

THE FUTURE OF WORK IN INDUSTRY



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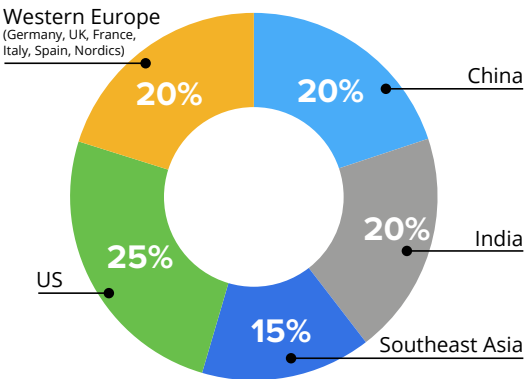


INTRODUCTION

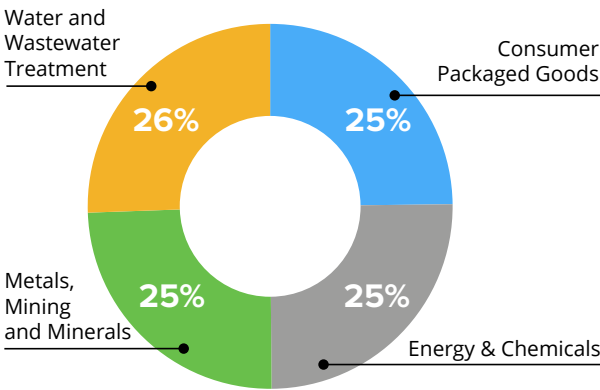
In 2023, Omdia was commissioned by Schneider Electric to conduct an online survey of industrial companies to better understand the impact of digitalization on the workforce and on the nature (or scope) of job roles in industry. The objective of this e-book is to look at digitalization as a purpose-driven tool, in addition to its role in increasing efficiencies and profits. Digitalization can empower and engage people to contribute more value to the company through improved job satisfaction, higher earnings, and increased skills and education.

In total, the survey targeted 407 respondents using the following segmentation:

