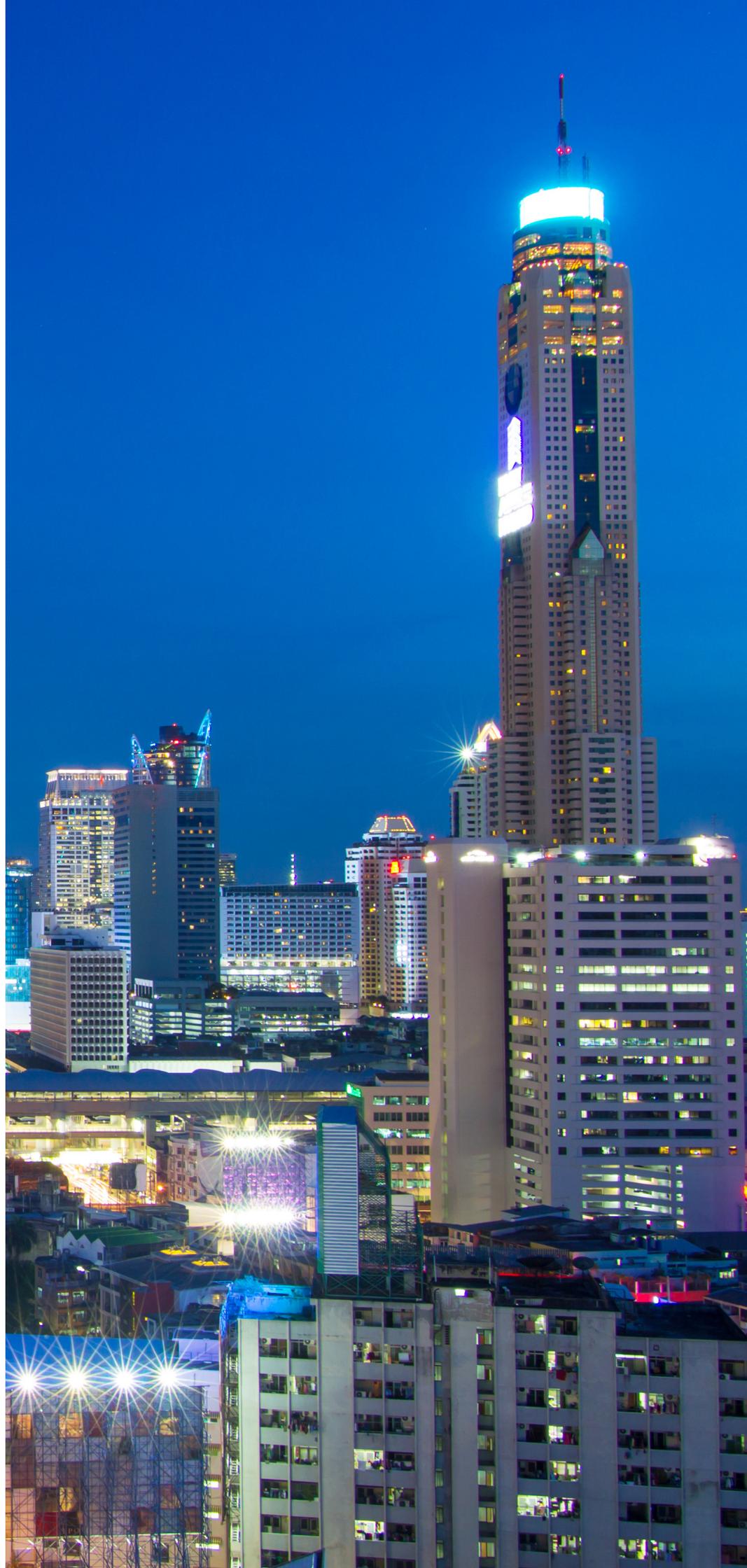


ASEAN Youth Technology, Skills and the Future of Work

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Executive summary

Background: how ASEAN youths assess technology and the future of work

Each year, the World Economic Forum runs a survey of Association of Southeast Asian Nations (ASEAN) youths aged 15–35 years old. The goal is to understand the views, priorities and concerns of ASEAN's young population.

In 2019, the survey examined attitudes to jobs and skills, and the impact of technology on the future of work. The survey was conducted online in partnership with Sea, a Singapore-based consumer internet company operating in digital entertainment, e-commerce and digital financial services. In total, we collected responses from 56,000 young ASEAN citizens from six countries: Indonesia, Malaysia, the Philippines, Singapore, Thailand and Viet Nam.

ASEAN youths understand the potential for technology to disrupt job markets and place a high value on skills development

ASEAN youths are highly aware of potential disruptions and challenges that the Fourth Industrial Revolution may bring to their employment prospects:

- 9.2% of youths believe their current skills are already outdated.
- A further 52.4% believe they must upgrade their skills constantly.

