

Stakeholder Conference

Digital transformation in the workplace

A sector-specific study of the European chemical, pharmaceutical, rubber and plastics industry

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18.10.2018, Tallinn



About us

Prognos analyses long term developments ...



- Prognos Economic Outlook®
- German Economy Report 2040
- Working Landscapes 2040

... and current trends,



- Prognos Future Atlas & Digitalisation Compass
- Digital labour market
- Trend Report „Digital State“

develops and evaluates strategies...

- Future policy frameworks
- S3-strategies
- Sector strategies (green economy, chemicals...)
- Scientific support for open social dialogues



... for clients across Europe.

- approximately 150 experts at 8 locations
- ... founded in Basel in 1959,
- ..with Berlin being our centre at Federal level,
- ...and Brussels being our “gateway“ to Europe



What we want to share with you today...

prognos

Wir geben Orientierung.



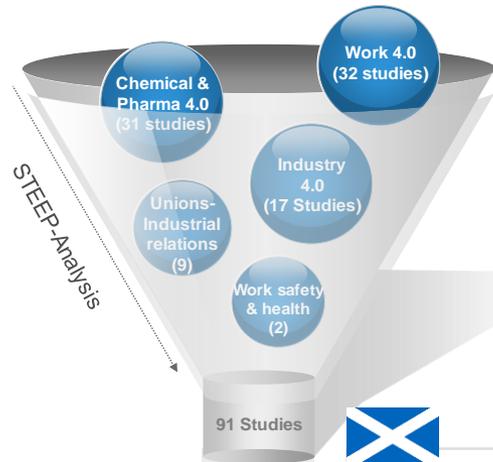
@ <https://www.capital.de>



What do we know about the digital transformation in the workplace so far

State-of-play – European chemicals, pharma, rubber & plastics sector

Literature review



Impacts of the digital transformation on **trade, organization, skills and certifications** in the French chemical industries. It is a necessity to help companies in the digital transformation of the chemical sector.

Knowledge quality and effectiveness: it is necessary to transform more **knowledge opportunities** into concrete actions and **new skills** that can be used in the company context.

Scotland's chemicals sector plays a crucial role in the nation's economy [...] & **enhancing the skills** of those already working in the sector is equally important

The coincidence of **demographic evolutions** with **technological evolutions** creates a need to transfer the in-depth *process knowledge* of the more experienced employees to the younger generation in order to deepen their knowledge of the process.

The future of the work we want: challenges that social, economic and political actors must face. It is necessary to act on the **educational and training model** in an accelerated way

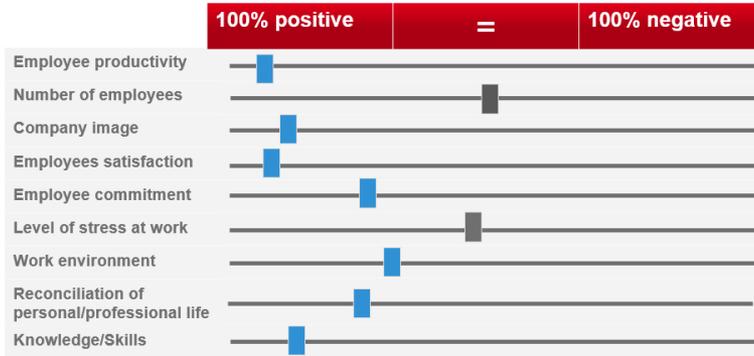
Digitalisation requires more **flexibility** and less regulation: *job quality, training, employee data protection, participation, substitution potential* of jobs in the country.

Digital transformation in the workplace in the chemicals sector has been studied in a few countries now

Digital transformation of the chemicals sector



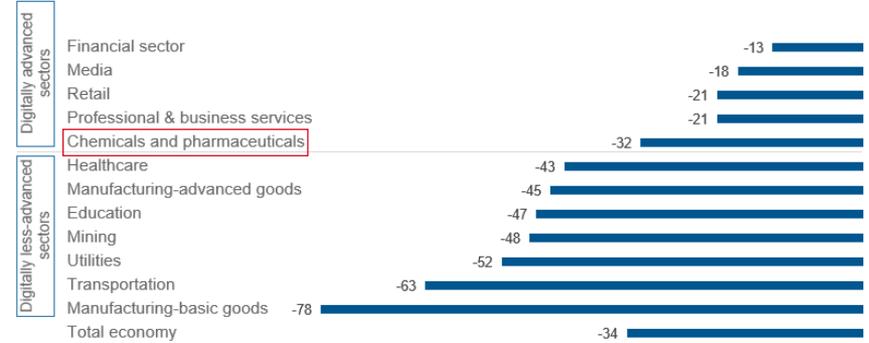
Perception of the impact of digital transformation on Spanish companies



Source: Roland Berger & Siemens (2016), España 4.0, el reto de la transformación digital de la economía



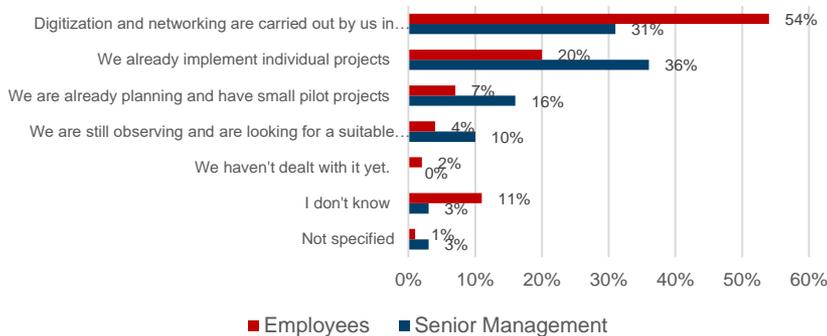
Digitization gap between Poland and Western Europe (%)



Source: McKinsey & Forbes Polska (2016). Digital Poland - Capturing the opportunity to join leading global economies.



To what extent has digitalisation already been implemented in your company?



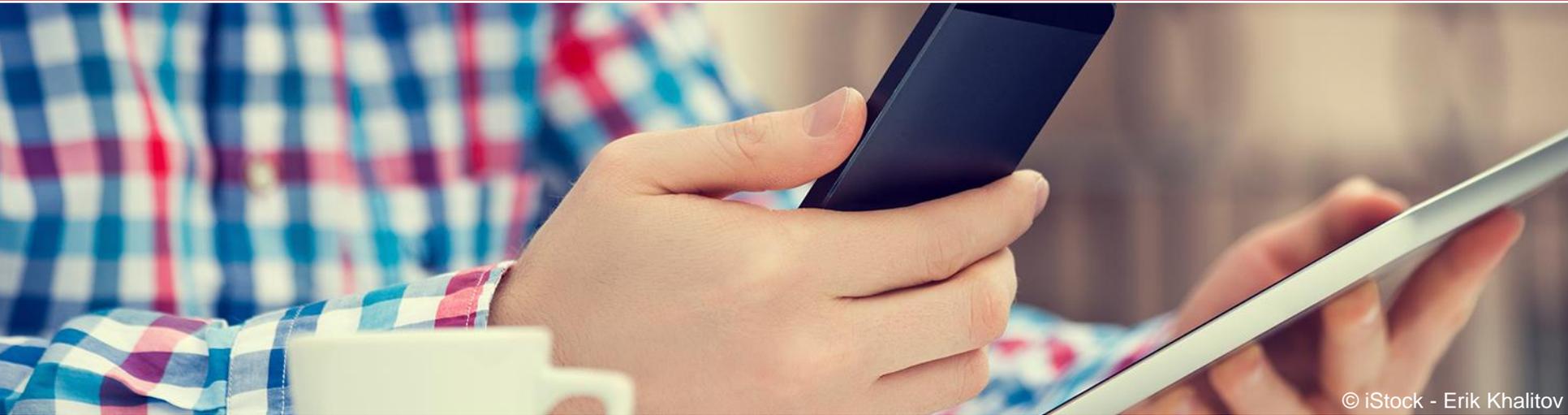
Source: Fraunhofer & Organisation IAO (2017), Digitisation and the work world in the chemical and pharmaceutical industries in Baden-Württemberg, Page 25, 26



Skills to be developed as a priority in companies



Source: Roland Berger & OPIC (2017). Les impacts de la transformation numérique sur les métiers, l'organisation du travail, les compétences et les certifications dans les industries chimiques.



Objectives and approach of this sector-specific study of the European chemical industry

This (novel) European social partners project

Two major objectives:



1. Analysis of the **level of awareness** and **identification of sector-specific challenges** for the chemicals, the pharmaceuticals and the rubber and plastics sectors.
2. Identification and interpretation of evidence of the **concrete influence** of digital transformation on three domains:
skills, working patterns, health & safety.



Anticipating, preparing and managing the digital transformation in the workplace is a decisive task.

BUT: To date there is **no study that presents cross-European evidence** of the digital transformation in the European chemicals, pharma, rubber & plastics sector.

Overview of our project approach

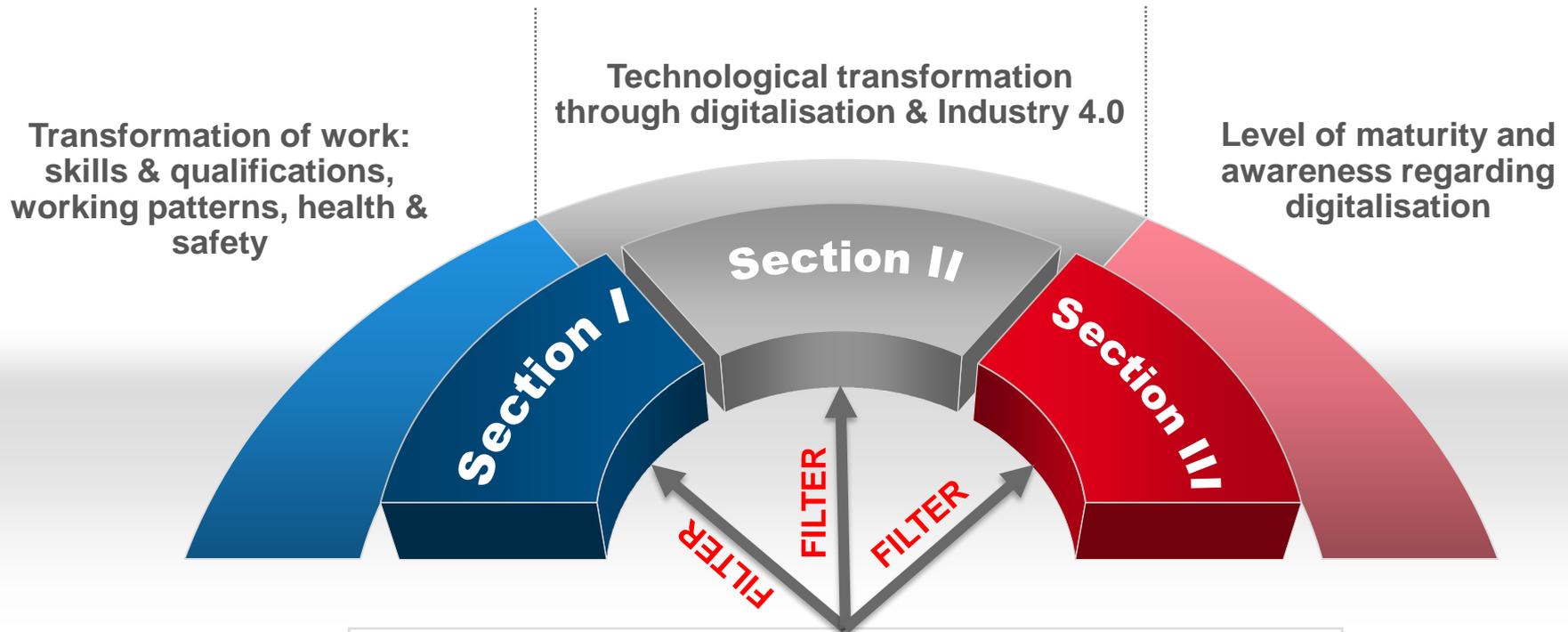
1. Desk research on the state-of-play of digital transformation & innovation in the chemical industry



3. Around 30 interviews to deepen the discussion on transformational drivers, opportunities & risks as well as proposals for future action

