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# Provet 4.0

**Professional development of VET learners and industrial workers for the new industrial revolution 4.0.**

**O1: Analysis on current and future capabilities requirements of KETs in  
Advanced manufacturing  
-Presentation of the results and main findings –**

**Gabriella Bettiol  
Confindustria Veneto SIAV**

*29 giugno 2016 - Unis&F Lab*



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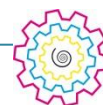
## Project promoter



**Federación Vizcaína de Empresas del Metal**

**aic** • ACADEMY *AIC-Automotive Intelligence Center*

based on a concept of open innovation in which companies for the automotive sector improve their competitiveness through cooperation. Using a market-oriented approach, AIC integrates knowledge, technology and industrial development under one umbrella.



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community of enterprises and knowledge providers, including universities, animated by Confindustria Veneto SIAV, to share, spread and support the culture of tangible innovation translated in results.

## Partners



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**Fondo Formación Euskadi**



**Sigma-Clermont**

connects students to industry via its Foundation, which fosters relations with the world of enterprise, both in France and internationally, and develops actions to respond to today's and tomorrow's industrial challenges



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# Introduction and Methodology

- **Aim**

Impact and rend of KETs in for Advanced manufacturing in:

- additive manufacturing
- collaborative robotics
- cyber-physical systems
- augmented reality
- cloud computing
- big data

## METHODOLOGY

- **Scope**

32 Companies, mainly SMEs

Basque Country (ES), Auvergne-Rhône-Alpes (FR), Veneto (IT)



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## Introduction and Methodology/2

- **Definition of Survey Questionnaire (EN, ES, IT, FR)**

Cluster 1 “Respondents features” (Basic data about the company)

Cluster 2 “Previous knowledge /organizational readiness” (Q1-Q6)

Cluster 3 “Technologies” (Q7-Q8)

Cluster 4 “Trends and Human resources” (Q9-Q10)

- **Period**

March 2016



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## Cluster 1 “Respondents features”

### Spain

10 Metal/ components – 1 Engineering services  
2 Large enterprises, 4 Medium, 5 Small  
10 B2B, 1 (small) B2C

### Italy

8 Metal/ Electronics/ Lighting – 1 Food – 1 Engineering Services  
2 Micro, 6 Small, 2 Medium  
5 B2B, 8 B2C (3 companies are both B2B and B2C)

### France

7 Metal/ Electronics – 1 Chemical - 3 Engineering/ Technology  
Services  
4 Large, 4 Medium, 3 Small  
8 B2B, 3 B2C



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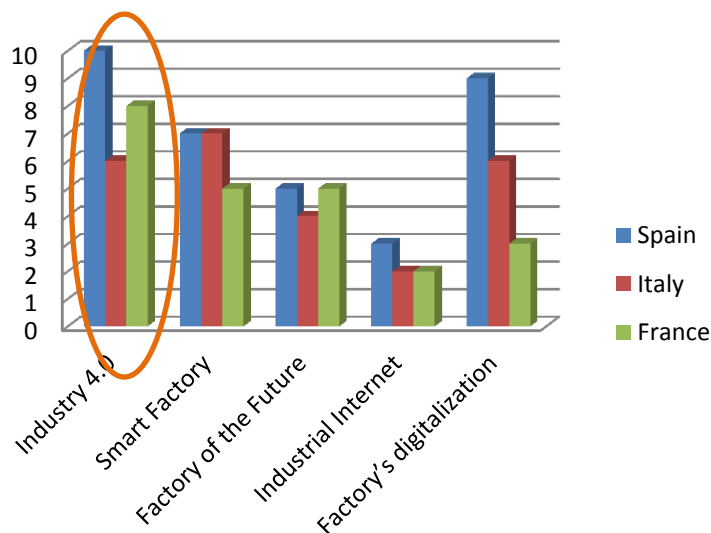
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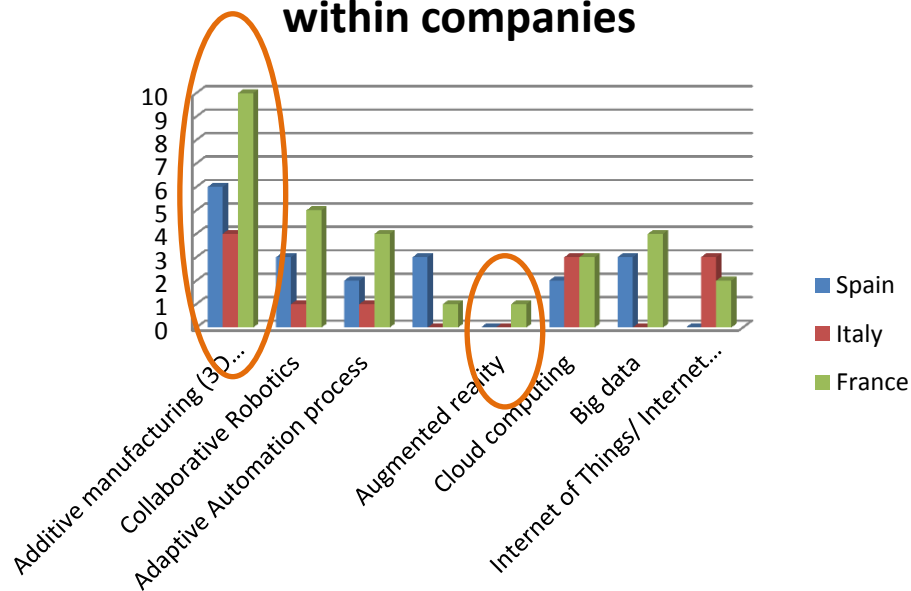
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## Cluster 2 “Previous knowledge / organizational readiness” (Q1-Q6)”

