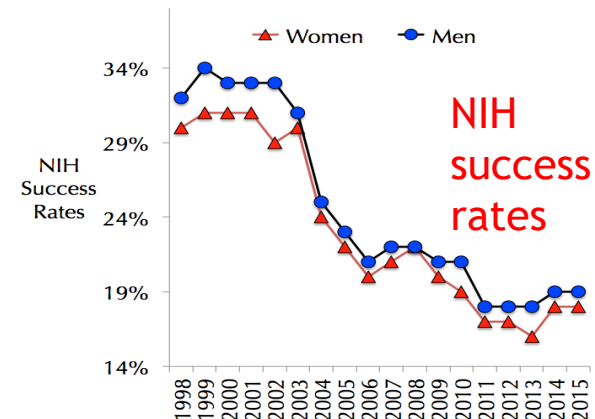
Better today?

Still positive bias for men

Holst and Hägg, F1000 Research 2018
Johnson and Kirk PASP, 2020



Often funding agencies make it 'too easy'
They aim for % female applicants = % females granted

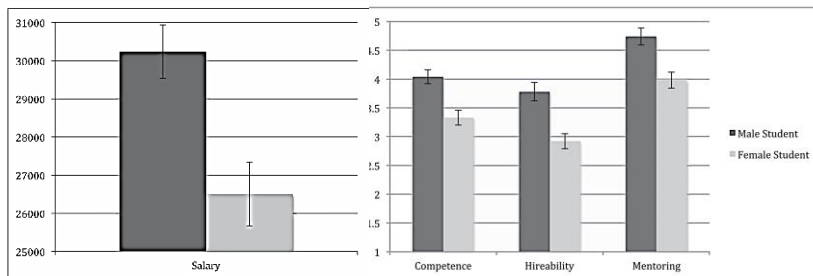


Bias against women all over

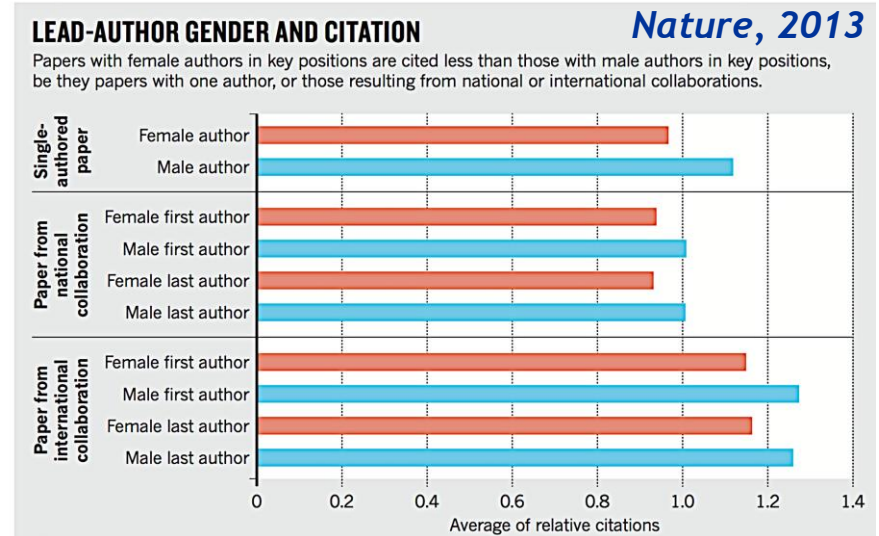
- Harder to get published if senior author is woman; such papers get less citations...

- *The gender gap in science: How long until women are equally represented?* **Plos Biology**, April 19, 2018
 - *Is there a gender gap in chemical sciences scholarly communication?* **Chem. Sci.**, 2020, 11, 2277-2301

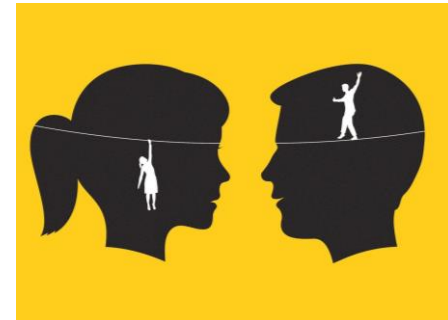
- John/Jennifer despite same CV
John more likely to get job and offered higher salary
(Moss-Racusin et al. Handelsman, PNAS 2012)



Negative spiral Women disfavored in every step, they get less merits and, eventually, *leave academia*



Both men and women show bias...



