

**INNOVATION AND DIGITALIZATION IN THE  
CONSTRUCTION SECTOR IN SPAIN.  
STATE OF PLAY**



**Jesús Cruces Aguilera**  
Fundación 1º de Mayo

Rome, 23th of January, 2020  
CGIL NAZIONALE



# OUTLINE

Sector overview: key trends and level of innovation



Digitalization: technological innovations and impacts



Sector policies: initiatives and developments



The role of labour relations in digitalization



Future: driving factors of change and obstacles



# SECTOR OVERVIEW: KEY TRENDS AND LEVEL OF INNOVATION

## ❑ *Certain level of dynamism and recovering activity*

- GDP (var. 20017-2018): Construction, 8,3%, Total, 2,7%
- Employment (var. 20017-2018): Construction, 7,6%, Total, 4,8%
- It represents 6,3% of total employment in 2018 (12% in 2008)

## ❑ *Employment masculinised and aged*

- 91,3% of workers are men; only 19% of workers are under 35 years old (2018)

## ❑ *Precariousness*

- Self-employment: Construction, 27,3%, Total, 16%
- Temporary employment: Construction, 40,7%, Total, 26,8%

## ❑ *Highly atomized and fragmented sector*

- 86,3% are micro-companies (1-9 workers)

## ❑ *Low level of innovation*

- Construction: 1,4% of total internal expenditure in R+D
- Only 0,1% sector's companies carry out R+D activities (big companies, 250 workers and more)



# DIGITALIZATION: TECHNOLOGICAL INNOVATIONS AND IMPACTS

## *Digitalization process is still incipient and uneven*

- First steps on the implementation of digital change
  - *Difficulty of measuring current impacts* (work organization, working conditions, labour market)
- Significant differences on digital implementation among branches

Building	Roads	Machinery	Materials
↓	↑	↑	↑



# DIGITALIZATION: TECHNOLOGICAL INNOVATIONS AND IMPACTS

*Several technological innovations, with different implementation*

## ***Electronic construction modelling***

- Generation and management of data. They allow making changes in real time, reducing losses of time and resources in design. All occupations can participate in the process.

## ***Coordination and evaluation applications***

- Applications to collect data and information and to establish communications in the work process (*EPC Tracker, PEC management systems, Digitization of agendas, etc.*).

## ***Digitalization of crafts***

- Existing crafts are changing from technological innovations, both in products and processes. (for example, hoaus automation)

## **Machines and tools**

- High innovation in machinery and work tools, which affect different work processes and professional profiles (for example, the use of laser beams, digitized lifting, graders, drones, etc.).

## **Materials**

- High innovation in materials, both in existing and in new ones (such us, nanomaterials, waste reuse, etc.). The use of recycled product in building is promoted.

# IMPACTS ON WORK ORGANIZATION AND VALUE CHAIN

## a) Value chain: *all parts of the value chain are expected to be affected*

- ❖ Research and development, Planning and project, Logistics, Suppliers, Building (on/in site) Marketing and Maintenance phases
- ❖ All figures would be affected (contractors, subcontractors, suppliers)
- ❖ Greater traceability would impact on outsourcing chain (more clarification and standardization of processes)

## b) Expected changes in the **productive and work organization** of the sector

Identified changes
<ul style="list-style-type: none"><li>• Flexibility and standardization of production processes</li><li>• Information and traceability of the value chain</li><li>• Productivity</li><li>• Quality and safety in the construction process</li><li>• Changes in business culture</li></ul>

Open debate
<ul style="list-style-type: none"><li>• Responsibility</li><li>• Administrative process</li><li>• Data and information</li><li>• Software</li><li>• Heritage of the sector</li><li>• Costs of change</li><li>• Restructuring and relocations</li></ul>



# IMPACTS ON WORKING CONDITIONS

## *Too soon to be fully measured*

### *Better conditions are expected*

- Improvement of existing occupations (qualification)
- Traceability: more transparency in hiring (vs. informal economy)
- Control vs. workers' autonomy
- Business' position: traceability would impact on absenteeism rates
- Industrialization:
  - Ergonomics, accidents, occupational risk prevention (better safety conditions, environment under control), work- life balance, etc.
  - More stable work, less geographical mobility, greater professional development.
  - Working in a warehouse: impact on workers' representation and labour relations and labour rights (collective agreement)