**Q.1 Business concepts  
applied or heard**



**Q.2 Tools / technologies applied  
within companies**



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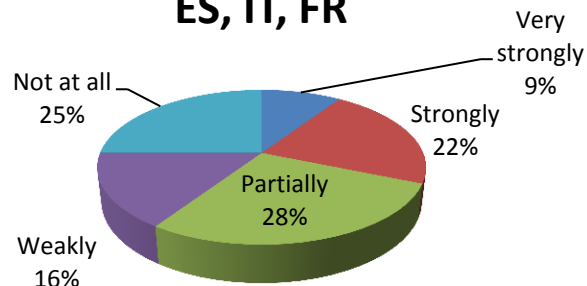
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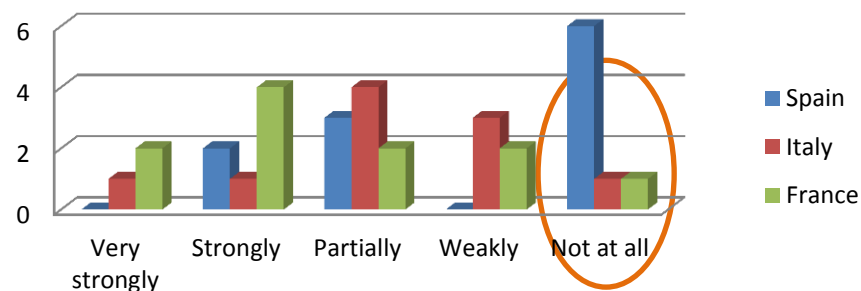
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## Cluster 2 “Previous knowledge / organizational readiness” (Q1-Q6)

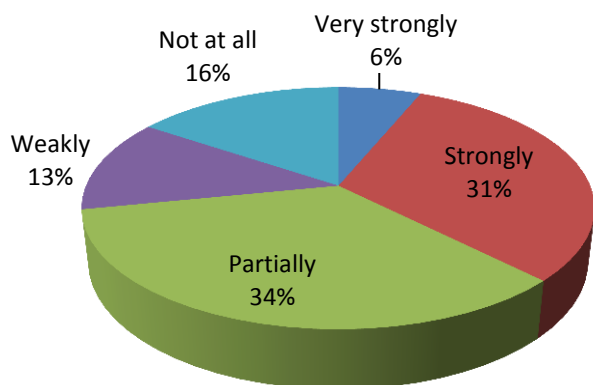
### Q.3 Process' Digitalisation - ES, IT, FR



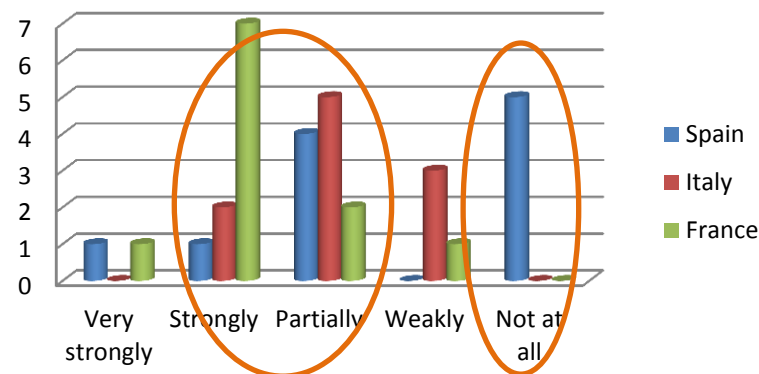
### Q.3 Process' Digitalisation



### Q.4 Product's Digitalisation - ES, IT, FR



### Q.4 Product's Digitalisation



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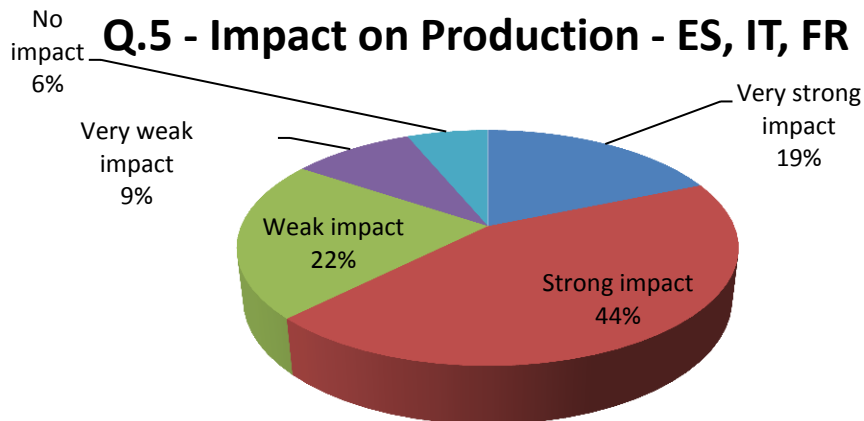
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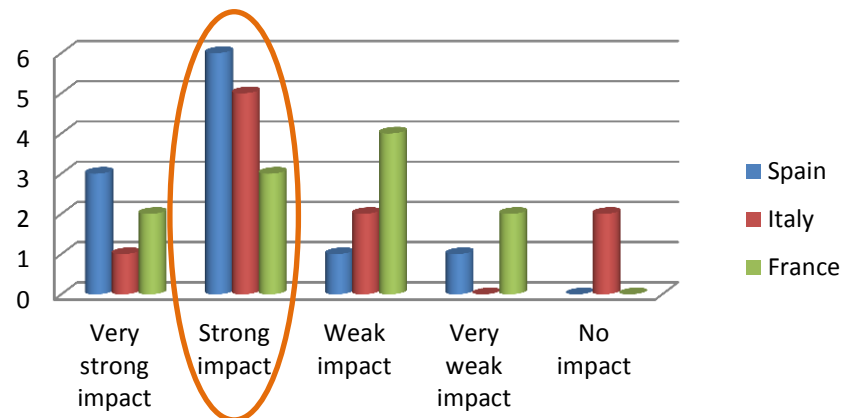
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## Cluster 2 “Previous knowledge / organizational readiness” (Q1-Q6)