This suggests a healthy approach among ASEAN youths to having a “growth mindset”, and the need to embrace lifelong learning in place of receiving education and training only in their early years.

These concerns about keeping skills constantly updated in the face of technological change are also reflected in attitudes to jobs:

- ASEAN youths say the number one reason they change jobs is to learn new skills.
- What's more, 5.7% of respondents report having lost a job either because their skills were no longer relevant or because technology displaced their job.

However, even though ASEAN youths attach high value to skills development and training, they report only limited opportunities for formal on-the-job training:

- Only 14.1% say they learned their most important skills through formal on-the-job training.
- Youths working for big multinational companies (MNCs) say they are more likely to receive formal on-the-job training than those who work for small and medium-sized enterprises (SMEs) or family businesses.
- ASEAN youths set a high value on internships. 81.4% believe that internships are either equally important, or more important, than training in school (traditional, formal education).

For businesses, especially SMEs, these findings suggest a strong need to increase investment in human capital development – both to ensure a high-quality workforce and as a source of competitive advantage to attract workers.

ASEAN youths show a strong desire to become entrepreneurs, or to work for foreign multinationals. But traditional SMEs are less favoured

When asked what type of organization they work for today, and where they would like to work in the future, ASEAN youths show a strong preference for entrepreneurial settings, as well as for foreign multinationals:

- Today, 31.4% are either entrepreneurs or work for a start-up. In the future, 33.1% aspire to work in an entrepreneurial setting.
- Today, 8.6% work for a foreign multinational. In the future, 18.8% would like to work for one.

However, while certain types of organization are popular, others are seen less favourably. Traditional SMEs are the backbone of ASEAN labour markets, but the survey reveals that small companies may face recruitment challenges:

- While 18.3% of youths work for SMEs today, only 7.5% want to work for an SME in the future.

ASEAN youths favour jobs in the tech sector and look less favourably on traditional sectors

When asked what sector of the economy they would choose to work for, ASEAN youths show a preference for technology companies, while expressing less interest in others:

- 7% work in the technology sector today, but 16% want to work in the sector in the future.
- 15% work in manufacturing today, but only 12% want to work there in the future.
- 4% work in the construction sector, but only 2% want to work there in the future.

Notably, the education sector, which is essential to the quality of the workforce in an economy, faces a declining aspiration from ASEAN youths, from 8% today to 5% in the future. In the case of Indonesia, it drops from 10.2% down to 6.1%.

ASEAN youths value soft skills more highly than hard skills, and believe they are more competent in soft skills

When asked which skills they believe will be most valuable in the future, ASEAN youths place higher value on soft skills (such as emotional intelligence, resilience and adaptability) than on hard skills (generally regarded as “STEM”: science, technology, engineering and maths):

- The three skills considered most important are: creativity and innovation; language skills; and the ability to use technology (e.g. social media and e-commerce).
- The two least highly valued skills are: data analytics; and maths and science.
- In assessing their proficiency in different skills, three of the four skills that ASEAN youths regard as their weakest are in the STEM area: ranked bottom is technology design (e.g. software programming); followed by data analytics; then language skills; and then maths and science.

The fact that youths attach high value to language skills is consistent with our survey findings that 46.4% of young people in ASEAN are keen to work overseas in the next three years. Experience gained in another country is a notable strategy for upgrading skills in the Fourth Industrial Revolution.

Given the strong desire from ASEAN youths to work in the tech sector, the perceived weakness in STEM subjects may be a barrier to future job aspirations. However, not all roles at tech companies require technical skills. Business development, marketing and other functions often call for soft rather than hard skills.

More positively, given the high preference that ASEAN youths show to be entrepreneurs, it seems likely that many youths aspire to be small and micro traders, using e-commerce platforms, online payment systems and social media to empower their businesses. Being an entrepreneur does not have to mean developing new apps, where STEM skills would be important. Instead, it can equally mean being a basket weaver from rural Kalimantan and using technology to sell regionally and even globally. Soft skills, coupled with a working knowledge of today’s digital platforms, could serve these aspirations well.

1. Introduction

Each year, the World Economic Forum runs a survey of youths aged 15–35 years old in the 10 countries of the Association of Southeast Asian Nations (ASEAN). With 383 million people under the age of 35, the ASEAN bloc has a significant number of young people (61% of the total population). Understanding the views, priorities and concerns of ASEAN's young population is essential for policy-makers in order to build the brightest future for them, and to unlock the full potential of the region's demographic dividend. Our survey is designed to contribute to this understanding.

In 2019, the survey examined the attitudes of ASEAN youths to jobs and skills, and the impact of technology on the future of work. The Fourth Industrial Revolution is driving major global changes, to economies, societies and, certainly, to job markets. Nobody can say for sure whether technology will increase or decrease the number of jobs. Nor can they predict with any certainty what types of jobs will prevail, nor what skills will be most in demand. The only thing that can be predicted with confidence is that job markets will face disruption and change. Our survey in 2019 was designed to understand how ASEAN youths are thinking about these coming changes.

