

**Gender Diversity
and Innovative Performance**
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Motivation

- Measurement of the progress and business benefits of diversity initiatives
 - Central to the business case of diversity
 - Evaluate diversity policies and choose the right targets
- Obstacles:
 - Complex interplay of causes and effects
 - Need of an adequate measurement protocol

Challenges in addressing workplace diversity



Source: European Business Test Panel (798 resp.)

Contribution

- Econometric modelling to quantify the impact of gender diversity on innovative performance in S&T teams
 - Construct a database (Air Liquide, EDF, Schlumberger, Shell)
 - How does the make-up of the **R&D teams**, and specifically gender diversity within teams, impacts R&D performance
- Illustrate how a simple protocol can be used for :
 - evaluating the impact of diversity on performance
 - measuring progress in implementing diversity
 - choosing the right targets

Data

- Panel
 - Air Liquide, EDF, Shell, Schlumberger
 - Year 2004
 - 1506 individuals
 - 26% of women
 - 272 projects

Data (2)

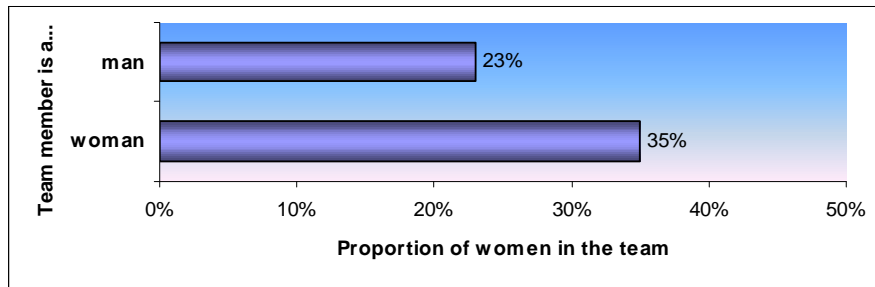
- Make-up of the teams in terms of
 - Gender
 - **Gender diversity** = proportion of women per team
 - Age
 - Nationality
 - Grade and seniority
 - Time spent on the project per agent

Data (3)

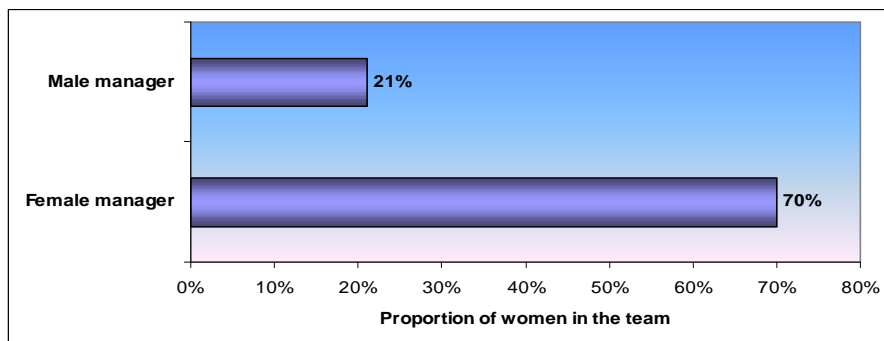
- **Innovative performance indicators (annual):**
 - **At the individual level:** bonuses for successful research achievements or rating
 - **At the team level:** rating of either the projects or the teams
 - **Indicators** combining project data:
 - real costs vs anticipated costs of the R&D project
 - priority deliverables delivered before or behind schedule

Descriptive statistics on the panel

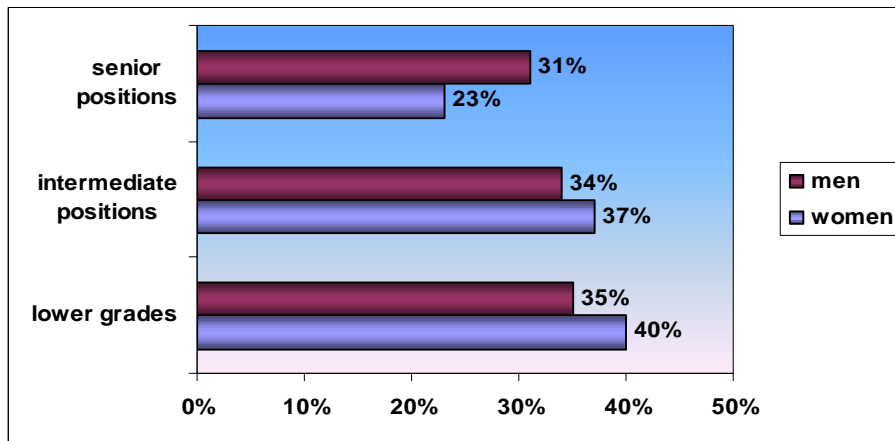
1. **Concentration:** men work in teams where the proportion of women is 23%, women work in teams where the proportion of women is 35%



2. **Female managers run female teams**



3. The leaky pipeline



4. A clear domain effect

- Women are over-represented on projects that are not directly linked to ground R&D: product commercialisation & client support (40%); support to R&D (50%)
- 21% of women on projects labelled « challenges »

