EWC
Processing financial information as a key factor for effective communication and negotiation

VS/2019/0025

III STEERING-GROUP MEETING

Madrid – 19-20 November 2019

EWC in face of Industry 4.0

By Vilma Rinolfi

Cisl

CISL

What is Industry 4.0?

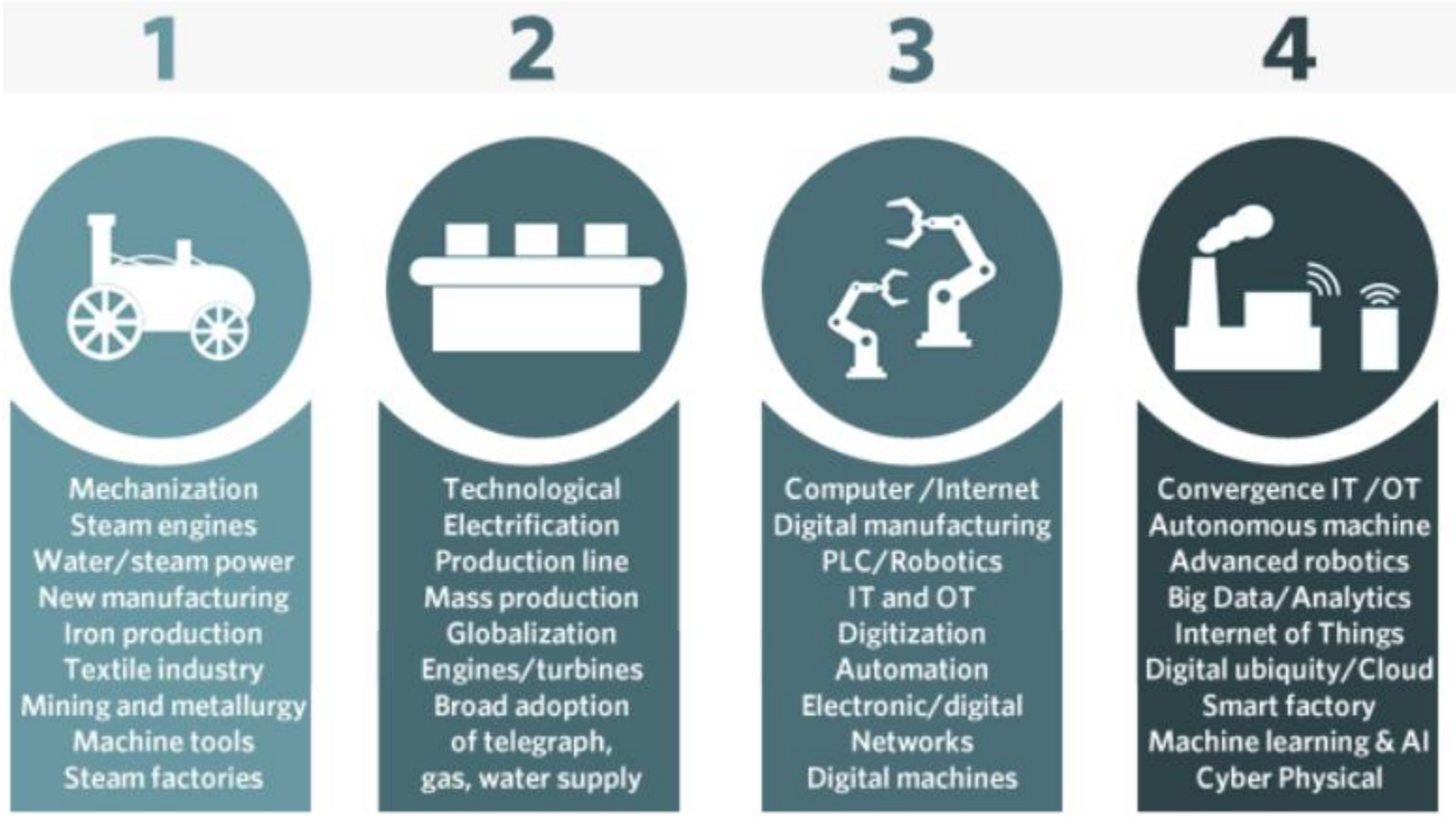
The future of work…

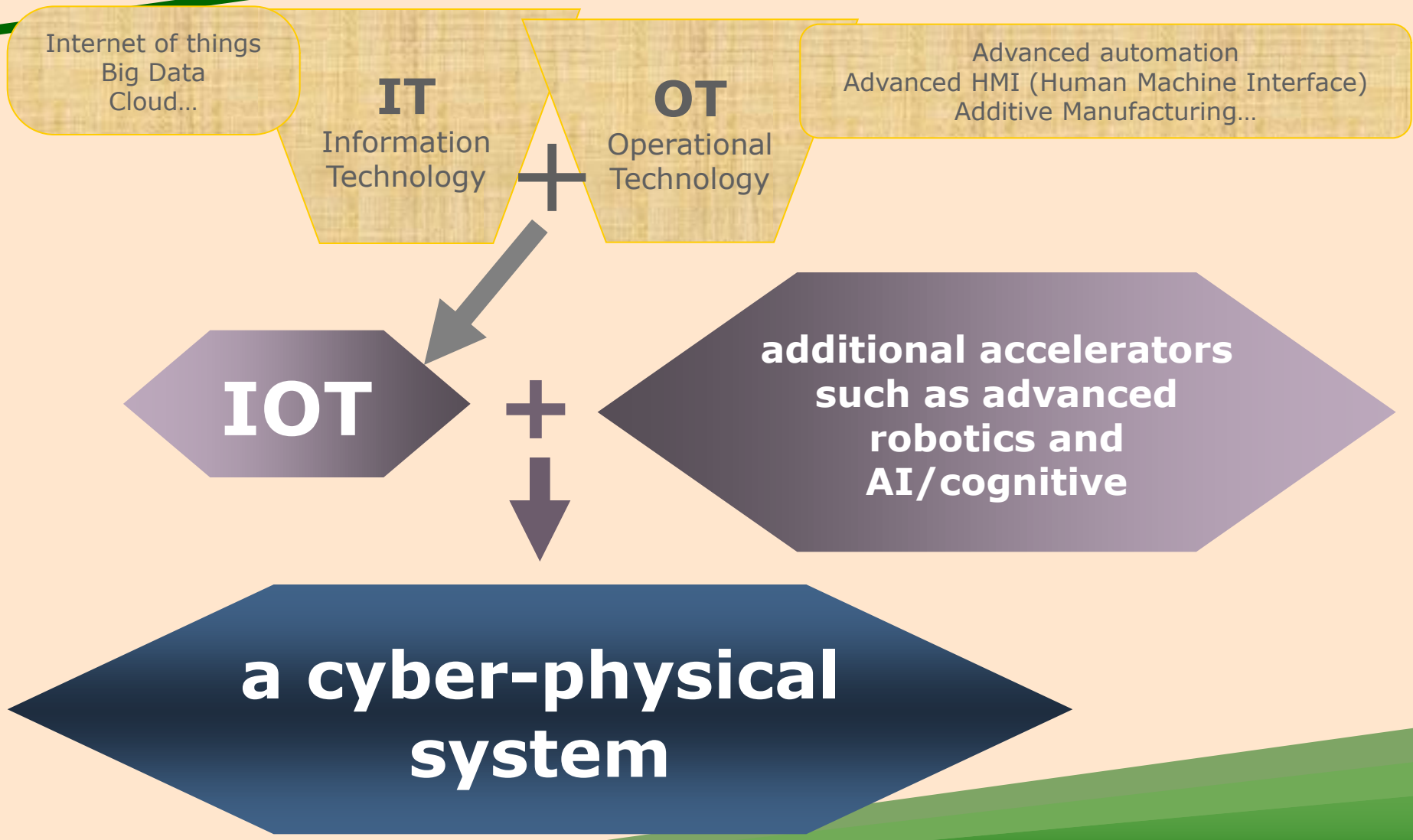
… and the role of workers' representatives

Conclusions?