The survey was conducted online in partnership with Sea, a Singapore-based consumer internet company that operates businesses in digital entertainment, e-commerce and digital financial services, known as Garena, Shopee and AirPay. Visitors to Shopee and Garena were invited to take part in the survey, with only those aged 15–35 years old included in the results. In total, we collected responses from 56,000 young ASEAN citizens from six countries: Indonesia, Malaysia, the Philippines, Singapore, Thailand and Viet Nam. The survey was run in July 2019.

2. ASEAN youths show a strong commitment to lifelong learning and a growth mindset

The emergence of new technologies such as blockchain, artificial intelligence, the internet of things (IoT), precision medicine and autonomous vehicles ensures we are living in an era of deep and rapid changes to job markets worldwide. Our survey results show that ASEAN youths are highly aware of these changes and see a strong need to upgrade and invest in their skills to stay relevant.

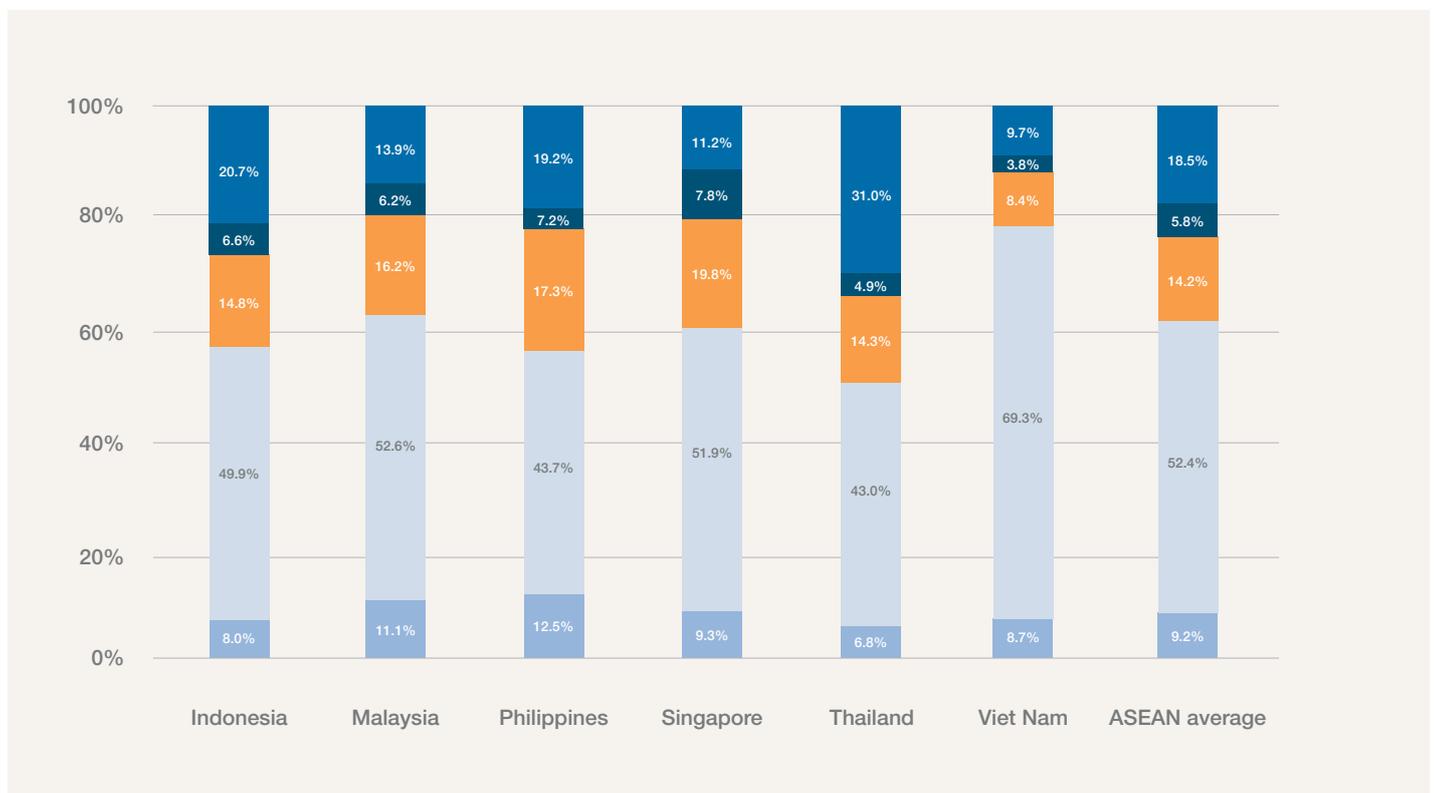
Some 9.2% of youths in the survey believe their current skill set is already outdated (see Chart 1). A further 52.4% believe they must upgrade their skills constantly, while 20% believe that their current skills will last for another five or 10 years before they need to be retrained. Only 18.5% believe their current skills will last most of their lives. The picture varies by country: The Thais are most confident in the durability of their current skills, while the Vietnamese have the highest proportion of youths believing their skills need to be constantly updated over time.

