



Upskilling for the digital world:

Hope and Fear

What do people really think about the impact of technology on their jobs?



Introduction

What really motivates employees, and how much do leaders and managers understand it? The reason organizations are recently reconsidering their purpose, mission, vision, and values (principles we hold important) is because many employees believe in the purpose of their organization, recognize its social mission, and are proud to be a part of it. Having compelling future scenarios and stories about the organization's values and contributions to society that can be passed down from one generation to the next, is a powerful source of employee motivation.

Conversely, leaders need to be fully aware of how threats, anxiety, and lassitude increase when employees are less motivated. Even if employees are willing to change, there is a risk that their motivation and energy dissipate upon realizing that their jobs are in lower demand, and that the skills they have acquired are obsolete. This study explores how Japanese and global business leaders perceive the "new world" that is emerging with digital transformation and the "new skills" that it requires.

What this study tells us is that Japan is significantly falling behind compared to other countries, which have already begun the acquisition of these new skills. From a global perspective, there is a risk that Japan will be left behind by the "digital divide".

PwC is concerned that the "digital divide" will lead to serious social issues in the future, and is already working on improving skills (or "upskilling") across its global network to minimize its impact. We have internally developed an assessment tool for scoring personal digital literacy, and are now further extending it to our clients. Tackling the "upskilling" challenge (improvement of skills) is essential, not only as an organization, but also as an economic society and community as a whole. We hope this survey will encourage leaders to think and prepare for the "upskilling" challenge.

PwC Consulting LLC
Partner
Ryosuke Sasaki





Executive Summary

This study explores our awareness towards the impact of digital transformation on our future work environment. The following trends below were observed in the responses provided by Japanese respondents.

1- Indifferent to automation, low sense of urgency

When asked about whether automation in the workplace is more an opportunity or a risk, 60% of respondents working in Japan answered “Neither agree nor disagree” (46%) or “I don’t know” (12%). Furthermore, in response to the question “Do you agree or disagree with the following statement: “I am worried that automation is putting jobs at risk?”, 47% said they weren’t worried and 33% said neither agree nor disagree. This is a glimpse of how the Japanese respondents to the survey seem indifferent to future changes. The reasons for these results may be a lack of visibility into the extent and risks of the impacts of changes that may occur in the future.

2- Compared to other countries, the sense of urgency for automation is relatively low

30% of Japanese respondents said that their jobs could be made obsolete or significantly changed by automation in the next 10 years, compared to 53% globally, 89% in China, 82% in India, 37% in the United States and 29% in the UK. Overall, it was found that workers in emerging countries such as China and India feel more in danger than in developed countries such as Japan, the United States, and the United Kingdom. These numbers reflect the different levels of “sense of urgency” towards automation in each country. These differences in the sense of urgency may affect the “digital divide” between these countries in the future.

3- Feeling positive about the impact of technological developments: the higher the level of education, the stronger the tendency

In Japan, 53% of the respondents say that “technological developments will improve their future jobs”. Similarly to the global result (60%), there is a tendency to think that technology will change day to day work for the better. Particularly in Japan, the more educated the respondents, the more likely they are to answer positively to this question. Differences in future perspectives are already observable depending on educational background.

4- 70% of the respondents are not learning new skills

29% of Japanese respondents say that they are learning new skills versus 85% of the global respondents. Japan seems to be falling behind in the race for upskilling. 57% mention that if they were given the opportunity to better understand or use technology, they would take it, and 64% that they have had no opportunity to improve their digital skills outside of their normal duties. It seems that Japanese respondents do not feel the urgency to acquire appropriate new skills in response to future environmental changes, and feel that they will eventually be provided by organizations and government. The fear of not being able to adapt to the “new world” of digital transformation in the future might explain this passive attitude from the respondents.

Based on the findings of this study, although there is no need to instigate further fear or anxiety, organizations and governments must first bring the issue to light in order to ensure that individuals are properly prepared to adapt to the changing environment brought by digital transformation. Information on data and scenarios must be securely shared and transmitted. In addition, it is essential to demonstrate the importance of acquiring new skills and promote a mindset of change that allows people to have a “healthy” sense of urgency. At the same time, it is necessary to provide specific measures for upskilling, that is, to provide opportunities to acquire new skills as soon as possible.

If countermeasures are not implemented immediately, the “digital divide” will become a serious social issue, and there is a risk that Japan will be left behind by other developed countries and even emerging countries. The gaps within Japan may also become even more pronounced in the future.

1

Japan results

Survey overview (Japan)

Target group: 2,048 people (male and female), 18 years and older, living in Japan

* Allocated based on gender and age composition of respondents to the Labor Force Survey (September 2019)

Gender

Male: 56%

Women: 44%

Age

18-24 years old: 10%

25-34 years old: 16%

35-44 years old: 21%

45-54 years old: 23%

55-64 years old: 17%

65 years and older: 13%

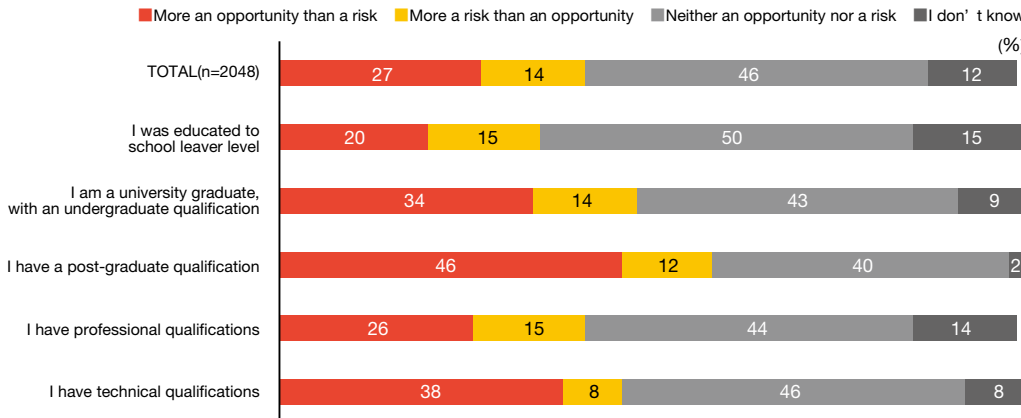




Is automation an opportunity or a risk?

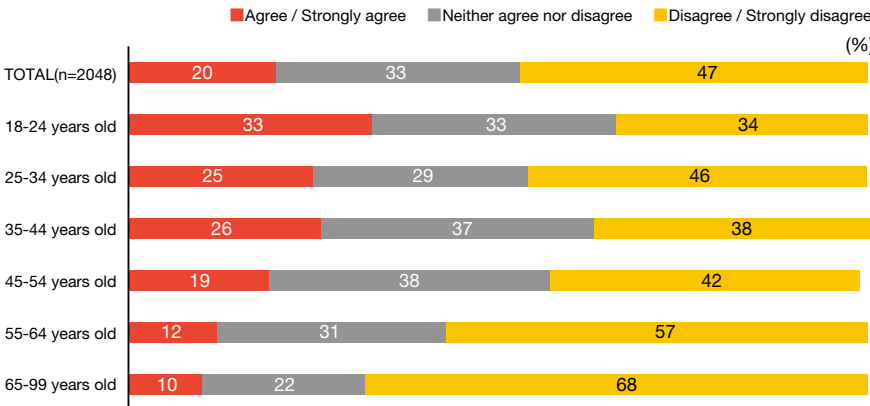
To the question: “Does automation represent more an opportunity or a risk on the workplace?”, 58% of the total answered “Neither an opportunity nor a risk” or “I don’t know”. More than half of the working people in Japan are not fully aware neither understand the changes brought by automation, digital transformation and new technologies. On the other hand, the number of respondents who view the impact of automation on the workplace more as an opportunity tends to increase as their educational background increases.