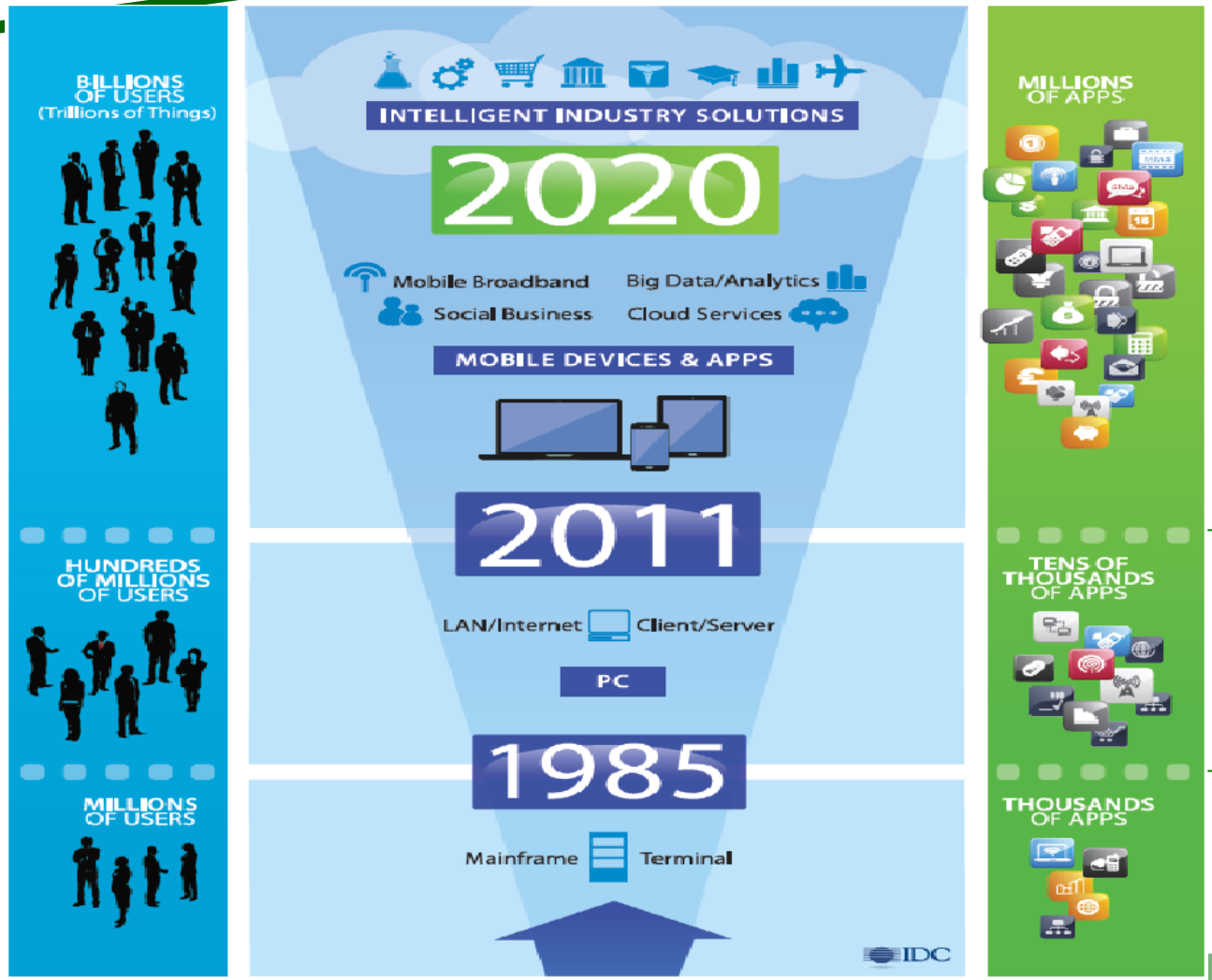
What is Industry 4.0?

THE FOUR STAGES OF INDUSTRIAL REVOLUTION

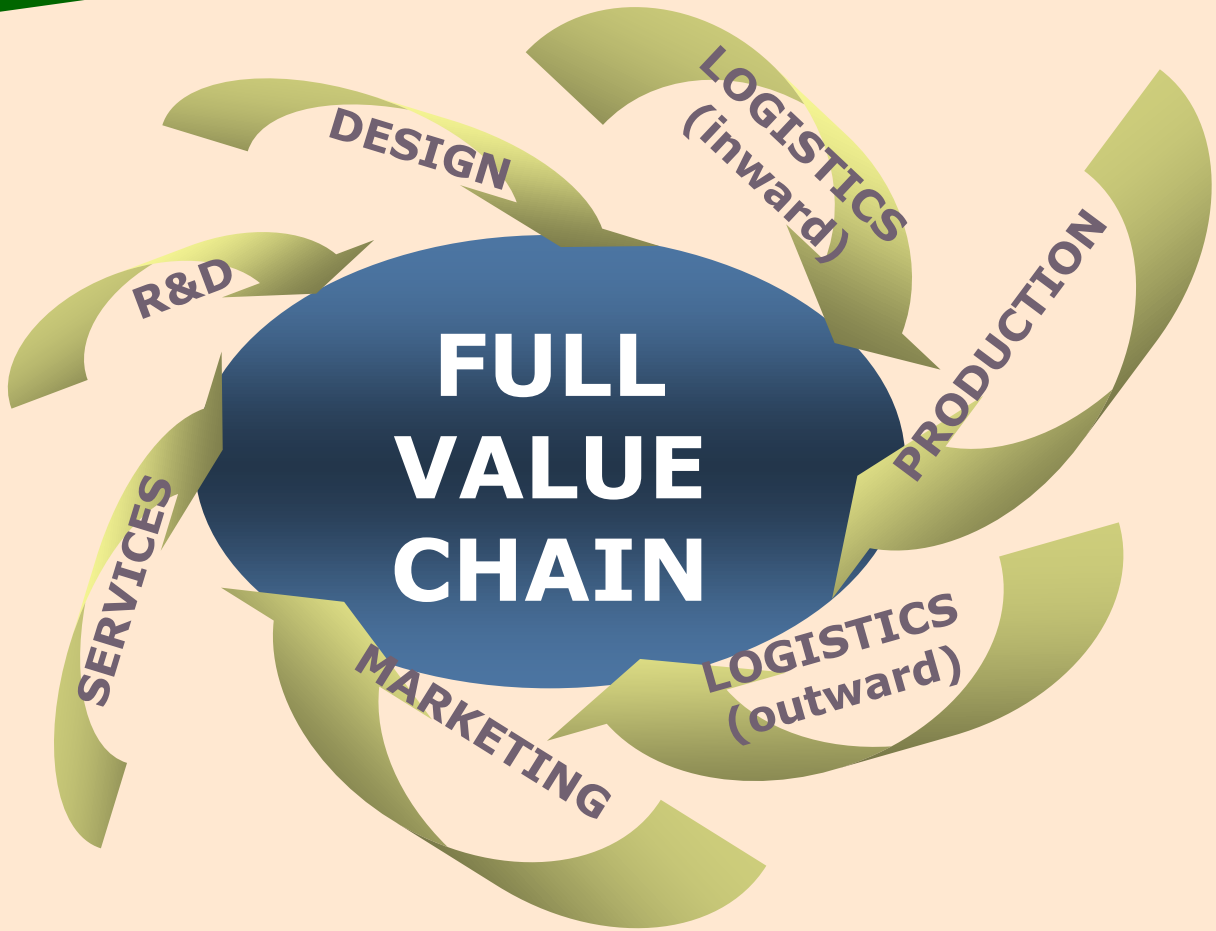



Internet of things
Big Data
Cloud…
IT
Information Technology
+
OT
Operational Technology
Advanced automation
Advanced HMI (Human Machine Interface)
Additive Manufacturing…
IOT
+
additional accelerators such as advanced robotics and AI/cognitive
a cyber-physical system