2. EU-wide online survey on transformation of work, digital technologies and digital maturity

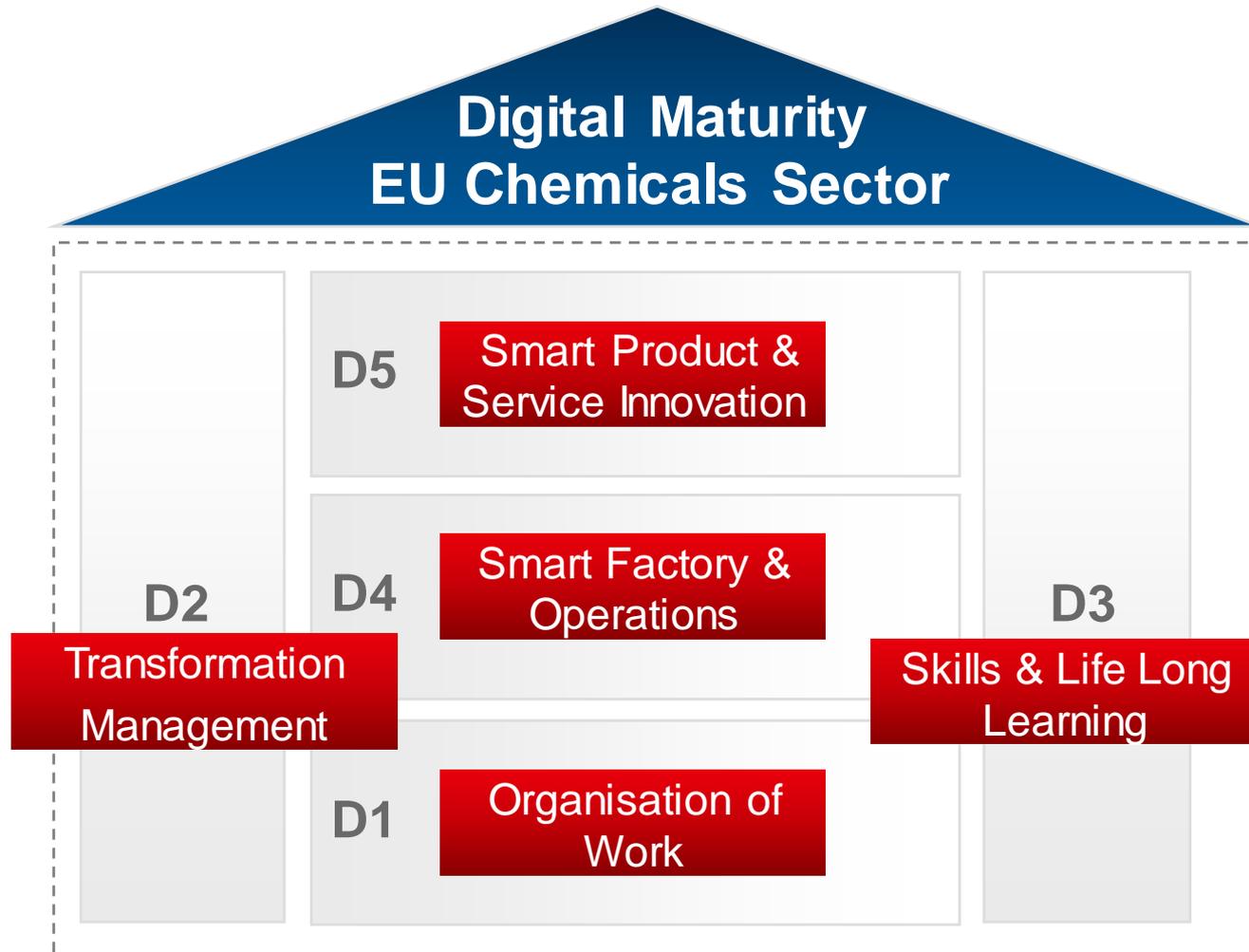
Structure of the survey – Digital transformation in the workplace



Target group of the survey:

- Managers and company representatives,
- Representatives from industry / business organisations
- Labour representatives (e.g. from working councils)
- Representatives from sector specific unions

Dimensions of the maturity model



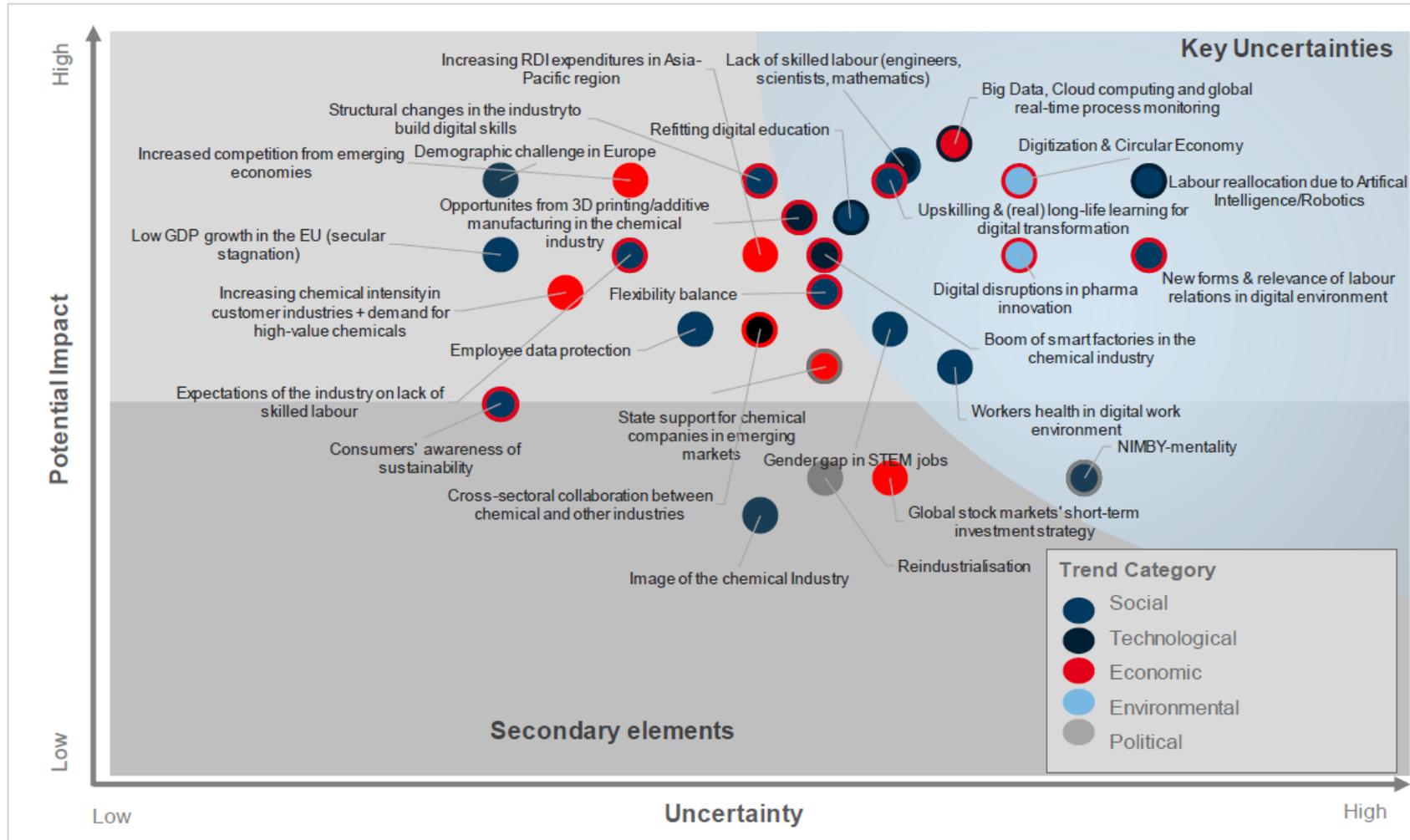


Key pillars of digital transformation in the chemicals, pharma, rubber & plastics sector

Drivers and determinants

Various drivers determine change and uncertainty of digital transformation in the European chemicals sector

STEEP-Analysis



n = 30

Demand of new skills

- New jobs with high technology quotient.
- "digital literacy", self-learning and self-organisation
- Demand for soft & transversal skills
- Importance of non-cognitive skills

Initial & continuing education

- Increasing demand of commitment and willingness to learn
- Motivation and self-management
- Lifelong learning
- Further training is not a "nice to have", but a mandatory requirement

Job substitution/ new job creation

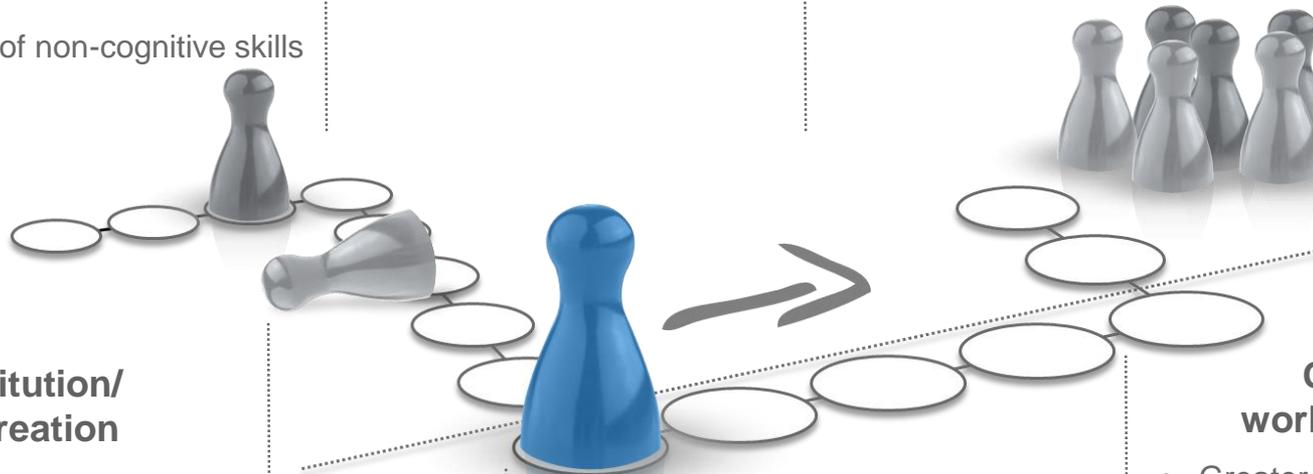
- Labour reallocation is intensifying: new jobs are created while presumably low-skilled work is being destroyed
- Educational attainment-automatability relationship