### *Polarization of working conditions*

- Existence of differences in digital competences among occupations and parts of the value chain

**Issue of debate:** last labour reforms → devaluation of working conditions



# IMPACTS IN THE LABOUR MARKET

*The impact is not unidirectional*

## Trends:

- Job destruction
- Creation of jobs
- Change of jobs

**Elements of change** in professional occupations:

- Specialization and versatility
- Qualification and certification
- Incorporation of traditional work system
- Professional profiles and value chain
- New profiles and job creation



## Vocational training as key factor

- ✓ Different training needs
- ✓ Sufficient and adequate training
- ✓ Combination of traditional and digital skills.
- ✓ All agents should be involved
- ✓ Digital profiles to attract labour force to the sector

**Issue of debate:** what kind of jobs are offered? (productive structure)





# SECTOR POLICIES: INITIATIVES AND DEVELOPMENTS

- ❖ **Digitalization policy: preliminary aspects**
  - Nor digital strategy or plan** as in the industry sector (Industry 4.0)
  - Changes motivated by the **regulatory framework** (EU to national level), both on digitalization and environmental policies
- ❖ **Digitalization initiatives by the Administration (national Level)**
  - BIM Commission**: first steps
  - BIM Inter-ministerial Commission**: new impetus
- ❖ **Main developed actions by the *BIM Inter-ministerial Commission***
  - Call for grants** to professional associations for training on BIM
  - Internal training** of Central Administration on BIM
  - BIM Experiences** developed: at two stages (design and execution)
- ❖ **Some experiences at regional and local level:** País Vasco, Cataluña, Aragón (regional); Barcelona, Rivas Vaciamadrid (local)
- ❖ **Other initiatives:** StmarCities, Smart Building, Universities, Professional Associations, etc.
- ❖ **Environmental and renovation policies:** *wide room of improvement*
- ❖ **Debate:** strategy and role of the administration and sector policies



# THE ROLE OF INDUSTRIAL RELATIONS IN DIGITALIZATION

## Industrial relations system: the construction sector

Inter- Sectorial Framework Agreement (2018-2020)

General Collective Agreement of the  
Construction Sector

Sector Agreements

Provincial or Autonomous  
Agreements

***VI General Collective Agreement of the Construction  
Sector (2017): 1.1 millions of workers covered***



# THE ROLE OF INDUSTRIAL RELATIONS IN DIGITALIZATION

## *Social partners are aware of digitalization, but...*

- Not a matter of negotiation by **itself**
- They are being cautious on include it on **collective bargaining**, because..
  - ✓ There is a low degree of digital implementation
  - ✓ The impact of digital change is already addressed in some areas.  
There already are instruments to address digital change
  - ✓ Collective agreement is flexible enough to incorporate new issues
- Shared **diagnosis** of the sector's challenges



# THE ROLE OF INDUSTRIAL RELATIONS IN DIGITALIZATION

## Issues addressed on collective bargaining

- Vocational training
- Qualifications and Professional categories
- Prevention of Occupational Hazards
- Professional Card of the Construction Sector

## Instruments of social partners

### Labour Foundation of Construction (Bipartite)

- ❑ Shared diagnosis and anticipation of change, addressing different issues without the need to negotiate directly by social partners
- ❑ Duties of detection needs, training, certification, etc.
- ❑ BIM: training courses



# FUTURE: IDENTIFYING FACTORS OF DIGITAL CHANGE

## Driving factors

- Sector regulations
- Internationalization of companies
- Size of customer
- Professional qualification and better working conditions
- Young people and women
- Suppliers' involvement
- Participation of social partners

## Obstacles

- Business size
- Sector and territorial features
- Traditional culture
- Investment and costs
- Lack of sector policies
- Digitalization as marketing strategy
- Competence diversity

**Social partners (unions): *key actors in the shift***

## Core elements

Representativeness and incidence

Sector complexity and fragmentation

Cultural change of the sector



Thanks for your attention!

[www.1mayo.ccoo.es](http://www.1mayo.ccoo.es)

 @fundacion1mayo

 Fundación 1 mayo



<https://discusproject.eu/>