

RENEWED SOCIAL DIALOGUE FOR THE NEW WORLD OF WORK, JOB TRANSITIONS & DIGITALISATION  
IN TWO INDUSTRIAL SECTORS IN CEE COUNTRIES - ROMANIA, HUNGARY, SLOVAKIA - WORKTRANSITIONCEE VS/2021/0094

# The impact of technology on two Romanian industrial sectors: Automotive and Petrol & gas.

How does technology transform the world of work.

## SUMMARY

**Employers Organisation Concordia**

KPMG Advisory & IPSOS / 2022

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# Rationale and research objectives

Labor markets are in the middle of a digital revolution. The transition to a digitized society has been going on for decades, however technological change has accelerated at a rapid and unprecedented pace in recent years. COVID-19 was also a catalyst for the digital transformation. The transition to green economies will also lead to substantial changes in the way companies carry out their activity and implicitly in labor markets. In the context of these transformations, it is anticipated that work will undergo a number of changes, in terms of required skills, jobs dynamic and integration of human and digital labor. Globally it is estimated that that technological progress will lead to transformation or the disappearance of millions of jobs, as well as creating completely new jobs. Such signals indicate the need for authorities and companies around the world to develop solutions - strategies, policies and solid programs to ensure a successful transition to the future of work. A first step is an understanding of the impact of these trends on the labor force.

## Scope of the research

Automotive and Oil & Gas are some of the strongest economic sectors in Romania and also sectors that are prone to digitalization.

As part of the *"Renewed social dialogue for the new world of work. Job transitions & digitalization in two industrial sectors in CEE countries – Romania, Hungary, Slovakia. WorkTransitionCEE"* a project co-financed by the European Union, Confederația Patronală Concordia initiated a research carried out with the assistance of KPMG and Ipsos, on the impact of technology on the skills and jobs from these two sectors in Romania.

## Objectives

The research objective was to collect sufficient data to:

- understand the trends influencing the Automotive and Oil & Gas industries and the impact of these trends on jobs in the two industries;
- identify jobs with a high level of exposure to the technology advancement for each of the two selected industries
- map the skills required to perform the tasks for a minimum of 30 positions for each of the two industries, as well as the dynamics of these skills as a result of the technology advancement;
- understand the opportunities of migration to other positions and the actions that can facilitate the transition to the jobs of the future.



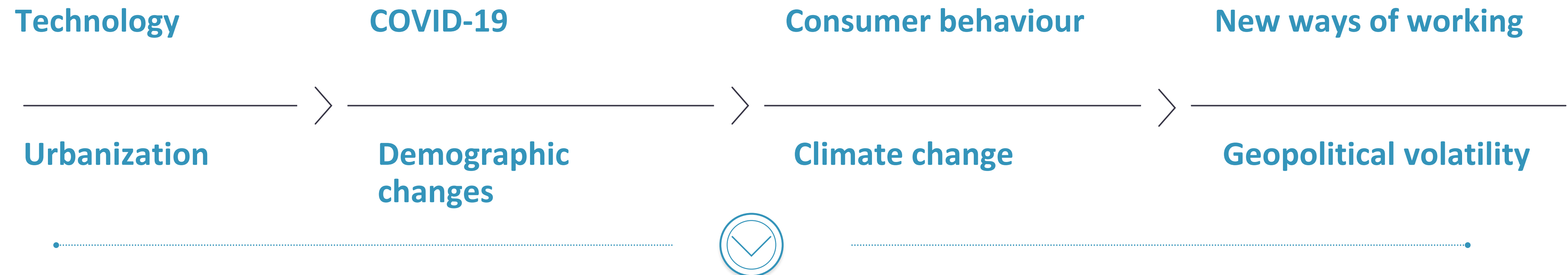


# Context and trends



# Globally the world of work is experiencing a period of profound change

Modern work has never been more disrupted. Technology and automation, remote and hybrid working models, changing business models, customer expectations or the pandemic have been forcing new ideas around what the workforce needs to be able to do. While technology is rapidly becoming more intelligent and affordable, the ways of working are changing and the global supply of talent is becoming smaller and more expensive, companies' adoption of technology will only accelerate in the future.



Jobs that have existed for years are declining, while new jobs are emerging. Skills dynamics requires solid upskilling and reskilling efforts. To a greater or lesser extent, most jobs will transform as a result of digitalization and the transition to the green economy.



# Each sector is influenced by a series of specific trends

*Besides the impact of Covid-19 pandemic and the new ways of working, together with the shortage of skilled workforce which are relevant for both sectors, each sector is influenced also by specific global trends.*

## Automotive sector

- Electrification, electric battery vehicles, hybrid mobility
- Connectivity and digitalization
- Industry 4.0 and the factory of the future
- Increasing demand for cars from the East
- Resources optimization
- Semiconductor crisis
- Changes in business models from product-centric models, to customer and service-centric.

## Oil & Gas sector

- Ageing workforce
- Changes in consumer demand
- Price fluctuations
- Decarbonization
- Climate change and the increased focus on green energy sources
- Geopolitical issues that amplify the needs to ensure energy security
- Decreasing trends of traditional production capacity





# The Romanian labor market has undergone significant transformations amid macroeconomic trends and specific challenges



**Labor and skills deficit is a major challenge** that the Romanian labor market has been facing for several years now and may threaten the country's long-term growth prospects. Labor shortages are exacerbated by unfavorable demographic trends and emigration.



**Wage growth continues, however, the pace is slowing down and labor productivity still remains relatively low compared to other countries.** Wages in Romania have grown rapidly in recent years, but the COVID-19 crisis has affected the growth rate of earnings. Although important progress has also been made in terms of labor productivity, it still remains relatively low compared to other countries, at around 2/3 of the OECD average.



**Mismatch between the supply and demand for skills, against the background of poor performance of the education system.** According to the EC (European Skills Index that measures the performance of competence systems in the EU) Romania is among the countries with the worst results, especially in terms of skills development and activation.



**COVID-19 accentuates the trend of flexible work in Romania also.** Market signals point to movements towards making work more flexible, both from the perspective of a hybrid work model, the flexibility of working hours, and from the perspective of the type of contract between workers and companies, and the new generation Z will emphasize work on projects.



**Despite some progress, Romania is still lagging behind in digitalization, ranking 27th out of the 27 EU Member States (DESI) in terms of progress in digital competitiveness in areas such as the integration of digital technologies by businesses and digital public services, human capital and broadband connectivity.**



# Global studies highlight that some skills sets will significantly increase in importance while others will be less and less required

The World Economic Forum talks about a "revolution in retraining", given that in the Future of Jobs 2020 survey estimated that by 2025, 50% of employees will need to develop new sets of skills, and for 40% of employees the set of basic skills required in work will change.

Transferrable skills (critical thinking, complex problem solving, active learning) and social skills will be required to enable the new tasks generated by technology

## Skills dynamic

Abilities required for technology implementation, monitoring, maintenance, user experience, AI, robotics & RPA, AR / VR, data analytics and data science will be significantly more important

Abilities that will decrease in importance in the future are those related to data collection, and processing, or required to carry out physical, manual activities (physical condition, visual acuity, motricity, color discrimination)

### Sources

World Economic Forum, *The Future of Jobs Report 2021*

European Commission (DG Grow), *The Report of the High Level Group on the Competitiveness and Sustainable Growth of the Automotive Industry in the European Union (GEAR 2030) – Final report, 2017*

Top 10 Oil & Gas Industry Trends & Innovations in 2021, <https://www.startus-insights.com/innovators-guide/top-10-oil-gas-industry-trends-innovations-in-2021/>