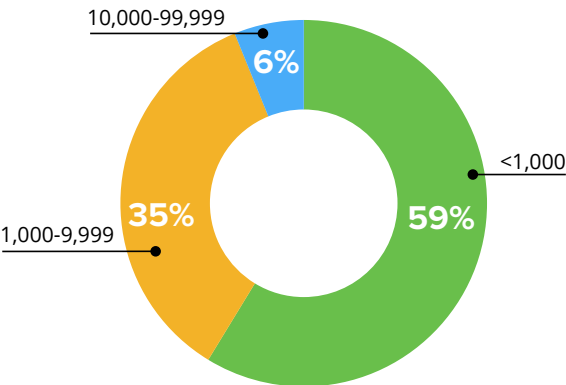
By Geography



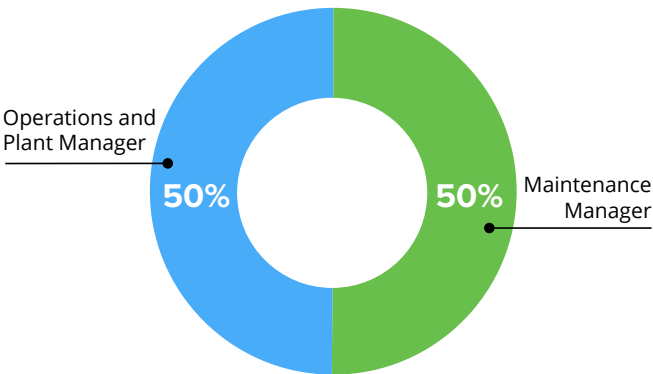
By Industry Sector



By Company Size



By Job Function



Note: n= 407
Source: Omdia

THE PEOPLE CHALLENGE FOR INDUSTRIAL COMPANIES

The Majority of Industrial Companies Identify Talent as a Key Challenge

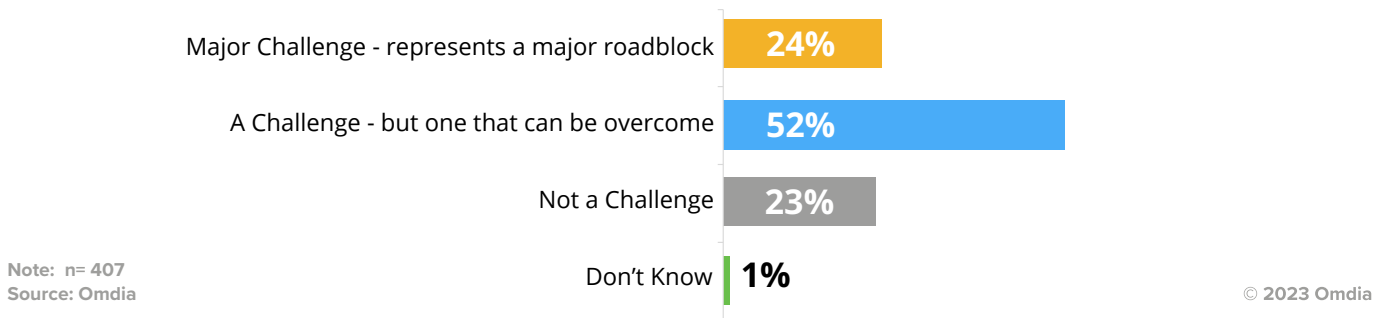
Industry faces a labor shortage due to an aging workforce:

Japan, Europe, and the US already have a significant number of workers aged 55 and over, making up almost 40%, 25%, and 30% of their respective workforces.

The challenge is further exacerbated by companies struggling to acquire talent and/or retain personnel:

Notably, 76% of respondents in the Omdia survey consider this a challenge.

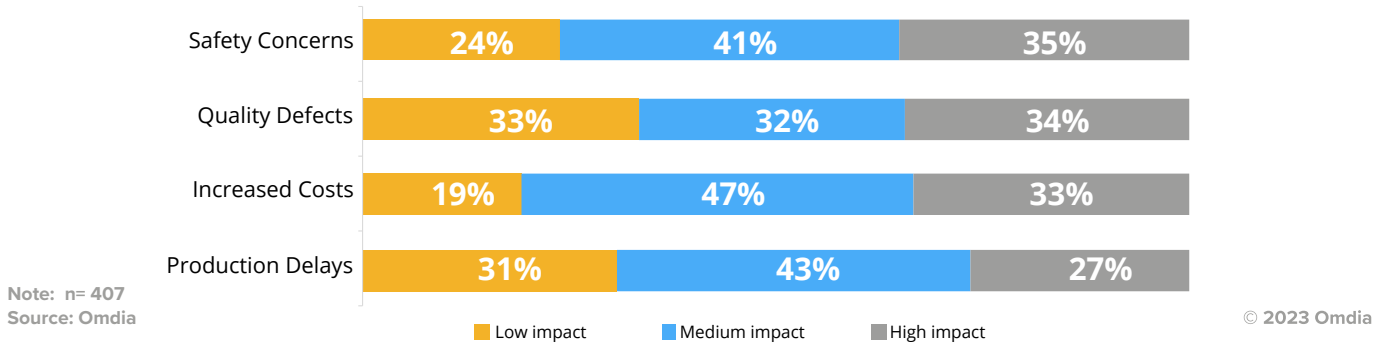
Does your company struggle with talent acquisition and/or retention of plant personnel?



Skilled labor is a key input to the innovation process:

The Omdia view is that a shortage in skilled labor may impede innovation activities and result in lower productivity gains. In the longer term, a lack of innovation could have a broader and more serious impact, leading to industry stagnation and a weakened competitiveness of the broader economy. Furthermore, successful recruitment and retraining can impact numerous key business concerns spanning worker safety, quality improvements and cost reduction amongst others.

What is the impact of recruitment and retraining of employees on the following?



Increased Automation and Digitalization to Address the Workforce Challenge

By introducing automation and supporting technologies into their operations, industrial companies can attract new skills and capabilities to effectively meet the people challenge:

A higher level of automation makes the workplace more accessible to workers without the traditional skill sets. A key objective of digitalization is to develop and support a more empowered, highly skilled, and engaged workforce, with employees viewed as the main asset of a company.

There is also evidence that automation improves employment stability, brings higher wage growth, and increases cumulative earnings. As a result, more value can be contributed to the company, but importantly, job satisfaction can be improved, and skill and education levels increased.



THE CHANGING NATURE OF INDUSTRIAL JOB ROLES

Digitalization is Already Changing the Nature of Industrial Job Roles

Industrial companies expect the need for OT role (plant personnel) flexibility to change in the coming years:

Sixty percent of respondents considered the necessary changes to OT role flexibility to be moderate or significant.