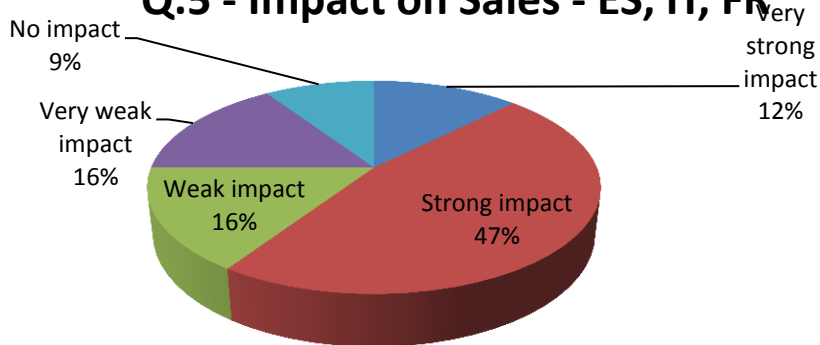
**Q.5 - Impact on Production - ES, IT, FR**



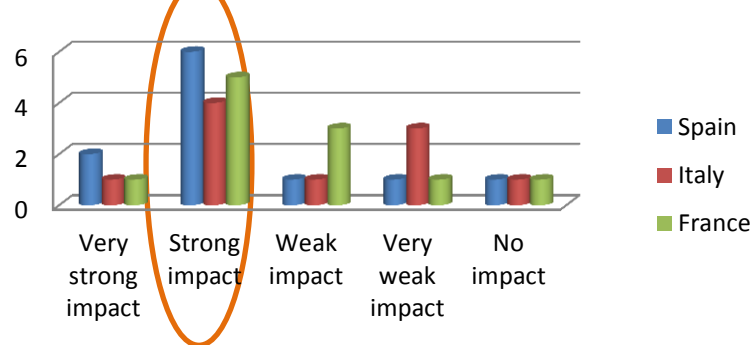
**Q.5 - Impact on Production**



**Q.5 - Impact on Sales - ES, IT, FR**



**Q.5 - Impact on Sales**



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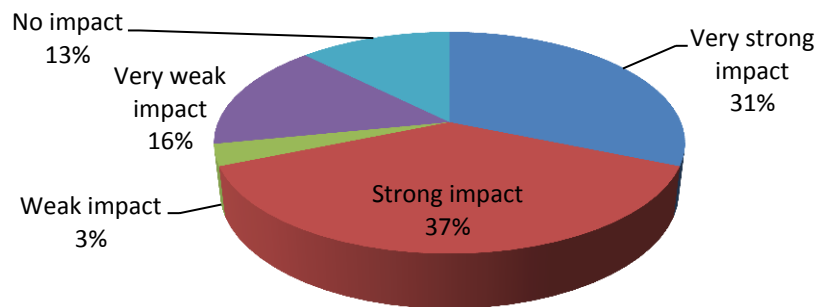
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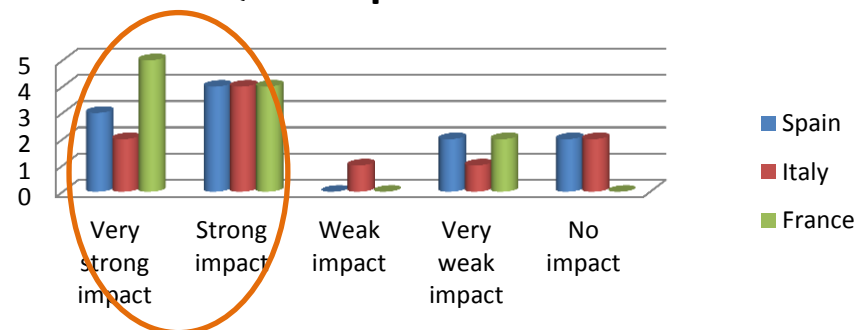
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## Cluster 2 “Previous knowledge / organizational readiness” (Q1-Q6)