No, we are not fare (yet)

It is not my problem



Homophily is not most successful

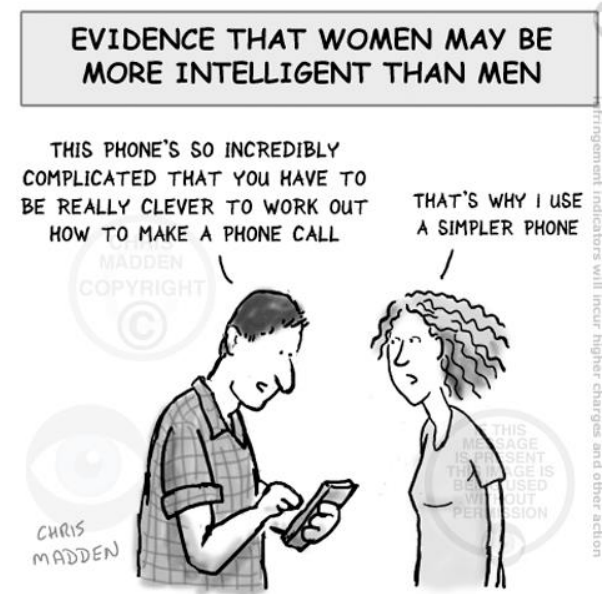
- Homophily means 'men choose men'
Because women are in minority,
they are tough against other
women to survive
- Complicit masculinity flourish, meaning
men quietly support the culture



Strength in
diversity

Richard B. Freeman and Wei Huang reflect on a link
between a team's ethnic mix and highly cited papers.

Nature, 2014, 513, 305.