Digitalization will have the greatest impact on operational job roles in the coming years, followed by environmental sustainability:

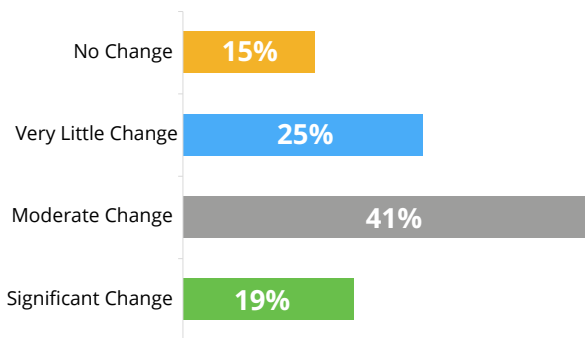


More than 80% of respondents agreed that both digitalization and environmental sustainability would support either the generation of new job roles or the extension of existing ones.

Why is this the case?

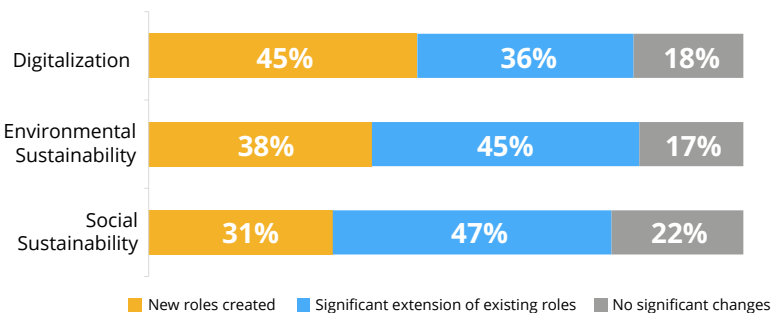
Digitalization changes the nature and scope of the operational job role. For example, some routine tasks and processes may be eliminated from the current job specification as the adoption of new technologies drives upskilling and reskilling efforts. Digitalization will also enable remote and more flexible working opportunities for some roles and enhance workplace safety.

How do you expect the need for OT role (plant personnel) flexibility to change in the next 3 years?



Note: n= 407
Source: Omdia

What impact do you perceive the following topics will have on operational job roles in the next 3 years?



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Digitalization as a Means of Improving Working Conditions

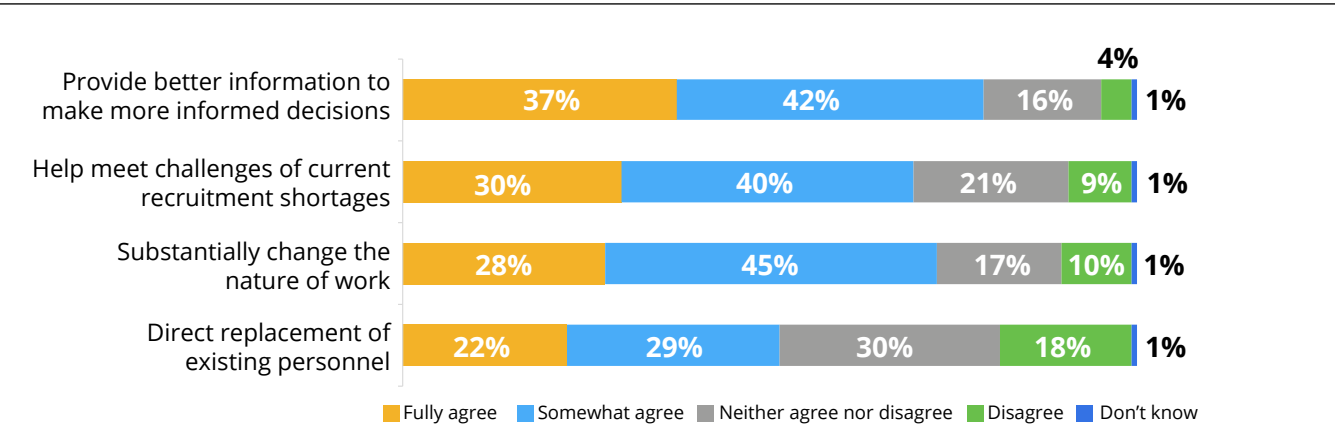
Digital technologies improve working conditions by replacing repetitive, heavy, or dangerous tasks and reducing the workload.

They can also help to improve skills, raise the quality of work, and create new, higher-value-added employment, leaving more time for stimulating tasks and career development.

