GEDII

GENDER DIVERSITY IMPACT –
Improving research and innovation
through gender diversity

Diversity & R&D Teams

First results from the GEDII Project

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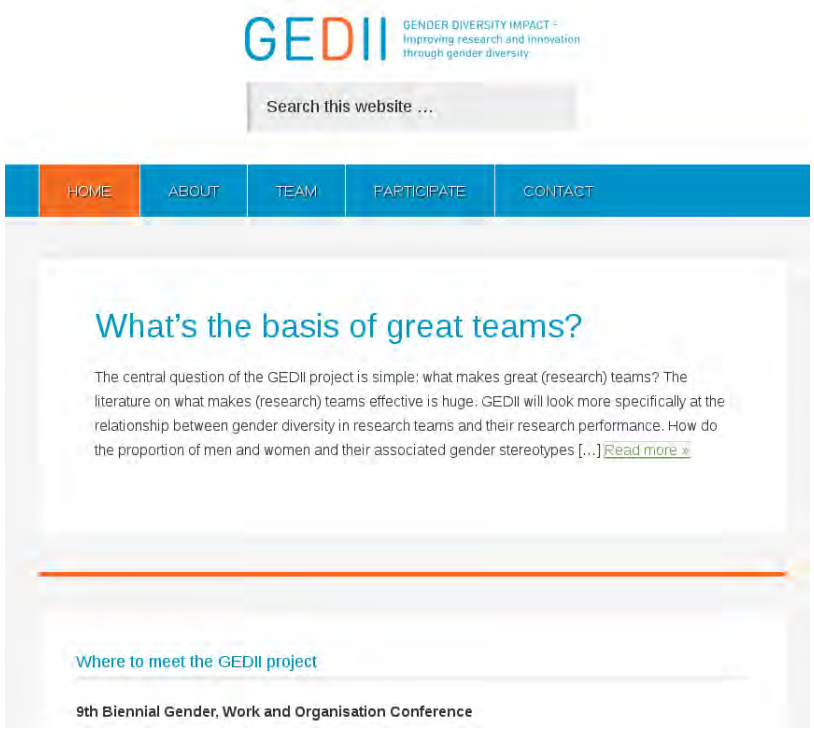
Gender Summit 15 // 18th & 19th of June 2018 // London

GEDII Project
Gender Diversity in R&D Teams



H2020 Science with and for Society

Duration
Oct 2015 – Sep 2018

http://www.gedii.eu

Horizon 2020
European Union Funding for Research & Innovation

Consortium

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Science of Team Science

Knowledge is produced in teams

Evidence on the effects of gender diversity is mixed

Simple effects of diversity have been laid to rest

Why do some teams excel?

Structural perspectives on the configuration of team "capital".

Diversity in terms of socio-demographics & functional dimensions (knowledge, values, contacts, resources, etc.)

Social psychology perspectives on group processes to take advantage of available assets.

Study importance of "conflict" or "trust" in teams.

Example: *Game Changer: The Topology of Creativity* by Vaan, Vedres, Stark 2015.

"Structural folding": "bonding" + "bridging" social capital. Innovation needs to be generated.

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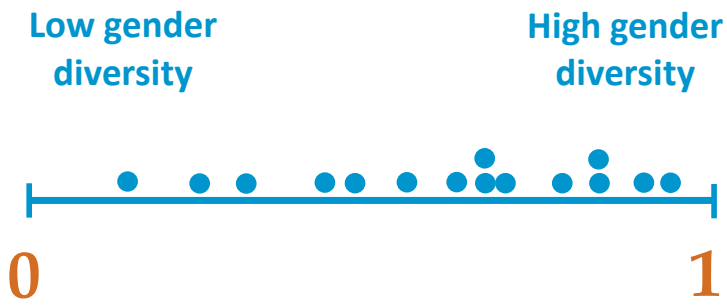
Measuring gender diversity

Gender Diversity in:

- Representation
- Attrition

$$\alpha_i = \begin{cases} 0, & \text{if } w_{2i} = m_{2i} = 0 \\ 2 \times \left(1 - (w_{2i}^2 + m_{2i}^2)\right), & \text{otherwise} \end{cases}$$

where w and m represent the proportions of women and men, respectively, at level 2 within team i.



$$\delta_i = \begin{cases} 0, & \text{if } w_{2i} = m_{2i} = 0 \\ \frac{w_{2i}}{w_{1i}}, & \text{if } w_{2i} < m_{2i} \text{ and } w_{2i} < w_{1i} \\ \frac{m_{2i}}{m_{1i}}, & \text{if } m_{2i} < w_{2i} \text{ and } m_{2i} < m_{1i} \\ 1, & \text{otherwise} \end{cases}$$

with level 1 or 2 in team i, where w and m refer to proportions of women and men respectively.