This belief in the need to upgrade skills constantly can be thought of as having a “growth mindset”. According to Carol Dweck, a professor of psychology at Stanford University

in the US, a growth mindset is the belief that intellectual abilities are not fixed, but instead can be constantly developed. What’s more, a growth mindset is not only about developing particular skills but also about critical attitudes and behaviours towards learning in the face of challenge and change. For example, “grit” or tenacity is often associated with a growth mindset; so, too, is persistence and the ability to overcome challenges. Many observers believe that, in the era of the Fourth Industrial Revolution, with the pace of change in the job market accelerating and the durability of many skills reducing, having a growth mindset and a commitment to lifelong learning will be an essential success factor for the future.

The picture here is thus quite positive. ASEAN youths are aware of the challenges and keen to address them. For policy-makers, it suggests that the current focus on providing education primarily at the start of a person’s life (i.e. at school and university) will not be enough. The whole approach to education needs to shift to one that is based on lifelong learning all the way through adulthood.

Chart 1: Which best describes how you assess your current level of education and skills for the job market? (% of respondents)



My current education and skills are already out-of-date

My current education and skills will need to be constantly updated

My current education and skills will last for another five years before I need to retrain

My current education and skills will last for another 10 years before I need to retrain

My current education and skills will last for most of my life

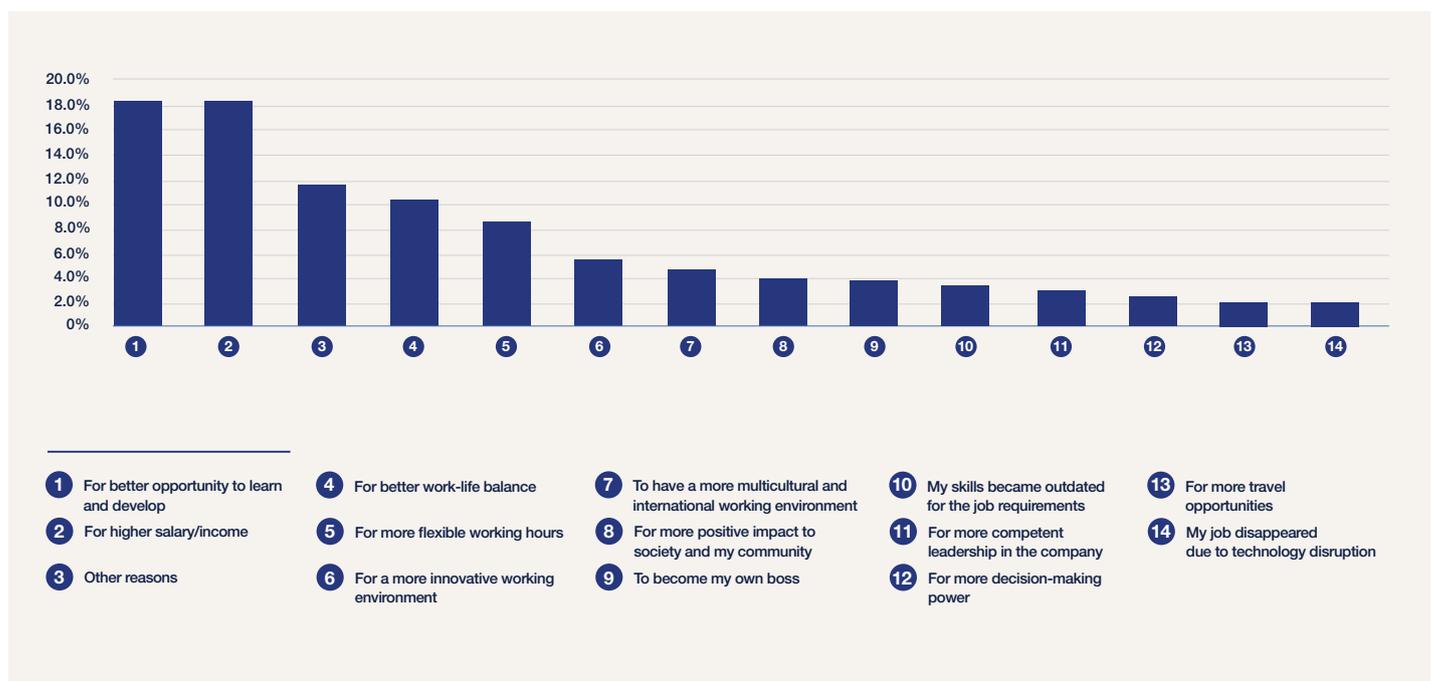
3. The number one reason for changing jobs is to learn new skills