From the first to the THIRD PLATFORM



Source: International Data Corporation (IDC)



In the manufacture means that the full life cycle of the product value chain is organised and controlled in real time

According to the Boston Consulting Group, Industry 4.0 is the convergence and application of nine digital industrial technologies

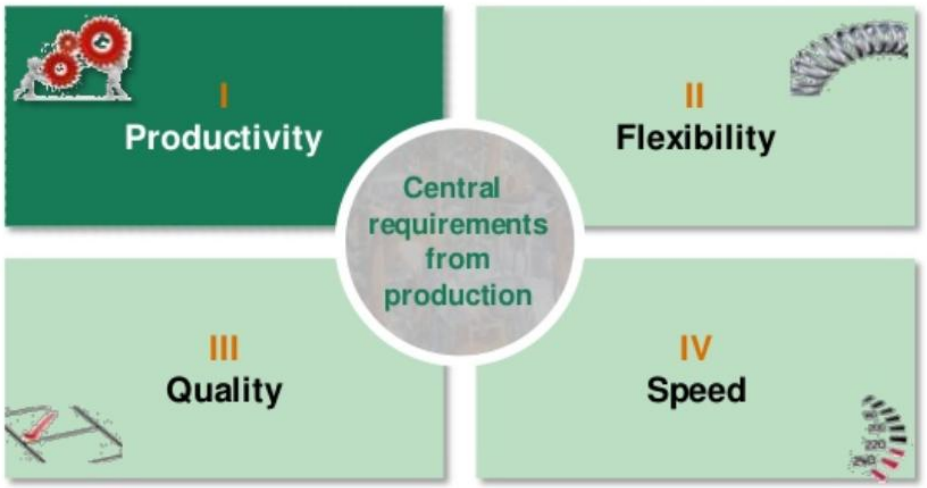
1 Advanced Manufacturing Solutions	Autonomous, cooperating industrial robots Numerous integrated sensors and standardized interfaces
2 Additive Manufacturing	3D printing, particularly for spare parts and prototypes Decentralized 3D facilities to reduce transport distances and inventory
3 Augmented Reality	Augmented reality for maintenance, logistics, and all kinds of SOP Display of supporting information, e.g., through glasses
4 Simulation	Simulation of value networks Optimization based on real-time data from intelligent systems
5 Horizontal/ Vertical Integration	Cross-company data integration based on data transfer standards Precondition for a fully automated value chain (from supplier to customer, from management to shop floor)
6 Industrial Internet	Network of machines and products Multidirectional communication between networked objects
7 Cloud	Management of huge data volumes in open systems Real-time communication for production systems
8 Cyber-security	Operation in networks and open systems High level of networking between intelligent machines, products, and systems
9 Big Data and Analytics	Full evaluation of available data (e.g., from ERP, SCM, MES, CRM, and machine data) Real-time decision-making support and optimization

Source: The Boston Consulting Group
https://www.slideshare.net/TheBostonConsultingGroup/sprinting-to-value-in-industry-40

Industry 4.0: Benefits

Increased productivity
… e.g., through a higher level of automation that reduces production time, enables better asset utilization and inventory management

Increased quality
… of products via sensors and actuators that monitor the current production in real time and quickly intervene in case of errors



Increased flexibility
… e.g., manufacturing flexibility through machines and robots that can execute the production steps for a large number of products

Increased speed
… from the first product or factory idea to the finished product through consistent data and, e.g., new simulation opportunities.

Manufacturing conditions

Safety	Working conditions	Training & Collabo-ration	Environm. protection	Innovative capability
More occupational **safety** through increased automation	Better **working conditions** through ergonomically adapted workstations	Increased **collaboration** in the production network through consistent data availability	Better **environment protection** through optimized use of resources (e.g., more energy-efficient operation of machinery)	Increased **innovative capability** through new technological possibilities in manufacturing

Source: The Boston Consulting Group
https://www.slideshare.net/TheBostonConsultingGroup/sprinting-to-value-in-industry-40

…digital transformation of manufacturing leverages **third platform technologies** and **innovation accelerators** in the **convergence of IT and OT**

Cyber-physical systems: industrial systems capable to **communicate and network them**

- **Connected** factories and industry
- **Smart** decentralised and self-optimising systems
- Digital supply chain in the information-driven **cyber-physical environment**

The **full life cycle of the product value chain** is organised and controlled in real time

…a **strategic and staged** approach

PROCESSING POWER

from 1977 to 2017 the processing power increased 67,000,000 time.

CONNECTIVITY

example Whatsapp: founded in 2009.
April 2015: 800 million active users
January 2017: 1,200 million active users

The future of work

Industry 4.0 is not just about the above-mentioned technologies. It also looks at the impact on and role of society and ***workers***

Quantitative aspects

employment growth and labour productivity growth trends and projections, Northern, Southern and Western Europe, 2007–20

Subregion/country	Employment growth, 2007–20 (percentages)					Labour productivity growth, 2017–20 (millions)			
	2007–16	2017	2018	2019	2020	2017	2018	2019	2020
Northern, Southern and Western Europe		1.3	0.8	0.4	0.1	0.9	1.3	1.5	1.5

Source: ILO modelled estimates, November 2018.

ILO: Work for a brighter future. Global Commission on the future of work

Estimations of future labour market transformation

	SOURCE	ESTIMATES
Technology	Frey and Osborne, 2015	47 per cent of workers in the United States are at risk of having jobs replaced by automation.
	Chang and Phu, 2016	ASEAN-5: 56 per cent of jobs are at risk of automation over the next 20 years.
	McKinsey Global Institute, 2017	While less than 5 per cent of all occupations can be automated entirely using demonstrated technologies, about 60 per cent of all occupations have at least 30 per cent of constituent activities that can be automated.
	OECD, 2016	An average 9 per cent of jobs in the OECD are at high risk of automation. A substantial share of jobs (between 50 and 70 per cent) will not be substituted entirely but a large share of tasks will be automated, transforming how these jobs are carried out.
	World Bank, 2016	Two-thirds of jobs in the developing world are susceptible to automation.
	WEF, 2018	Nearly 50 per cent of companies expect that automation will lead to some reduction in their full-time workforce by 2022.

ILO: Work for a brighter future. Global Commission on the future of work

Direct employment losses in 2030 as a result of automation (millions)

	High cost	Low cost
EU28	30.8	42.0
US	21.3	29.8
Japan	4.8	6.7
China	49.0	68.6
India	20.2	28.2
South Korea	2.4	3.3
Rest of the world	67.4	89.2

Source: *Cambridge Econometrics analysis*

Eurofound (2019), Technology scenario: Employment implications of radical automation, Publications Office of the European Union, Luxembourg.