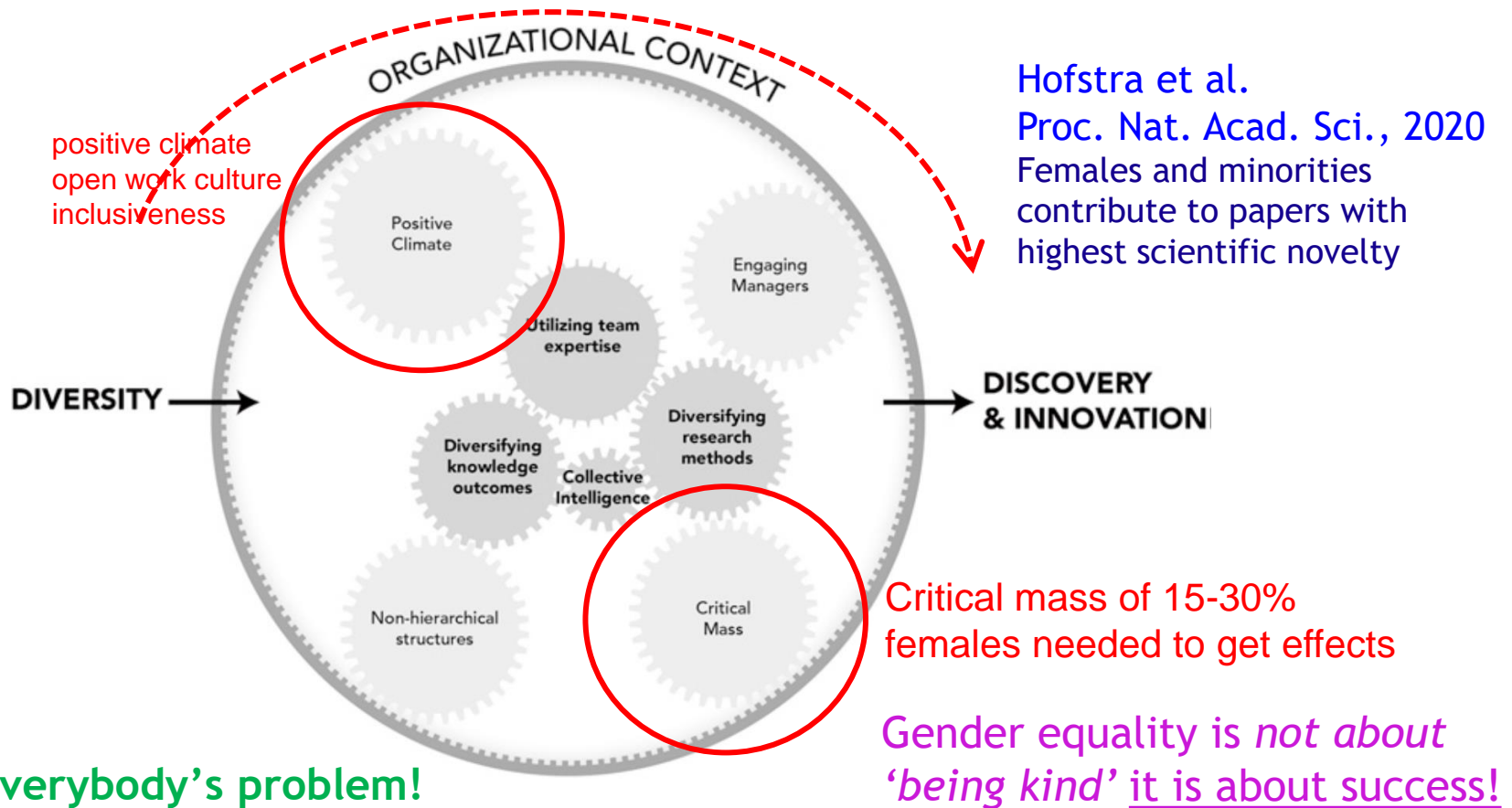


- But we need women's different
perspectives to solve the world's
problems *The population IS diverse*
**Diverse teams publish higher impact papers
and do better science! (that's what we want)**

The preeminence of ethnic diversity in scientific collaboration. Nat Commun 9, 5163 (2018); The power of diversity. Nature, 558, 19 (2018)

More diversity, better science

- Diversity and gender balance give higher scientific success and improve work environment/climate for all




Schiebinger et al. *Gender diversity leads to better science*, *Proc. Nat. Acad. Sci.* **2017**, 114, 1740.

Goshi. *By whom and when is women's expertise recognized?* *Adm Sci Q* **2014** 25(2):202–239

Smith-Doerr et al *How diversity matters in the US science and engineering workforce*, *ESTC* **2017**, 3, 139-153.

People say we nowadays have to be too politically correct, one cannot give critique anymore to women as everything will be taken as a gender issue...

Too much already...



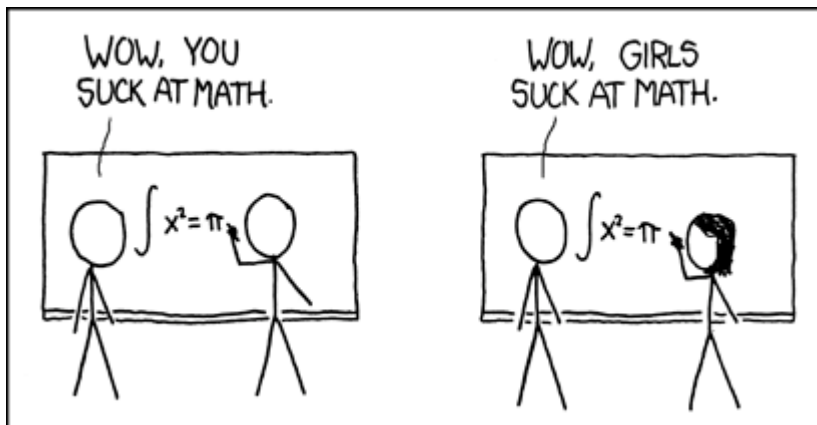
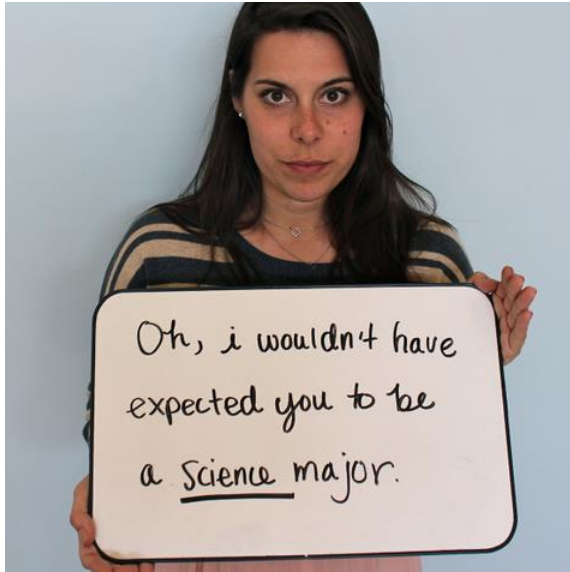
I expected no gender problems in Swedish academia when I returned to a full professor position in Sweden after 10 years as faculty in the United States. I was mistaken.