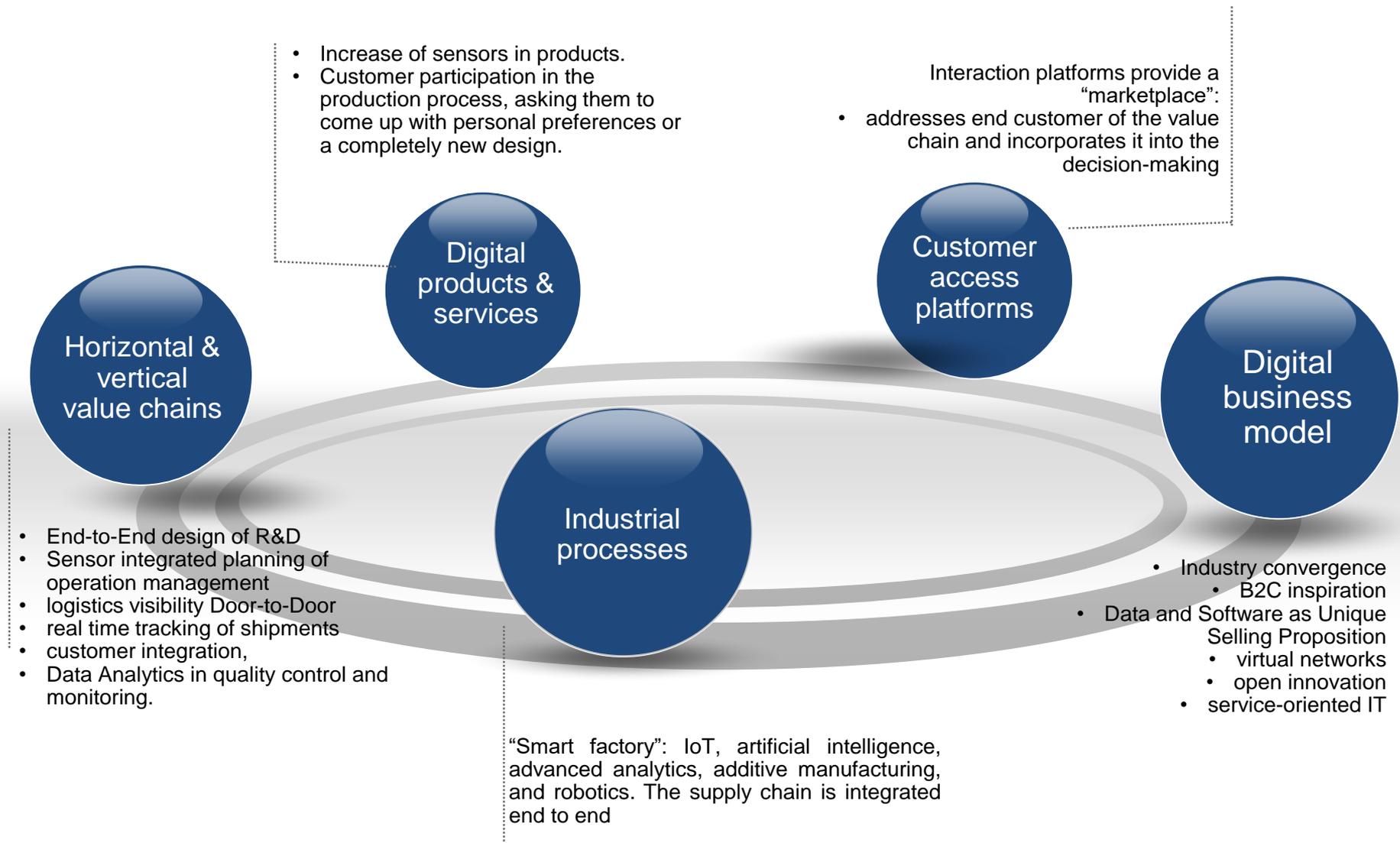
Readjustment of work nature

- No linear pattern in transition from education, to work and retirement
- Greater importance of training and reskilling
- Increasing attention on the individual

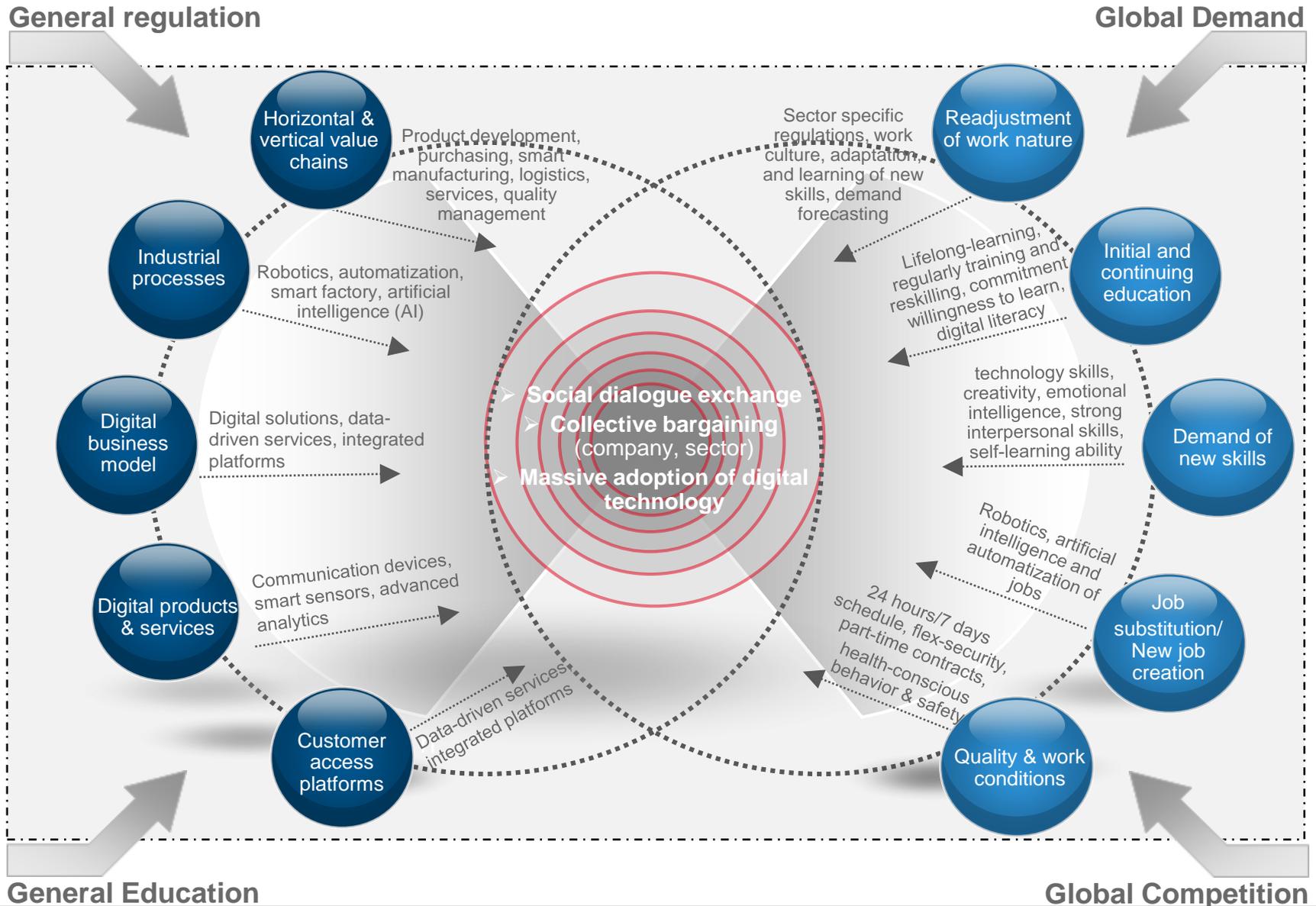
Quality & work conditions

- Greater degree of autonomy
- Responsibility for own occupational health and safety
- Challenges on permanent, full-time employment
- Flexible working hours, mobile working and home office





Digital transformation in the Chemical, Pharma, Rubber and Plastics sectors





Preliminary insights to the survey results

Our findings

The survey participants

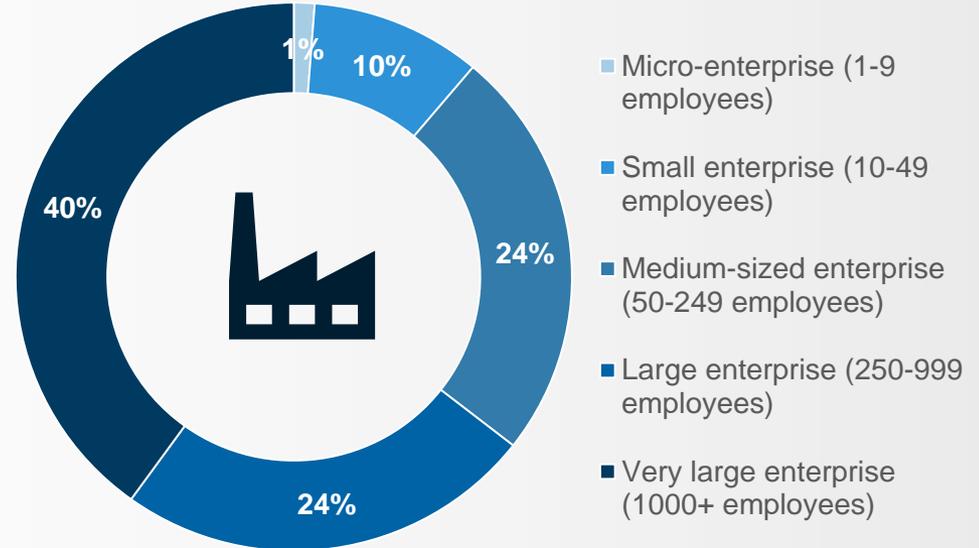
Background

About 82 Percent of participants are company representatives...



n=409

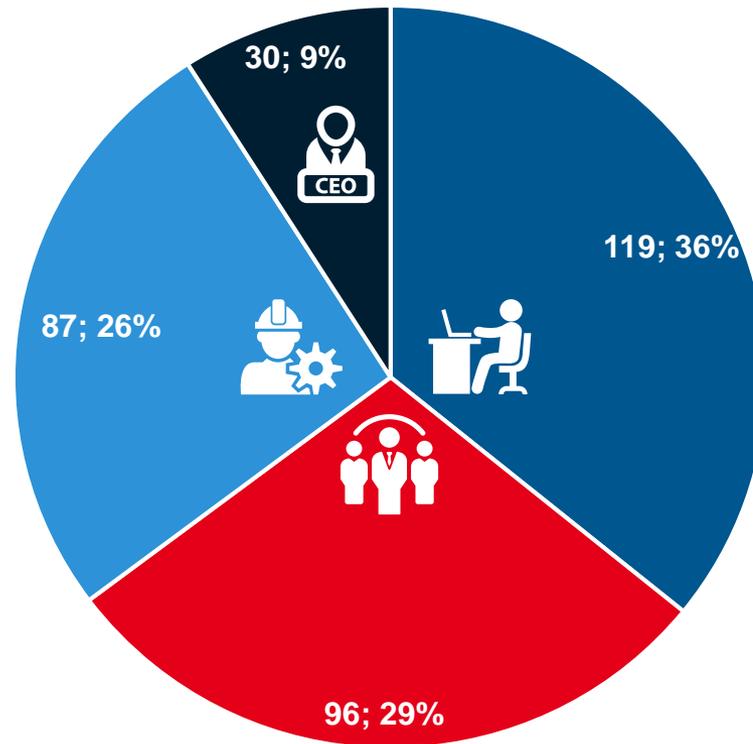
...which work for companies of all sizes.



n=332

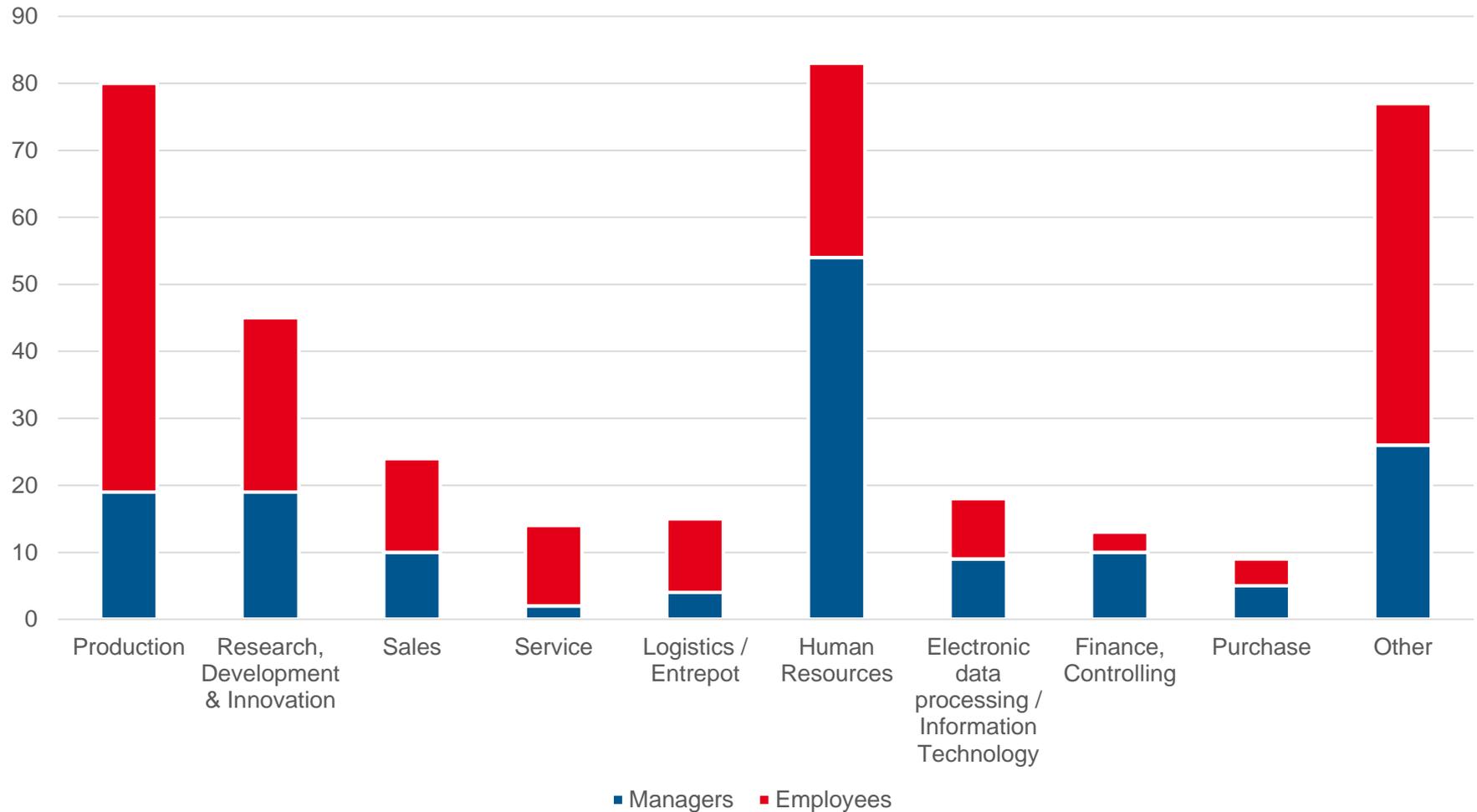
The survey participants – type of position within the company...