The strong concern among ASEAN youths to keep skills constantly updated in the face of technological change is also reflected in attitudes to jobs. We asked respondents to choose their primary reason for changing jobs from 14 different options. The number one reason (chosen by 19% of respondents) is “for better opportunities to learn and develop”, followed by “for better salary/income”. What’s more, 5.7% of respondents report having lost a job because

their skills were either no longer relevant, or technology displaced their job (see Chart 2).

For businesses, these findings suggest a strong need to increase investment in human capital development – both to ensure a high-quality workforce and as a source of competitive advantage to attract workers.

Chart 2: Top reasons why ASEAN youths change jobs (% of respondents; average across all six ASEAN countries)



4. ASEAN youths want more on-the-job training and internships

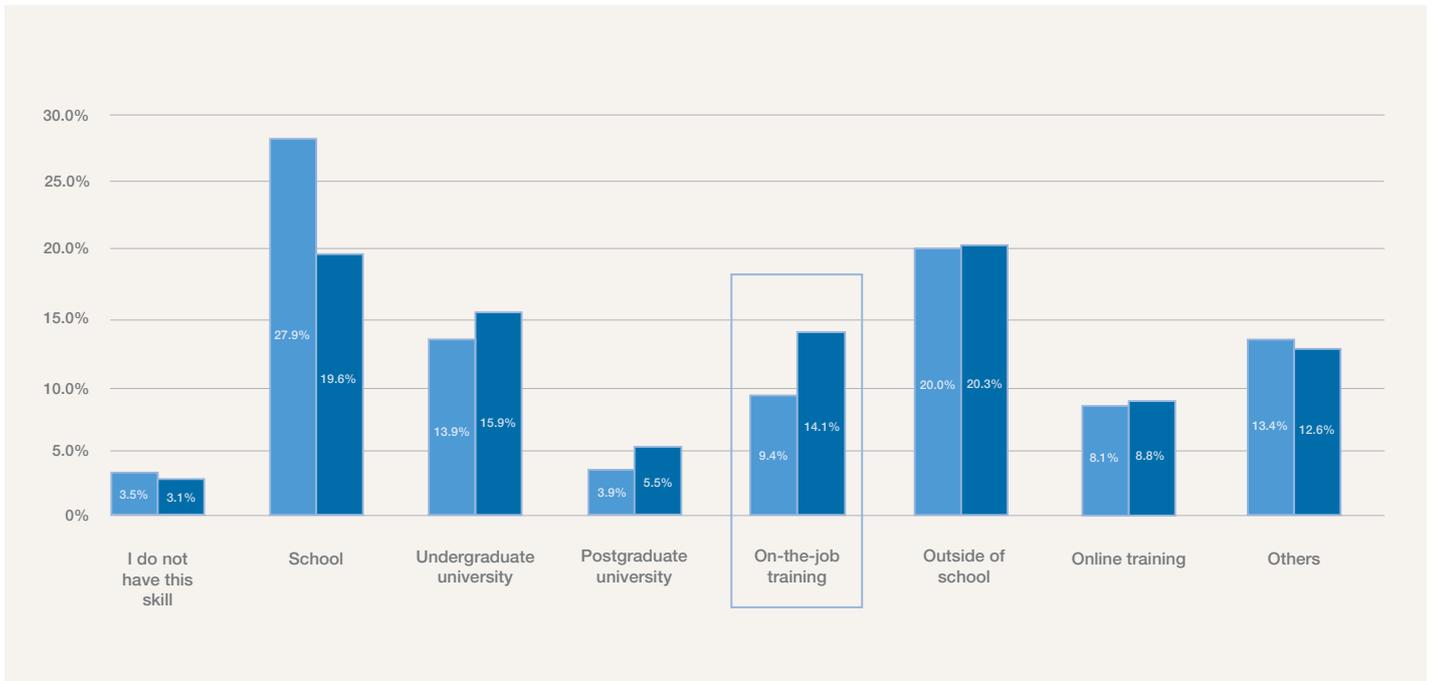
ASEAN youths acquire critical skills in many ways, from formal schooling to post-school education to on-the-job training. However, the proportion saying they learn important skills through formal on-the-job training appears to be relatively low.

We asked respondents to assess their most important skills and to share where they learned those skills. For those who currently work for a company (i.e. excluding respondents who are students and those who work for themselves), only 14.1% say they learned their most important skills through formal on-the-job training (see Chart 3).