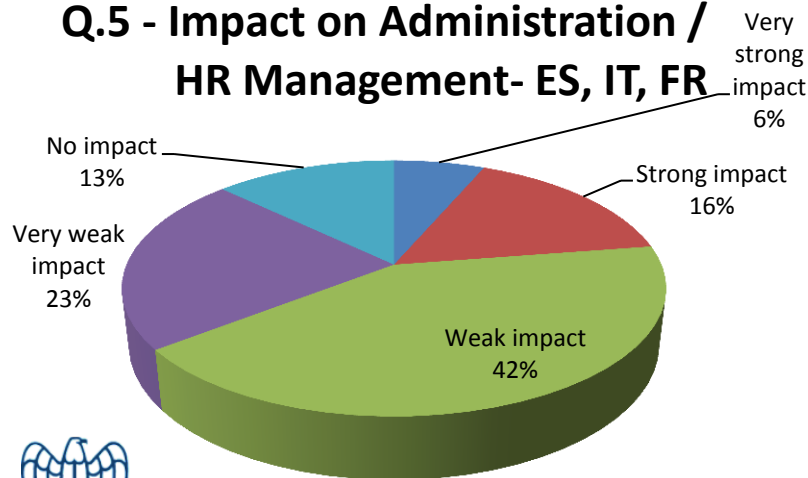
### Q.5 - Impact on R&D - ES, IT, FR



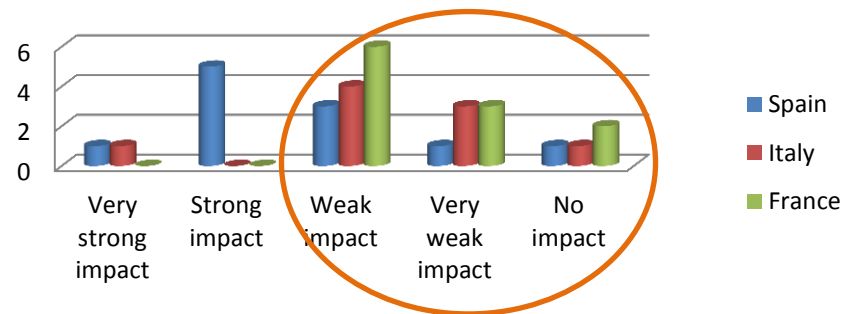
### Q.5 - Impact on R&D



### Q.5 - Impact on Administration / HR Management- ES, IT, FR



### Q.5 - Impact on Administration / HR Management



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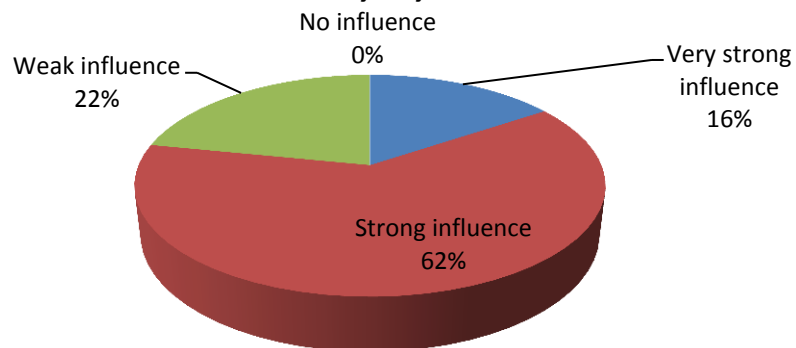
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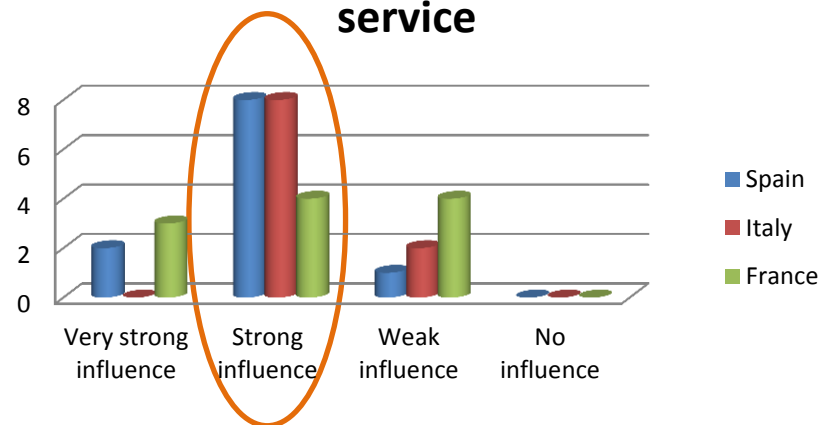
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## Cluster 2 “Previous knowledge / organizational readiness”(Q1-Q6)

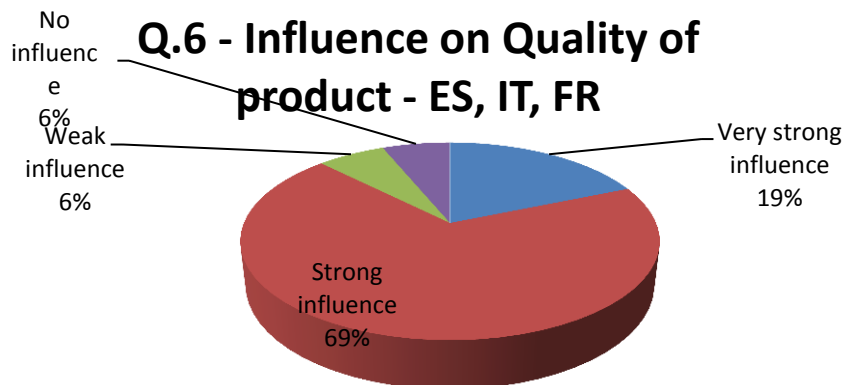
### Q.6 - Influence on Quality of service - ES, IT, FR



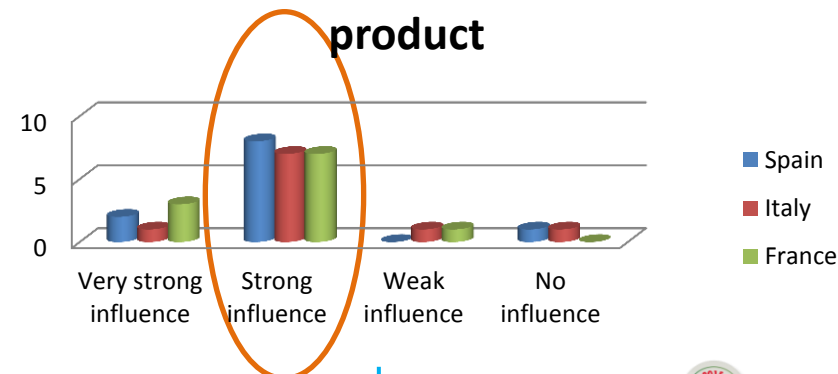
### Q.6 - Influence on Quality of service