Q1 : Does automation represent more an opportunity or a risk on the workplace?



Additionally, 47% mentioned that they were not worried about whether automation is putting jobs at risk. In a positive light it can be considered as optimistic, but on the other hand it might appear as indifference and a lack of sense of urgency. 20% mentioned that they were worried, but the highest rate among all age groups was the “18-24” age group (33%) indicating that young people are most worried about the future. As age increases, the level of worry tends to decrease.

Q2 : Are you worried that automation is putting jobs at risk?



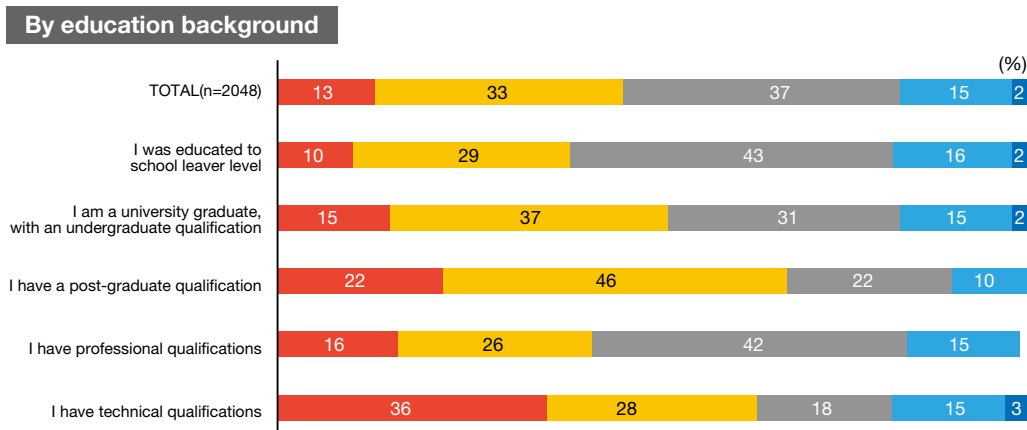
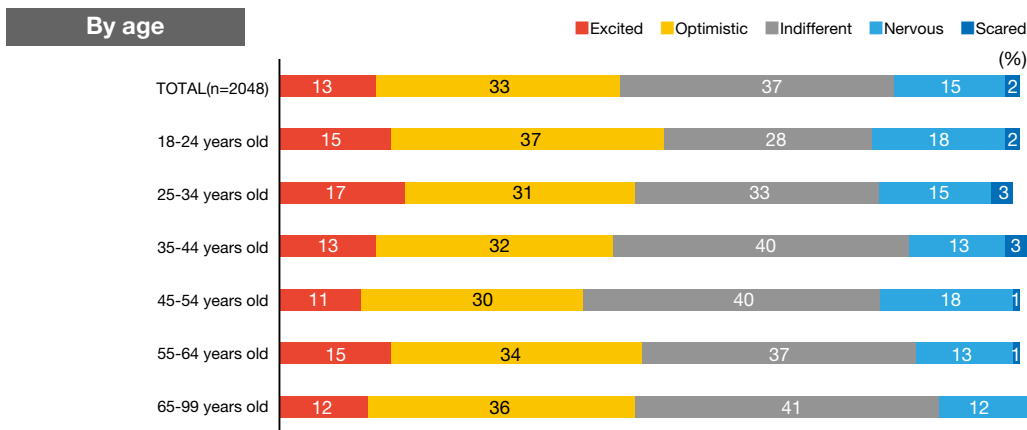


How do you feel about the future impact of technology on your job?

When asked about how they feel about the impact of “technology” on their job, and not the impact of “automation”, 17% of the respondents mentioned that they were “nervous” or “scared”, (20% for the 18-24 age group). Despite the differences by age group, we can see that the threat of “technology” is generally lower than for “automation”. We observe the same tendency: the “nervous / scared” answer rate is decreasing when the age of respondents is increasing. Here as well, respondents seem unconcerned as 37% of them answered that they are not interested.

Among respondents with “technical qualifications”, 36% of them said that the impact of technology on their jobs was perceived as “exciting” which is significantly higher than with different educational backgrounds. This indicates that having qualifications is significant and that respondents with “technical qualifications” have higher expectations.

Q3 : When you think about the future impact of technology on your job, which of the following best describes how you feel?

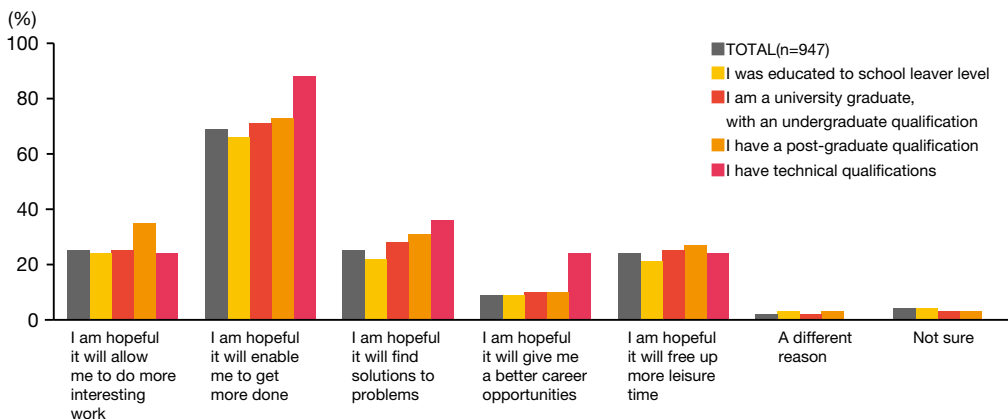




Why do you feel “optimistic” or “nervous” about the effects of technology?