The Omdia survey indicates the following digitalization factors have the most impact on operational roles:

- Provide better information to make more informed decisions (percentage of respondents agreeing was 87%)
- Substantially change the nature of work (73%)
- Help meet current recruitment challenges (70%)

How do the following statements reflect your perception of the impact of digitalization on operational roles?



Note: n= 407
Source: Omdia

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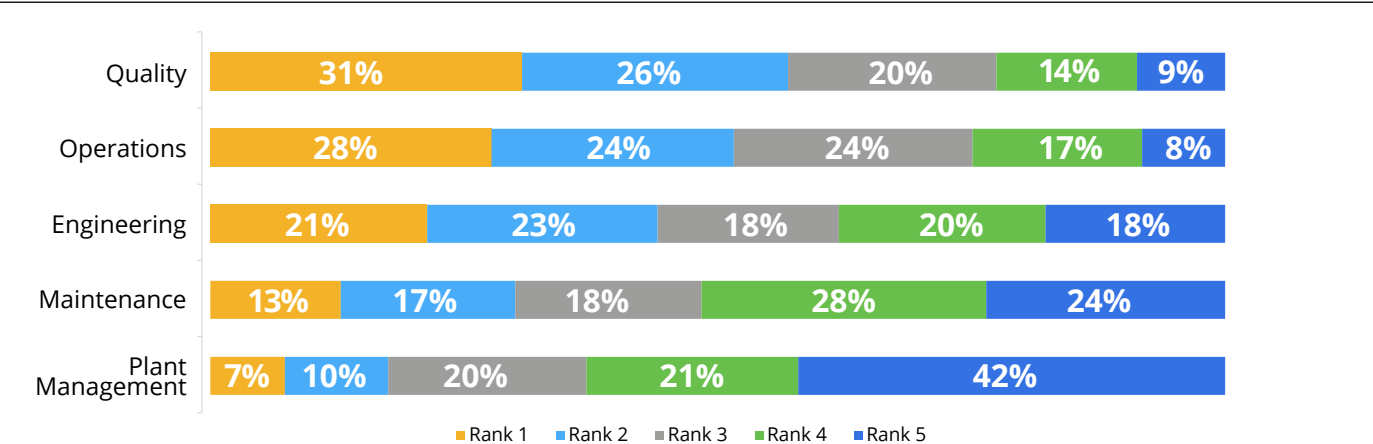
Although industrial companies acknowledge that digitalization will change the nature of work, it is not viewed as a replacement for employees. Instead, it is seen as an opportunity to utilize new technologies to boost efficiencies, achieve better synergies, and add value to the employee experience. The outcome is a significant improvement in the quality of work and in overall staff morale.

Quality and Operational Job Roles Are Most Augmented by Digitalization

Job roles linked to quality and operations are perceived to be the most significantly enhanced or augmented by digitalization:

According to the Omdia survey, quality (77%) and operations (76%) are the two types of roles expected to be most enhanced or augmented by digitalization.

Which job roles will be most significantly augmented and enhanced by digitalization?



Note: n= 407
Source: Omdia

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Digitalization can augment quality assurance:

In the quality job function, digital technologies are essential to automate and digitalize tasks—such as document control, data entry, and reporting—that are typically performed manually. Real-time data insights are also important to identify and prevent problems earlier, leading to improved quality.

Digitalization can enhance operational job roles:

Digitalization augments operational job roles by reducing the number of repetitive tasks and helping employees to make more informed decisions. It also opens up new opportunities in training and development and helps ensure safety and compliance.



Plant Automation Essential to Support Worker Safety

The Omdia survey confirms that industrial companies are introducing plant automation to support physical tasks:

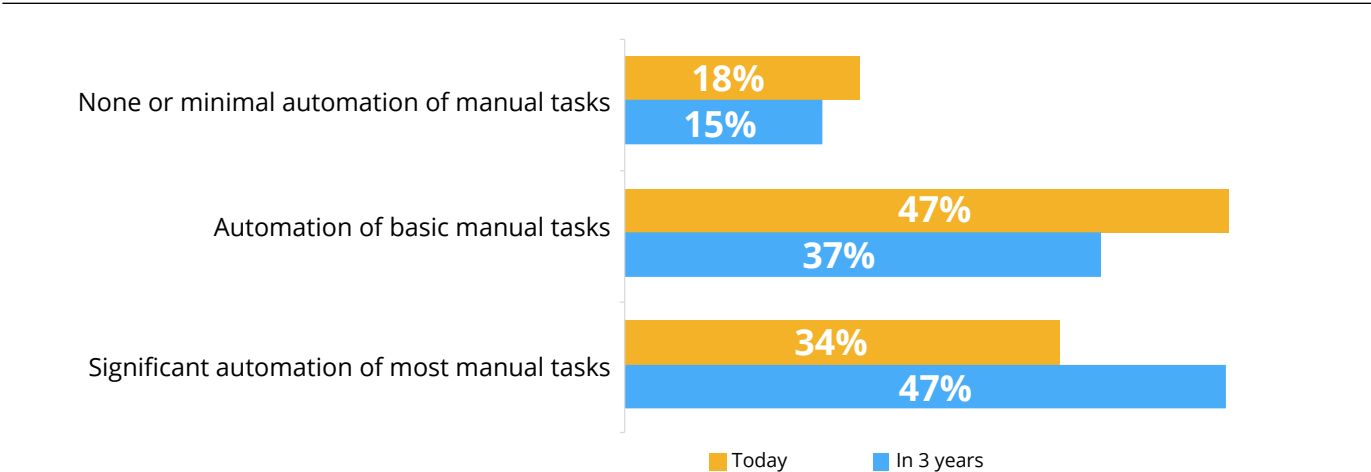
To date, 47% of respondents have already introduced automation of basic manual tasks. Within three years, 47% of respondents will have implemented significant automation addressing most manual tasks (up from 34% currently).

A key driver for investment is to more effectively and safely handle tasks that are repetitive, monotonous, complex, and potentially hazardous:

Physical danger can be reduced or even eliminated through more automation. Workplace injuries carry significant direct and indirect costs for both the industrial company and, more importantly, the injured worker. The National Safety Council (NSC) estimates work-related deaths and injuries in the US cost employers and individuals \$161bn in 2021. According to figures from the European Agency for Safety and Health at Work, the annual cost of workplace accidents in the EU totaled €476bn, and the global cost is estimated at \$2,680bn.



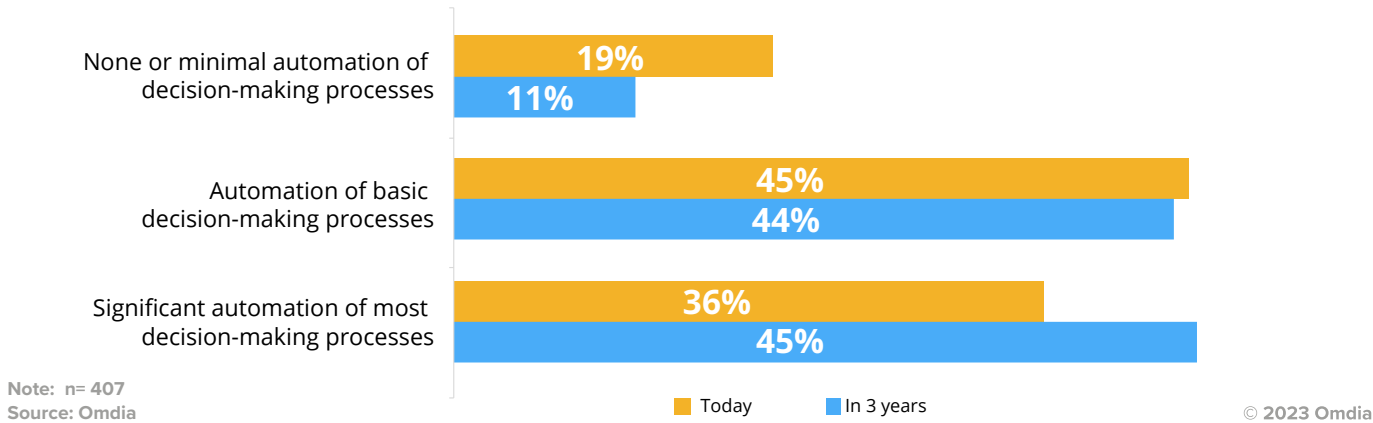
To what degree has your company introduced plant automation to support physical tasks (e.g., manual actuation of valves, inspection, and sampling)? How is this expected to change?



Plant Automation as a Critical Means to Support Decision-Making

Forty-five percent of respondents indicated that plant automation has already been introduced to support basic decision-making. Similarly, 45% of respondents said that they will have significantly automated most decision-making processes in the next three years.

To what degree has your company introduced plant automation to support decision-making (e.g., workflow activities and process control – including operations, maintenance, and supply chain)? How is this expected to change?



Plant automation is a critical enabler of decision-making support by providing real-time data, analysis tools, and decision-support systems that facilitate more informed and efficient decision-making.