What’s more, the opportunities for formal on-the-job training are lower for ASEAN youths working in smaller businesses: Of all respondents who have acquired skills through formal on-the-job training, 18.1% work for big local companies, 16% for foreign multinationals, 13.2% for SMEs and 8.8% for family businesses (see Chart 4).

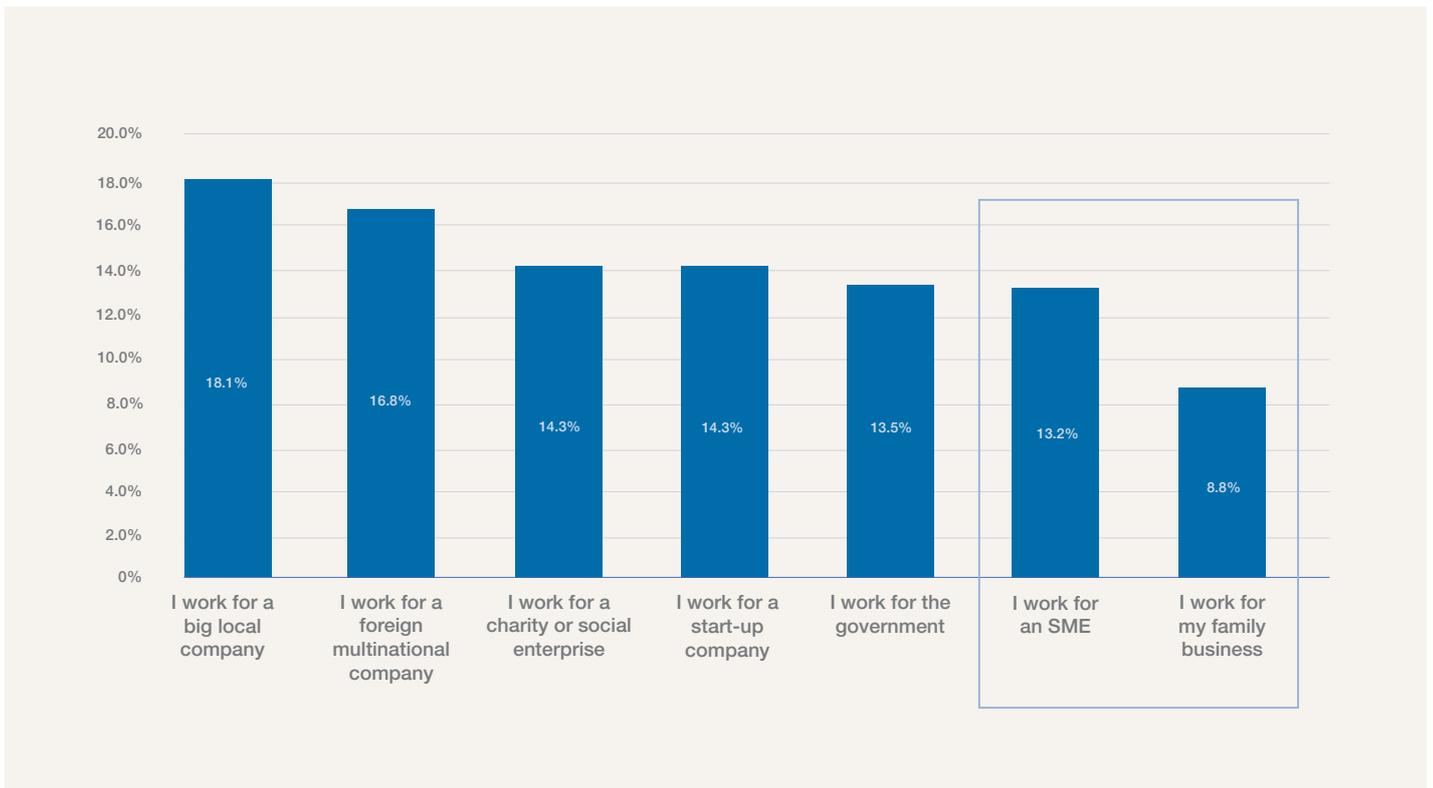
Providing more on-the-job training is clearly both an imperative and a big opportunity for businesses. But so, too, are internships. Some 81.4% of ASEAN youths believe that internships are either equally important or more important than training in school.

Chart 3: Where did you acquire your essential workplace skills? (% of respondents; average across all six ASEAN countries)



● All respondents ● Employees of companies (excluding entrepreneurs and those not working)

Chart 4: The share of workers who acquired their essential workplace skills through on-the-job training, broken down by type of organization (% of respondents; average across all six ASEAN countries)



5. ASEAN youths aspire to be entrepreneurs and to work for foreign multinationals. Traditional SMEs are less favoured

When asked what type of organization they work for today, and where they would like to work in the future, ASEAN youths show a strong preference for entrepreneurial settings, as well as for foreign multinationals (see Chart 5). Today, 31.4% are either entrepreneurs or work for a start-up. In the future, 33.1% aspire to work in an entrepreneurial setting. In the 2018 edition of our youth survey, entrepreneurship was also the most popular job choice among youths, but the percentage of respondents wishing to be business owners (25%) was not as high as this year's results.