### Q.6 - Influence on Quality of product - ES, IT, FR



### Q.6 - Influence on Quality of product



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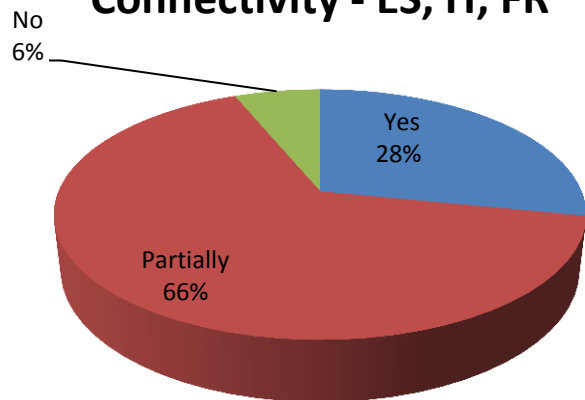
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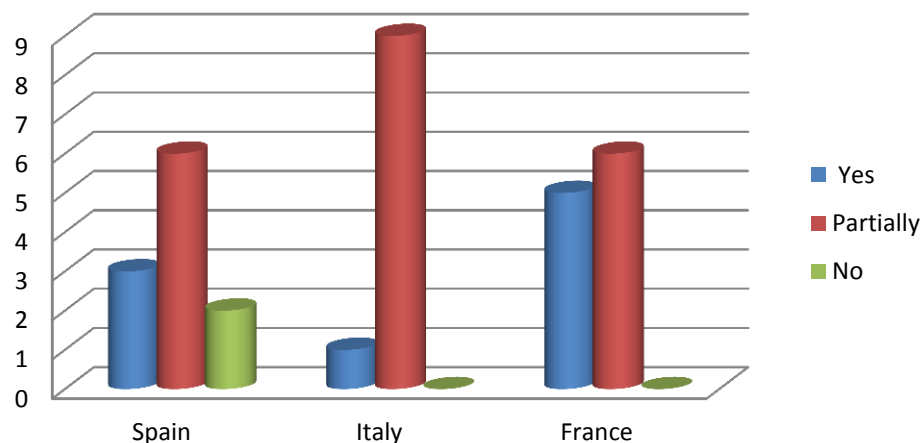
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## Cluster 3 “Technologies” (Q7-Q8)

**Q.7 - Adequacy of IT and  
Connectivity - ES, IT, FR**



**Q.7 - Adequacy of IT and Connectivity**



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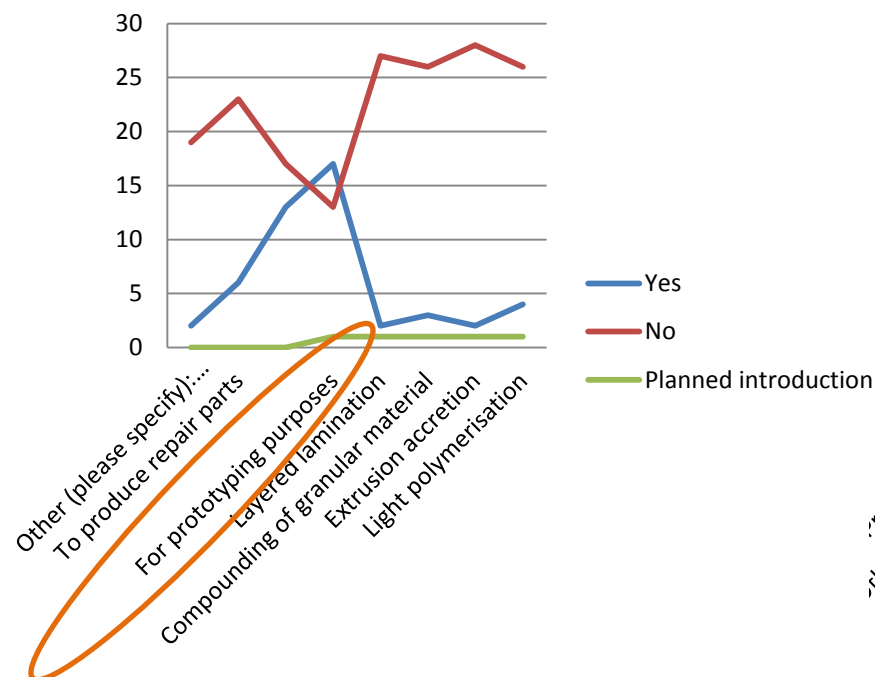
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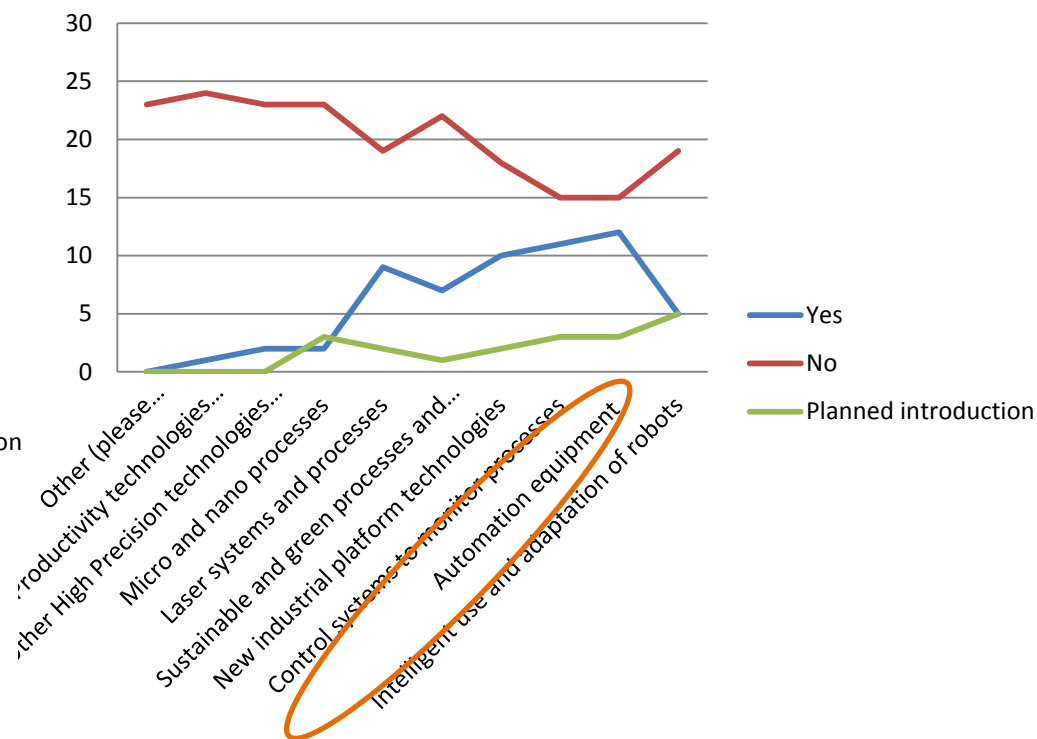
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## Cluster 3 “Technologies” (Q7-Q8)