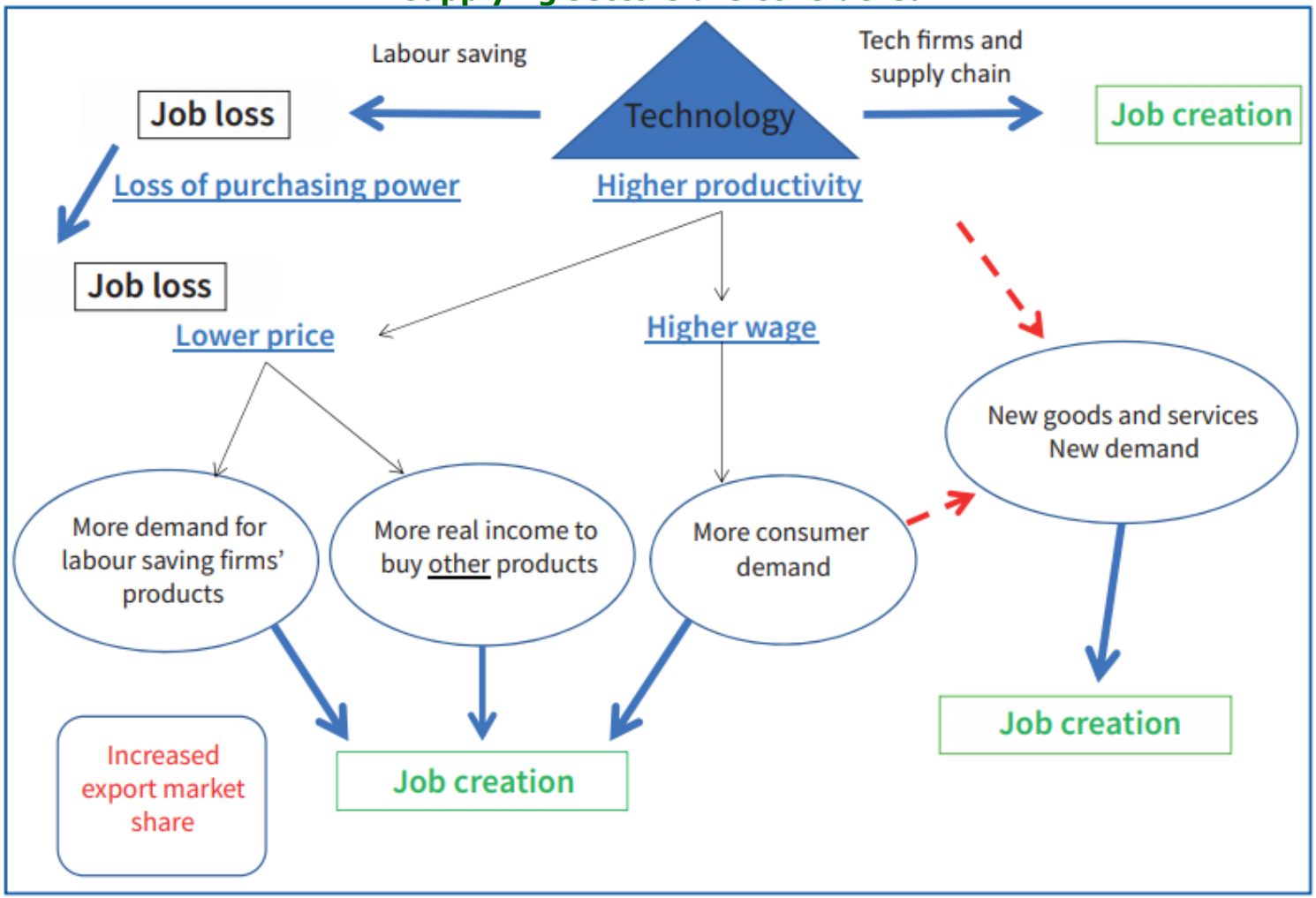
Everyone agrees that many jobs will be replaced by automation

QUANTITY OF WORK

BUT

The implication of applying the automation rates is that there would be **30–42 million fewer people in employment**, *depending on the scenario, than in the baseline by 2030* **before wider effects** *such as the stimulus to jobs in equipment-supplying sectors are considered (Eurofound)*

… before wider effects such as the stimulus to jobs in equipment-supplying sectors are considered…



Eurofound (2019), The future of manufacturing in Europe, Publications Office of the European Union, Luxembourg.

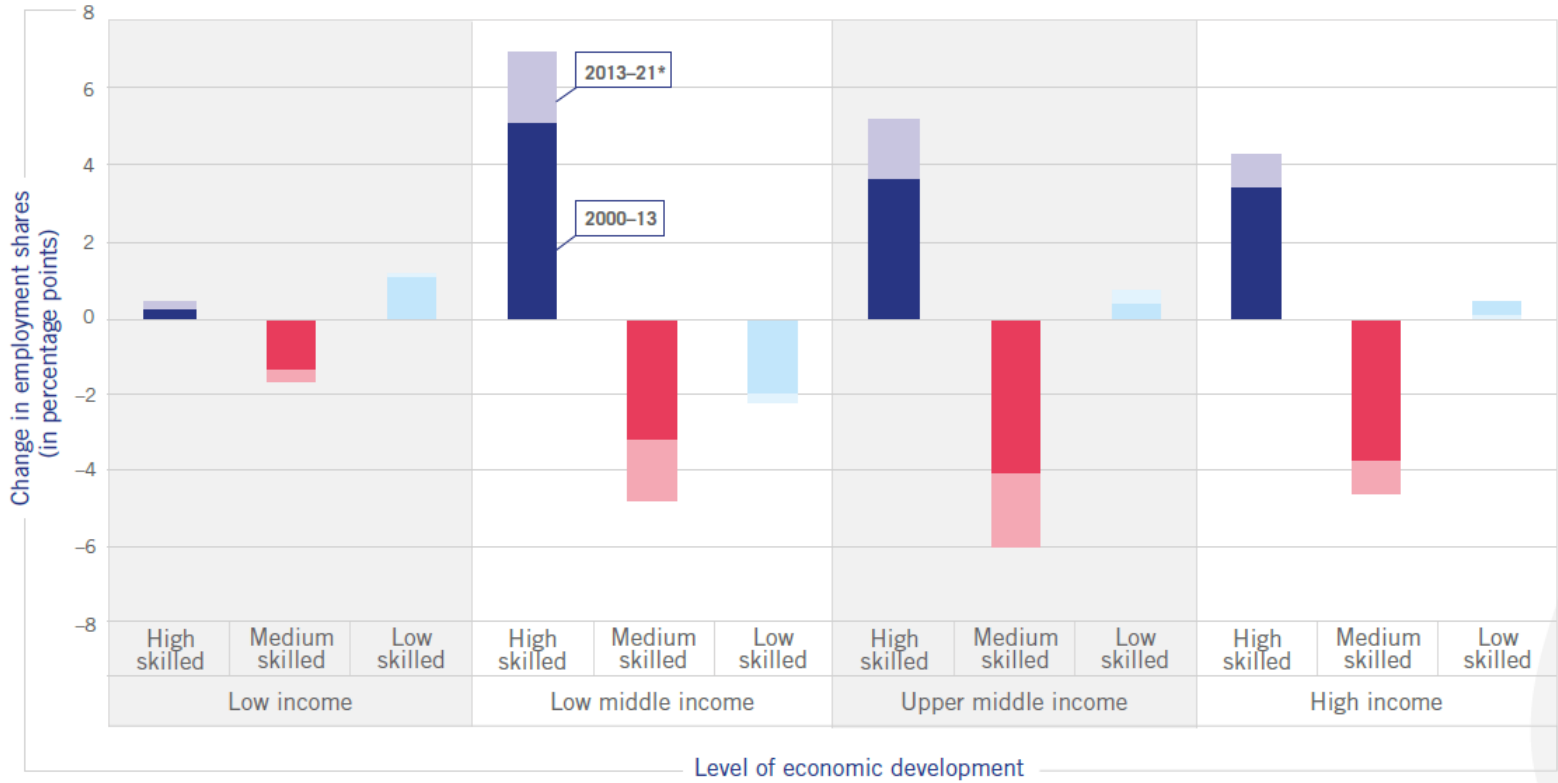
Qualitative aspects

New types of jobs and employment are changing the nature and conditions of work by

- **altering skills requirements**
- **replacing traditional patterns of work and sources of income**

ILO: The Global Commssion on the future of work

Job polarisation around the Globe



*Notes: Change in employment shares, in percentage points. * Forecasts after 2016.*

Source: ILO Trends Econometric Models, November 2016.