Gender Diversity and Individual Performance

Model

Individual characteristics

- Gender
- Age /Seniority
- Job group
- Nationality

Change in individual performance

Context: the team

- Gender Diversity ↑
- Age diversity
- Job group diversity

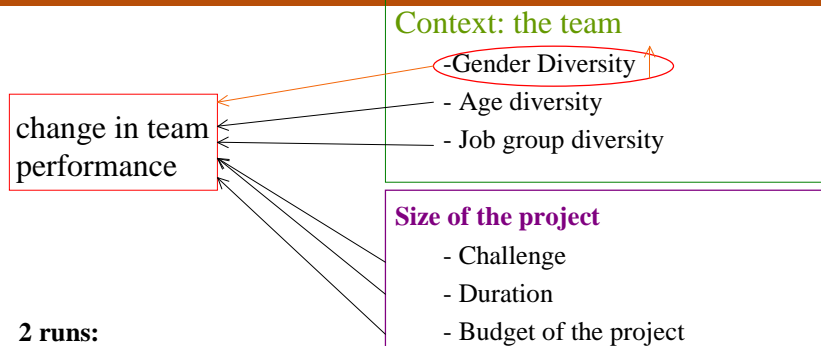
1506 individuals

Results

- **Gender diversity has a positive impact on individual performance...**
 - ...assessed by the annual ratings
 - an increase of 10% in the gender diversity within teams would increase by 3% the probability of achieving the highest individual performance rating
 - ...assessed in terms of the ratio “research bonus to salary”
 - Following an increase of 10% in the gender diversity within teams, team members would increase their research bonus by 0.7% because their performances would have improved over the year

Gender Diversity and Collective Performance

Model



- **2 runs:**

1. (69 projects) Performance = the three level measure with 3 describing the highest achievement
2. (209 projects) Two indicators : (I1) the realized costs of the project as compared to the anticipated costs, and (I2) whether the date of delivery of priority deliverables was before or behind schedule

Results

- Gender Diversity has a **positive impact** on project performance
 - More gender diversity increases the probability that priority deliverables are achieved before schedule
 - Similarly it would raise the probability that real costs will be smaller than anticipated costs

Results

- **Domain effect** : Women are over-represented on projects that are likely to have low R&D performance (as product commercialisation or client support)
 - On a restrained sample of challenging projects clearly related to R&D, the positive impact of gender diversity is even greater
- ⇒ **the impact of gender diversity on performance is likely to be under-estimated in general**

Conclusion

- A business case for implementing gender diversity can be empirically made
- On our sample, individual and collective performance would be increased by more gender diversity

Conclusion (2)

- Domain effect
- A bias likely to have a measurable cost in terms of performance
- Allowing more women to enter key fields is likely to have positive impact on individual and collective performance

Further developments

- Add indicators on HR diversity management, wider set of explanatory variables (marital status, children, education, mobility, ...)
- European panel
- Company panel
 - Several years of data: evolution of diversity implementation and of its success; improve the results
 - Drivers of performance
 - Management tool

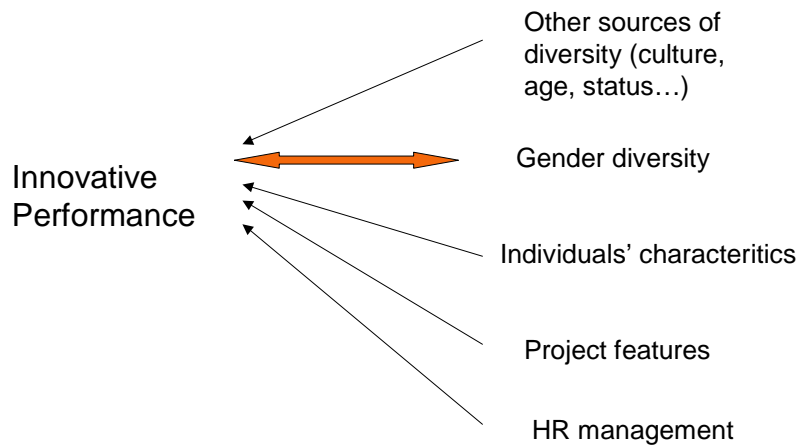
Protocol

- Information needed from the companies:
 - Panel organised by project
 - Indicators of performance (collective, individual) – note: individuals are kept anonymous
 - Workforce profiling (gender, age, ethnicity, position, at minimum)
 - Diversity policy implemented

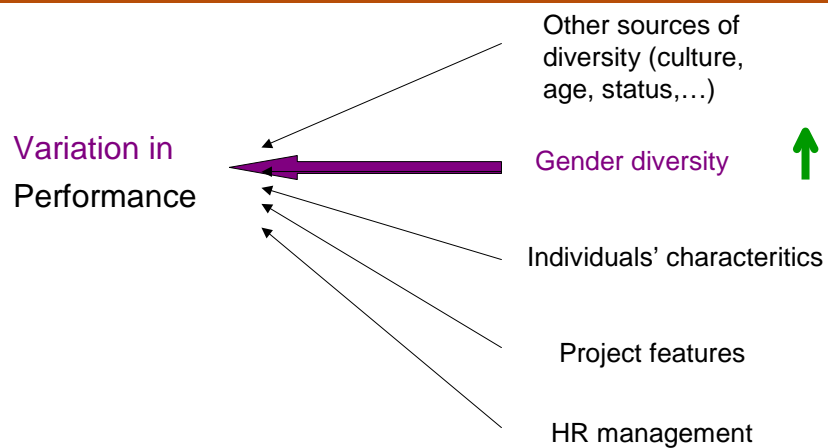
Acknowledgments

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Complex interplay of causes and effects



Methodology: econometric modelling



Methodology (2)

- Better performing firms are more likely to have a policy of diversity



- Need to disentangle these simultaneous effects and isolate the impact of diversity on performance
→ Study at the team level