### Q.8 Additive manufacturing - ES, IT, FR



### Q.8 Collaborative Robotics – ES, IT, FR



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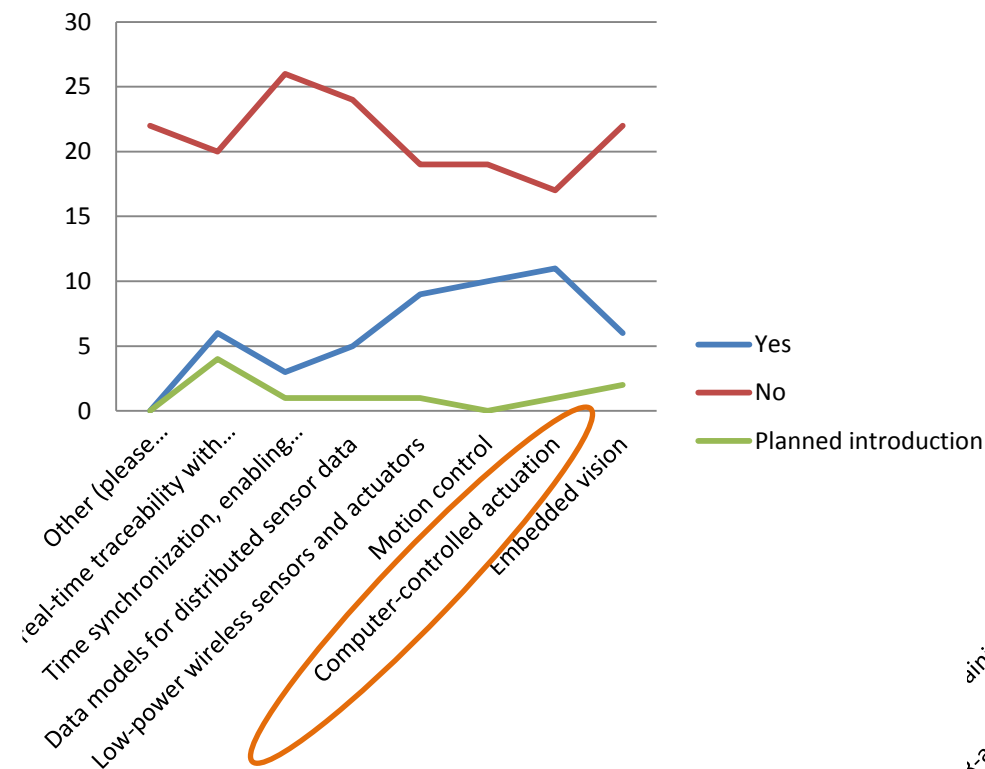
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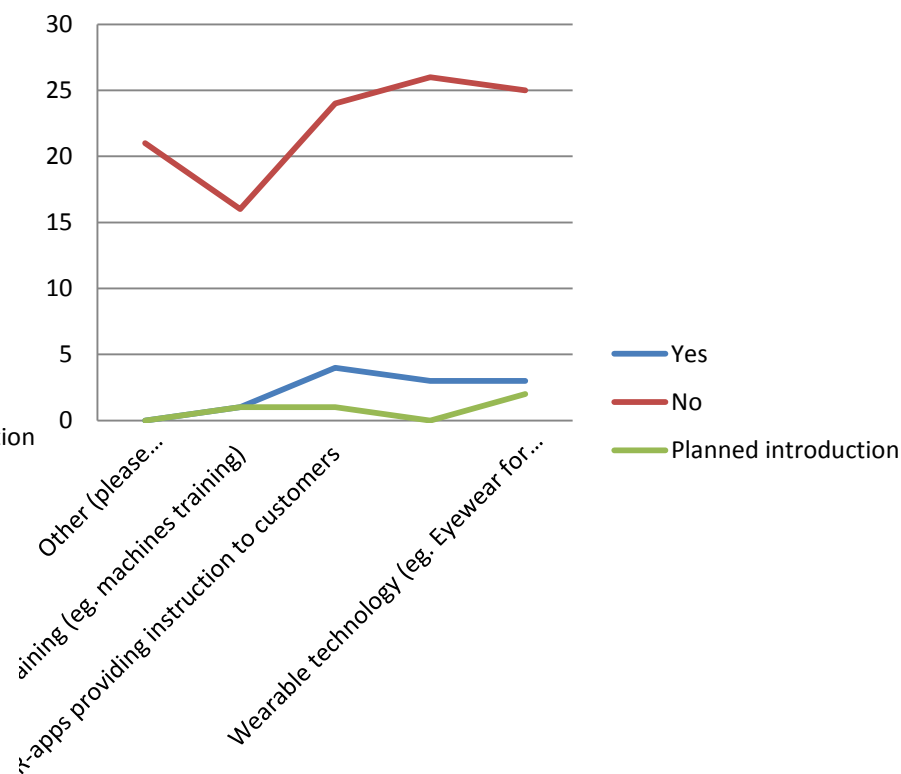
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## Cluster 3 “Technologies” (Q7-Q8)