- White Collar worker (first-line supervisor, office manager, team leader)
- Middle level management (general manager, regional manager, senior manager...)
- Blue Collar worker
- Top level management (CEO, CFO, board of directors, managing director, president, vice-president...)



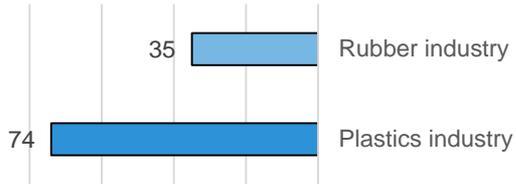
n=332. Question only for company representatives.

The survey participants – type of department...

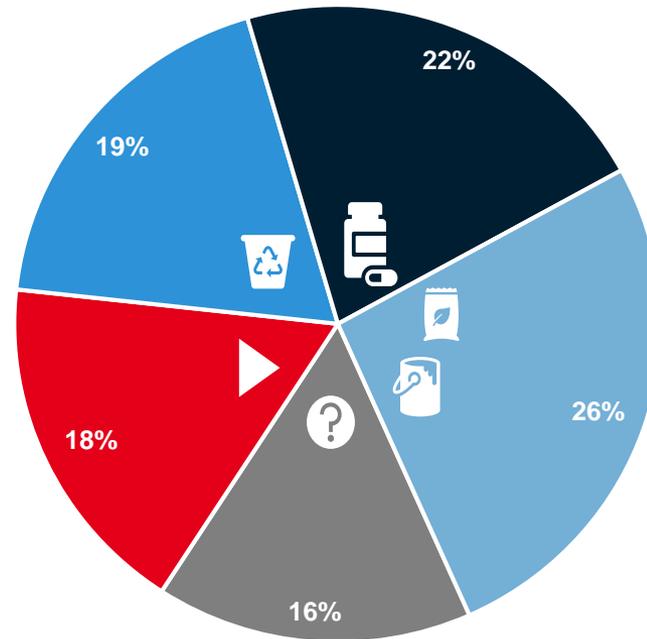
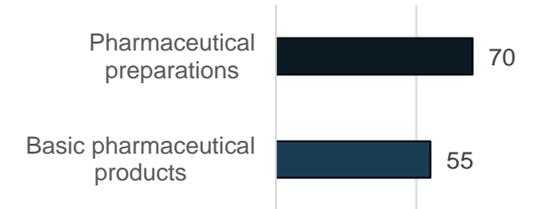


n=378, multiple answers possible. Question only for company representatives.

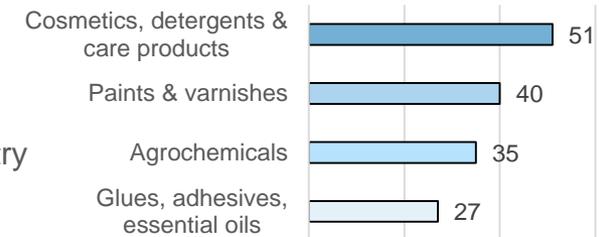
Rubber & Plastics



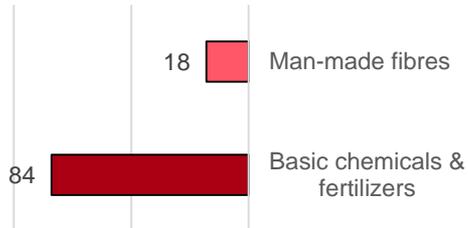
Pharmaceutical industry



Specialty chemicals



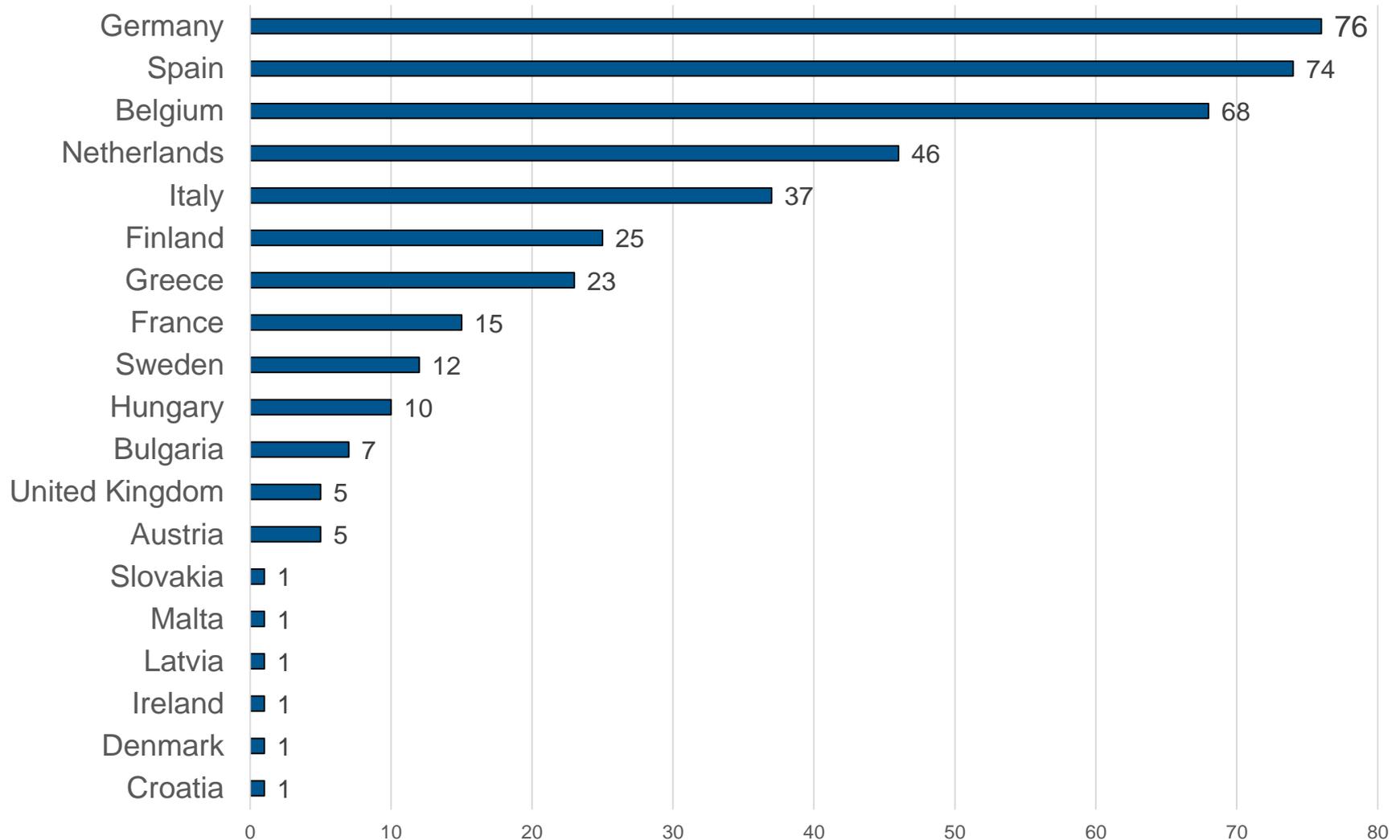
Basic chemicals



- Other
- Basic Chemicals
- Rubber & Plastics
- Pharmaceutical industry
- Speciality Chemicals

n=489, multiple answers possible.

The survey participants – country coverage...



n= 409

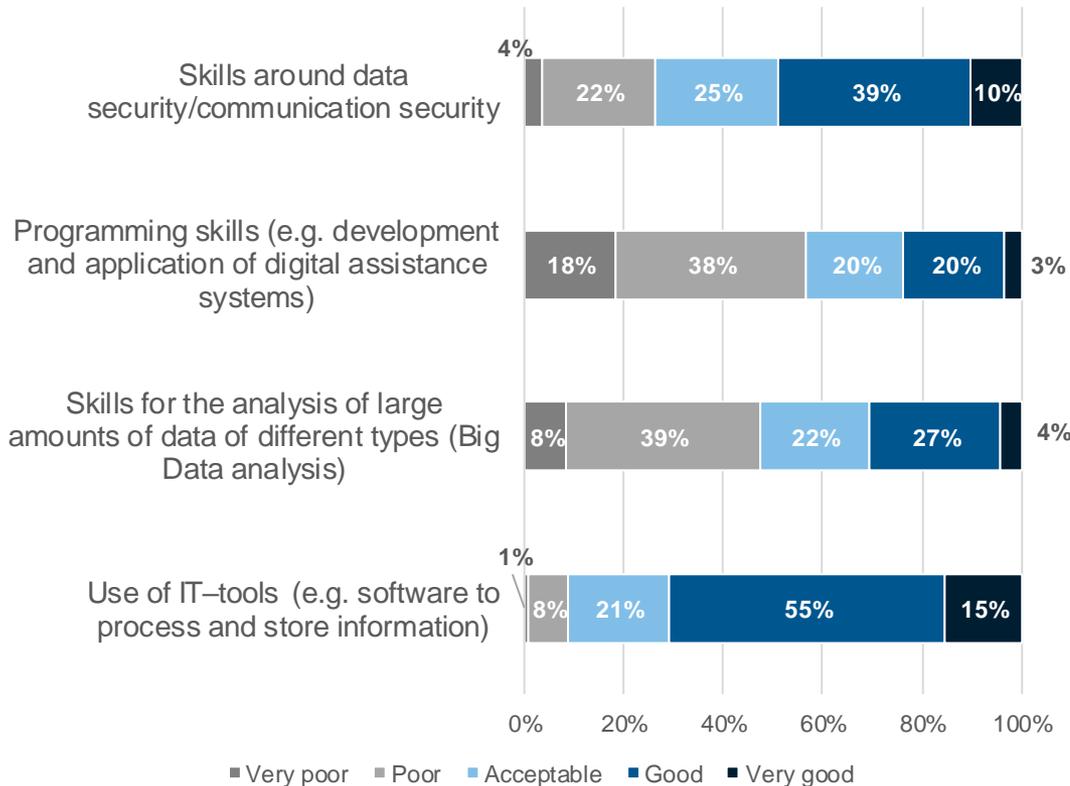
Digital transformation of work: skills, working patterns, health & safety

First insights from the survey (I)

How do you assess the following technical skills of your employees / your industry in the context of digitalisation?