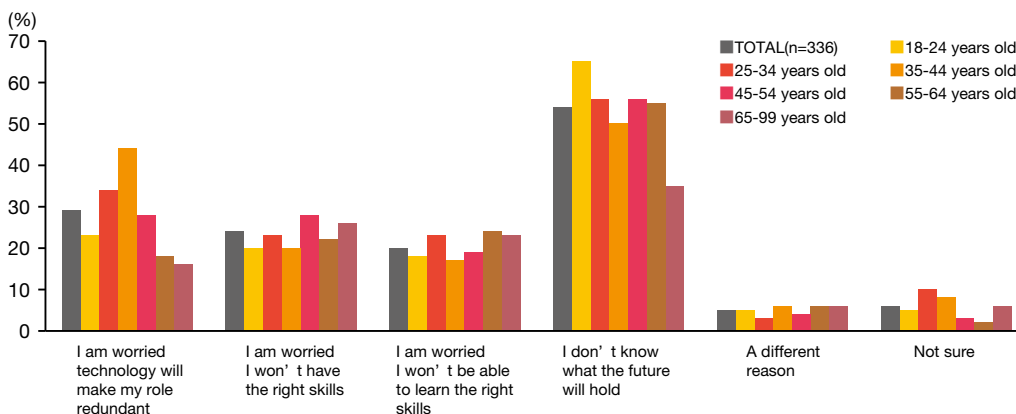
It is mostly because Japanese respondents expect better work efficiency that they feel “excited” and “optimistic” about the impact of technology in the future. Digital transformation can be expected to have various effects (as shown in the options of Q5), but the efficiency seems to be the most important for the Japanese respondents, according to the results of the survey. It suggests that digital transformation may be considered as an extension of the past, and that the effects of digital transformation may not be correctly understood at this stage.

Q4 : Reasons why respondents feel “excited” and “optimistic” about the impact of technology on their work (multiple choice) [By Q3 educational background, only the answers of “I am optimistic” and “I am excited” are displayed]



When asked about the reasons to be “nervous” and “scared” about the impact of technology, just under 70% of respondents in the 18-24 age group, answer that this is because they “do not know what the future will hold”. There seems to be a great deal of uncertainty about the future. For those in the 25-34 and 35-44 age groups, a relatively high number of respondents (30% to over 40%) have mentioned that they are “worried technology will make their role redundant”. In addition, the “lack of appropriate skills” and the “inability to acquire the appropriate skills” are relatively low, indicating a low sense of urgency. This can also be said from the low level of anxiety towards acquiring new skills.

Q5: Why do you feel “nervous” or “scared” about the impact of technology on your work? (Multiple choice) [Only answers for “Feeling nervous” in Q3 (by age) are displayed.]

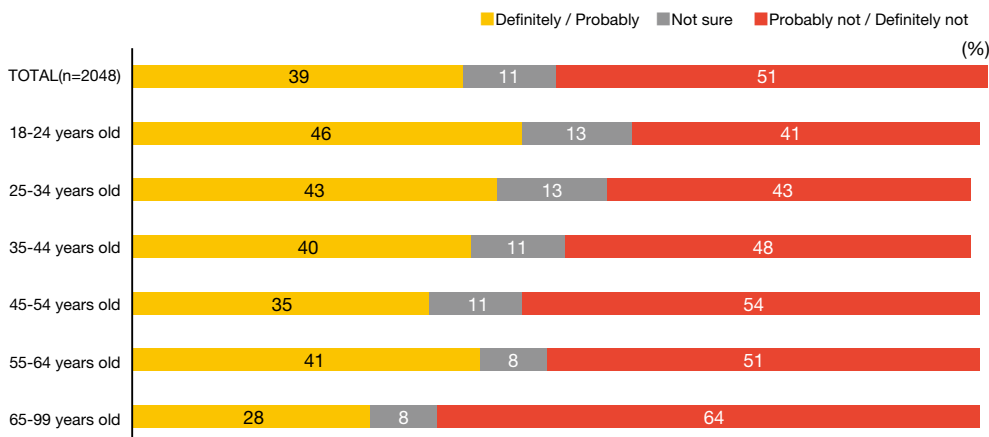




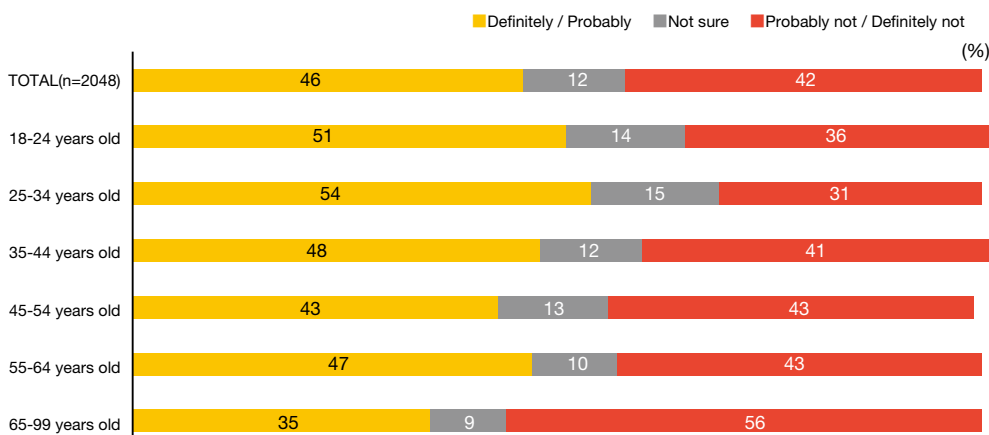
How do you think technology will change your job?

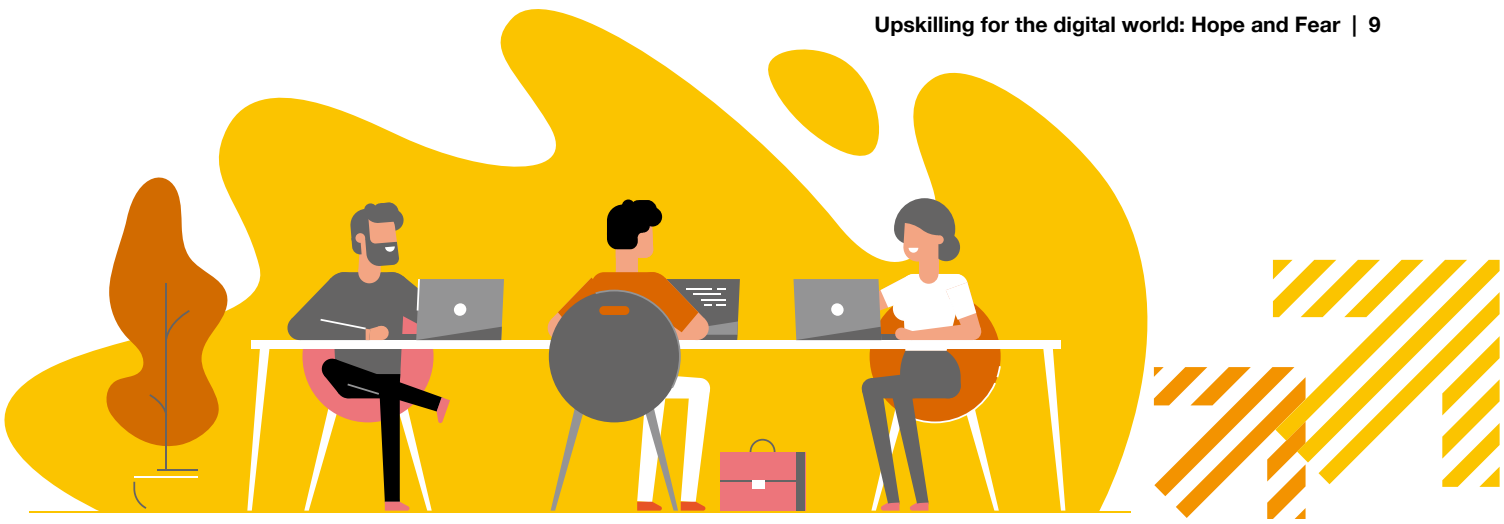
When considering the impact of technology on current jobs over the next 3 to 5 years, 39% of the respondents think that technology will change their jobs, and 51% said they will remain the same (Q6). On the other hand, considering the next 6 to 10 years, 46% of the respondents think that technology will change their jobs, but 42% that they will remain the same (Q7). Looking at the results from different age groups, we can observe that more than half of respondents under 34 years of age think that their jobs will change in the next 6 to 10 years, which clearly demonstrates a higher sense of urgency.