- Professor Pernilla Wittung-Stafshede



...this is picking on details, miss the big picture...

Everyday micro-aggressions...



- Tiny, thoughtless, offensive things that people say to women on daily basis

They build up and eventually we believe in them...

Maybe not OK anymore, but still happens...

Quotes from Chalmers *today...*

“A male professor came up to me when he found out that I was very interested in equality issues, he told me that this ‘equality nonsense’ is a waste of time and will never have an impact in academia.”

“I was told by a male professor that there are so few women on Chalmers because women and men have different brains and that women don’t want to come here because of biological differences.”

“From a professor to another professor at my department (I am a PhD student): Burn out is not a real thing. Females are weaker and that is why they get burned out”

“Question aimed at me from the head of the division at a division meeting: Since you are the only woman here, what do you think about gender equality at our department?”

‘Chilly climate’

This affects women’s confidence... (and work environment)

Gender 'confidence gap'

No, not 'too much' yet

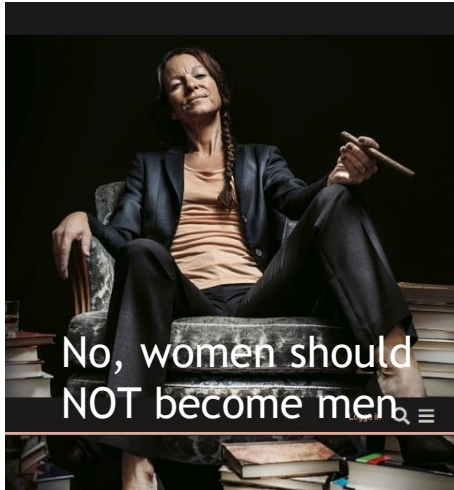
- Studies show women **under-estimate** their confidence men **over-estimate** confidence
- Women **attribute** success to others men **attribute** success to self



- Easier to see confidence than competence...
- Over-confidence in men give higher status and more benefits

Fuels deleterious cycle of gender imbalance

Men apply more (women less) compared to representation in their fields to e.g.,
ERC Stadmark et al, Adv Geosci. 2020

