What’s the attitude of Spanish workers toward automation and what are they doing about it?

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Introduction

Robotics, automation and artificial intelligence (RAIA) are changing whole industries and, with them, the kind of tasks that workers are expected to perform and the abilities they need to perform such tasks. Are workers worried? Are they improving their employability?

Joint project between the Open University of Catalonia and the Future for Work Institute, an independent observatory of the future of work.

Research questions:
1. What are the perceptions of Spanish workers on the impact of RAIA on their industry and their work? Are these perception different for shorter (now), medium (5 years) and long (10 years) time horizons?
2. What are the characteristics of those workers more and less worried by the potential impact of RAIA?
3. Are Spanish workers updating their skills in order to improve their employability?
4. What is the role, if any, of work complexity in the workers’ perceptions about RAIA and their effort of skill updating?
Methods

Measures (1):

• Perceptions on the impact of RAIA:
  • Worry: Brougham & Haar’s (2018) scale on employees awareness of smart technology, artificial intelligence, robotics, and algorithms
    • used term “machines or software”
    • Referred to today (C-alpha 0.887), in 5 years (C-alpha 0.893) and in 10 years (0.894)
    • 3 time horizons highly correlated: averaged for an overall worry scale
  • Optimism: one additional question, referred to today in 5 years and in 10 years
    • 3 time horizons highly correlated: averaged for an overall optimism scale
Measures (2):

- **Professional update effort:** “adaptation and optimization” dimension taken from Van Der Heijde & Van Der Heijden (2006) employability scale, adapted to 5-point scale.
  
  “preparing for future work changes in a personal and creative manner in order to strive for the best possible job and career outcomes”
  
  Cronbach alpha: 0.850

- **Work complexity:** Zacher, H., & Frese, M. (2011) scale
  
  Handles difficult tasks; makes difficult, complex decisions; uses all their knowledge and skills; learns new things at work
  
  Cronbach alpha: 0.775

**Survey respondents:**

- Base of workers affiliated to UGT, one of the major trade unions in Spain
- Base of workers collaborating in Spain with Randstad, HR and employment services provider
- Base of associates to the Future for Work Institute
- Second semester of 2018
Sample

- 1.559 active workers in Spain
- Not representative of Spanish workers
  More men, more 41-55 y.o, better educated,
  more employees, more managers, more professionals

**Education (%)**

**Age (%)**

- Men
- Women

**Education (%)**

- Below primary
- Primary
- Secondary Bacc.
- Vocational training
- Univ. degree
- Masters
- Ph.D.

**Age (%)**

- <26
- 26-30
- 31-35
- 36-40
- 41-45
- 46-50
- 51-55
- 56-60
- 61-65
- >65

- Service and sales employees
- Administrative support staff
- Scientific and intellectual professionals
- Managers
- Middle level technitians and professionals
- Other
1. What are the perceptions of Spanish workers on the impact of RAIA on their industry and their work?
Profiles
Degree of concern and optimism

Optimistic
Ambivalent
Disinterested
Pessimist

Optimism, average 0, 5, 10 years

Concern, average 0, 5, 10 years
2. What are the characteristics of those workers more and less worried by the potential impact of RAIA?

<table>
<thead>
<tr>
<th></th>
<th>Disinterested</th>
<th>Pessimist</th>
<th>Optimistic</th>
<th>Ambivalent</th>
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<tbody>
<tr>
<td>Gender</td>
<td>Woman</td>
<td>Man</td>
<td>Man</td>
<td>Woman</td>
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<tr>
<td>Age</td>
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<td>46–60+ y.o.</td>
<td>41–45</td>
<td>26–30 46–60</td>
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<td>training</td>
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<tr>
<td>Seniority</td>
<td>Less 1 year</td>
<td>10 years or more</td>
<td>Independent worker, business owner</td>
<td>1 to 5 years</td>
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<tr>
<td>Work type</td>
<td>Cooperativist, civil servant</td>
<td>Independent worker, business owner</td>
<td>Management R&amp;D</td>
<td>Administration, accounting, finance</td>
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<td>Client service</td>
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<td>Human resources</td>
<td>Other professional services</td>
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<tr>
<td>Functional area</td>
<td>Sales Operations, purchases, logistics, manufacturing</td>
<td>Technology and information systems Other professional services</td>
<td>Management R&amp;D Legal Marketing Human resources</td>
<td>Administration, accounting, finance Client service Marketing Other professional services</td>
</tr>
</tbody>
</table>
3. Are Spanish workers updating their skills in order to improve their employability?

- They say they are: average of 4.1 in a 1 to 5 scale
Who are updating their professional skills?

- Not those who are worried, but the optimistic (Spearman’s rho correlation: 0.091, p=0.000)
- No gender differences
- Younger (up to 45 y.o.)
- Complex relation to education
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![Bar chart showing professional updating by seniority](chart.png)
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- Younger (up to 45 y.o.)
- Complex relation to education
- New to the company
- Self-employed, employed – not cooperativist or civil servant
- Not in largest companies (over 1250 employees)
4. What is the role, if any, of work complexity in the workers’ perceptions about RAIA and their effort of skill updating?

Work complexity: handles difficult tasks; makes difficult, complex decisions; uses all their knowledge and skills; learns new things at work.
Complexity and perceptions

Optimistic profiles have more complex work (Spearman’s rho correlation: 0.195; p=0.000); those who worry a less complex work (Spearman’s rho correlation: -0.138; p=0.000)
Complexity and professional updating

- People with more complex jobs tend to update their professional skills more (Spearman’s rho correlation: 0.167; p=0.000)
Concluding remarks

- People can be optimistic and pessimist toward technology at the same time
- Optimism/worry correlates with professional updating - People who update are more optimistic, people who don’t update are more pessimist. Causalty?
- Who doesn’t update: pessimistic, older, long seniority, cooperativist /civil servant, largest company, non-complex work
  - Policy: focus on these groups
  - Companies:
    - Pay more attention in larger companies
    - Give optimistic message about RAIA?
    - Increase work complexity
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