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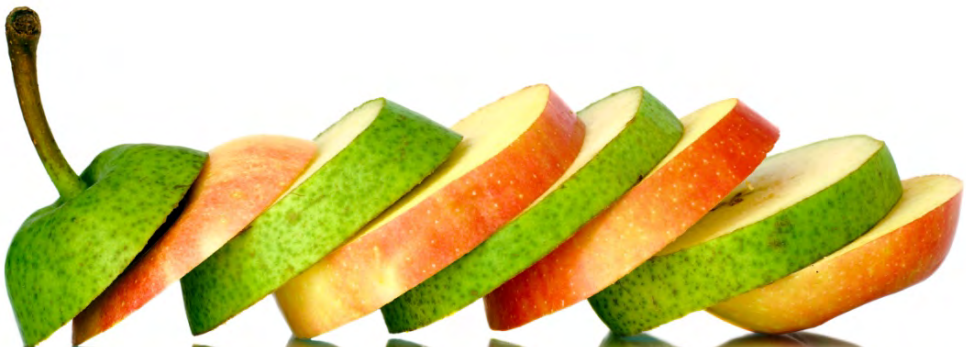
VS



The seven pillars of the Gender Diversity Index

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1. Tenure	• **Attrition** of the under-represented sex under/above average team tenure • **Representation** of wo/men above average team tenure
2. Education	• **Attrition** of the under-represented sex with/out a doctorate • **Representation** of wo/men with a doctorate
3. Care responsibilities	• **Attrition** of the under-represented sex with/out current caring responsibilities for children under 16 or dependent adults • **Representation** of wo/men with current caring responsibilities for children under 16 or dependent adults
4. Contract	• **Attrition** of the under-represented sex with/out a permanent contract • **Representation** of wo/men with a permanent contract
5. Seniority	• **Attrition** of the under-represented sex with/out a senior role • **Representation** of wo/men with a senior role (senior researcher or team leader)
6. Age	• **Attrition** of the under-represented sex under/above average in the team • **Representation** of wo/men above average age in the team
7. Marital status	• **Attrition** of the under-represented sex with/out a cohabiting partner • **Representation** of wo/men with a cohabiting partner

	Metric	Pillar	GDI	Variables	Women	Men
Education δ	0	0	0.11	No doctorate	2	4
					33.3 %	66.7 %
Education α	0			Doctorate	0	3
					0 %	100 %
Care δ	0	0		No current care responsibilities	2	5
					28.6 %	71.4 %
Care α	0			Current care responsibilities	0	1
					0 %	100 %
Marital status δ	1	0.91		Not married or cohabiting	1	4
					20 %	80 %
Marital status α	0.75			Married or cohabiting	1	3
					25 %	75 %
Age δ	0	0		Below team average age	2	2
					50 %	50 %
Age α	0			Above team average age	0	5
					0 %	100 %
Seniority δ	0	0		Junior researcher/Other	2	4
					33.3 %	66.7 %
Seniority α	0			Senior researcher/Team leader	0	3
					0 %	100 %
Tenure δ	0	0		Below average team tenure	2	5
					28.6 %	71.4 %
Tenure α	0			Above average team tenure	0	2
					0 %	100 %
Contract δ	0	0		Temporary / casual	2	6
					25 %	75 %
Contract α	0			Permanent / tenured	0	1
					0 %	100 %