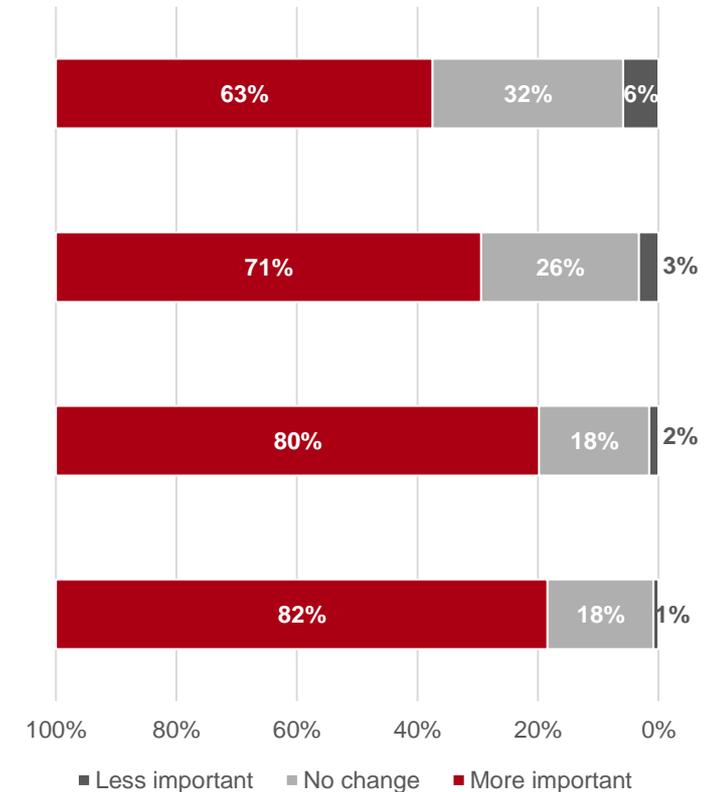
Assessment of current skills of employees



n= 368-407



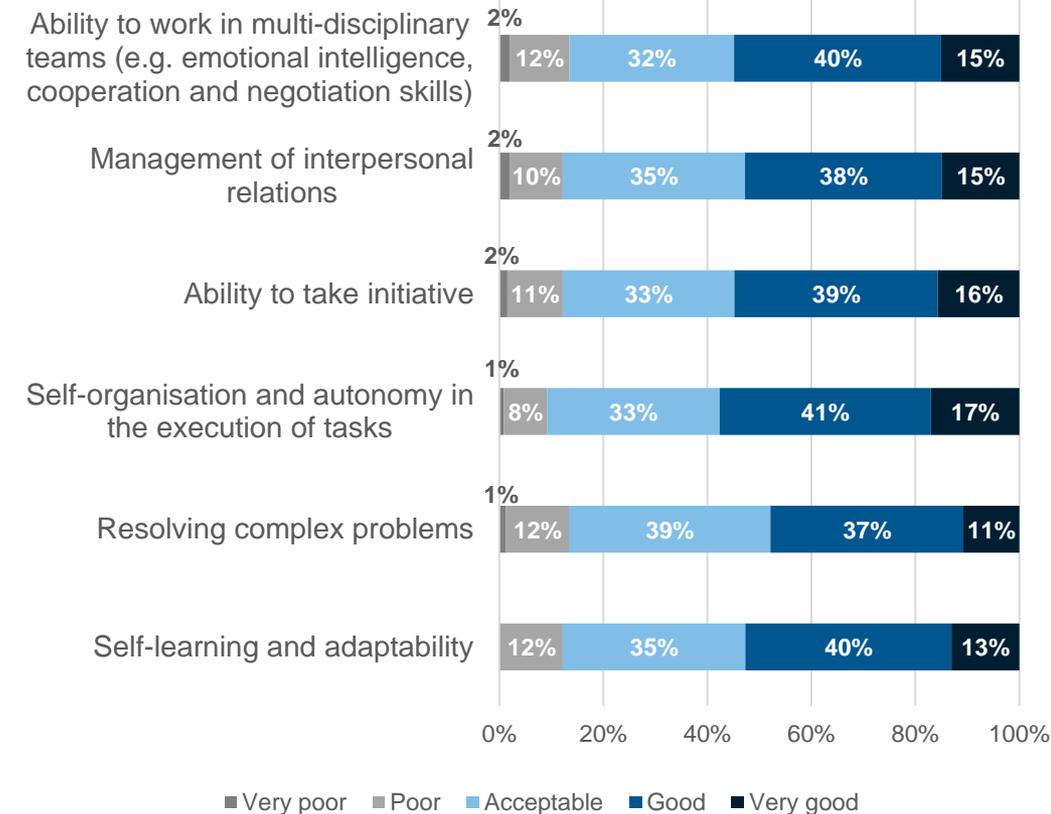
Importance in the next 5 years



n= 424-456

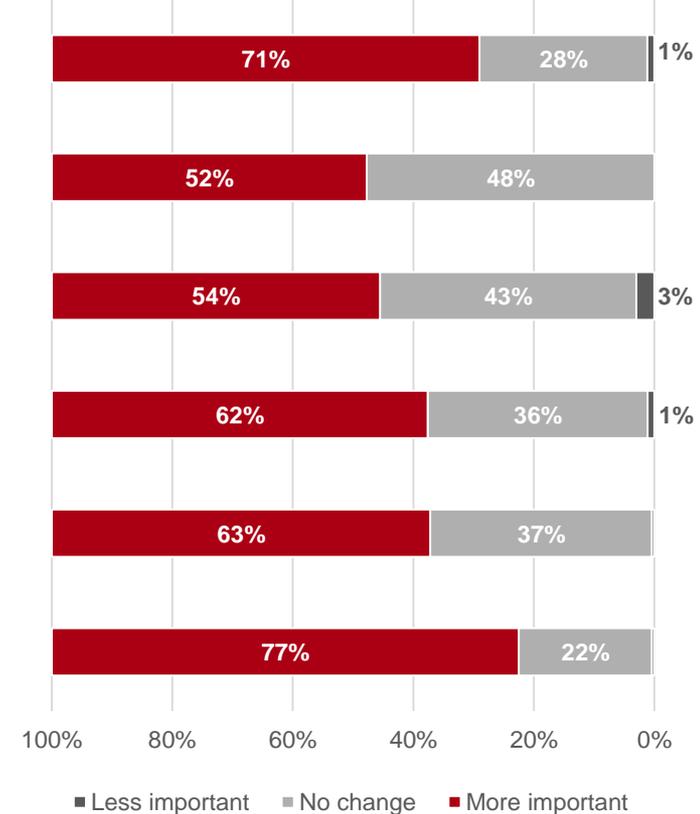
How do you assess the following social skills of your employees / your industry in the context of digitalisation?

Assessment of current skills of employees



n= 451-467

Importance in the next 5 years

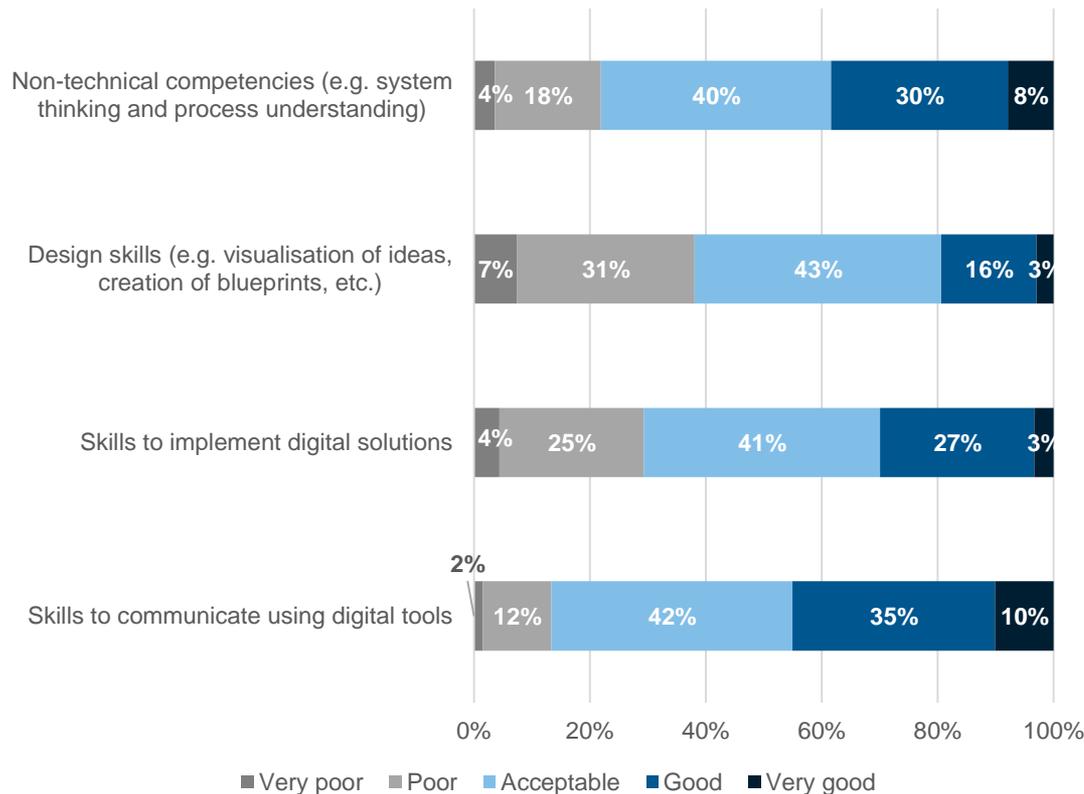


n= 417-435

How do you assess the following transversal skills of your employees / your industry in the context of digitalisation?



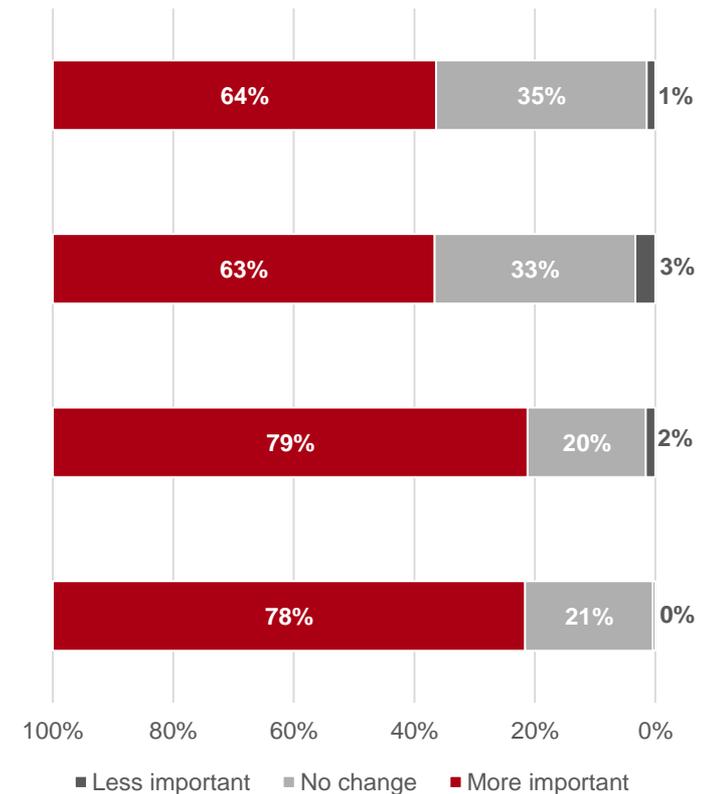
Assessment of current skills of employees