Q6 : In the next 3-5 years, do you think technology will change your job?



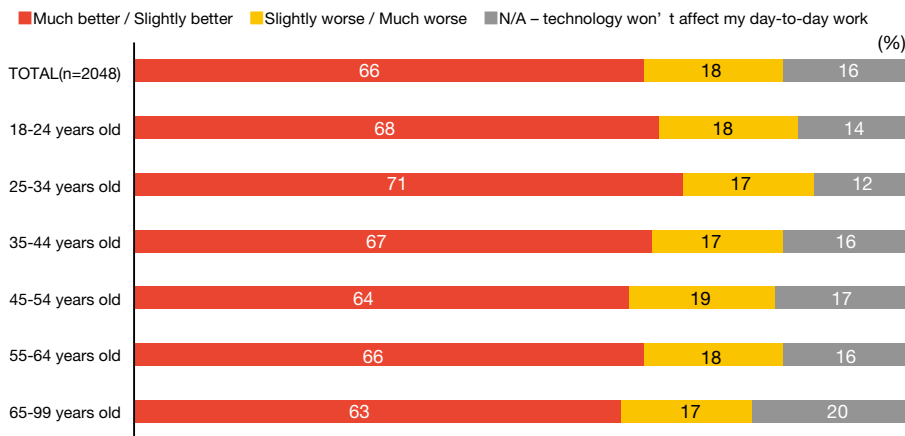
Q7 : In the next 6-10 years, do you think technology will change your job?



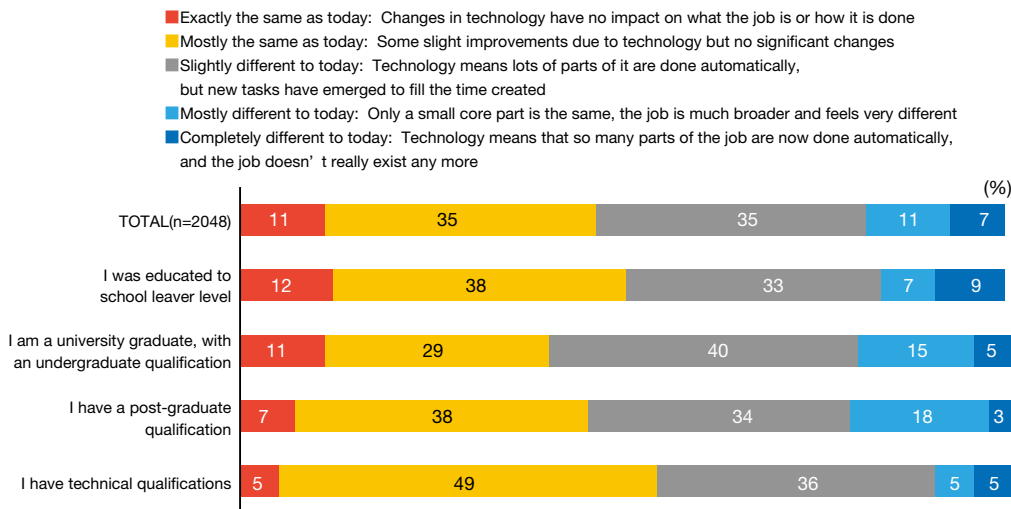


When asked about how technology will impact their jobs, 66% of the respondents believe they will improve for the better, which can be seen as positive (Q8). Most of the changes are expected to bring some slight improvements as well as new tasks. Additionally, the percentage of university graduates and graduate school graduates who think that their work will be significantly different from today is slightly higher (Q9).

Q8: Do you think technology will change your day to day work for better or worse?



Q9: How do you think your current job will change in 10 years?

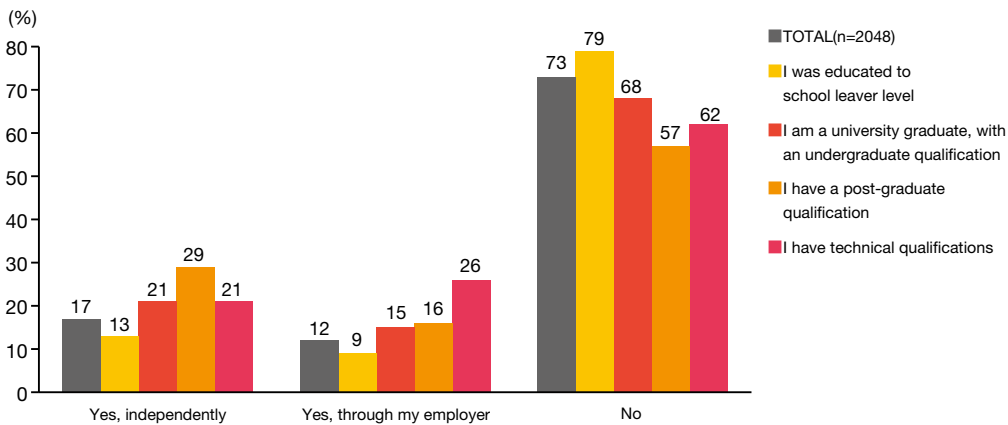




Learning new skills

73% of the total respondents said they are not learning new skills. Respondents with graduate school degrees represent the highest percentage of respondents (29%) that have mentioned they are learning new skills independently. 26% of the respondents with technical qualifications are learning new skills through their employer.

Q10: Are you learning new skills to better understand or use technology - either through your employer or independently? (multiple answers allowed)