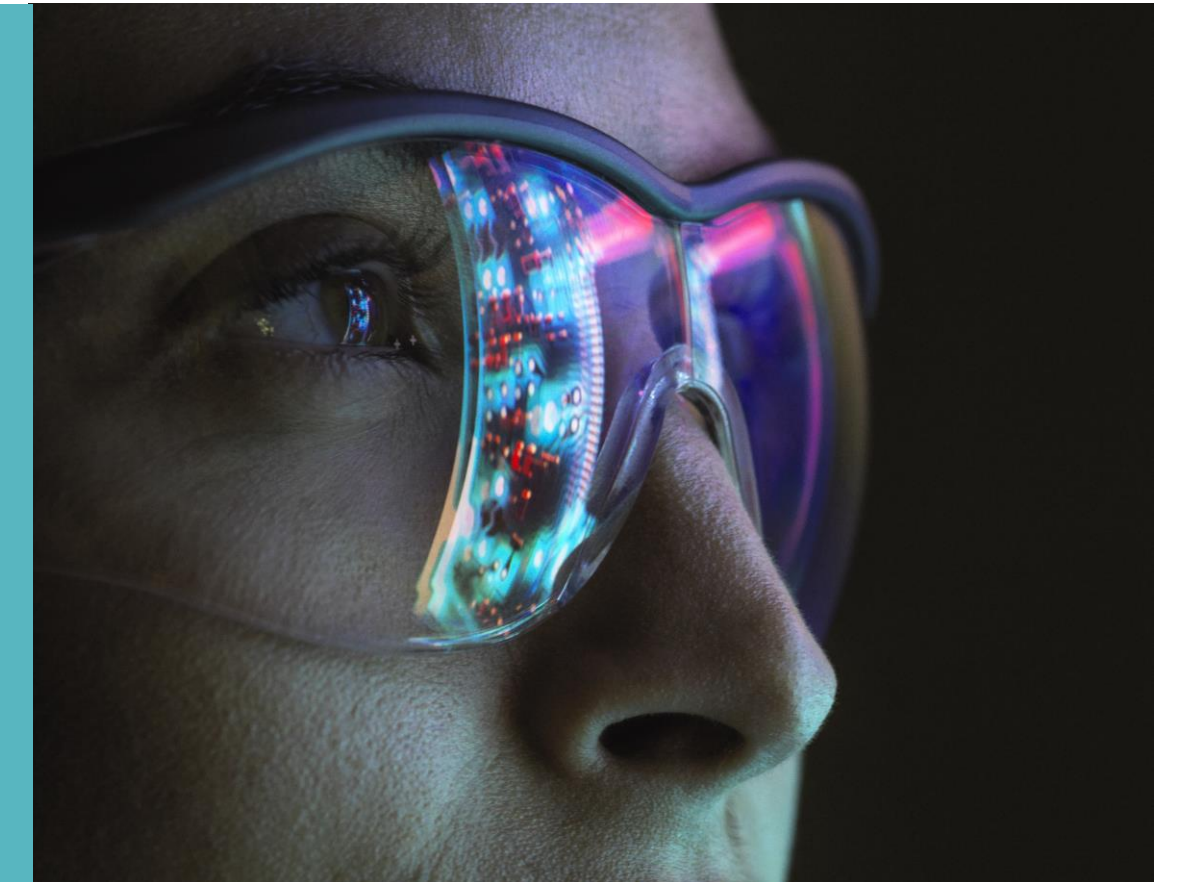


# As technology takes on certain tasks and a range of skills will decrease in importance, major transformations in jobs are expected

**85 million jobs** could disappear, but another **97 million new roles** could emerge, adapted to the new context of the labor market



**19.1%** of workers in Automotive and **14.2%** in Oil and Gas are at risk of job closures



By 2030, around **20 million jobs** could be replaced by robots in the manufacturing industries globally



There is a high likelihood that certain **jobs will be transformed rather than reduced** due to the dependency on the economic, political context and on a variety of practical aspects and constraints involved

## Sources:

World Economic Forum, *The Future of Jobs Report 2021*, 2021

Oxford Economics, "How robots change the world"

World Economic Forum, *The Future of Jobs Report 2020*, 2020

International Labour Office, Sectoral Policies Department, *The future of work in the automotive industry: The need to invest in people's capabilities and decent and sustainable work, Issues paper for the Technical Meeting on the Future of Work in the Automotive Industry (Geneva, 15–19 February 2021)*, Geneva, 2020





# Research findings





Organizations anticipate that digitalization and technology will accelerate in both sectors, but there are differing views regarding the pace of adoption



The **Automotive sector leaders expect an acceleration of the automation and digitization trend started years ago**, amid the acceleration of the technology adoption in the sector globally, which may result in a decrease of Romania's competitiveness.

In Romania, the automotive industry started automation and technology adoption for decades, but with the transition to the hybrid and electric motor, the industry needs to pick up the pace in order to main competitive advantage, increase efficiency and respond to customer demands.

“

*„Until a few years ago, it was easier to do more manual work, it was cheaper, but it is no longer the case. With the implementation of automation, robotics, data, IoT, etc., it is clear that Romania is no longer a low cost country. ”*

*„We will clearly accelerate [digitalization] as we move from internal combustion to electric.”*

*„Digitization will become an increasingly important point, we have made progress, but we still have a long way to go to reach a more developed level.”*

*“It will certainly be an acceleration in terms of the implementation of new technologies. At the moment, innovation is an important topic for our company, globally and in Europe.”*

*„For several years, we have been taking important steps in terms of technology and digitalization. We had old systems, we generated a lot of data, but we didn't know how to use it. There is still a lot of work to be done. We may not be in front runners, but the group is making important steps.”*

*„I think that digitalization will increase, but the pace will not be as fast, with an upward curve as before. Still it will be a rather significant pace. Currently over 60% of the jobs are digitized, we will continue this year. .”*

“

*„We have been on this path for several years and we have a dedicated digitalization program for each line of business.”*

*„I think that investment in technology will be accelerated due to cost pressure, these methods lead to large cost reductions.”*

*„I anticipate growing investment. We are on an increasing trend in technology, in terms of the number of projects and budget.”*

*„We are at the beginning of the road, only the foundation in realized. Automation is just beginning.”*

*„The rate will accelerate, but we have to be realistic, the acceleration will be at a moderate rate.”*

*„We will accelerate the digitalization agenda; there are certain technologies that have produced the desired goals, but the technological progress is very high, there are technologies that we have explored that we want to implement, because they have proven their impact for us.”*

**Oil and Gas leaders also envisage further adoption of technology**, mainly driven by the need for increased efficiency and optimization, in the overall context of declining production due to exploitation of mature fields. Process optimization and technology investments are important opportunities for the sector. Among the technologies with the highest expected impact they mentioned remote monitoring, big data / data analytics / data science, IoT, Augmented and Virtual reality and chat-bots.



# Adapting the workforce to the new requirements is one of the key challenges cited by the interviewed leaders

Embracing more technology brings a series of benefits but also places significant challenges for both employers and employees. Each group must come to terms with the implications of the changes and what the very concept of work will look like in coming years.

## Companies' perspective

1

**Main benefits**

- Cost & time optimization
- Access to data
- Shortening the decision time
- Increased productivity
- Production diversification
- Access to a wider talent pool

2

**Key (internal) challenges**

- Training / Upskilling / Re-skilling the workforce for the upcoming new tasks
- Developing digital dexterity and mindset in the workforce
- Managing increasing complexity
- Retaining trained staff, highly attractive on the labor market
- Managing multiple generations in the workplace that react differently to change and have a different appetite for technology adoption
- Organizational culture
- Tendency to automate existing processes, rather than optimizing them as digital processes, with new flows
- High dependency on technology and cybersecurity

## Workers' perspective

1

**Main benefits**

- Higher productivity (especially among Oil & Gas jobholders)
- Lower physical effort
- Improved operating time
- Lower exposure to heavy or dangerous tasks (mainly among Automotive workers)
- Contribution to more technologically advanced products and services (especially among Oil & Gas jobholders)