n= 443-464

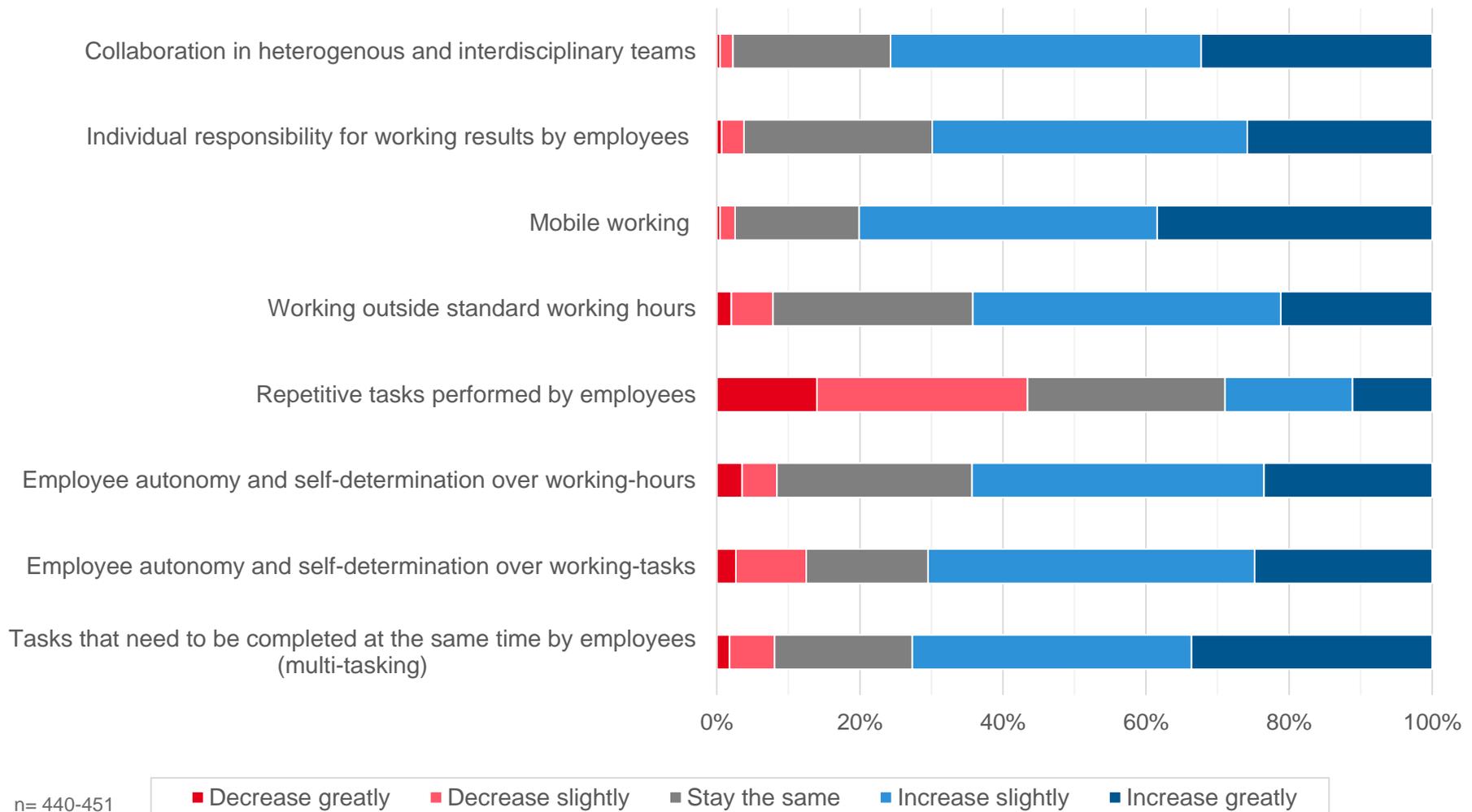


Importance in the next 5 years



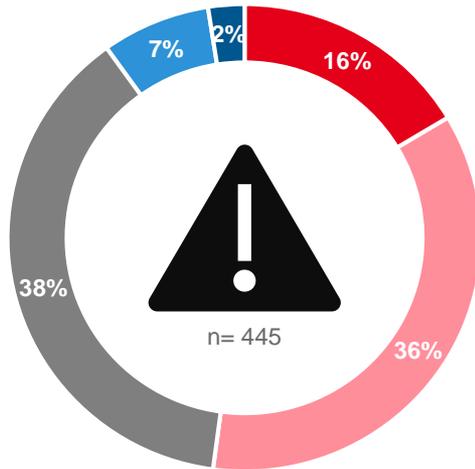
n= 409-434

How would you assess the impact of digitalisation on the working environment?

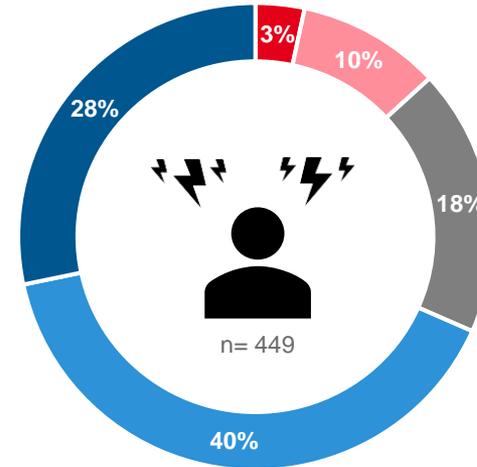


Expected effect of digitalisation on the health of the workforce in the European chemicals sector

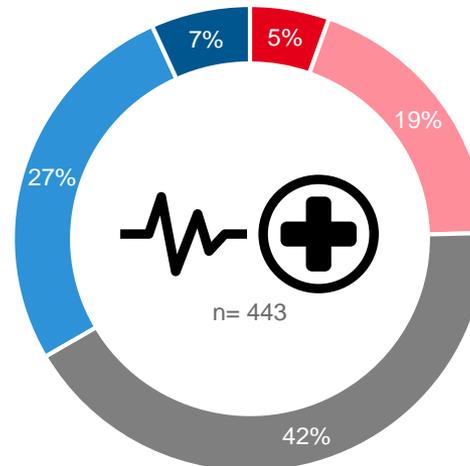
Effect on the number of hazardous tasks



Effect on the level of psychological stress



General health of employees



Decrease greatly

Decrease slightly

Stay the same

Increase slightly

Increase greatly

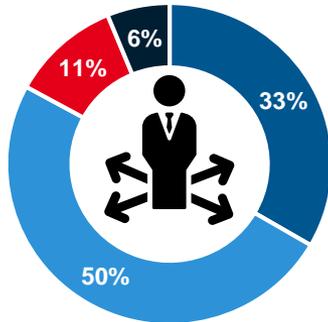
Expected impact of digitalisation on job development in the European chemicals sector



Risk of reduction of the workforce in the following company divisions in the next 5 years

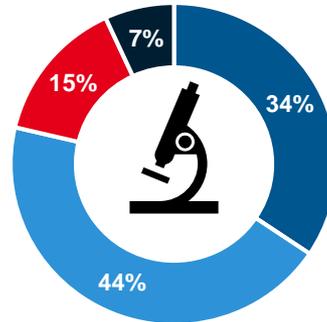


Management



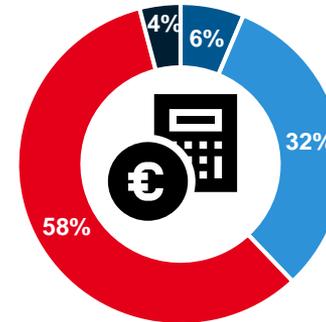
n= 452

Research & Development



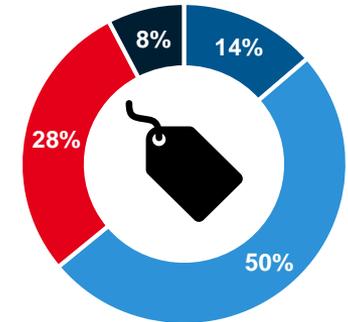
n= 436

Administration & Accounting



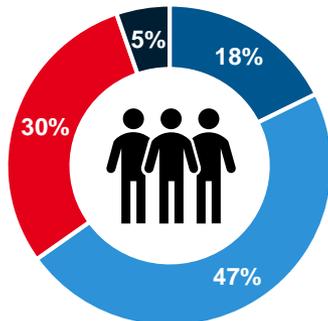
n= 445

Sales & Marketing



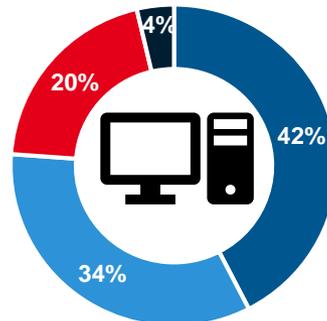
n= 433

Human Resources



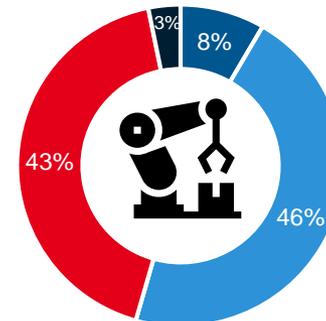
n= 436

IT - Services



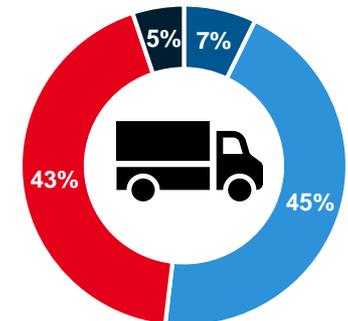
n= 436

Production



n= 441

Logistics



n= 432

No risk

Small risk

High risk

Don't know

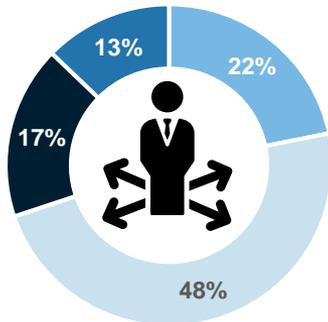
New job opportunities due to digitalisation in the European chemicals sector



New job opportunities in the following company divisions in the next 5 years

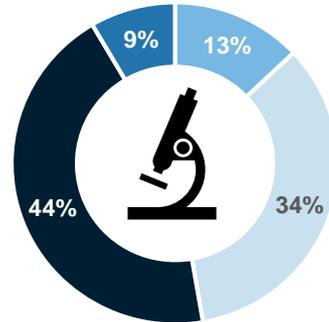


Management



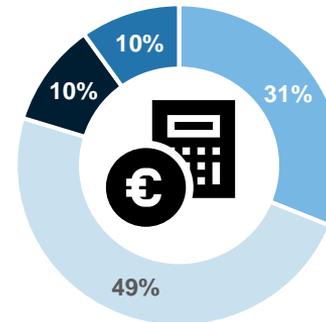
n= 408

Research & Development



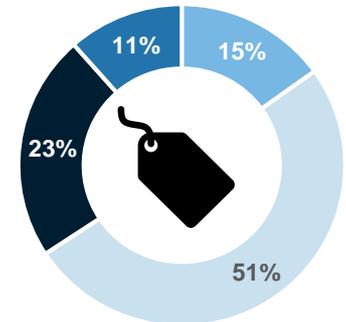
n= 402

Administration & Accounting



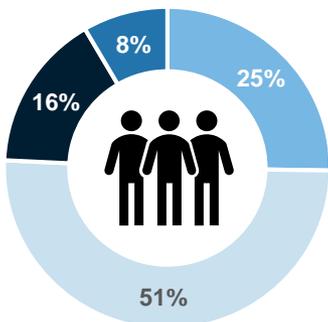
n= 395

Sales & Marketing



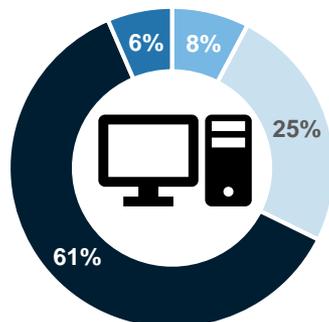
n= 391

Human Resources



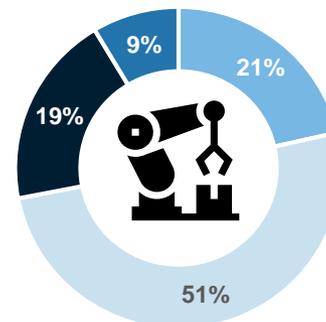
n= 392

IT - Services



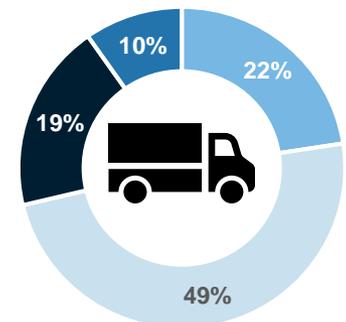
n= 405

Production



n= 396

Logistics



n= 390

No opportunities

Some opportunities

Many opportunities

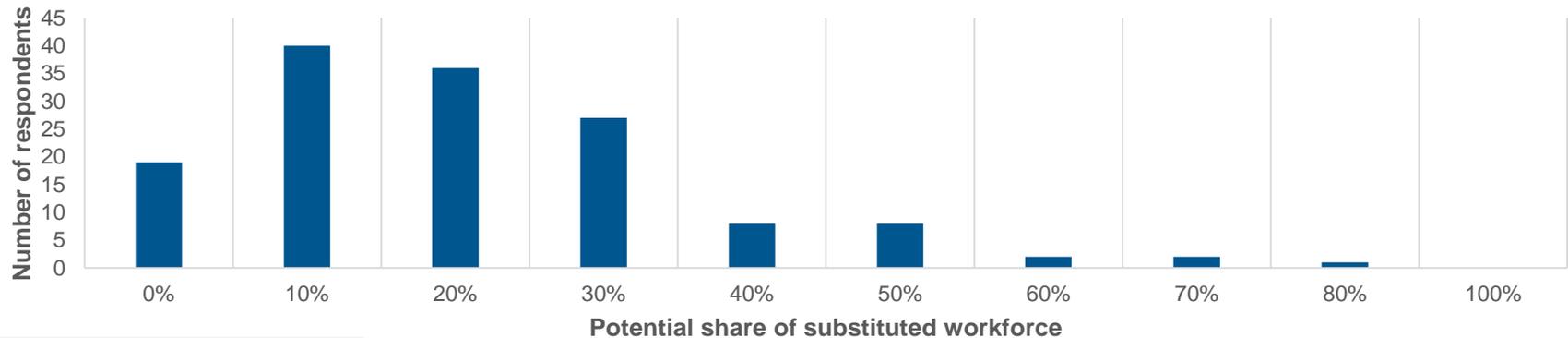
Don't know

Potential substitution of the workforce in the European chemicals sector due to digitalisation