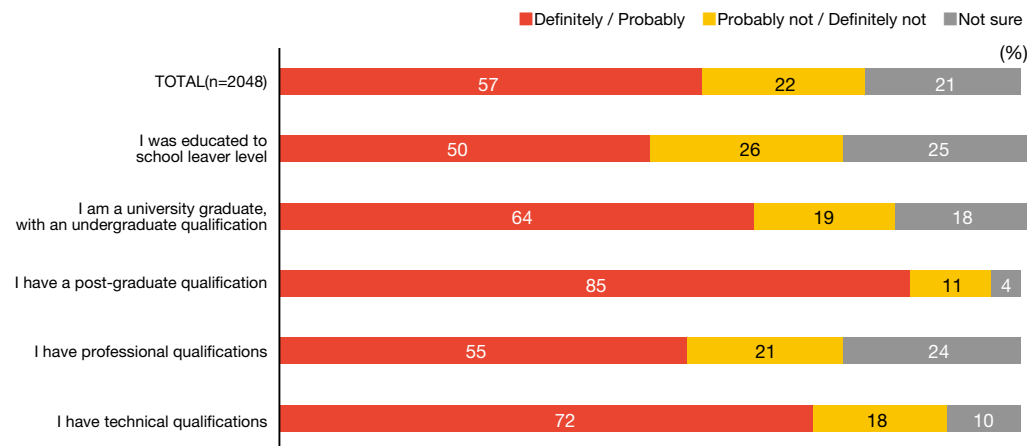




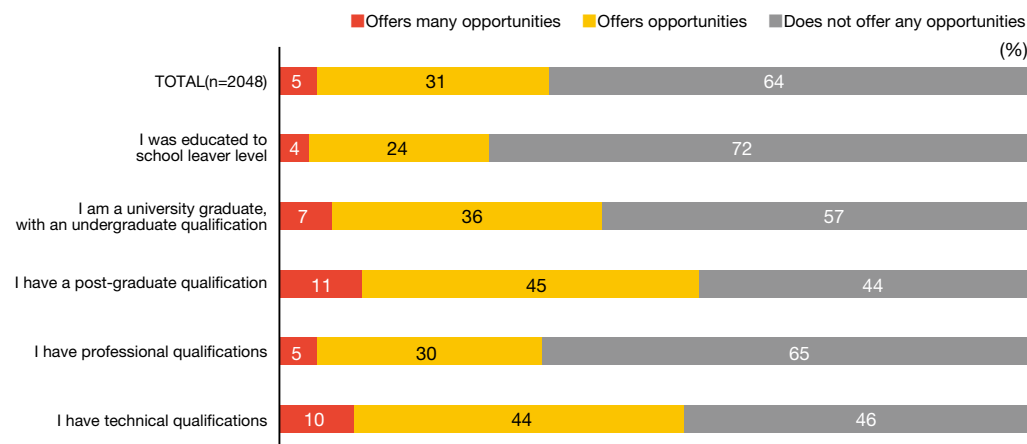
Overall, 57% of respondents said they would like to better understand or use technology if they were given the opportunity to do so by their employer (Q11), but 64% of them said that the opportunities to acquire new skills were extremely limited (Q12).

Additionally, we observe that the percentage of respondents who would like to better understand or use technology if they were given the opportunity tends to increase as their level of educational background increases (Q11).

Q11: If you were given the opportunity to better understand or use technology by your current employer, would you take it?



Q12: Is your current employer giving you the opportunity to improve your digital skills outside of your normal duties?

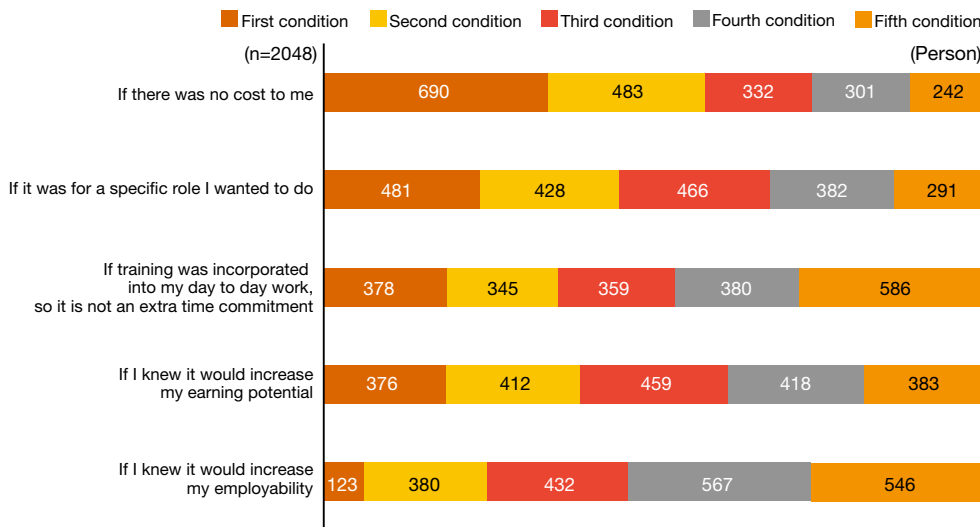




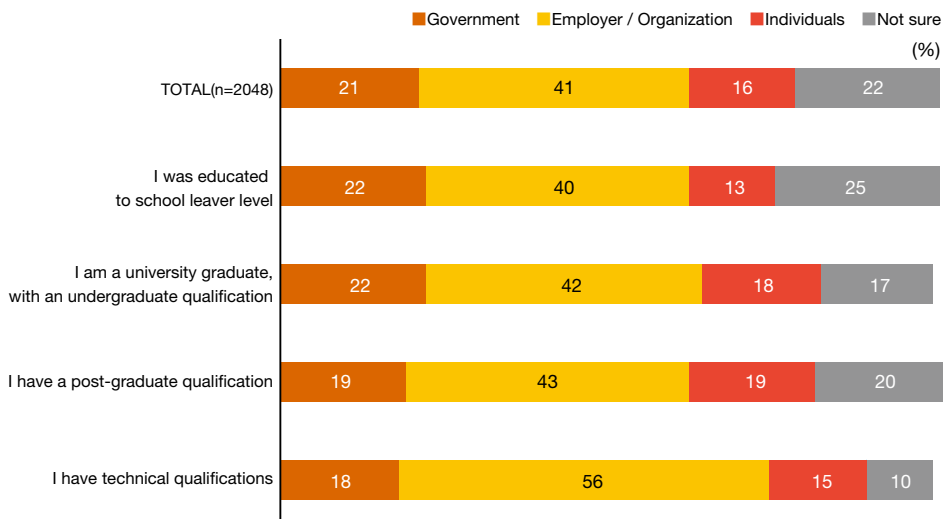
What do you think about training for digital upskilling?

Employers and organizations must take responsibility for improving their employees' digital skills according to 41% of the respondents (Q14). 21% of them consider that it is the government's responsibility, which means that in total 62% of respondents consider that it is an external responsibility (government and organizations combined), while only 16% consider it to be an individual responsibility. When asked about what would increase the likelihood of them taking upskilling training, respondents tend to answer that they would "If it had no costs to them". The answer "If I knew it would increase my employability" is the least chosen option. It seems that the respondents are taking a relatively passive approach to the upskilling challenge.

Q13: Which, if any, of the following would increase the likelihood of you taking digital upskill training?



Q14: Who is most responsible for helping people to reskill?