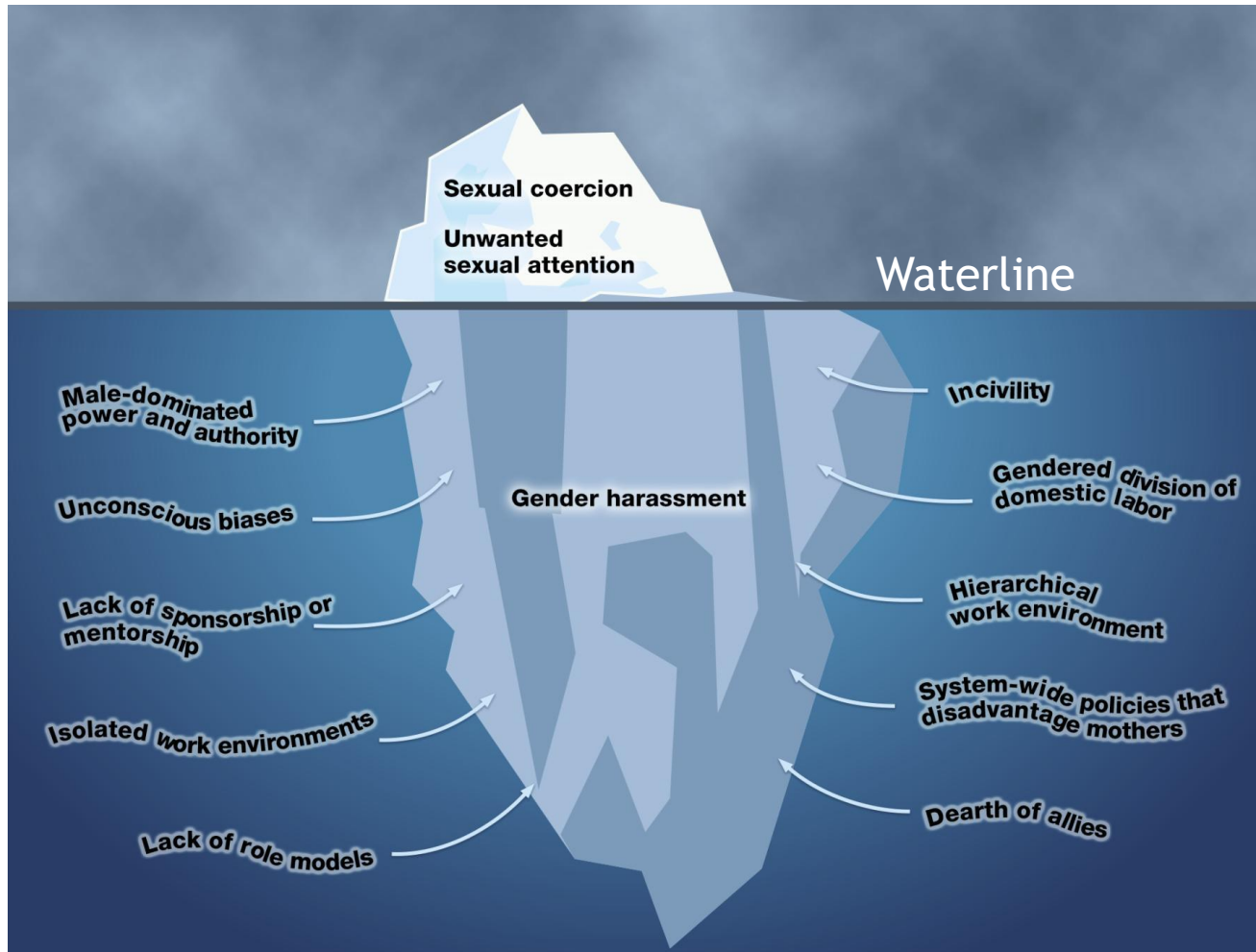


Possible solutions



Does everyone really want change?
Many men will lose power, things will not be 'as is' – scary to some?!

The gender harassment 'iceberg'



Over the waterline:
Sexual harassment

Illegal... Got attention
after #metoo!

Below the surface:
Micro-aggressions,
comments, biases,
stereotypes...

Legal...

'Melt all the ice'

Policies, laws, vice-chancellors cannot melt the ice...
we all together must change the academic culture (*i.e.*, heat the water)

No magic bullet but many things

- Gender equality at top of **strategic agenda**
- **Strong and active leadership** in each department
- **Tailored** work, every department differs
- Collect **data**, act on it, be open with facts
- **Educate** everyone, become **aware of bias**

Combination of female recruitment/support and
long-term actions for cultural/structural changes

Key to success is to get majority (i.e., also men)
onboard, both formal and informal leaders

In practice, what to consider?

- Recruitment and hiring★
 - Processes of promotion and tenure★
 - Accountability structures
 - Development of institutional leaders★
 - Departmental climate/culture★
 - Visibility for women and gender issues★
 - Support for dual career couples
 - Flexible, family-friendly work arrangements
 - Faculty professional development
 - Special grants to individuals
 - Targeted recruitments
 - Mentoring and network activities
- Essential to address regardless of starting point
- Focus directed towards individuals, the culture, and/or the organisation
 - Both targeted and general strategies
- There are efforts out there:
ADVANCE (NSF USA), Athena Swan (UK), SAGE (EU Horizon 2020), SAGE (Australian academies)
...but issue is far from resolved...