There is also a strong desire to work for a foreign multinational company. Today, 8.6% work for a foreign multinational. In the future, 18.8% would like to work for one.

Interestingly, the desire to be an entrepreneur varies by country. It is strongest in Indonesia, with 34.1% working as an entrepreneur today, and 35.6% wishing to do so in the future. This may be because Indonesia has a rich recent tradition of building tech unicorns that is inspiring young people. The desire to be an entrepreneur in the future is lowest in Singapore, with only 16.9% of youths expressing this aspiration (see Chart 6).

But while certain types of organization are popular, others are seen less favourably. Traditional SMEs are the backbone of ASEAN labour markets, but the survey reveals that small companies may face recruitment challenges. While 18.3% of respondents work for SMEs today, only 7.5% want to work for one in the future.

More broadly, established local companies (i.e. not start-ups) all face challenges in attracting employees: 42.8% of ASEAN youths currently work for SMEs, family businesses or big local companies, but in the future only 28.3% want to work for these established local companies.

Given the importance that ASEAN youths attach to developing their skill sets, one way to address potential recruitment challenges, as well as prepare workers for the future, is to undertake public-private projects to help SMEs equip their workers with the skills they need. The World Economic Forum's ongoing [ASEAN Digital Skills Vision 2020](#) initiative is one such programme. Launched in Bangkok in November 2018, the project has assembled a coalition of large companies and organizations that have collectively pledged to train 20 million workers at ASEAN SMEs by 2020, as well as to provide internship and scholarship opportunities. The pledge is linked to a global project at the World Economic Forum, and the ASEAN region has now become a [significant contributor](#).

Chart 5: Where ASEAN youths work today and where they would like to work in the future (% of respondents; average across all six ASEAN countries)