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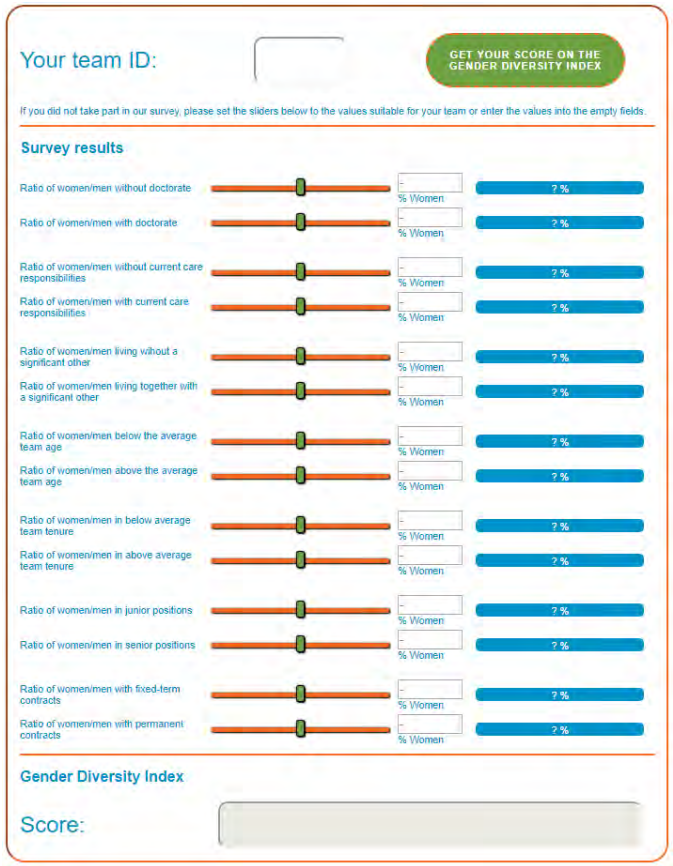
Self-assessment tool



Relating Gender Diversity to Research Performance

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*H1a: **Gender balance** within teams has a positive effect on research performance.*

*H1b: **Women's representation** in teams is negatively related to research performance.*

*H1c: The **Gender Diversity Index** is positively related to research performance.*

*H2: **Gender diversity within teams** is positively related to research performance, when controlling for **gender balance** and the **representation of women**.*

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Methods

Outcome variables: FAP (Field Adjusted Productivity) and PM (Percentile Model)

Modelling: generalised linear model (GLM) with a negative binomial link in R

Controls: level of experience in years in the team, number of senior researchers, number of team members

Results - PM

	Percentile Model (PM)			
(Intercept)	4.03***	4.06***	4.05***	4.25***
Gender Balance	**-0.23**			**-0.51**
% of Women		**-0.32**		**-0.13**
Gender Diversity Index			**-0.02**	**0.45**
Level of Experience	-0.58	-0.59	-0.47	-0.63
N° Senior Researcher	0.24***	0.24***	0.23***	0.24***
N° Team Members	-0.01	-0.01	-0.02	-0.02
R^2	.321	.322	.914	.929
n	99	99	82	81

Results - FAP

	Field Adjusted Productivity (FAP)			
(Intercept)	2.09***	2.28***	1.79***	2.12***
Gender Balance	**-0.24**			**-0.48**
% of Women		**-0.75*** **		**-0.54**
Gender Diversity Index			**0.27**	**0.84****
Level of Experience	0.32	0.29	0.55	0.35
N° Senior Researcher	0.25	0.24***	0.22***	0.23***
N° Team Members	0.01	0.01	0.01	0.00
R^2	.524	.556	.910	.927
n	99	99	82	81

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Policy Implications

Teams are hard to pin down!