The introduction of plant automation will require employees to acquire the relevant skills and capabilities to support technology adoption and new ways of working. If they do not invest in the proper skill sets, organizations will face a number of key challenges including but not limited to reduced productivity, increased workload across staff, employee dissatisfaction, lost business, and stifled innovation.



EMPOWERING THE INDUSTRIAL WORKFORCE

People and Culture Remain the Central Challenges for Digitalization

Resistance from the existing workforce was highlighted as the most critical challenge and/or impact on OT workforce during implementation of digitalization:

Forty-three percent of respondents rank this as a top-three challenge. Resistance may derive from factors such as fear for job security, unclear expectations on performance, and lack of understanding or ability to see the bigger picture.

Organizational culture averse to change

Thirty-eight percent of respondents rank organizational culture as a top-three challenge. A preference for maintaining the status quo and an aversion to risk-taking can hinder the effective adoption of new technologies and innovative approaches.

Rank the most significant challenges and/or impact on OT workforce (plant personnel) in implementing digitalization?



Note: n= 407
Source: Omdia
Rank 1 Rank 2 Rank 3 © 2023 Omdia

Lack of employee skills and knowledge

Without the necessary skills and knowledge, employees may struggle to use digital tools effectively. This can result in inefficient processes, reduced productivity, and frustration.

30%

of respondents rank this as a top-three challenge.

What is Required to Address These Challenges?

Executive sponsorship

Digital transformation needs to align with the organization's strategic goals and objectives. Executive sponsorship ensures that the transformation efforts are aligned with the overall strategic direction of the company.

Worker training and flexibility

Worker training is critical to support digitalization because it empowers employees to embrace digital change. It ensures that the worker can adapt to their evolving role and contribute effectively to the organization's digital initiatives. It also boosts employee engagement.

Working with your digital transformation partner

A successful digital transformation is not just about the adoption and integration of new technologies but of an entirely new and innovative organizational approach. It is, therefore, critically important to choose the right partner ecosystem to support digitalization projects. Partners bring unique value in terms of technical and industry-specific knowledge. Importantly, they also provide local knowledge and intimacy with respect to culture and technical abilities.



Industrial companies should identify partners that have experience in similar projects and can leverage an ecosystem that can support all aspects and stages of the digital transformation journey. It is important to note that success is achieved through collaboration and building trust with a partner that can provide access to the right expertise and capabilities needed for successful implementation.

Where new skills will be required

- Robotics programming and integration
- Immersive experience
- Data analytics (including AI)

Where companies will prioritize investment

- Data processing
- Data analytics
- Data visualization

Data visualization and data analytics (including AI)

High investment priority and relatively high perceived skills gap.

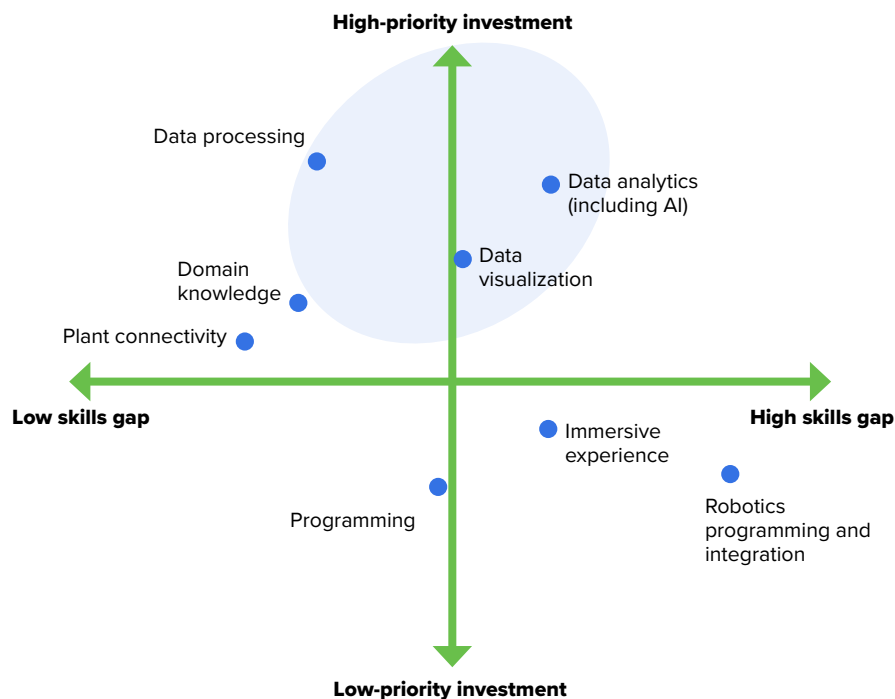
Data processing

Although data processing skills are considered relatively sufficient, this is identified as the area with highest investment priority.