ILO: The impact of technology on the quality and quantity of jobs

Employment change by occupations wage percentile in 2018 and growth since 2011 in EU28, by occupation

	Employment (millions)	Employment change, 2011–2018	Wage percentile
10 fastest growing large-employing occupations			
Business and administration professionals	1.04	38	93
Production and specialised services managers	1.09	17	96
ICT professionals	0.41	16	94
Science and engineering professionals	1.95	16	93
Assemblers	1.69	12	42
Science and engineering associate professionals	3.31	12	75
Electrical and electronic trades workers	1.01	8	62
Numerical and material recording clerks	1.62	6	61
Building and related trades workers, excluding electricians	0.88	6	42
Labourers in mining, construction, manufacturing and transport	1.98	3	30

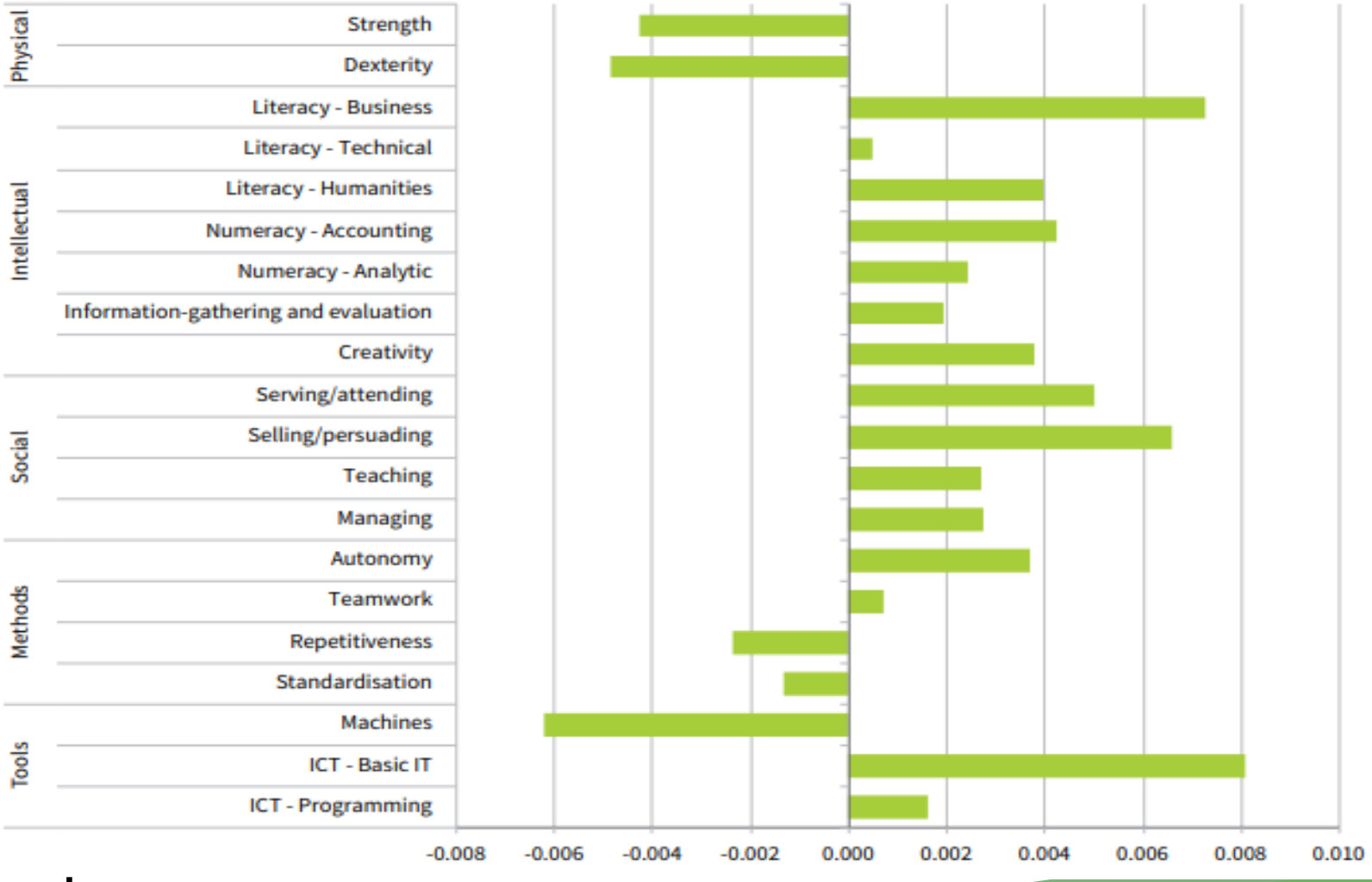
Large-employing occupations are those with more than 400,000 employed in the EU28

Eurofound (2019), The future of manufacturing in Europe, Publications Office of the European Union, Luxembourg.

	Employment (millions)	Employment change, 2011–2018	Wage percentile
10 fastest declining large-employing occupations			
Handicraft and printing workers	0.88	-9	46
Administrative and commercial managers	0.56	-6	99
Business and administration associate professionals	1.58	-3	77
General and keyboard clerks	0.78	-2	52
Metal, machinery and related trades workers	4.88	-2	57
Food processing, wood working, garment & other craft and related trades workers	3.07	-2	27
Stationary plant and machine operators	4.25	2	44
Drivers and mobile plant operators	1.06	2	47
Sales workers	0.83	2	23
Labourers in mining, construction, manufacturing and transport	1.98	3	30

Eurofound (2019), The future of manufacturing in Europe, Publications Office of the European Union, Luxembourg.

Changes in task indices in the EU, up to 2030



Eurofound (2019), The future of manufacturing in Europe, Publications Office of the European Union, Luxembourg.

JOB POLARISATION

- low- and high-skilled occupations have risen
- displacement is high for routine tasks
- middleskilled routine task jobs have been replaced by non-standard forms of employment in both non-routine cognitive and manual task

ILO: The impact of technology on the quality and quantity of jobs

CHANGES IN TASKS
in the EU, up to 2030

Growing tasks:
- INTELLECTUAL
- SOCIAL
- METHODS: AUTONOMY AND TEAMWORK
- TOOLS: ICT

Declining tasks:
- PHISICAL
- METHODS: REPETITIVENESS AND STANDARDISATION
- TOOLS: MACHINES

Eurofound (2019), The future of manufacturing in Europe, Publications Office of the European Union, Luxembourg.