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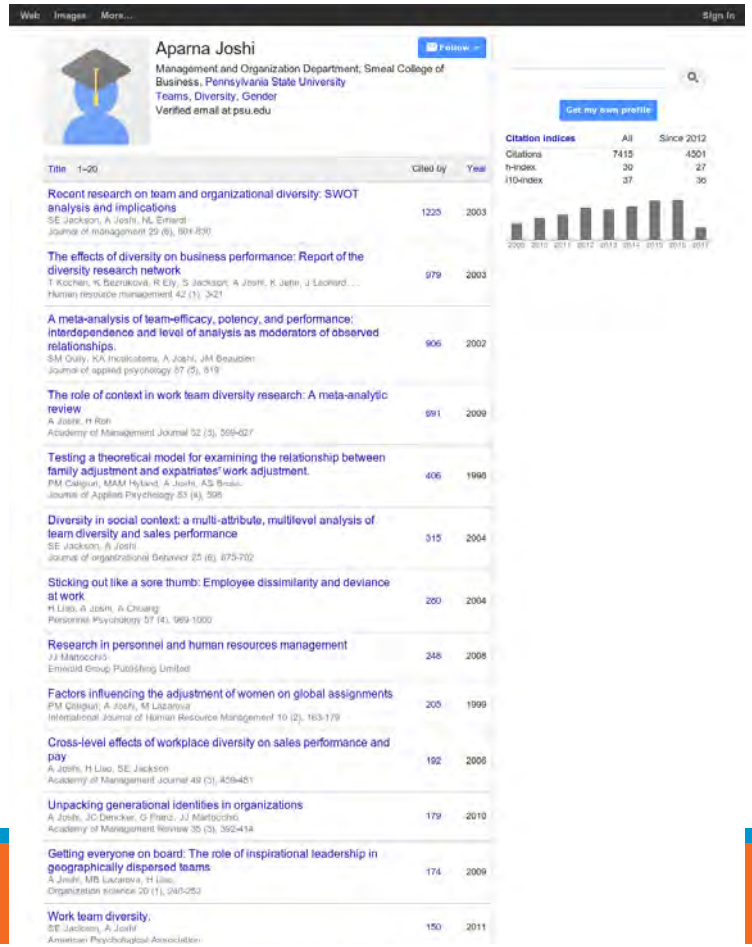
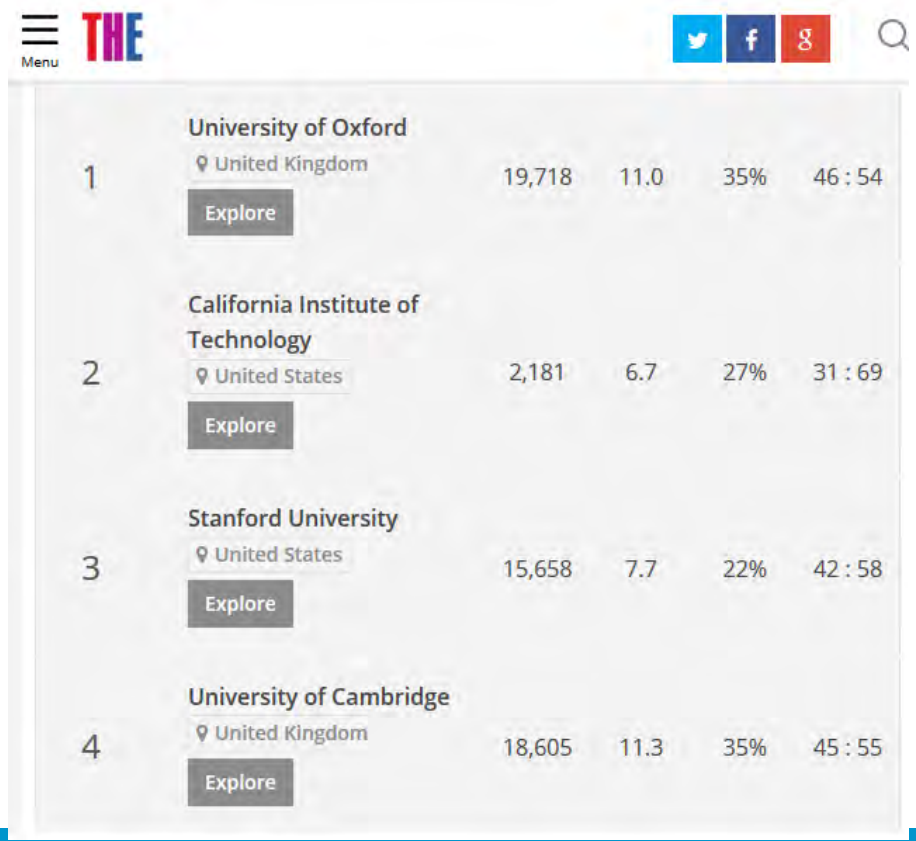
Google Scholar



World University Ranking



… also in terms of rewards!

Academic reward & recognition systems have not kept up with the growth of team work

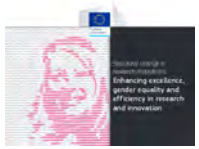
The Academy of Medical Sciences

http://bit.ly/2rhPBCF

European Agenda

“Fixing” the women

FP6: EUMENT-NET



“Fixing” the institution

FP7, H2020: Integer, TARGET, SUPERA, etc.

“Fixing” the knowledge

Gendered Innovations

?

“Fixing” teams?

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