Robotics programming and integration

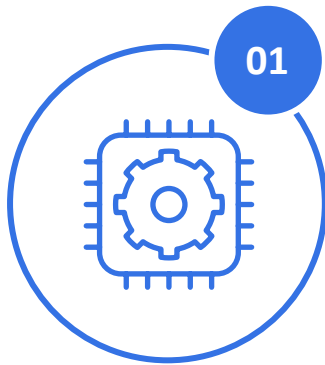
This area rates the highest in terms of the most insufficient skill levels but relatively low as an investment priority overall.

Skills gap versus investment priority



Note: The shaded area highlights the intersection of a perceived skills gap and high-priority investment. The skills gap is pointing at the importance of industrial companies' acquiring and investing in data processing and analytics skills.

Focus on Improving Data Science Knowledge and Robotics Programming Skills



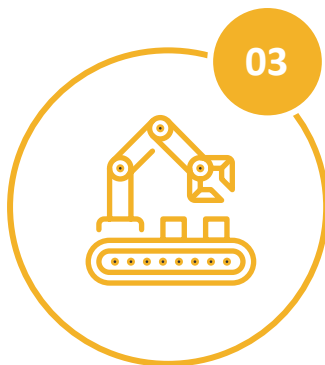
Data Processing

Considered the most important investment area for the OT workforce. It is considered critically important to effectively process vast volumes of data to support operational strategy and decision-making.



Data Analytics

With large volumes of data being produced daily by industrial IoT and smart factories, industries are increasingly turning to AI solutions to better analyze data and make decisions.



Robotics Programming

Robotics programming is seen as the area with highest skills gap. With the automation of monotonous and manual tasks, humans can be elevated to roles where their skills and abilities can be used and developed in higher value areas.

The survey reveals that there is shortage of data insight and solution skills. Industrial companies view these skills as essential if they are to develop the real-time and strategic analytics models required for data-driven decision making and ultimately business growth.

Technologies with highest impact on the workforce

- Industrial 5G
- AI / deep learning / machine learning
- Edge computing

Technologies with lowest implementation effort

- AR/VR/MR (mixed reality)
- Digital twins
- Edge computing

Edge computing

Relatively high impact and low (according to the lists above) implementation effort