2 Global Comparison

Survey Overview (Global)

Survey period: July 2019

Target audience: 11 countries (Australia, China, France, Germany, India, Netherlands, Poland, Singapore, South Africa, United Kingdom, United States)
22,094 people (over 18 years old, at least 2000 samples / country)

Gender

Men: 48%

Women: 52%

Age

18-24 years old: 18%

25-34 years old: 24%

35-44 years old: 23%

45-54 years old: 19%

55-64 years old: 14%

65 years and older: 1%





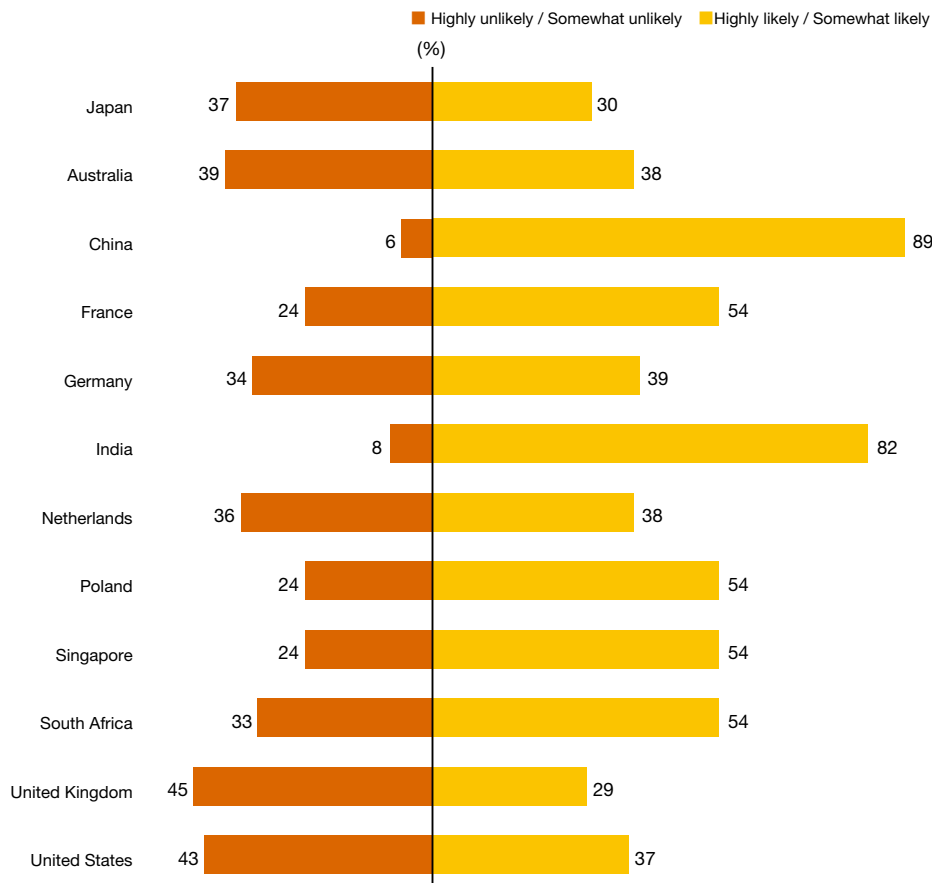
Will automation significantly change human jobs?

Looking at the trends in other countries besides Japan, we see that 53% of the respondents think that “automation will make their jobs obsolete or significantly changed”, taking into consideration that some countries such as China (89%) and India (82%) are increasing the global average.

To this question in Japan, 30% of respondents answered that it will “highly likely / somewhat likely”, but 37% answered “highly unlikely / somewhat unlikely”. Although the figures are slightly different, the overall trend is similar in developed countries such as Australia, Germany, the Netherlands, the United Kingdom and the United States.

These tendencies are presumed to be reflecting the differences in the level of urgency perceived in each country. In emerging countries, such as China, India, Poland, Singapore and South Africa, which are in a position to follow economic powers, we observe a relatively high sense of urgency regarding the progress of digital transformation. These differences in the sense of urgency may affect the “digital divide” between these countries in the future.

Q15: How likely or unlikely do you think it is that your job will be made obsolete or significantly changed by automation in the next 10 years?

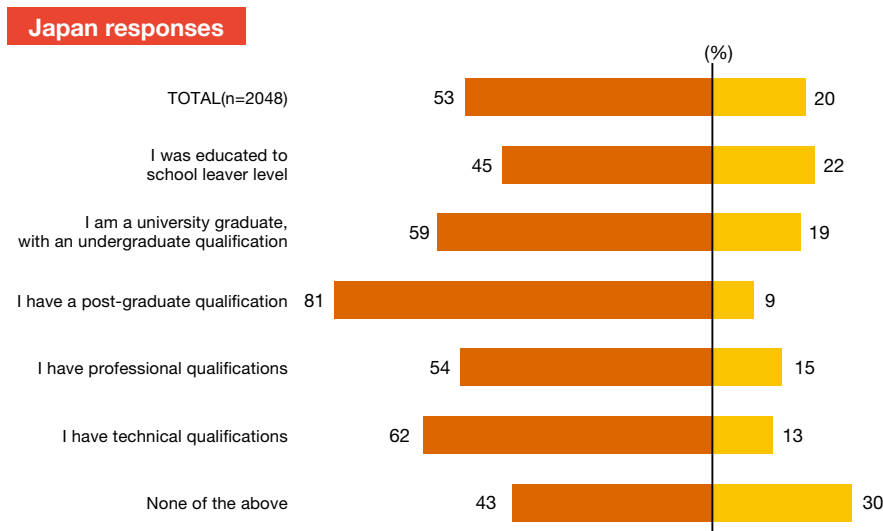
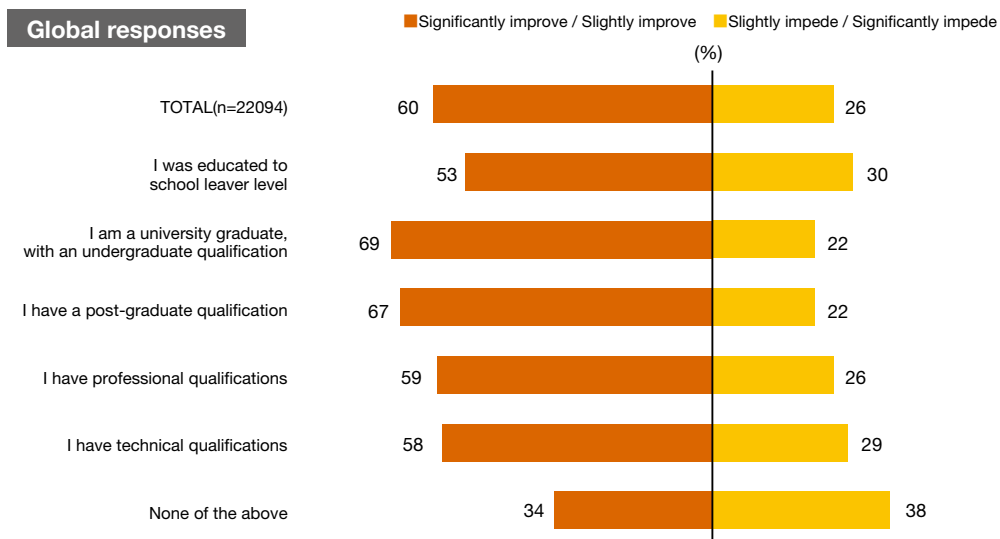




How will technological developments affect jobs in the future?

When asked about whether technological developments will improve or impede their job prospects in the future, 60% of the global respondents other than Japan answered that they will “significantly improve / slightly improve” their jobs. This is comparable with Japanese results (53%), showing that there is a global trend to foresee technological developments positively. In particular in Japan, we see that the higher the educational background, the higher the positive response rate.