Managers

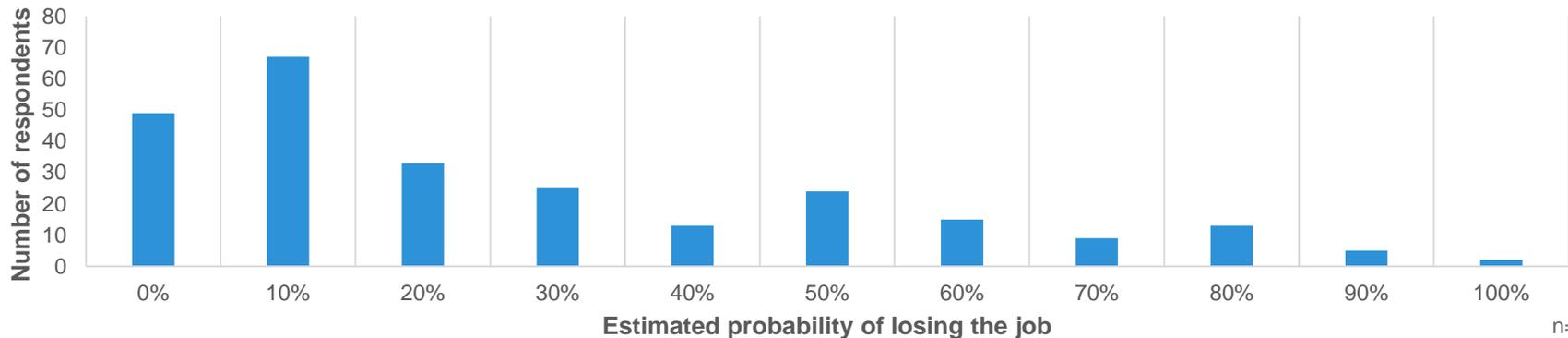
Which **share** of your **company's workforce** will be potentially **substituted** in the next 10 years due to digitalisation? (Question only for managers)



Employees

n = 143

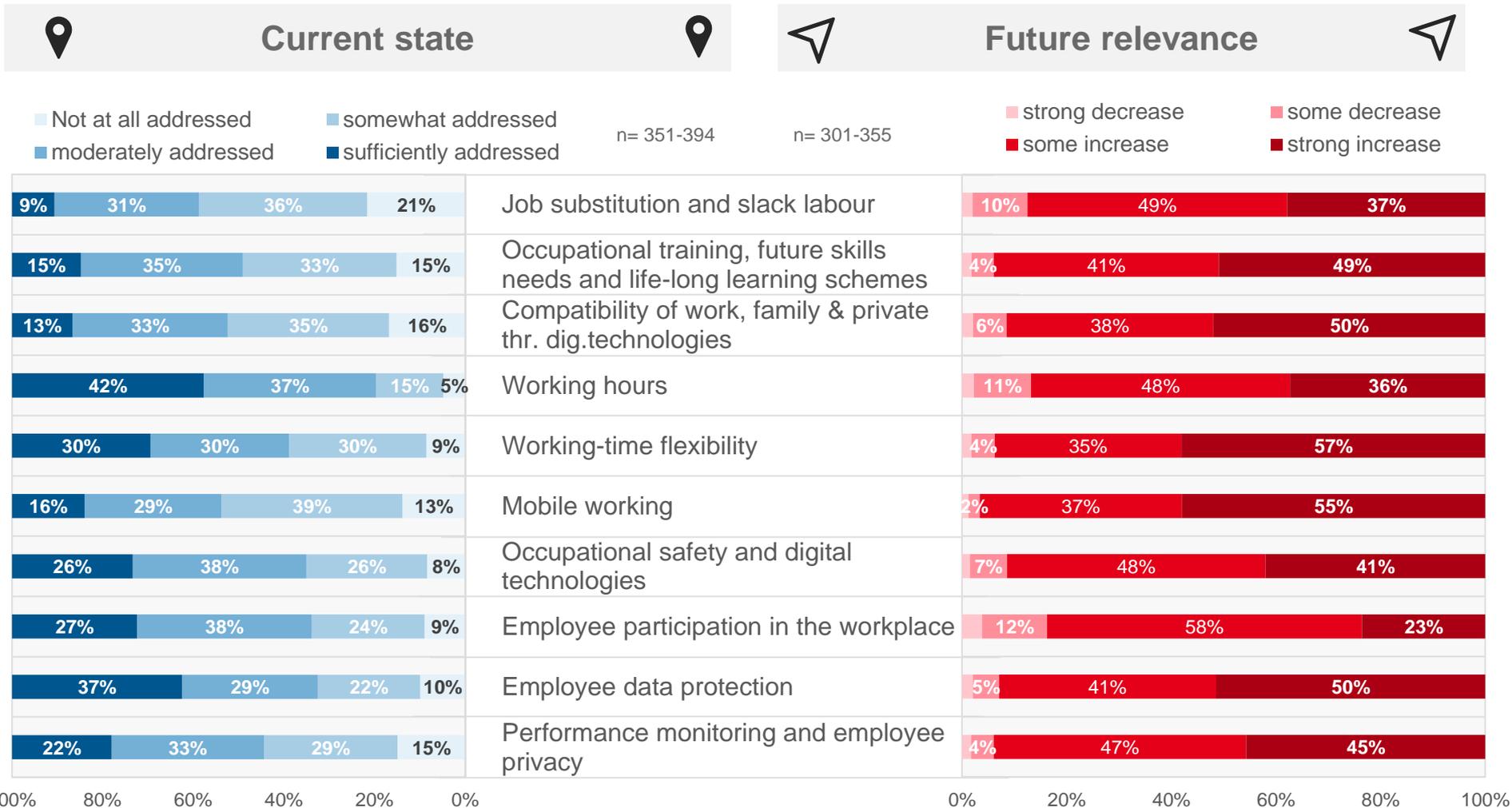
How do you estimate the **risk of losing your job** due to digital transformation in your company in the next 10 years? (Question only for employees)



n = 255

Collective agreements / framework conditions & digitalisation in the European chemicals sector

What aspects of the digital transformation are sufficiently addressed by collective agreements in your country & what will be their relevance in the next 5 years?

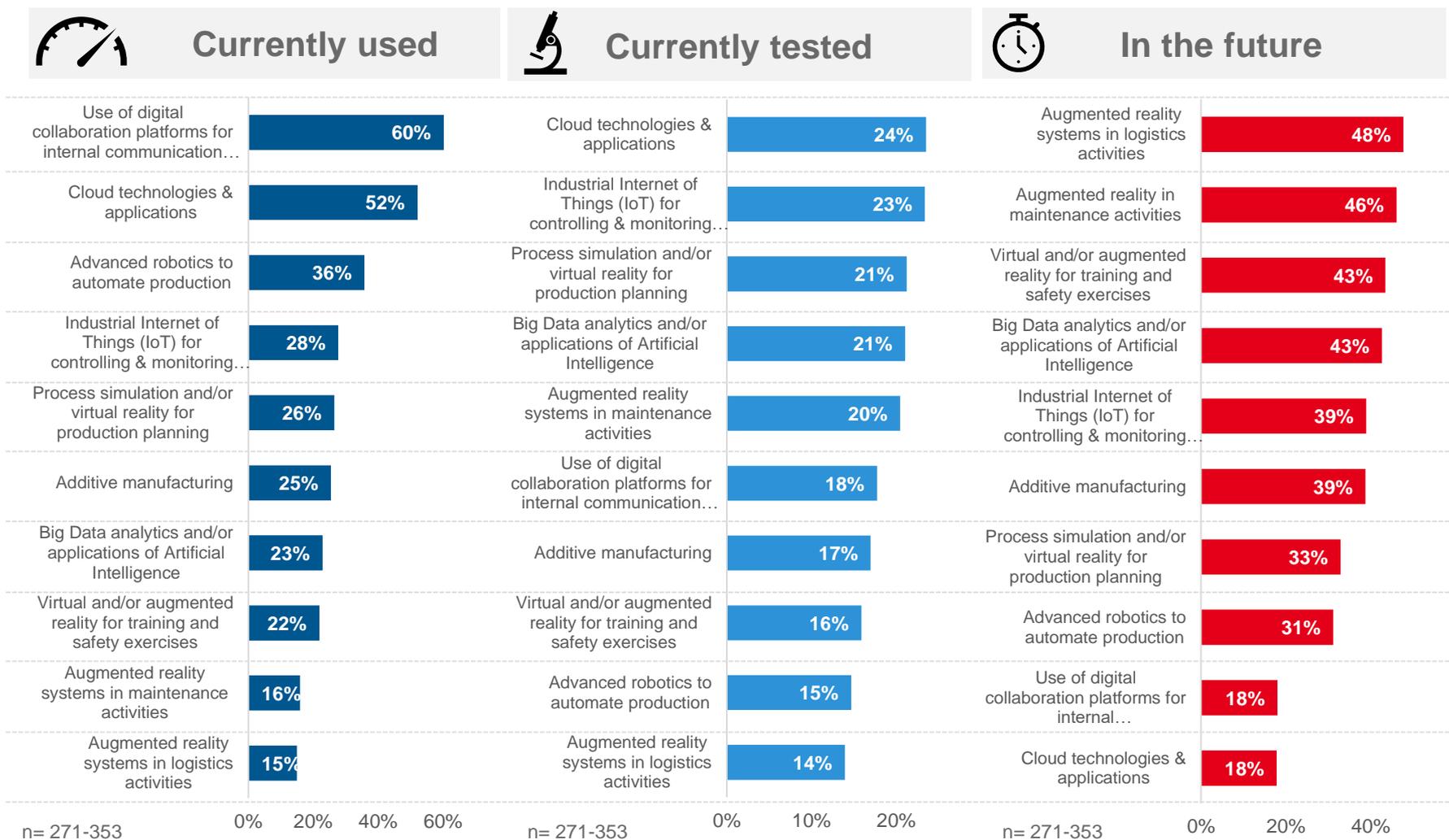


Technological transformation through digitalisation in the European chemicals, pharma, rubber & plastics sector

First insights from the survey (II)