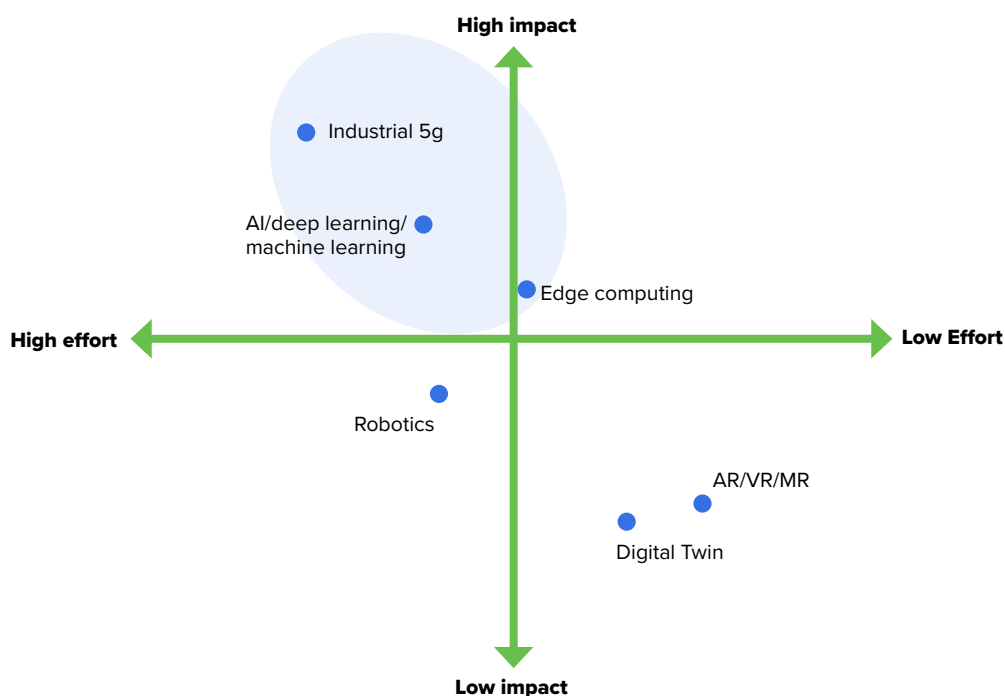
AI / deep learning / machine learning

Identified as high implementation effort but also high impact on the workforce

Industrial 5G

Perceived as both a highest-effort and a highest-impact area

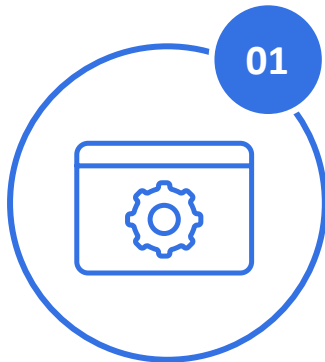
Technology impact on workforce versus level of implementation effort



Note: The shaded area highlights the intersection of high impact on the industrial workforce and high implementation effort. In order to address these areas effectively, industrial companies will need strong support from technology vendors and partners.

Supporting the Industrial Workforce is Critical When Implementing New Technologies

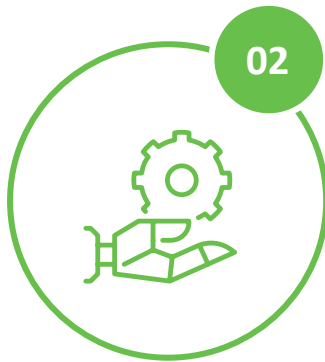
Technologies with the highest impact on the industrial workforce



01

Industrial 5G

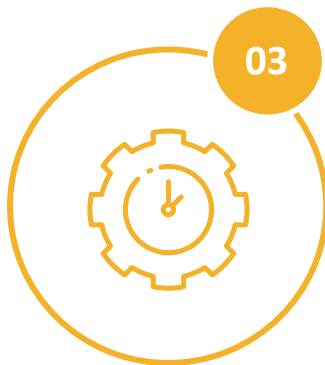
As industrial 5G networks support faster data transmission, the plant floor will be more automated, operationally efficient, and data driven using contextual information to complete tasks and make real-time decisions.



02

Machine learning

AI / deep learning / machine learning will support the creation of jobs that require data analysis and interpretation, software development and programming expertise, and the ability to work with AI tools and systems.



03

Edge computing

Edge computing drives the need for the OT worker to acquire the relevant skill sets to access and interpret real-time information and initiate swift responses to fast-changing operational circumstances.

As industrial enterprises look to implement new technologies and digital tools, the need to acquire the relevant expertise and skill sets is growing.

It is therefore important for these companies to work with digital transformation partners that can offer integration support, training, and continuous access to relevant technology expertise, both during and after implementation.

RECOMMENDATIONS

Selecting the right technology vendor to prepare the industrial workforce for a successful digital transformation

1

Leverage partners to meet resource constraints

More than half of respondents are looking to increase their outsourcing efforts in the next three years. The combination of a worker shortage and the need to transform requires new skill sets, places an additional burden on industrial companies, and ultimately, leads them to look outside their organization for support. It is therefore critical to choose a technology vendor for digital transformation that can provide access to an ecosystem of relevant partners and support.

2

Match technology skills deficit with partner capabilities

Industrial companies do not have the necessary skill sets, particularly in areas such as robotics programming, data analytics (including AI), or in other emerging areas such as sustainability. They should therefore select partners based on strategic areas of focus and consulting capabilities.

3

Address cultural issues and challenges by selecting the right vendor

Respondents agree that people and culture remain the central challenges for digitalization. It is therefore important to select a technology vendor that can offer access to a partner network with both the technical and cultural intimacy and an understanding of specific (e.g., local) or unique requirements.

4

Utilize vendor expertise to develop a technology roadmap

Work with vendors to develop a plan for identifying and introducing new technologies that can support operational digital transformation over the medium to long term. This can include cloud-hosted solutions, open and interoperable solutions, consultancy and integration capabilities, and domain expertise.

5

Match partners with strategy

Consider how a digital transformation strategy will need to evolve and match this with a partner that can support on important topics such as regional and industry/domain experience, a well-defined cloud strategy, the desired business model, and open standards. It is also important to clearly define who in the organization is responsible (e.g., IT, OT, or a combination) for optimal support.

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