### Q.8 Cyber physical systems - ES, IT, FR



### Q.8 Augmented reality - ES, IT, FR



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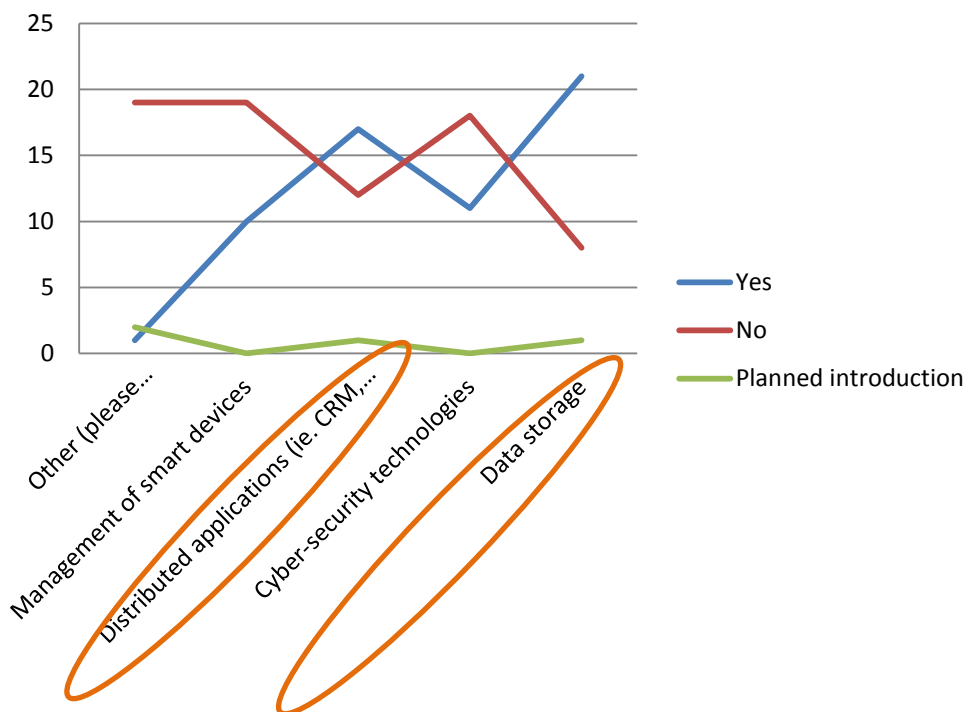
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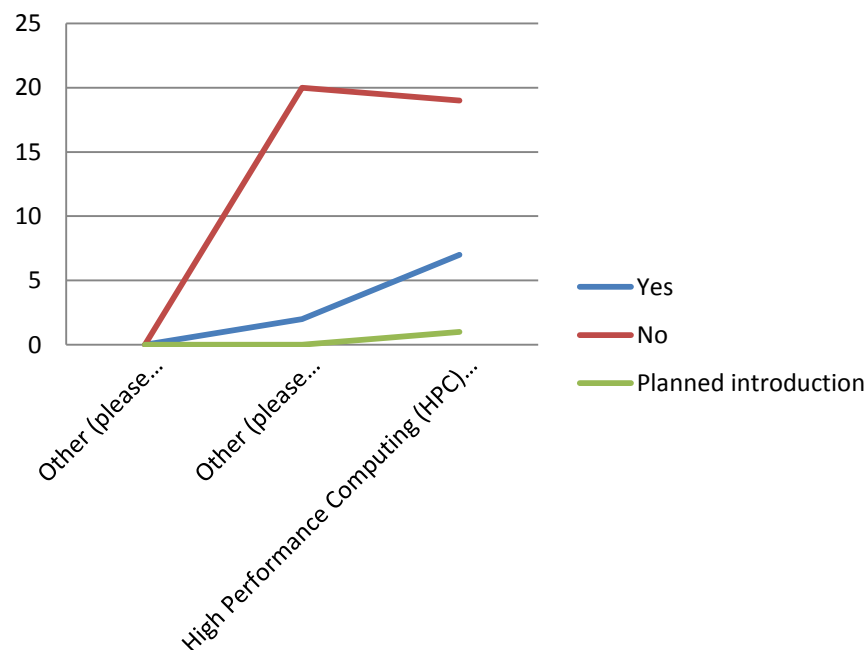
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## Cluster 3 “Technologies” (Q7-Q8)