FASTEST GROWING LARGE-EMPLOYING OCCUPATION IN EU:

HIGH WAGE:
Business and administration professionals
Production and specialised services managers
ICT professional
Science and engineering professionals
Science and engineering associate professionals

LOW WAGE
Assemblers

Eurofound
(2019), The future of manufacturing in Europe, Publications Office of the European Union, Luxembourg.

Large-employing occupations are those with more than 400,000 employed in the EU28

FASTEST DECLINING LARGE-EMPLOYING OCCUPATION IN EU:

MEDIUM WAGE
Handicraft and printing workers
General and keyboard clerks
Metal, machinery and related trades workers

HIGH WAGE
Administrative and commercial managers
Business and administration associate professionals

LOW WAGE
Food processing, wood working, garment and other craft and related trades workers

… and the workers' representatives

CISL

CISL laboratory Industry 4.0

ETUC Online survey

MORE ASSESSMENTS

CISL laboratory Industry 4.0

- **Participants**: workers' representatives of 30 medium-large enterprises and experts (trade-union operators and researchers);
- **Data collection** regarding enterprises that have set up projects on Industry 4.0. Interviews involving workers and managers;
- **Analysis** of:
  - ✓ Application of 4.0 technology
  - ✓ Effects on performance, organisation and work
- Build a **community** involving unitary union representative bodies (RSU), trade-union operators, company's technical resources and researchers
- Gradual building of a **common conceptual framework**

Increasing the flexibility of the production system and its ability to respond to markets and customers is one of the most widespread goals of innovation.

Innovation has generated changes and **turbulence in the labour market** everywhere: the trade union tendency has been to **negotiate AFTER such changes instead of BEFORE**.

The **new technologies** make it possible to **considerably reduce the risks of accidents and the physical fatigue of work**, reducing negative repercussions on health. However, **there are also considerable risks**.

Changes in roles and skills are widely reported with **significant differences**. The impact is considerable and situations are created that are **difficult to classify** and include in National Collective Agreements

In favour or against new technologies?

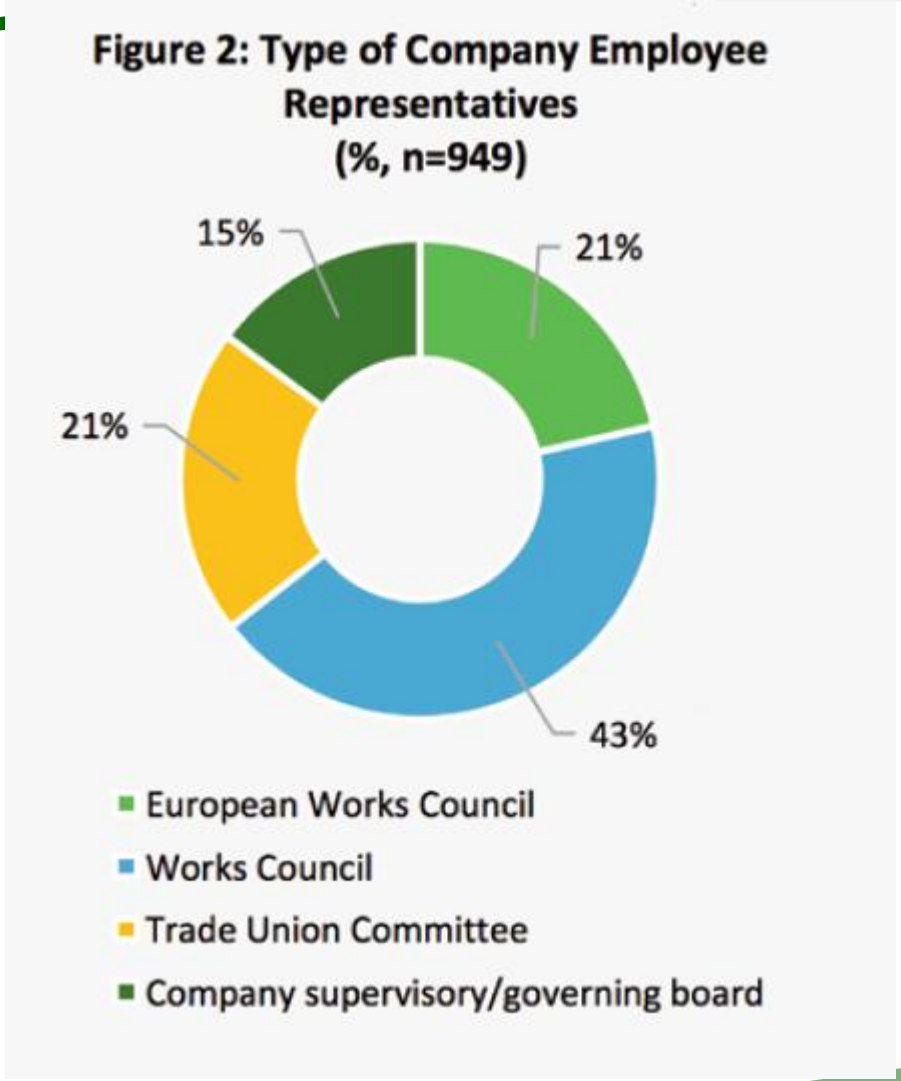
Challenges for the Union

- **A long-term vision**
- **Humanize technological choices:** to understand and discuss the lines of technological development and to develop adequate specialist skills, among workers and trade union representatives
- **Participation, training, representation:** dissemination of operational and organizational participation, strategic participation of the representatives elected by the workers in the strategic and long-term choices of the company. Centrality of training for all actors
- **Review and adaptation of Collective Bargaining issues:** professional frameworks, working hours: different space-time constraints, wages: productivity increases are real and measurable.

ETUC project
"Workers Participation: the key to fair digitalisation"