2

**Key challenges**

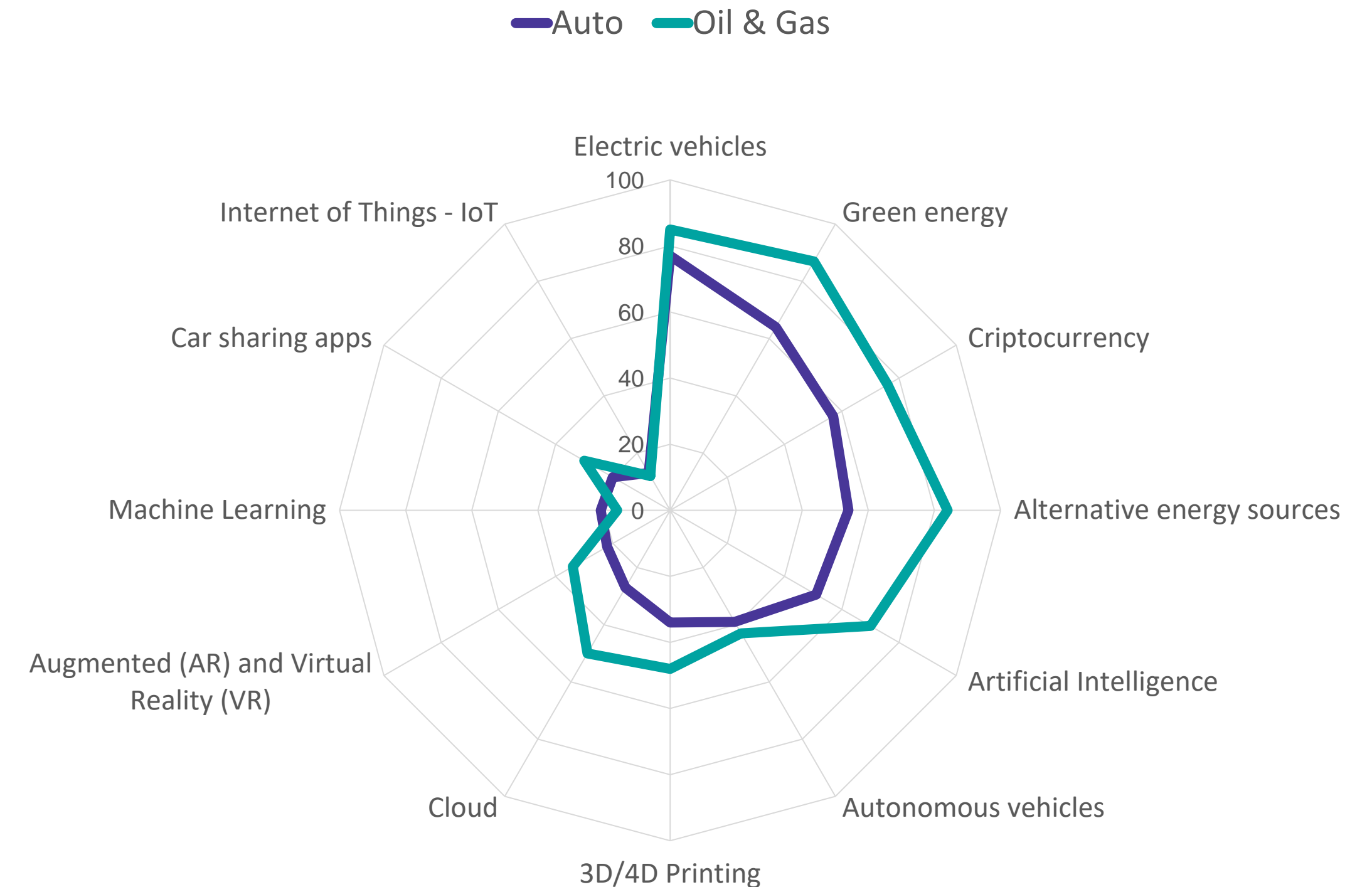
- Lack of competent work force
- Concerns regarding the possibility of job loss due to production moving outside Romania (Automotive)
- Decrease of existing products and services and increased demand of new, different products and services
- Supply chain



# High Acknowledgement of Technology Advancement Benefits

## *Among employees in Automotive and Oil & Gas Industries*

- Overall, 6 in 10 employees appreciate the rhythm of change driven by technology as just right. Still, more than one third (35%) feel the rhythm is too fast and less than 10% (mainly in the Oil & Gas industry) think it is somehow too slow.
- Jobholders' perspective was also explored based on the familiarity with specific, current terms which can prove both workers' interest and openness towards technology, as well as interest towards learning new things - as a first step towards working with these notions and applying the knowledge at their workplace. Thus, electrical vehicles, green energy and cryptocurrency are the most salient notions among jobholders, regardless of industry. IoT (Internet of Things) records the lowest level of awareness.
- With a few exceptions, employees in the Oil & Gas industry are more aware of the new notions related to technology and digitalization.
- The overwhelming majority (97-98%) of the employees in the two industries are well aware of the benefits brought along by technology evolution to their day-to-day work, agreeing on advantages such as: higher productivity, lower physical effort, decrease in operating time, lower worker exposure to heavy or riskier jobs, as well as the facilitation of more technologically advanced products and services.
- Although being familiar to a certain extent with the technological update and its increasing importance for their industries, employees are not fully aware of the impact it has on their jobs. Overall, almost two thirds (64%) of employees have acknowledged the importance of technology. However, only 5% of the workers agreed that their industries might need fewer employees to perform, in the context of technology development.





# There will be a dynamic of skills required in the near future, due to companies continuous technology adoption



According to the study, digital skills will see the highest increase in importance to support the use of various software programs and applications implemented

The skills estimated in the study to decrease in importance in both sectors as a result of the advancement of technology are the manual skills, as well as the skills supporting products handling, data processing and reporting, or those that enable repetitive activities





# Top skills expected to increase in importance, due to digitalization

## Automotive

## Oil & Gas

Software utilization, system analysis and evaluation and instructing are among the top skills mentioned in both sectors.