### Q.8 Cloud computing - ES, IT, FR



### Q.8 Big data - ES, IT, FR



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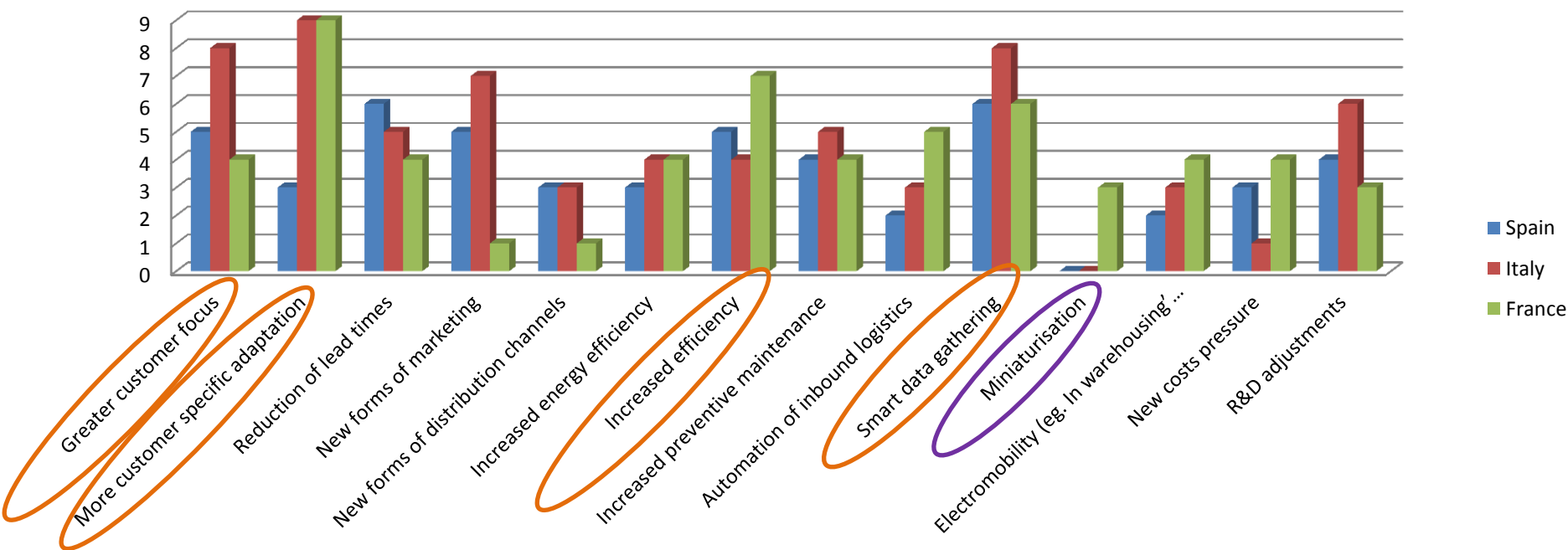
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## Cluster 4 “Trends and Human resources” (Q9-Q10)

**Q.9 Which trends will be connected to Industry 4.0? (more than one answer allowed)**



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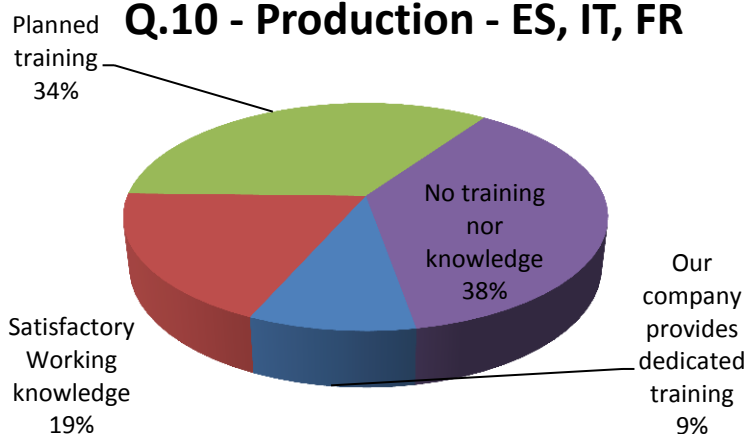
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## Cluster 4 “Trends and Human resources” (Q9-Q10)

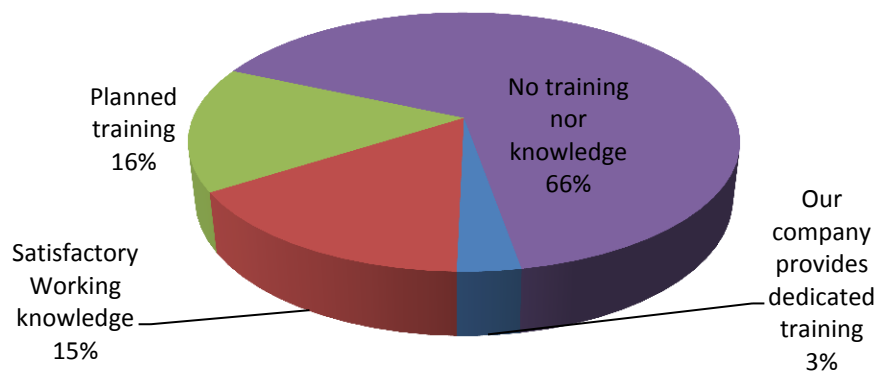
### Q.10 - Production - ES, IT, FR



### Q.10 - Production - ES, IT, FR



### Q.10 - HR Management - ES, IT, FR



### Q.10 - HR Management - ES, IT, FR



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## Remarks and conclusions

### Conclusions from the survey

- More than the half of the companies are implementing Industry 4.0 related activities only partially or not at all
- Suppliers are more active than final manufacturers. As competition is on costs either the company increase the volume of production either the production's cost shall decrease
- Impact /planning of Industry 4.0 is dimension dependent. The bigger the company, the higher the automation efforts
- Industry 4.0 related concepts and language are not yet standardized nor widespread. In some cases it is perceived as digitalisation (even office digitalisation!!), others perceive it as the impact of automation
- The Industry 4.0 “buzz” is slowing down after the initial hype



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## Remarks and conclusions

### -Pragmatic recommendations from larger research-

Five added value application of Industry 4.0:

- Digital performance management
- Predictive maintenance
- Yield, energy and throughput optimization
- Next-level automation
- Digital quality management

McKinsey Digital (2016) / Holger-Schmidt (2016)



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