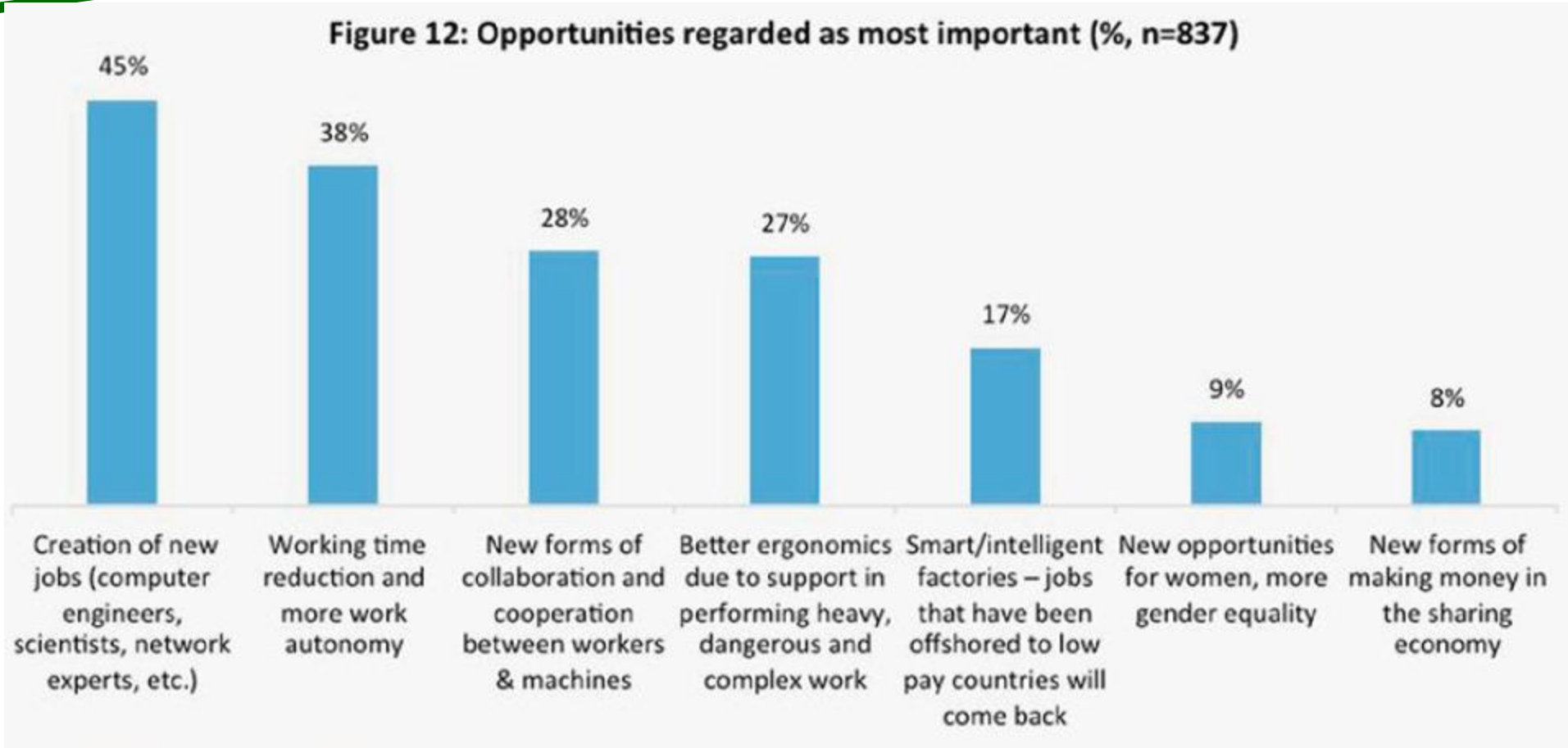
- **Online survey** developed and conducted between June 2017 and June 2018: more than 1,500 responses
- Trade unionists, company level workers representatives (more than 30 European countries) including from EWCs and SE works council members in more than 220 transnational companies
- **A separate survey** section dedicated to online platform workers (crowdworkers)
- Scientific and legal expertise, interviews with around 30 workers representative in EWCs and workers'board level representative in lager multinational companies
- 4 workshops with national ETUC/ETUF affiliates and company representatives
- Objective: Strenghten the coices of workers and trade unions in the public debate on digitalisaizon
- Digitalisation and workers participation: what tradeuions, company level workers and online platform workers in Europe think

ETUC survey

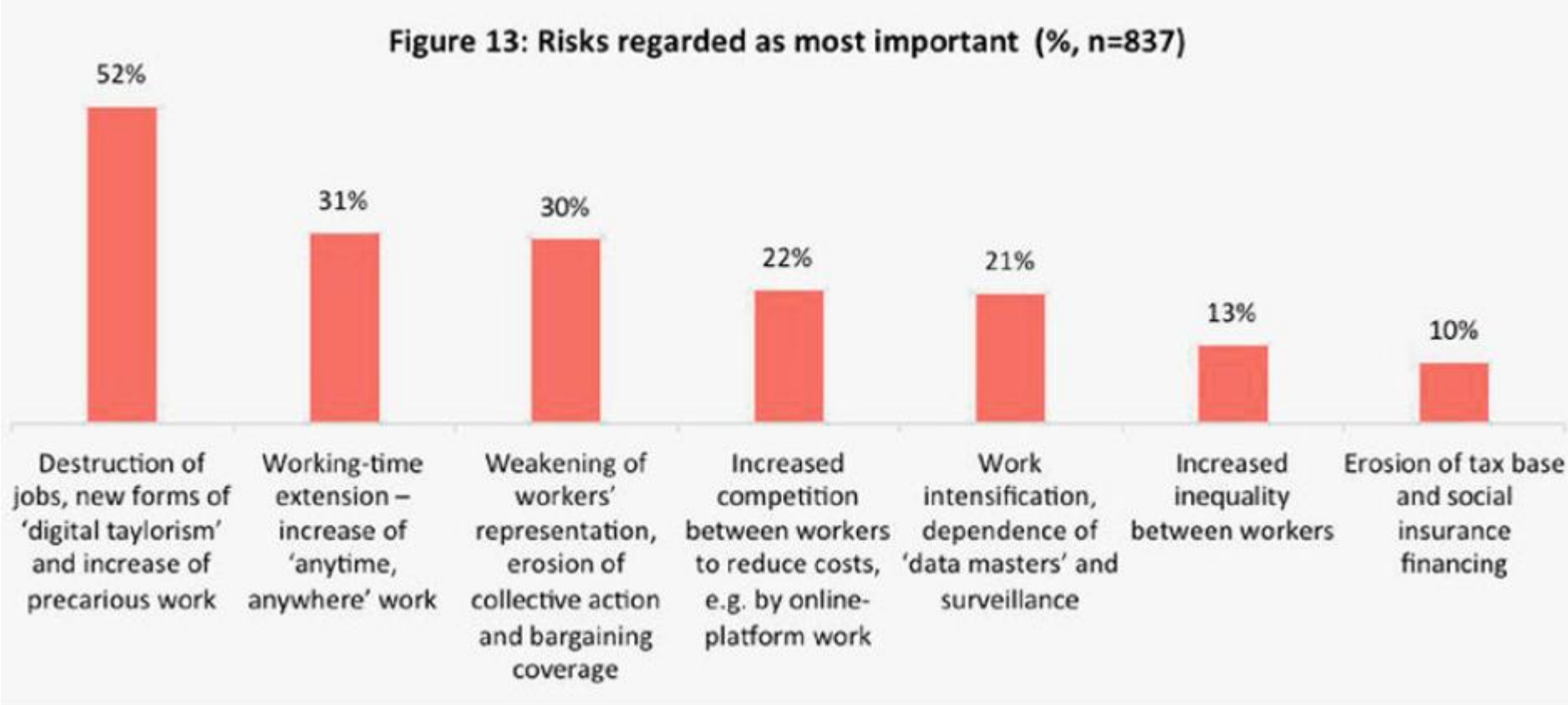


Survey participants

ETUC Digitalisation and workers participation: what trade unions, company level workers and online platform workers in Europe think