### Software utilization

Complex problem solving

### System analysis

Operations & control

Installation

### Instructing

Service orientation

Persuasion

Technology Design

### Software utilization

### System evaluation

Science

Management of material  
resources

Performance monitoring

### Instructing

Inductive reasoning

Active learning

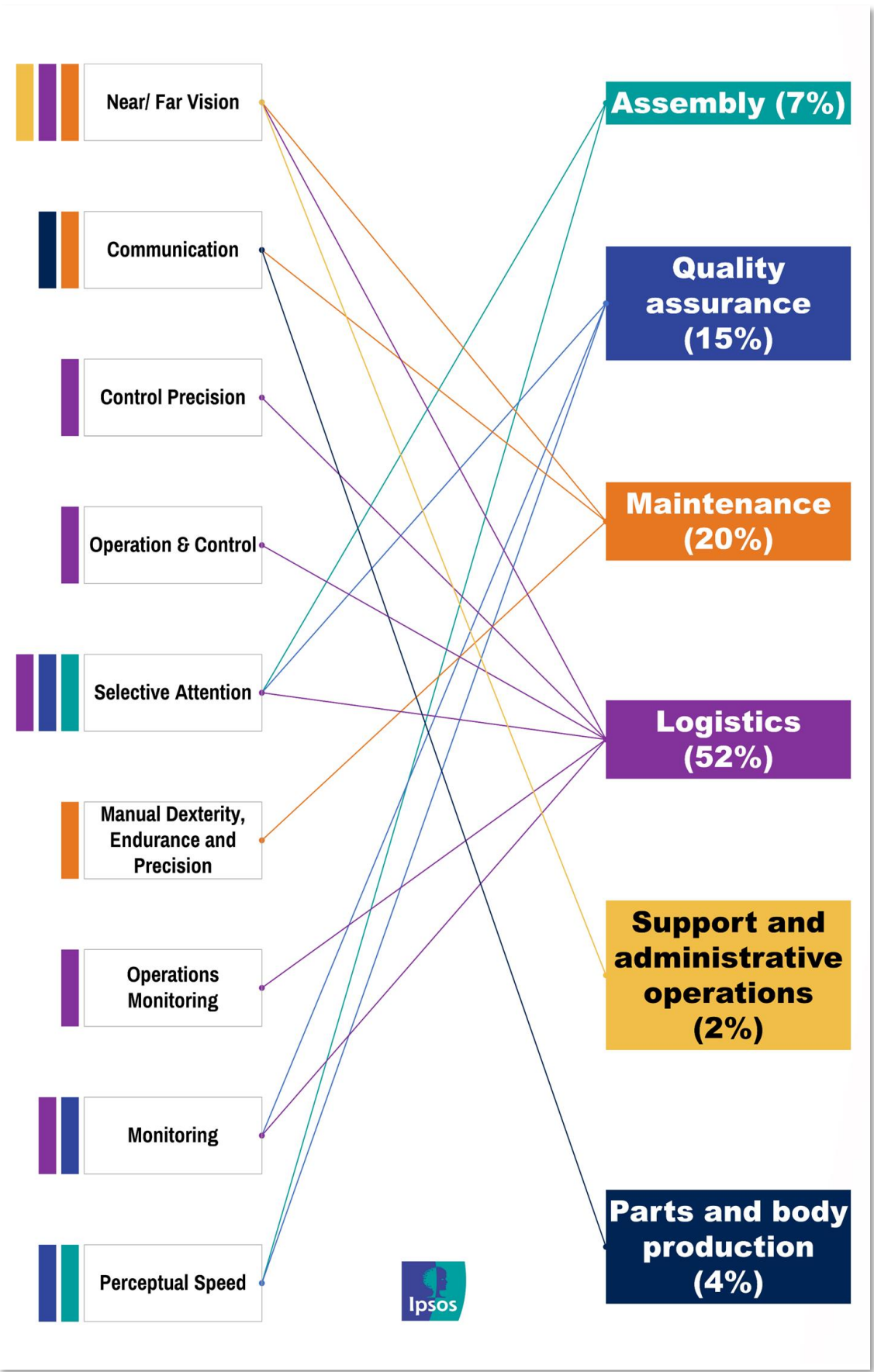
Problem sensitivity





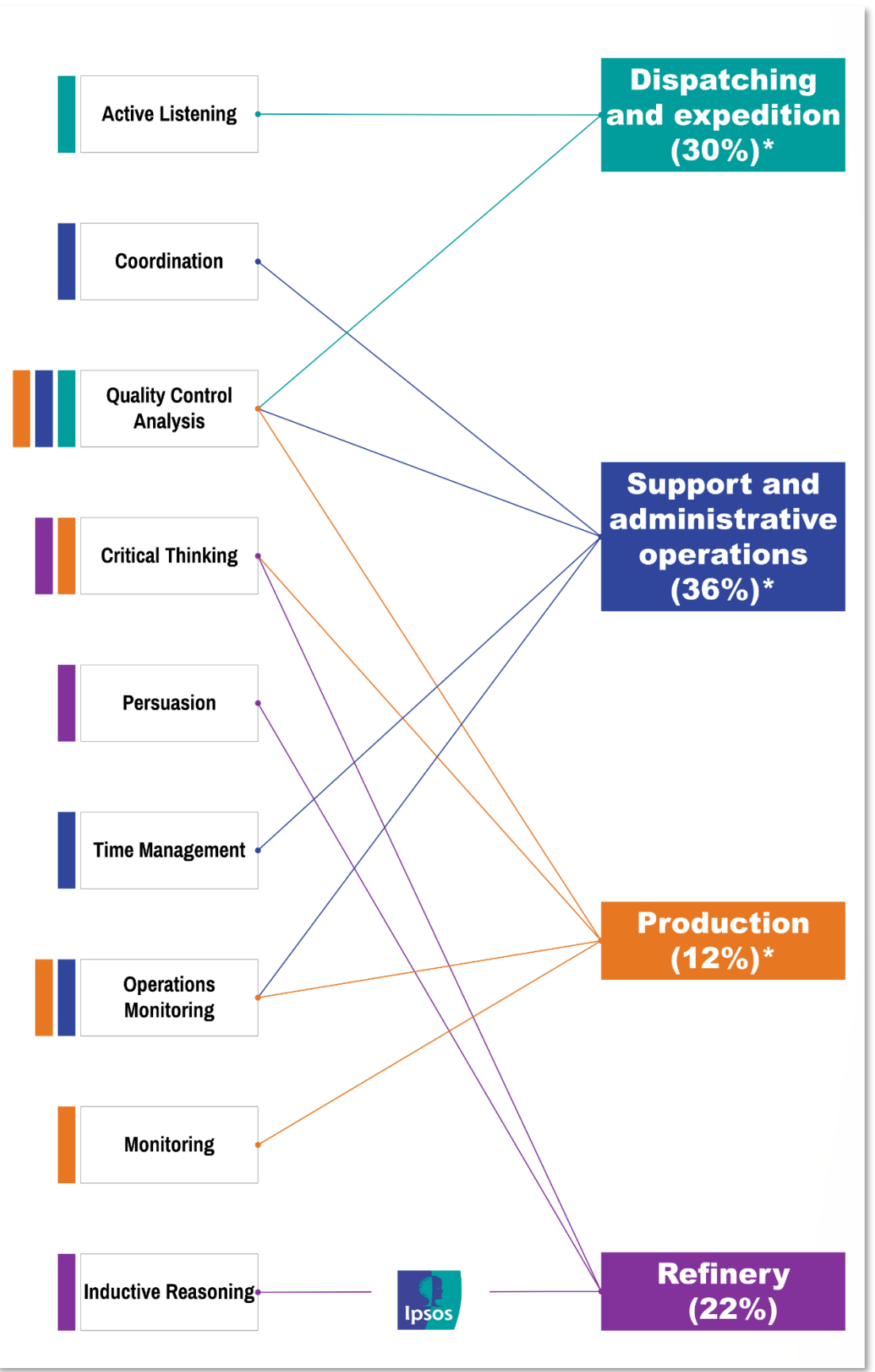
The skills expected to decrease in importance will trigger a higher exposure for the job clusters for which these skills are relevant

Automotive



The key skills expected to have a lower importance in the future in Automotive are: Near/ Far Vision, Communication, Control Precision, Operation & Control, Selective Attention, Manual Dexterity, Endurance and Precision, Operations Monitoring and Monitoring. As a result some job clusters as Logistics, Maintenance, Quality assurance might be more exposed to the transition to new activities.

Oil & Gas



Within the Oil & Gas industry, the key relevant skills expected to decrease in need in Oil & Gas due to the development of technology are: Active Listening, Coordination, Quality Control Analysis, Critical Thinking and Persuasion which may trigger a higher vulnerability for Support & Administrative operations, Dispatching & Expedition and Refinery.

Sources: Interviews with job holder of the participating companies from the Automotive and Oli & Gas sectors, February – March, 2022



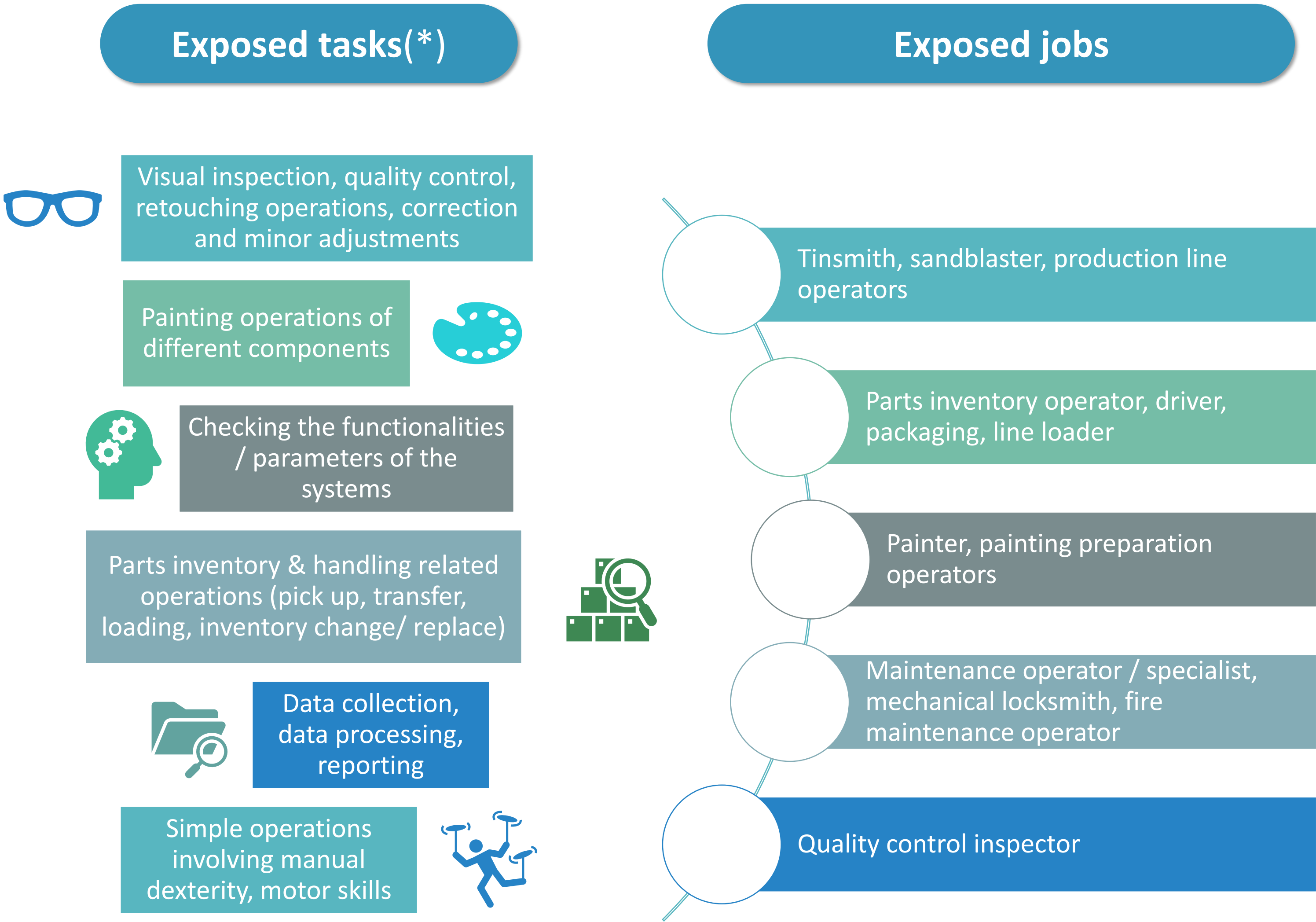
# Transformation of tasks drives jobs' transformation

## Automotive

Parts & Body production, Logistics, Painting, Maintenance and Quality assurance are the job families with a higher exposure to technology, based on the tasks expected to decline in the context of increased technology adoption.