Q16: Do you think that technological developments will improve or impede your job prospects in the future?





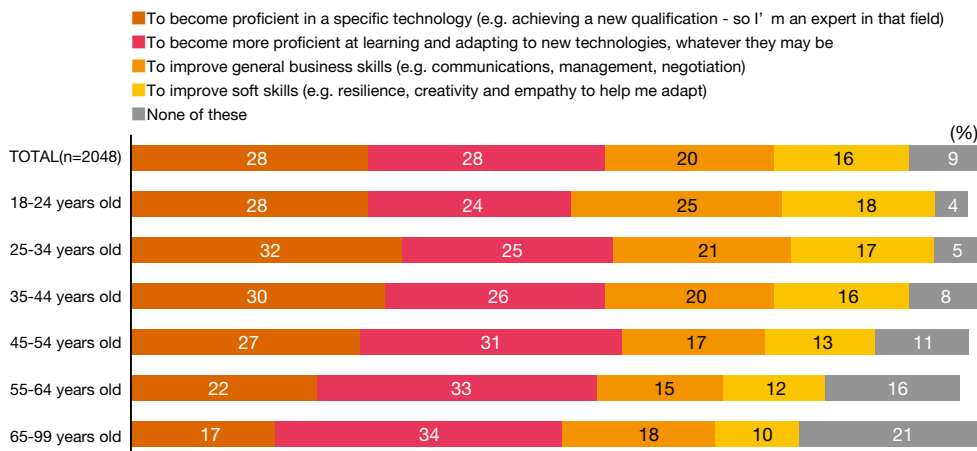
Upskilling: an opportunity to develop more expertise?

Looking at trends outside Japan, older generations seem more interested in “learning and adapting to new technologies, whatever they may be” and “increasing their skills”, versus younger ones being more likely to want to “become proficient in a specific technology”.

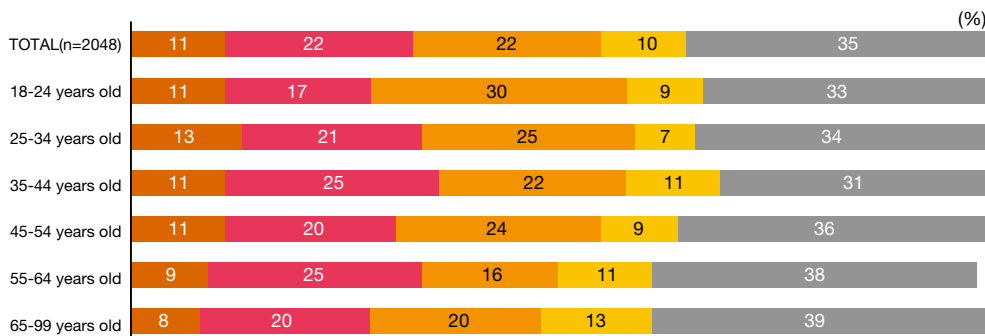
In Japan otherwise the respondents show a relatively high interest in the “improvement of general business skills”. A remarkable characteristic to notice is that more than 30% of respondents in any age group answered “None of these” compared to other countries (less than 10%), indicating some indifference and low awareness in Japan.

Q17: What type of workplace skills would you most like to develop?

Global responses



Japan responses



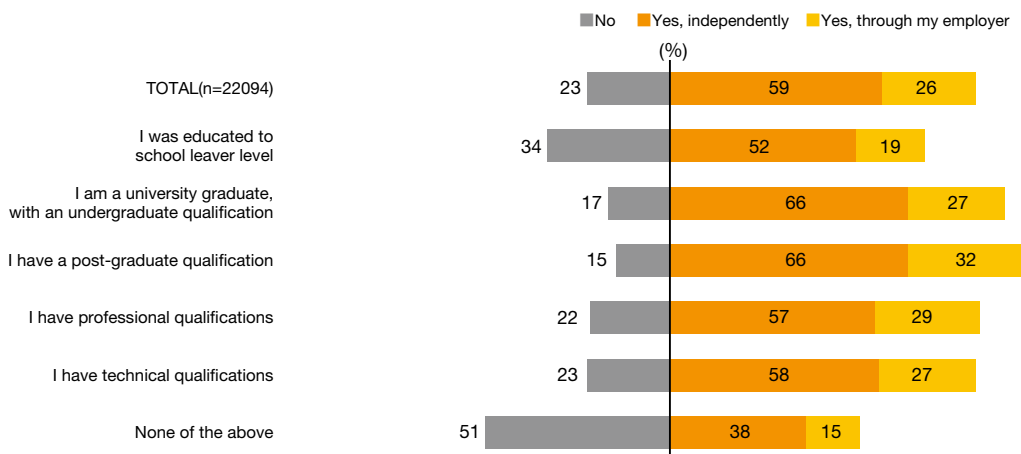


Are you learning new skills?

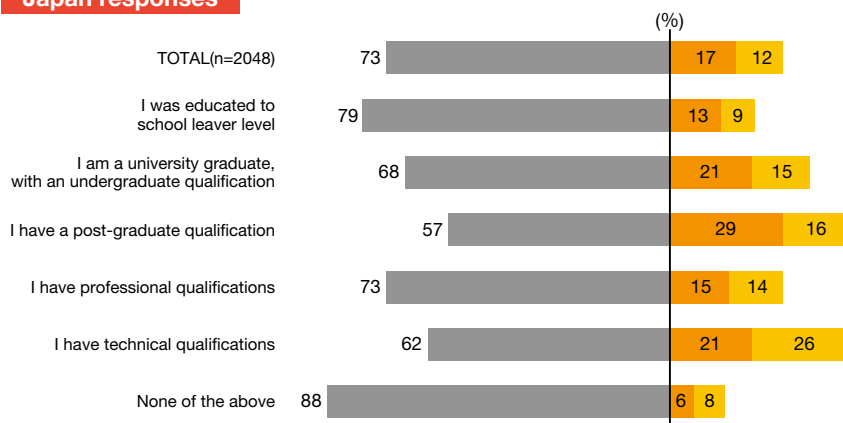
In other countries than Japan, 85% of the respondents mentioned that they are learning new skills independently or through their employer, for only 29% in Japan. This shows that upskilling in Japan is significantly behind in terms of priority. In the future this can become a serious issue for Japan, as competition for digital transformation will increase and individuals will have to compete more and more for employment in the digital age and in the global market.

Q18: Are you learning new skills to better understand or use technology - either through your employer or independently? (multiple answers allowed)

Global response



Japan responses



3 The challenges of upskilling for the digital age





Widening of the skills gap

The industrialized world is facing a skills crisis. On one hand, automation is threatening many existing jobs. Hundreds of millions of young people around the world are coming of age and finding themselves unemployed and unemployable, while many older, long-established employees are discovering their jobs are becoming obsolete.

On the other hand, there is a severe shortage of qualified talent for the new digital economy. Jobs requiring knowledge of artificial intelligence (AI), robotics, and the Internet of Things are going unfilled in ever-greater numbers. Together, these two trends have broadened the gap between the employees of the present and the workforce of the future — Hence the recent interest in upskilling.