*Chalmers, a technical university:
13 departments
650 base-funded faculty
9000 undergraduate students
850 PhD students
Over 3000 employees*

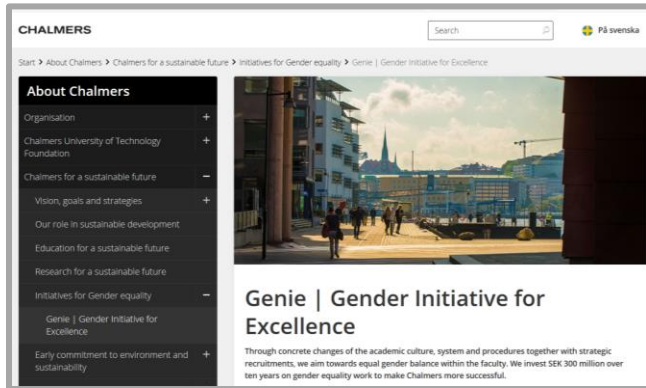


Real efforts on the way at Chalmers?

- *Late 2017, the Chalmers Foundation called for proposals to take Chalmers 'into the future'...*
- *This was just after Metoo started; I had brought up ideas for some time but without success...*
- *A seminar by Paul Walton together with local Metoo stories opened the eyes of the President...*
- *So, perfect timing: I proposed Genie, it got support by many others, and was selected for funding!*

Gender Initiative for Excellence, Genie

...to increase success and excellence at Chalmers!



What makes Genie stand out:

1. **Money - 300 MSEK (30 million Euros)**
largest gender initiative ever in academia
2. **Long term (10 years, 2019-2028)**
3. **Spans the whole university**
4. **Lead by faculty (me and Mary Sheeran)**



- **Goals**

*Gender equal culture and systems;
increased female faculty (40% female professors
2028; same opportunities for success, inclusiveness)*

- **How? (KEY)**

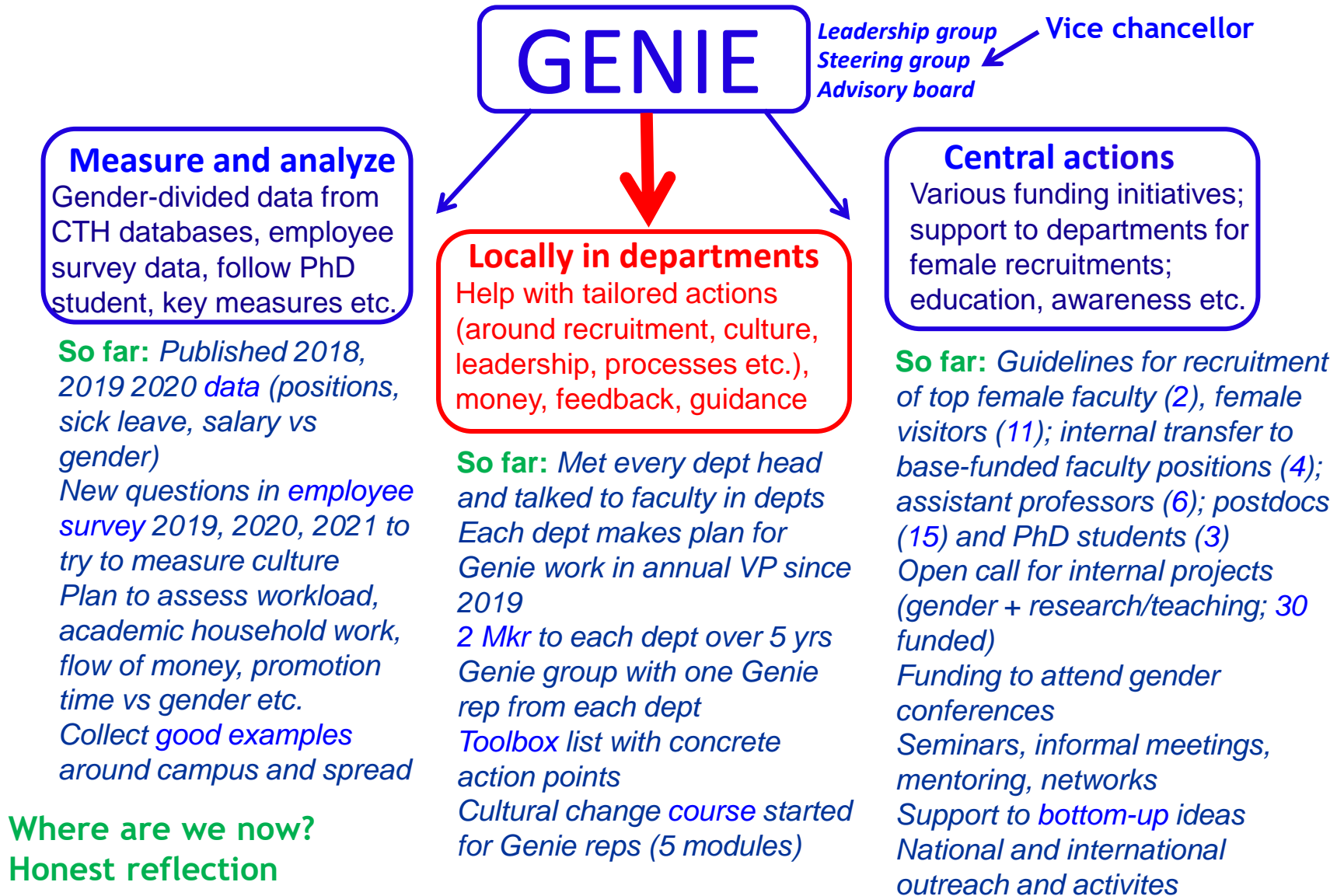
*Many concrete efforts on many different
levels, not 'one solution fits all'*