“

“On the medium term – if robotization occurs, the operators who worked on that press will no longer do the same work. But we're going to need maintenance for those robots. And our obligation is to do professional retraining, so that employees can reorient themselves to a new job.”  
(Source: Business Leader from the Automotive sector)



(\*) The degree of exposure has been calculated based on the direct jobs supervisors' assessment of a set of criteria for tasks propensity to automation and digitalization



# Oil & Gas

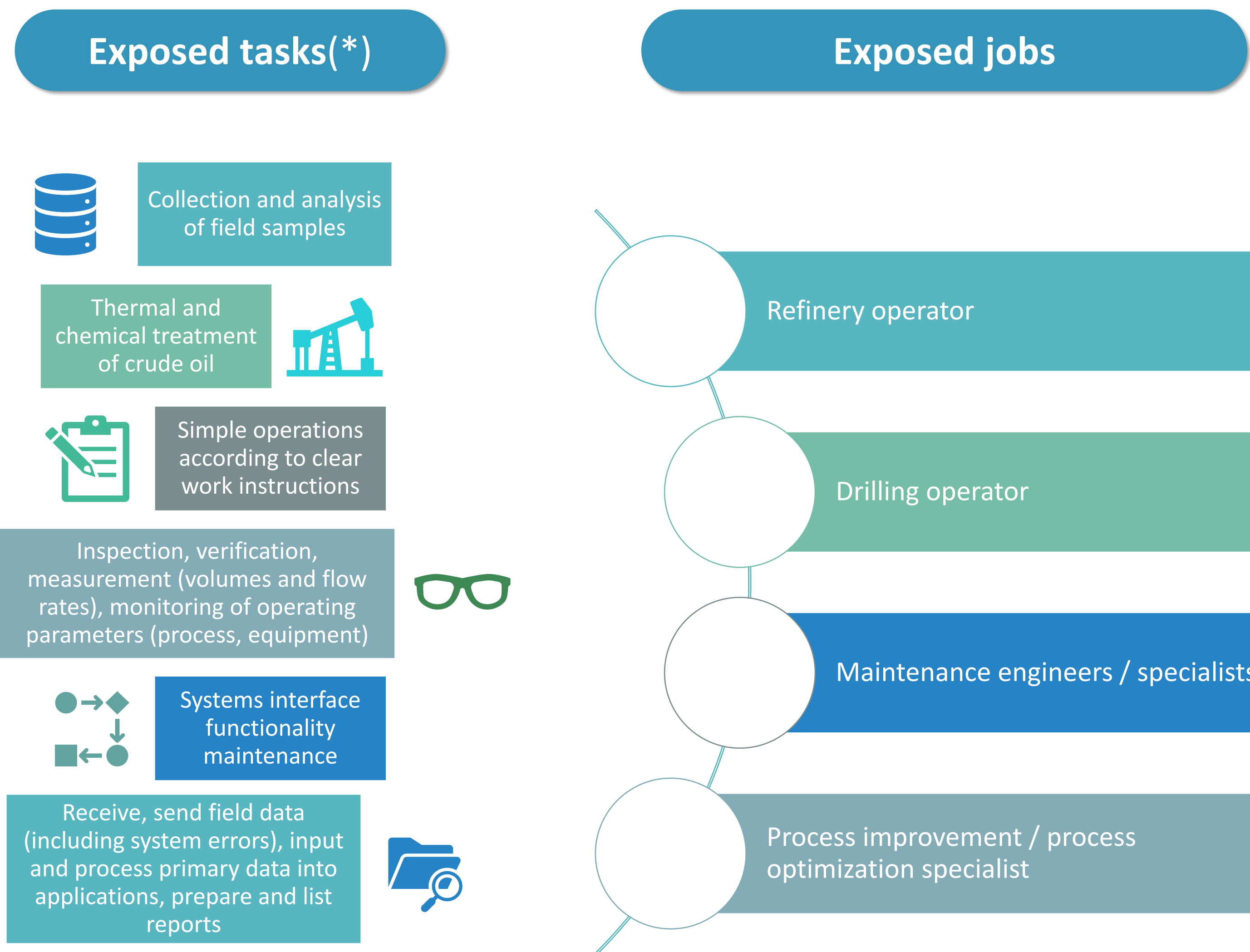
**Refinery, Refinery optimization, Production and Production facilities maintenance** are the job families with a higher exposure to technology, based on the estimated exposure of the tasks to automation and digitalization.

“

*“Through digitalization and automation, we try to add value to certain operations, to be done much faster and easier, and this can only be done with the current staff who have knowledge and expertise in the field of activity.”*

*(Source: Business Leader from the Oil & Gas sector)*

## Transformation of tasks drives jobs' transformation



(\*) The degree of exposure has been calculated based on the direct jobs supervisors' assessment of a set of criteria for tasks propensity to automation and digitalization



# Companies acknowledge the need for clear actions to enable a smooth transition



## Vision for the future

Some of the key strategies identified for preparing the workforce for the future of work in organizations start from the clear definition of the vision for the future.



## Communication & Transparency

Clear communication of the impact of technology on current jobs, benefits, trends, future opportunities, examples from other more advanced sector.



## Training & Development

Continuous training of the workforce, specific training when acquiring a new technology, retraining for other occupations in the organization when opportunities are identified.



## Dual education

The continuation of the partnerships for dual education ensures future new pools of young generations of employees who will adapt more easily to technology.



## Upskilling and reskilling

Ensures the development of workers for the jobs of the future and the provision of capabilities in line with organizational needs.



## Job migration

Workers whose jobs may be affected in the future by technology may have some opportunities for migration, either internally or externally.



## Outplacement

Partnerships with suppliers where staff with affected jobs can be redeployed, partnerships with outplacement agencies.



## Support

The job holders of the analyzed positions are primarily waiting for the support of the employers to help prepare for the future, but they are also willing to learn on their own.



# Workers need to prepare as well

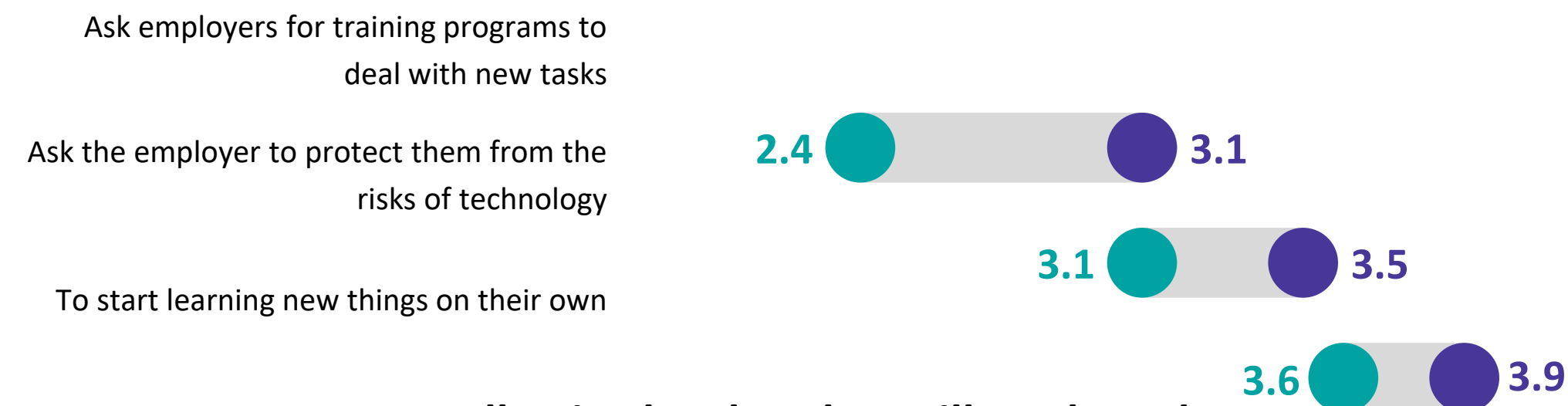
Considering the transition to a sustainable future of work, the Quantitative analysis aimed to highlight the expectations of jobholders from legitimate support providers in the context of change brought by technology, on multiple levels: normative (what should workers do?), collective (what will workers actually do?) and individual (what will each worker do?)