The term “upskilling” refers to the expansion of people’s capabilities and employability to fulfill the talent needs of a rapidly changing economy. An upskilling initiative can take place at the level of a company, an industry, or a community.

46%

It is estimated that 46 percent of all jobs have at least a 50 percent chance of being lost or greatly changed ^{*1}

30%

It is estimated that 30 percent of young adults will not graduate from secondary school with the skills they need to hold most jobs ^{*2}

6.5%

US software-related jobs are growing 6.5 percent annually (almost twice the rate of jobs in general)^{*3}

500,000

unfilled positions due to high-tech skills gap in Europe by 2020^{*4}

^{*1}: OECD iLibrary
Skills Matter -Further Results from the Survey of Adult Skills- | OECD Skills Studies
https://www.oecd-ilibrary.org/education/skills-matter_9789264258051-en

^{*2}: the Education Commission
the Learning Generation -Investing in education for a changing world-
<https://report.educationcommission.org/report/>

^{*3}: The Growing \$1 Trillion Economic Impact of Software
https://software.org/wp-content/uploads/2017_Software_Economic_Impact_Report.pdf

^{*4}: e-Leadership
THE HIGH-TECH SKILLS GAP IN EUROPE WILL REACH 500,000 IN 2025 WITH A STRONG POLARISATION OF SKILLS NEEDED
<http://eskills-scale.eu/news/single-view/the-high-tech-skills-gap-in-europe-will-reach-500000-in-2025-with-a-strong-polarisation-of-skills-needed.html>



What to expect from Upskilling?

Upskilling is not the same as reskilling, a term associated with short-term efforts undertaken for specific groups. Reskilling doesn't help much if there are too few well-paying jobs available for the re-trained employees.

An upskilling effort, by contrast, is a comprehensive initiative to convert applicable knowledge into productive results — **not just to have people meet classroom requirements, but to have them move into new jobs and excel at them.** It involves identifying the skills that will be most valuable in the future, the businesses that will need them, the people who need work and could plausibly gain those skills, and the training and technology-enabled learning that could help them — and then putting all these elements together.

To someone accustomed to current forms of workforce training, in which resources are constrained and companies generally operate independently of one another, an upskilling initiative might seem massive and unaffordable. But it is feasible — although the process often means confronting long-held assumptions about human capital and organizational practices.

For example, there are more and more organizations focusing on collaboration with universities, establishing new in-house programs, or collaborating with technology companies that excel in data analytics, thus becoming independent from internal resources. Others use data analytics to predict and analyze the skills they need in the future.

With upskilling, not only do people move to new jobs, but the jobs are better and less likely to be rapidly automated out from under them. In other words, it is a measure to increase the employment potential (Employability) of the whole society.

“ Upskilling is not the same as “skilling up”.

It is a comprehensive initiative to convert applicable knowledge into productive results, get people to move to new jobs, and help companies acquire the best talent.



Cost & Benefits



At first glance, the expenses of upskilling appear daunting, but the expense of upskilling should be considered in the context of the alternatives.

In other words: severance costs for laid-off workers, plus the time and costs involved in finding, recruiting, and on-boarding new people with the skills most in demand.

Moreover, an upskilling program does not need to upgrade skills for the entire workforce at once. In any given year, only 10 percent of a company's workforce is immediately at risk. If you target that group and successfully move them into new roles, you create a track record and garner further support. Within five years, moving at the same pace, you can reach close to half of the employees in a company.

Focus on developing people, not saving jobs, because not all jobs can or should be saved. In the end, if you regard workers as an asset worthy of investment, and recognize the value of being part of a community of adaptable and continual learners, a well-designed and well-managed upskilling initiative is extremely cost-effective.

\$24,000 / person

Cost to retrain displaced workers in the United States. ^{*1}

\$10,000 / person

Costs could be as low as \$ 5,000- \$ 10,000 if an upskilling program is implemented on a large scale. ^{*1}

^{*1}: WORLD ECONOMIC FORUM

Towards a Reskilling Revolution: Industry-Led Action for the Future of Work

<https://www.weforum.org/whitepapers/towards-a-reskilling-revolution-industry-led-action-for-the-future-of-work>



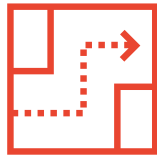
Six steps for upskilling



Step 1

Analyze current situation and define initiative

- Define the purpose and the objectives of the upskilling initiative
- Clarify organizations that can be coordinated with, and whether or not there is cooperation from the government
- Allocate budget for initiatives



Step 2

Design upskilling plan

- Establish a dedicated organization to design the upskilling plan
- Identify the targeted number of employees and timeframe
- Launch a change network involving employees from across the organization to promote organizational change



Step 3

Assess and provide advice to individual employees

- Assess current competency of targeted employees
- Deploy personal career advisors



Step 4

Match jobs and engage workers

- Identify the most suitable jobs for the targeted employees in the current organization or another organization
- Use job matching tools for vacant positions
- Reduce the skills gap
- Identify necessary additional training programs



Step 5

Select training and providers

- Identify the needs for training programs
- Select external vendors (training companies)
- Design personal training programs and allocate budget



Step 6

Manage projects and monitor results

- Monitor and evaluate initiatives and its results
- Identify areas of improvement
- Report and communicate to stakeholders
- Identify additional employees who need upskilling in the future



Conclusion



We are now facing a significant turning point. In order to successfully transition into the new digital world, we must strike the right balance between two completely different types of organizations: one is a flat and agile organization that uses creativity and adaptability to accelerate innovation; the other is a pyramid-shaped organization that protects existing core businesses and delivers results and profits. The coexistence and prosperity of these two elements are crucial.

Contrary to the former organization type in which large-scale change is required immediately, the status quo remains in the latter. It is, however, the latter organization type that is generating profit and hence making it possible to invest in the former. This structure is what makes them both equally important.

In order to reach a balance, it is imperative to make the former organization understand the need for agile change. This will lead to being less risk-averse and therefore achieving results faster through trial and error. As for the latter and more traditional organization, we must reassure them that they are in no way being left behind. They are what is keeping the company moving, so it is important that these employees maintain their motivation. It is essential to strategically communicate personalized messages to employees, because otherwise, there is a risk of demotivating and potentially destroying one out of the two types of organizations.

From an upskilling perspective, we must define new roles, business processes, skill sets in the former, more innovative organization and invest in its transformation. The ideas, measures, and work procedures that prove to be successful in the process, will then be transferred to the pyramid-type organization which is responsible for the latter's core business. In addition, by simultaneously providing upskilling initiatives to employees belonging to the pyramid-type organization, the traditional organization will slowly transition into and become a part of the innovative, agile organization.

The success or failure of digital transformation depends on the ability to transform people. In an environment where technology is constantly evolving, people must be given the opportunity to acquire new skills early on, thereby fostering the employees' ability to learn quickly as well as the organizational culture to support that. The learning agility of an organization is the source of competitive advantage in the digital age, and we hope that the results of this survey encourages you to see the need for upskilling in a new light.



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New world. New skills.

<http://www.pwc.com/jp/ja/upskilling.html>



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Published: 3 2020 Control No: I202003-2

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