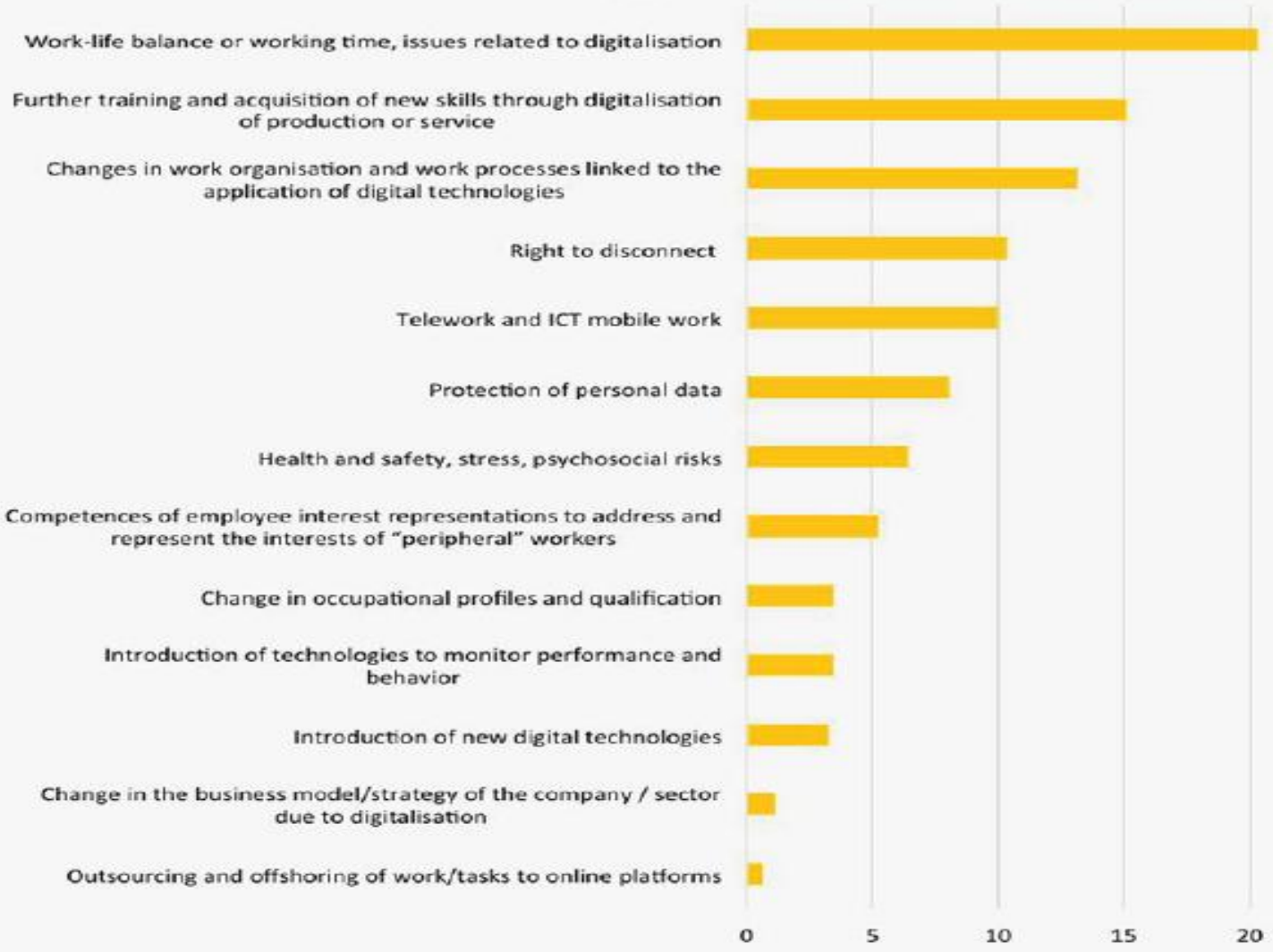
ETUC Digitalisation and workers participation: what trade unions, company level workers and online platform workers in Europe think



ETUC Digitalisation and workers participation: what trade unions, company level workers and online platform workers in Europe think

ETUC survey

Figure 26: Topics that should be addressed by collective agreements at sector or cross-sector level (%, n=908)



ETUC Digitalisation and workers participation: what trade unions, company level workers and online platform workers in Europe think

OPPORTUNITIES:

- Creation of new jobs
- Working time reduction and more work autonomy
- New forms of collaboration and cooperation between workers and machines
- Better ergonomics due to support in performing heavy, dangerous and complex work
- Smart/intelligent factories – jobs that have been offshored to low pay countries will come back
- New opportunities for women, more gender equality
- New forms of making money in the sharing economy

RISKS:

- Destruction of jobs, new forms of "digital taylorism" and increase of precarious work
- Working-time extension – increase of "anytime, anywhere" work
- Weakening of workers'representation, erosion of collective action and bargaining coverage
- Increate competition between workers to reduce costs, e.g. by online-platform work
- Work intensification, dependance of "data masters" and surveillance
- Increate inequality between workers
- Erosion of tax base and social insurance financing

ETUC Digitalisation and workers participation: what trade unions, company level workers and online platform workers in Europe think

ETUC survey: ASSESSMENTS

The 360+ EWC delegates that participated in the survey provided **quite a mixed assessment of EWCs activities** and European information and consultation practices across countries and company workers representatives

practices positive and having a positive impact, **even in countries where local workers participation rights were quite weak**

Action woefully insufficient

Disparities do not only arise from management, management neglect or failure, but also from **a lack of resources and know-how on the part of local workers representatives.**

ETUC Digitalisation and workers participation: what trade unions, company level workers and online platform workers in Europe think

MORE ASSESSMENTS

ETUI: Issues to be addressed **more urgently in bargaining and collective bargaining**:

- more training (equal opportunities, home office, older employees, professional stress);
- working time (right to disconnect, mobile work, mobile telework, behavior monitoring);
- data protection;
- autonomy potentials;
- job security;
- staff participation;
- salary increase;
- internationalization;
- transparency;
- digitalisation dividend;
- less control.

ILO:
What needs to be analyzed is the **way in which technologies are integrated**, and the **methods of management.**

EUROFOUND:
Problematic aspects of working conditions for future

- Health and Safety
- Working time arrangements
- Personal data protecion
- Implications for social dialogue

Eurofound (2019), The future of manufacturing in Europe, Publications Office of the European Union, Luxembourg.

ILO, The Threat of Physical and Psychosocial Violence and Harassment in Digitalized Work

Aline Hoffmann (ETUI) "Facing digitalization: the role of worker participation in the introduction of new technologies"

Conclusions?

BIG CHANGES

- Production systems
- Vision of work
- Worker profile
- Company/Society relationships

?

OPPORTUNITIES

- Job-creation
- working time reduction
- new forms of collaboration
- better ergonomy
- less phisical fatigue
- new opportunities for women
- Continuous Vocational Training
- new types of job
- professional growth
- **...?**

RISKS

- destruction of jobs,
- extension of working hours,
- constant connectivity, loss of autonomy, stress,
- asocial working hours (for example, evening and night work)
- working alone or in relative isolation or in remote places, less face-to-face communication
- weakening of worker representation,
- new devices for analysing people (and monitoring performance) as well as greater ease of decision-making regarding whom to hire and dismiss,
- *work in situations with no - or lacking - social protection,*
- *greater difficulties for the transition from the informal economy to the formal economy (informal work involves absence of labor rights, absence of social protection and social dialogue),*
- **...?**

What should be the main topics?

TRAINING

- "Update" trade unionist vision on new jobs and new workers' needs
- Improve the know-how of workers and their representatives

INFORMATION/ CONSULTATION/ PARTICIPATION

- Identify common risks that require intervention
- A shared common standard of intervention

SHARED RULES

- Review and adaptation of Collective Bargaining issues
- Common/European/Global rules

ANTICIPATE

- Intervene/negotiate BEFORE change takes place

...?

Thank you for your attention

Sources

CISL laboratory Industry.4

Eurofound (2019), The future of manufacturing in Europe, Publications Office of the European Union, Luxembourg.

ILO: Work for a brighter future. Global Commission on the future of work

ETUC project "Workers Participation: the key to fair digitalisation"

ETUC Digitalisation and workers participation: what trade unions, company level workers and online platform workers in Europe think

Eurofound (2019), Technology scenario: Employment implications of radical automation, Publications Office of the European Union, Luxembourg.

https://www.i-scoop.eu/industry-4-0/

International Data Corporation (IDC)

ILO: The impact of technology on the quality and quantity of jobs

The Boston Consulting Group https://www.slideshare.net/TheBostonConsultingGroup/sprinting-to-value-in-industry-40