The three perspectives are convergent with regards to support provided from the immediate proximity of jobholders: either employers – by means of training programs or protection against risks brought by technology – or personal development (learning new things on their own).

Support provided by the State or syndicates (e.g.: in the form of advice, trainings or protection) generally has a much lower importance among workers.

Looking for a new job or simply doing nothing are the least desirable options among jobholders in the two industries.

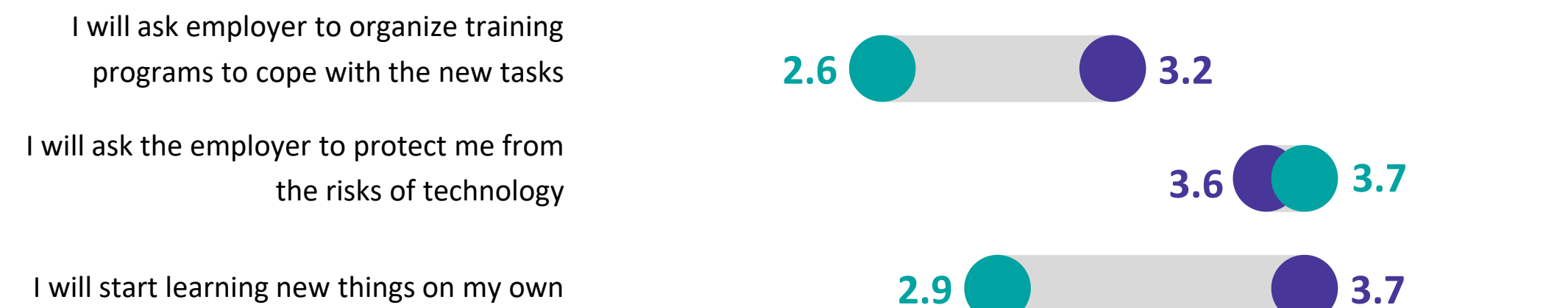
## Normative level - What should workers do



## Collective level - What will workers do



## Individual level - What will each worker do



● Automotive ● Oil & Gas

1=Most important

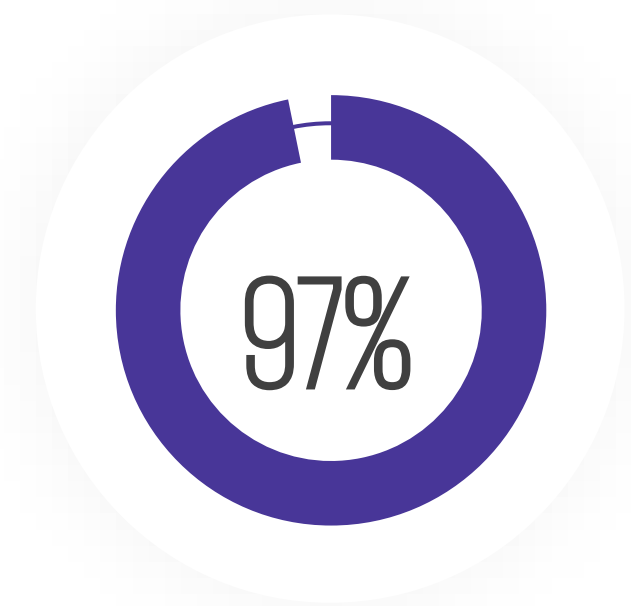
8=Least important

Sources: Interviews with job holder of the participating companies from the Automotive and Oli & Gas sectors, February – March, 2022

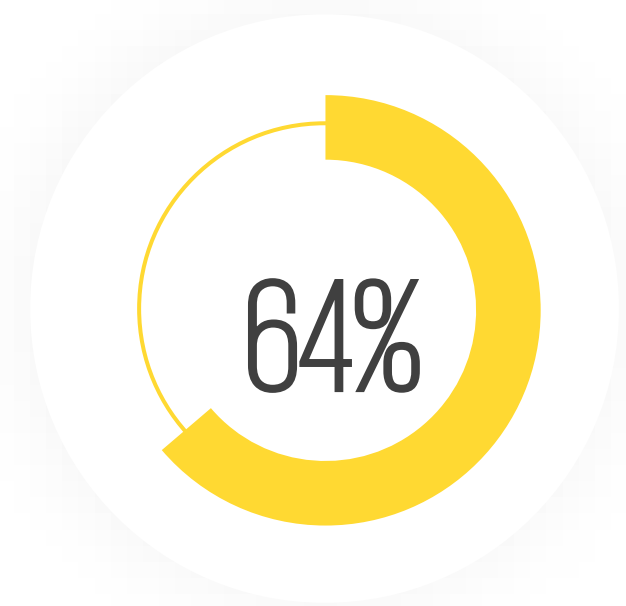


# Workers' Perspective – Key Figures

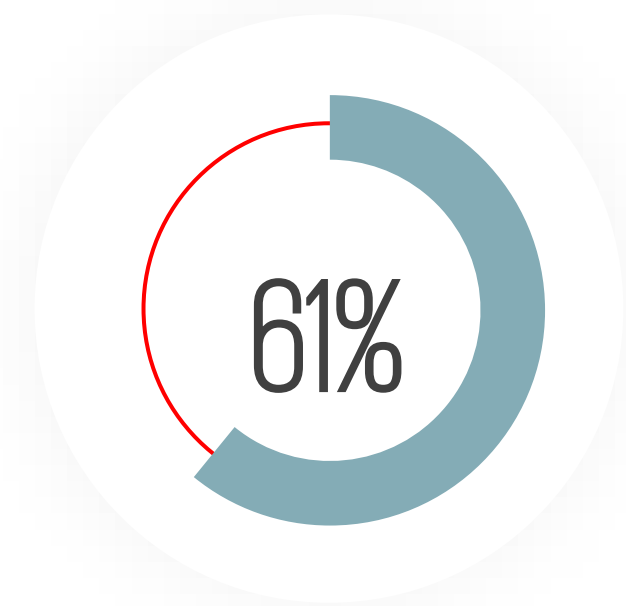
*Among employees in Automotive and Oil & Gas Industries*



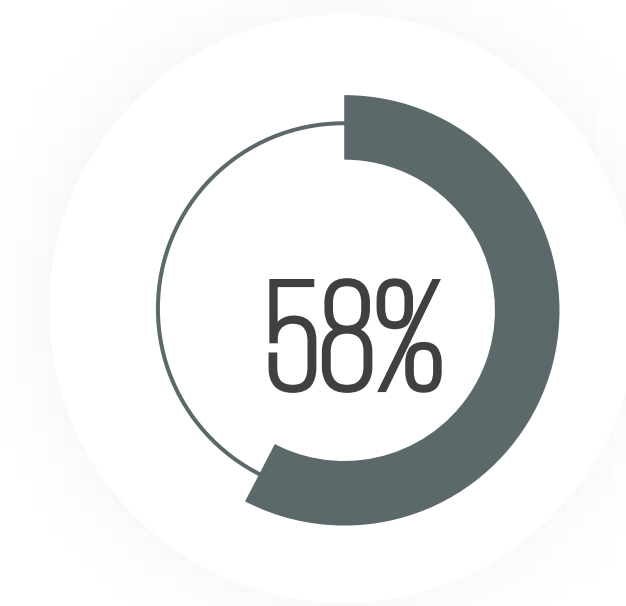
Industry workers which are aware of the benefits brought by technology evolution to their day-to-day work