Combine top-down and bottom-up ideas

Genie aims to catalyze action - help (but not force) the departments



Big picture of GENIE's concept 2019-2021



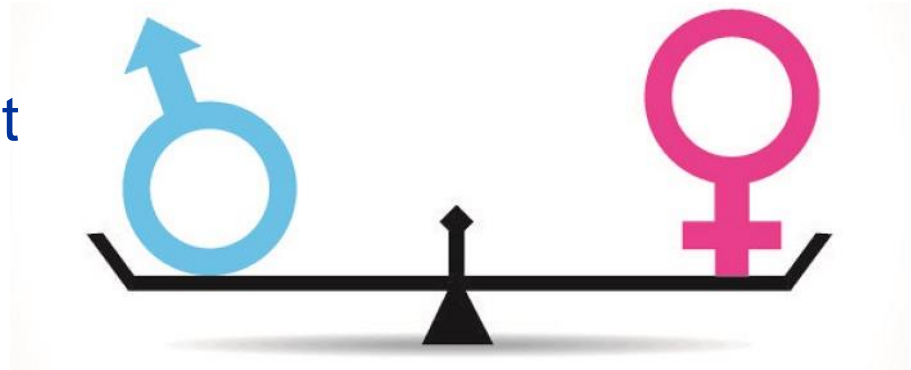
Challenges and successes? 3 years in

Challenges

- Hard to get **leaders onboard**, get faculty to **prioritize**
- Difficult with **communication**
- Hindered by **bigger university problems**
- **Want action** but often hampered by bureaucracy
- **Numbers not changed** (except Assist Prof)
- **Management vs. academic structure**

Reading suggestion:

Saline, Sheeran, Wittung-Stafshede, 2021, QRB Discovery, 2, E5, doi:10.1017/qrd.2021.3



Successes

- Built **trust** for Genie
- Improved **awareness**
- Increased **engagement**
- **Hired** great women to faculty
- **Academic agenda** in focus
- Gained **visibility** and **reputation**

What we all can do – now!

- **Push on your leaders** to act (in department, university, national agencies and scientific societies)
- **Speak up** when things are wrong (be the awkward one)
- Get **engaged** in gender topics (collect data, organize seminars/education etc.)
- **Highlight, support** (like men are supported) **and encourage women** (nominate for prizes, start networks, mentorships etc.)

Real change will take time
All small actions are important
The more onboard, the easier it gets

Thank You!
Feel free to contact me
pernilla.wittung@chalmers.se
www.chalmers.se/genie