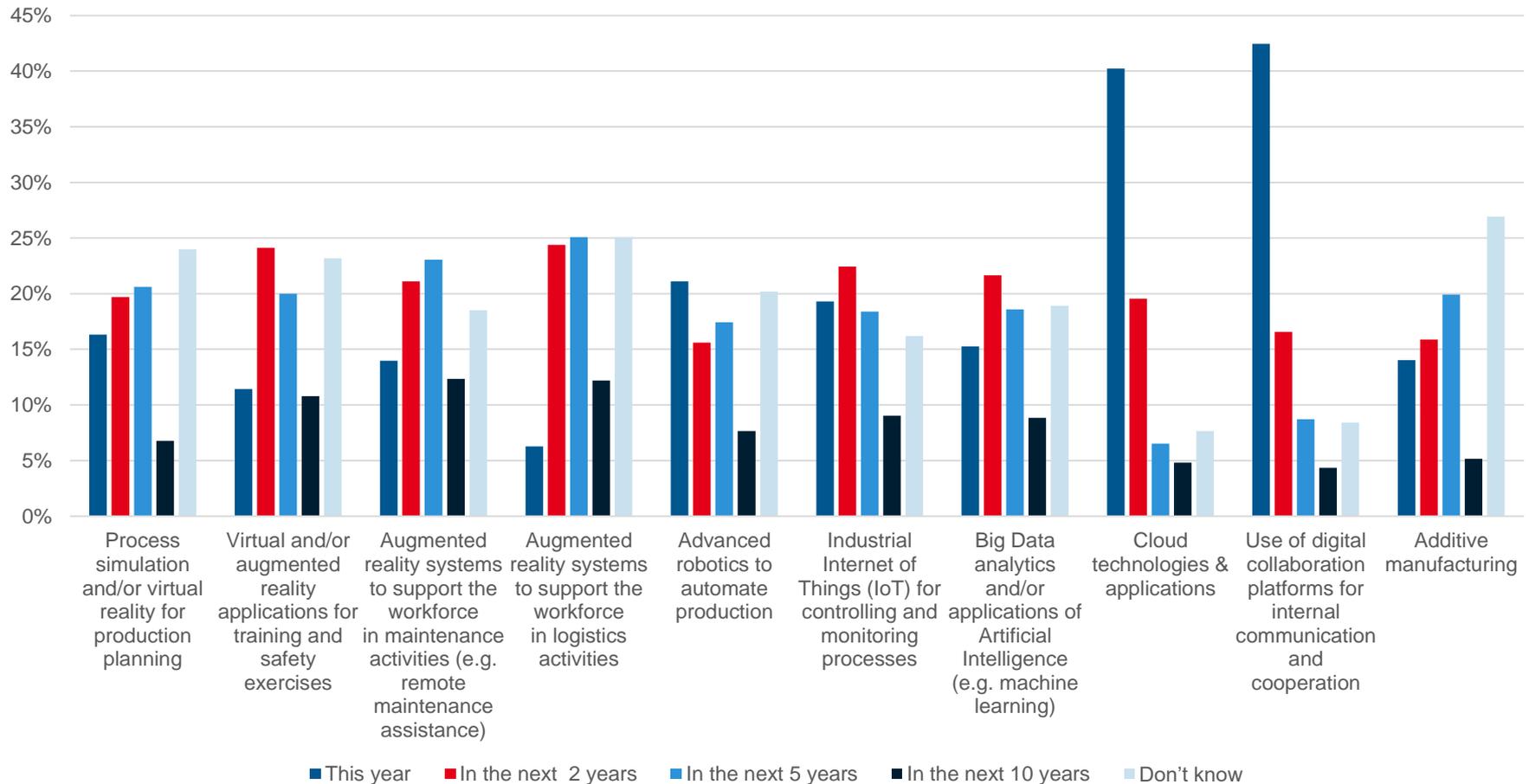
Digital technologies currently used within the European chemicals, pharma, rubber & plastics sector

Which of the following digital technologies and approaches do you already use in your company/industry or do you plan to implement in future?



Time horizon for the implementation of new digital solutions in the European chemicals sector

Please indicate the timeframe for the utilisation of the previously mentioned digital technologies (only if previously answered “currently tested” or “in the future”)

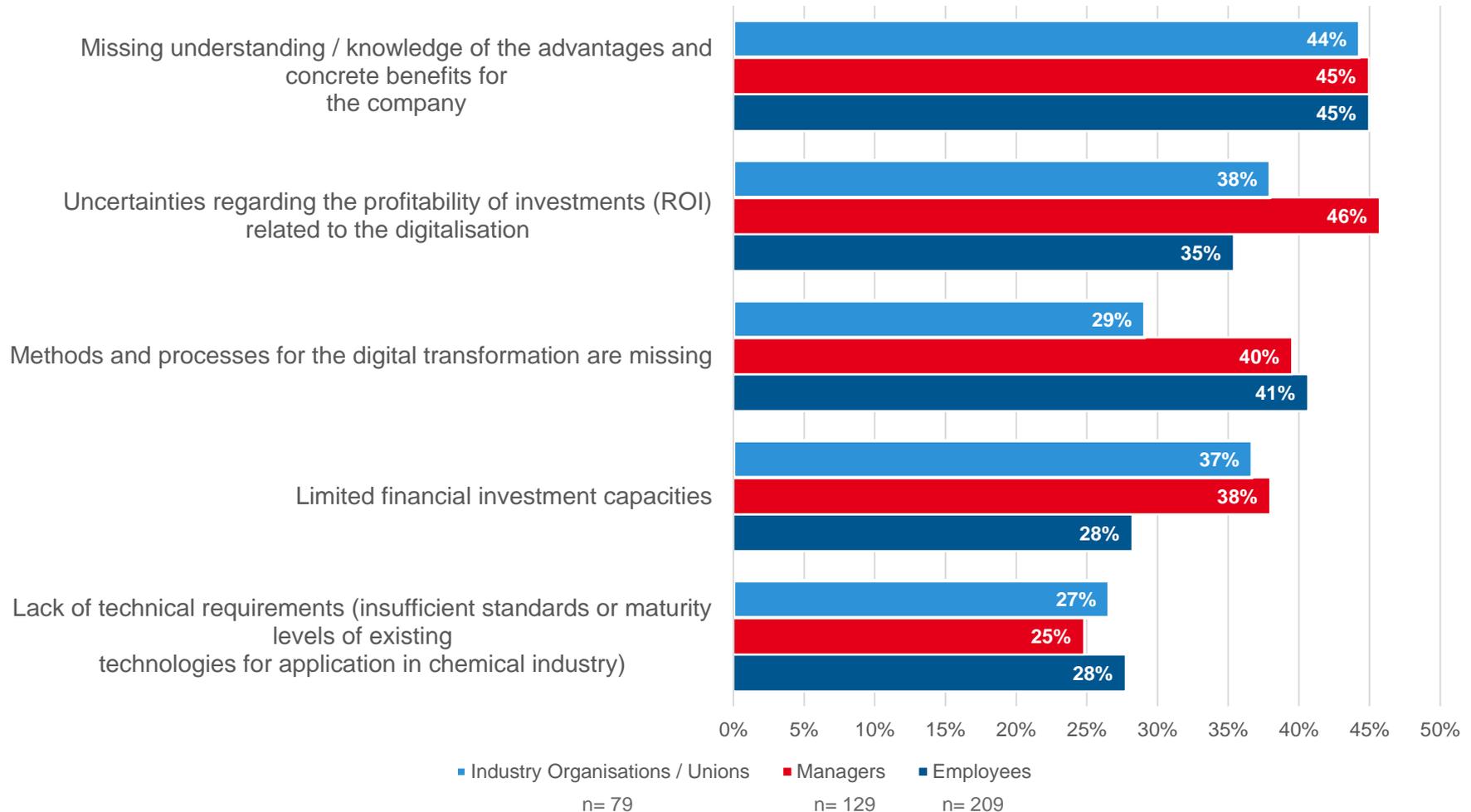


n= 222-284

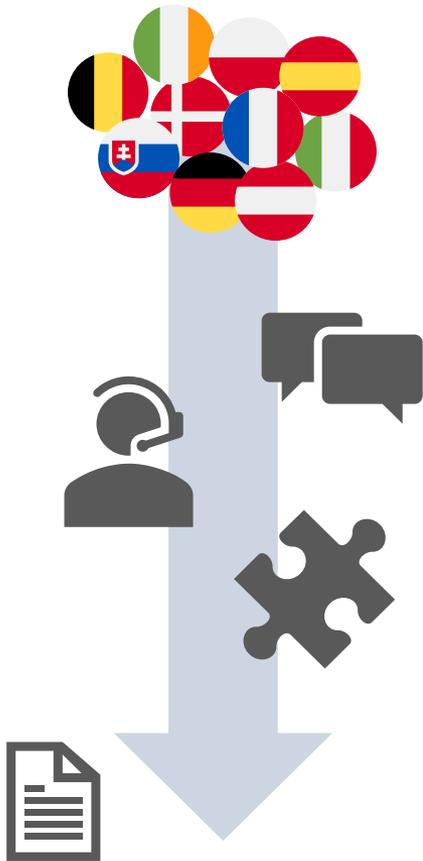


Some preliminary conclusions & outlook

In conclusion, what are the biggest challenges for a successful digital transformation of your company?



- **1st wave of digital transformation** (i.e. digitizing analog data) and integrating cloud solutions is successfully accomplished
- **2nd wave of digital transformation** will be driven by artificial intelligence, automation and augmented reality – and it will come into effect shortly
- **Job transformation rather than reduction** to be expected with different patterns by company functions
- **Skills shift clearly visible** – basic digital skills broadly existing, more advanced digital skills & transversal skills require attention by all stakeholders
- **Working environment** predominantly changed through mobile working with greater employee autonomy but increase of multi-tasking
- **Collective agreements** need to address more intensively the issue of mobile working & working-time flexibility as well as qualification while not forgetting about other sensitive issues (data protection, performance monitoring)



Further analysis of all evidence needed!

Next steps in our study

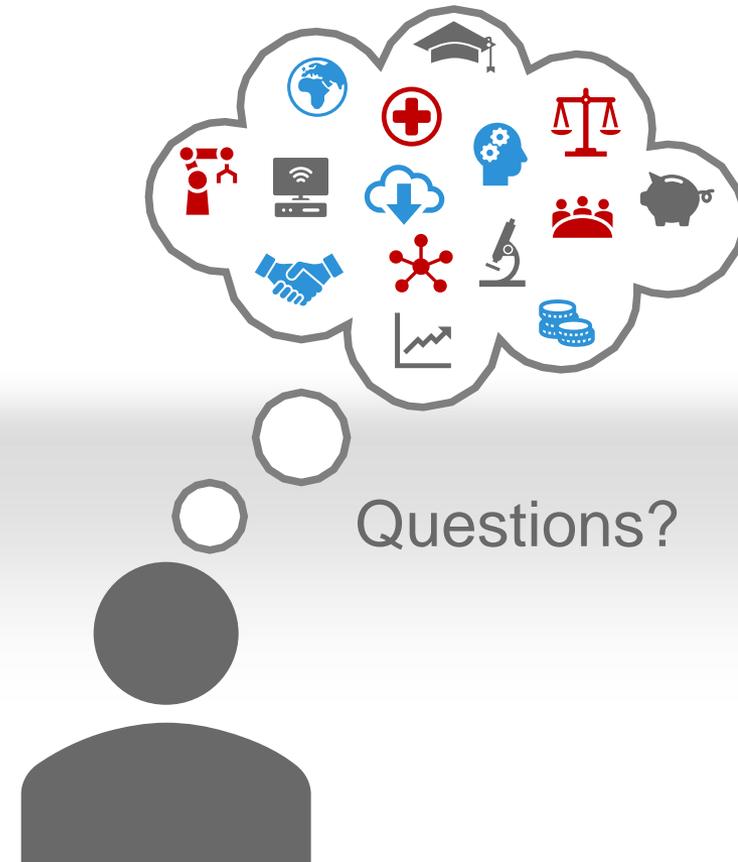
Online Survey

- Analysing the **full-set of survey questions**, including open comments and answers
- Conducting **comparative analysis** of the different survey questions (correlations, causal linkages, patterns?)
- Exploring **further possibilities of deeper analysis**, including sectoral patterns, country clusters/ selected country cases, answers by company size, departments etc.

Interviews

- **Finalisation** of the **interview programme** with key experts from around the EU
- **Qualitative analysis** of the interview transcripts
- **Cross-checking of findings** from desk research, survey and interviews (triangulation)

Final reporting



**Thank you very much for
your time and interest!**

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