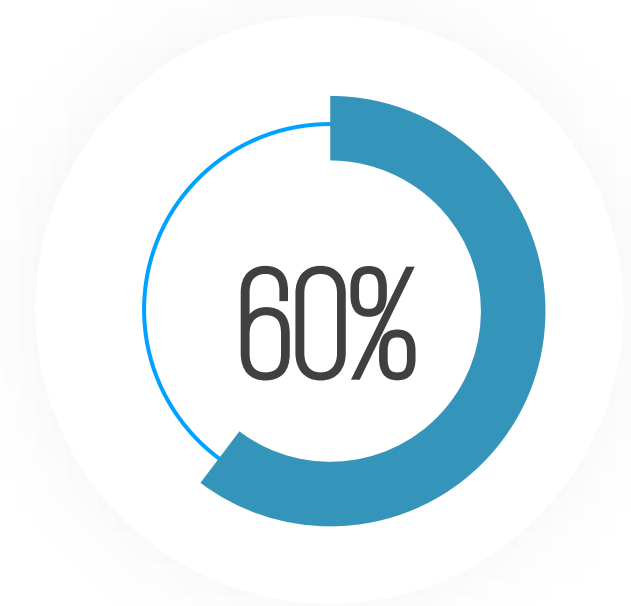
Employees acknowledging the increased importance of technology among recent changes in the industry



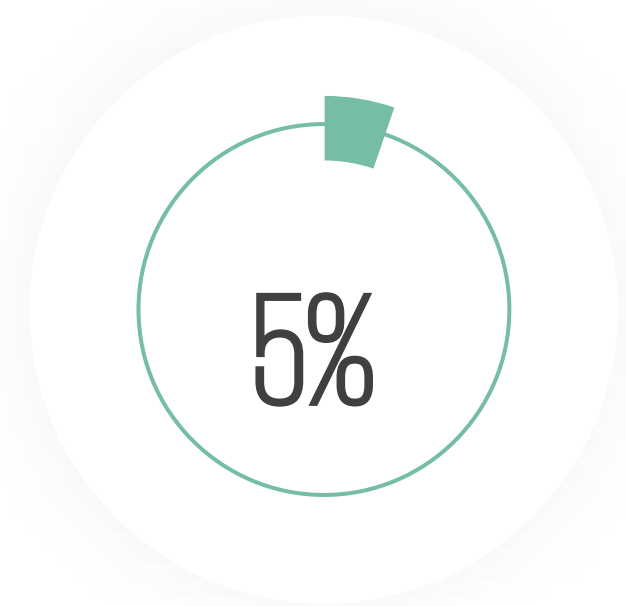
Workers which agree that digitalization and evolution of technology were accelerated by Covid-19 pandemic



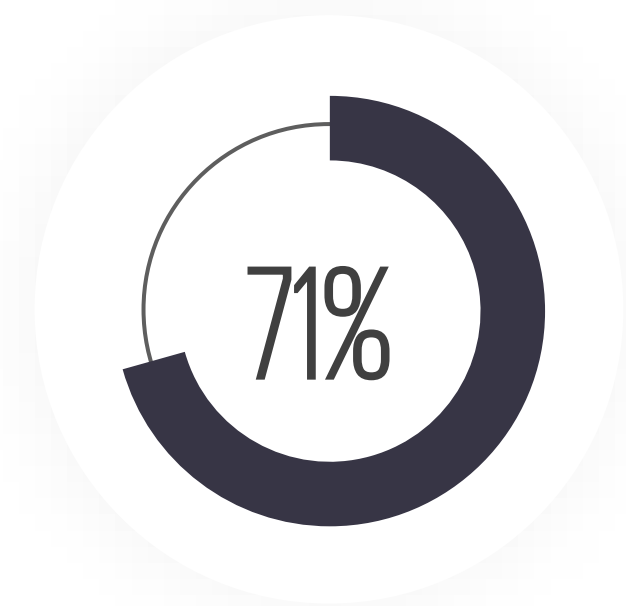
of employees appreciate the rhythm of change driven by technology as just right



of the workforce agrees that accelerated technology development improves productivity across their industries



of Jobholders agreeing that their industries might need fewer employees to perform, in the context of technology development.



Jobholders which expect more specialized training in the future





## Conclusions and recommendations



# Key conclusions



1

**Adoption of technology in the analyzed industries is expected to increase** – While there are diverse views regarding the pace of technology adoption within the two sectors, there is consensus regarding the digital expansion for the sectors in the coming years.

2

**Future labor force projections are still limited** - Even though the companies have articulated digitalization strategies, there is still a need for more focus on envisioning how the workforce should look like in the future and for defining agile strategic workforce planning.

3

**Technology will influence the workforce shape primarily at a qualitative level** – Companies anticipate there will be changes in the workforce structure as a result of the increase in technology adoption, but on a short to medium term this will not be associated with jobs' restructuring. The qualitative changes will be significant though as organizations need new sets of competences and the average level of competences will continue to increase.

4

**Along with digital skills, transferrable and soft skills also grow in importance** – STEM, Big data, data science and analytics will continue to grow. Altogether, the transferrable skills referring to mental flexibility, creativity, solving complex problems, social perceptiveness, service orientation and emotional intelligence will be even more important, to differentiate humans from machines and support the new activities.

5

**A new class of *digital workforce* will grow** – Some tasks carried out by humans will be taken over by machines or the so-called *digital workforce*, while other tasks will continue to be carried out by humans. In parallel, new tasks and activities will evolve, that will require humans and machines to work together.

6

**Ensuring the right workforce, at the right time, with the right skill set remains a challenge for companies** – Managing different generations, with different appetite for technology and change, while identifying measures to retain the already trained ones in the context of the *Talent war*, remain important challenges for the companies.

7

**Job holders are familiar with the global trends related to technology transformation** – Most job holders are rather familiar with those concepts that have an immediate impact on their personal lives and are more visible in the media and they are less familiar with the concepts in close connection to their field of work.

8

**Job holders are aware of the benefits associated with technology in their activity** – They expect that technology will have some immediate effects like improving productivity, reducing physical effort, reducing operating time, taking over heavier or more dangerous work, as well as contributing to the realization of more technologically advanced products and services.



# Actions to enable a smooth transition

## Reshape the strategic workforce planning process towards agile, scenario and foresight-based planning processes

Organizations will still need to recruit, develop and retain the right talent and skills, while understanding how the size and shape of the workforce will evolve alongside technology.

## Identify critical skills and develop the skills of the future

What are the critical skills we need in the future and how do we start developing them is a key question to start with, in the context of a new vision for the future, new processes and operating models, in addition to managing the punctual training needs generated by the current investments in technology

## Strengthen transversal skills

In order to reduce workers' vulnerability to the labor markets structural changes a key measure is increasing adaptability and transversal skills, which can help them adapt to new work processes supported by technology, but also to increase their mobility potential, if their roles will be affected, both inside and outside the organization, or to other sectors

## Build digital skills

Sustained measures and investments in the development of digital skills are critical. This should start from robust programs offered in schools, to employer-offered programs or digital literacy programs offered to the population, including to those categories of population at risk of social exclusion

## Develop of a Life Long Learning approach

Life Long Learning systems need collaboration between all labor market stakeholders (authorities, organizations and social partners) to enable workers to properly respond to change.

## Correlate the competences acquired in schools with the realities of the Romanian economy

Adapt the educational system's curriculum to current and future labor market needs on the medium to long term, taking into account the set of skills that workers need in the future to maintain or increase their "market value" by intensifying the dialogue between employers and the authorities responsible for curriculum development.

## Develop organizational cultures open to change

In a digital world organizations need constructive cultures, that encourage innovation, flexibility, growth mindset, collaboration and which tolerate fast change. Through cultural transformation initiatives, organizations can create working environments where roles can evolve and people can access new career paths, where there is a continuous learning mindset and openness to change, in which innovation and experimentation is the responsibility of all.

## Increase the level of familiarity of workers with anticipated changes

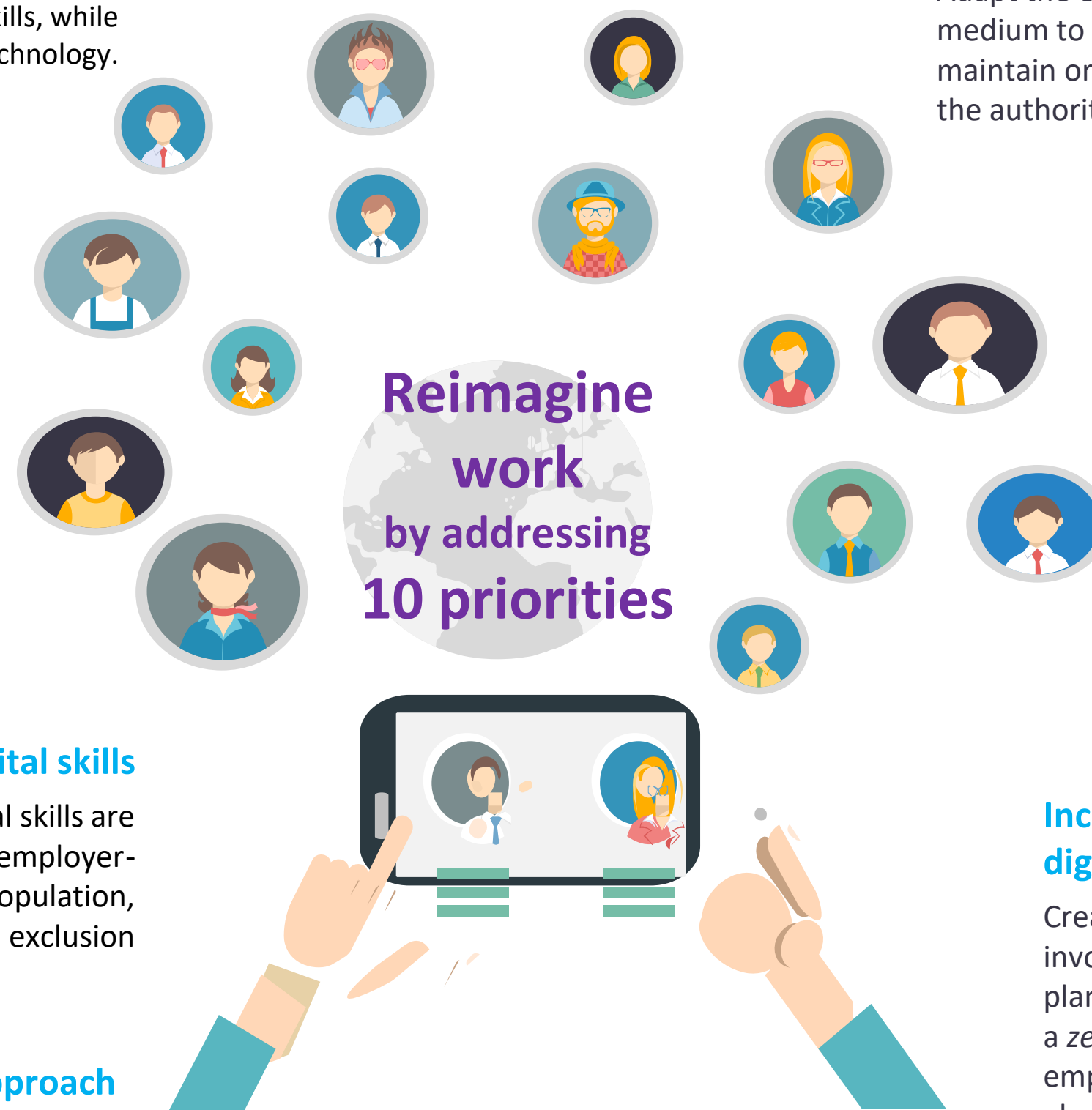
Opening an honest dialogue with employees about the impact of technology on the sector, organization, skills and their jobs is a difficult yet essential measure companies can take to prepare workers for transition

## Increase public-private systems partnership to prepare workers for the digital economy

Creating jobs and equipping workers requires large-scale mobilization of all the actors involved: authorities, organizations, social partners and this cannot happen without real planning and collaboration between the private and public sectors. Most likely, we need a *zero-based* thinking, in which governments, education systems, companies and employees critically examine the current context, are aware and honestly communicate about the impact of necessary changes and the benefits of implementing them.

## Continue asking the right questions

- How will our operating model evolve to remain relevant and competitive?
- What will our future workforce look like?
- How to successfully integrate the digital and human workforces?
- How do we develop workers for the future?
- How do we plan and forecast in a VUCA world where volatility, uncertainty, complexity and ambiguity are part of the rules of the game?
- How do we integrate 3 generations into the same workplace?

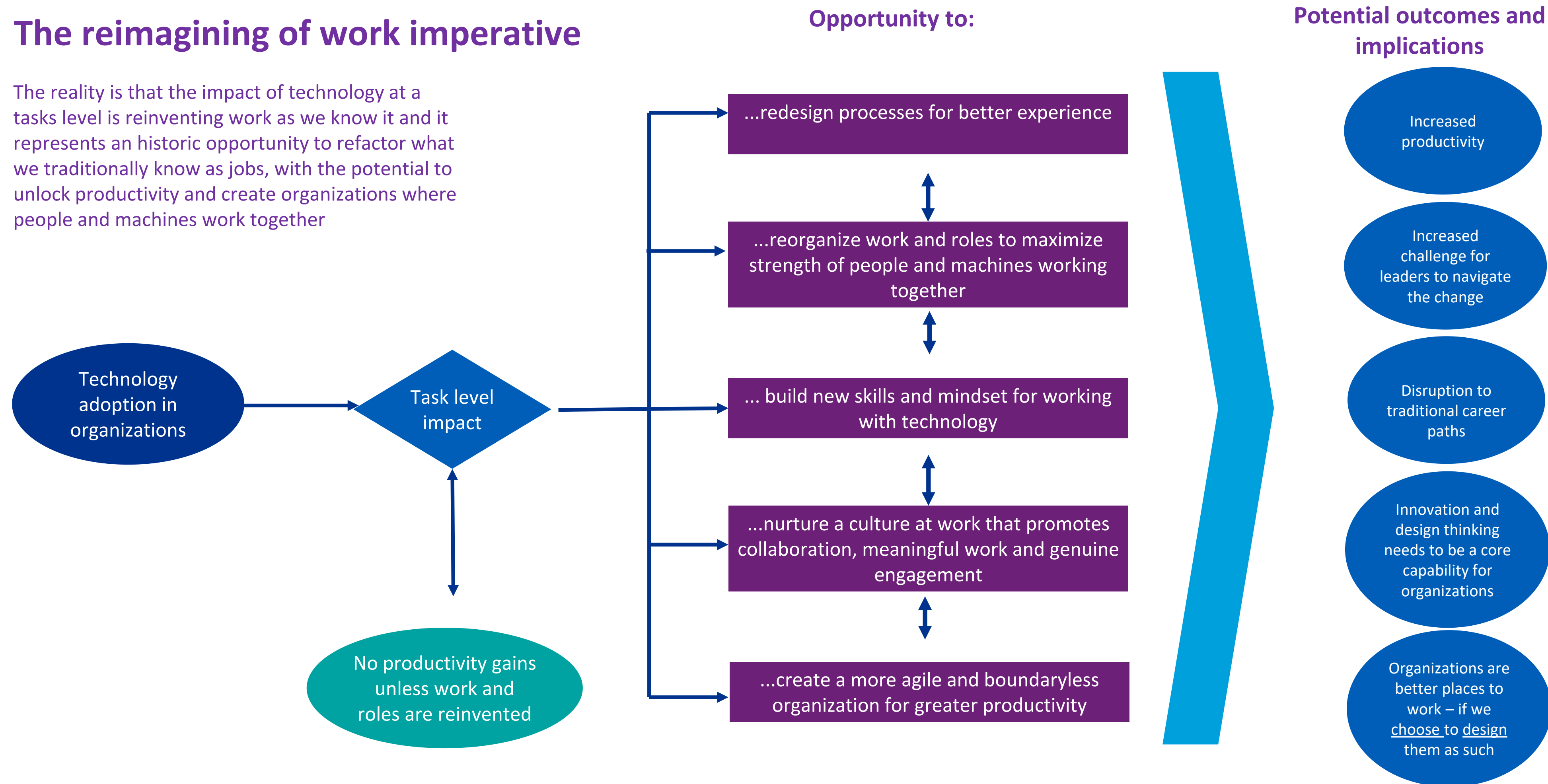




# Reimagine the way we work

## The reimaginging of work imperative

The reality is that the impact of technology at a tasks level is reinventing work as we know it and it represents an historic opportunity to refactor what we traditionally know as jobs, with the potential to unlock productivity and create organizations where people and machines work together





# Research methodology

Four companies from the Automotive and Oil & Gas industries participated to the research study, 2 companies in each sector, cumulating over 30,000 employees.



# Thank you!

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