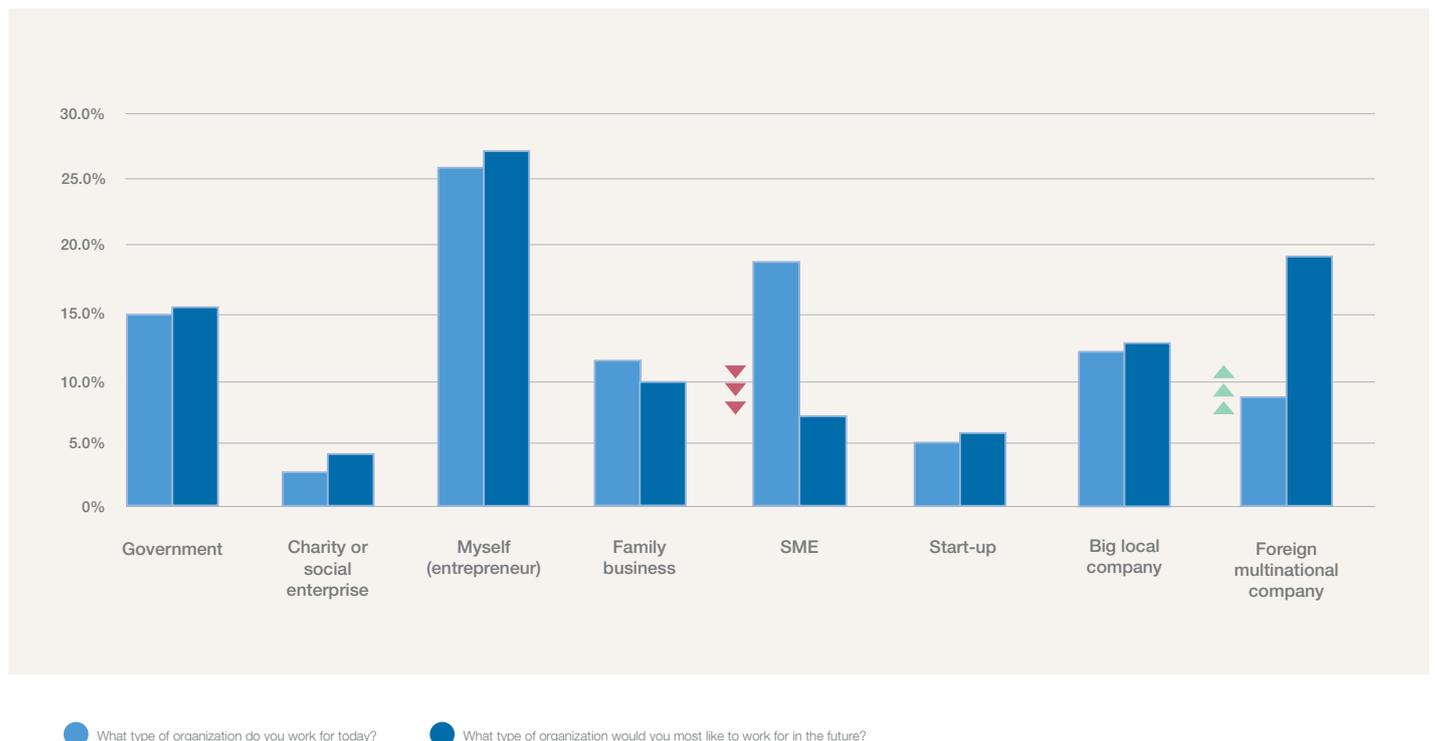
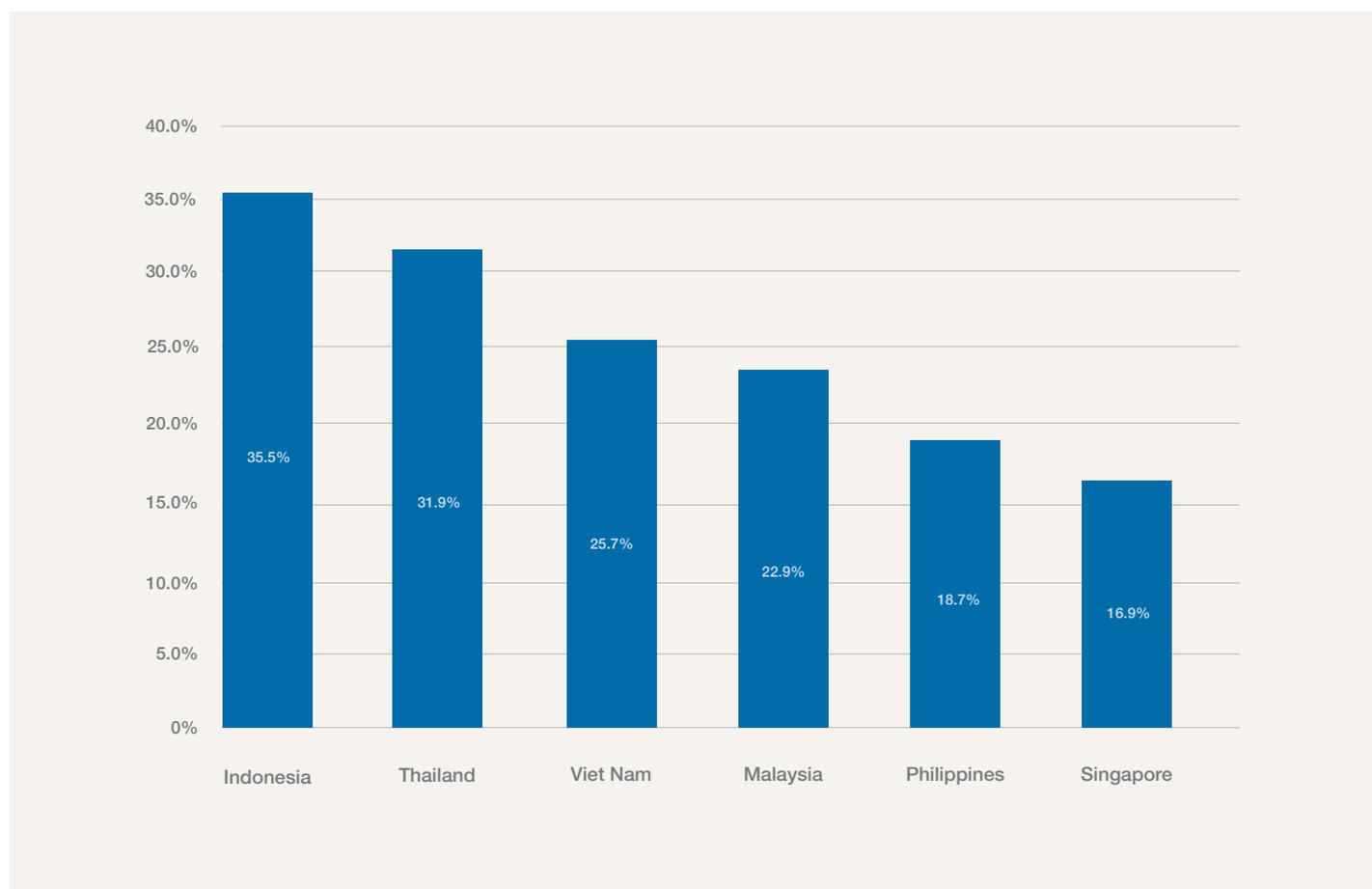


Chart 6: The share of youths (%) in each ASEAN country who aspire to be an entrepreneur (to work for themselves) in the future



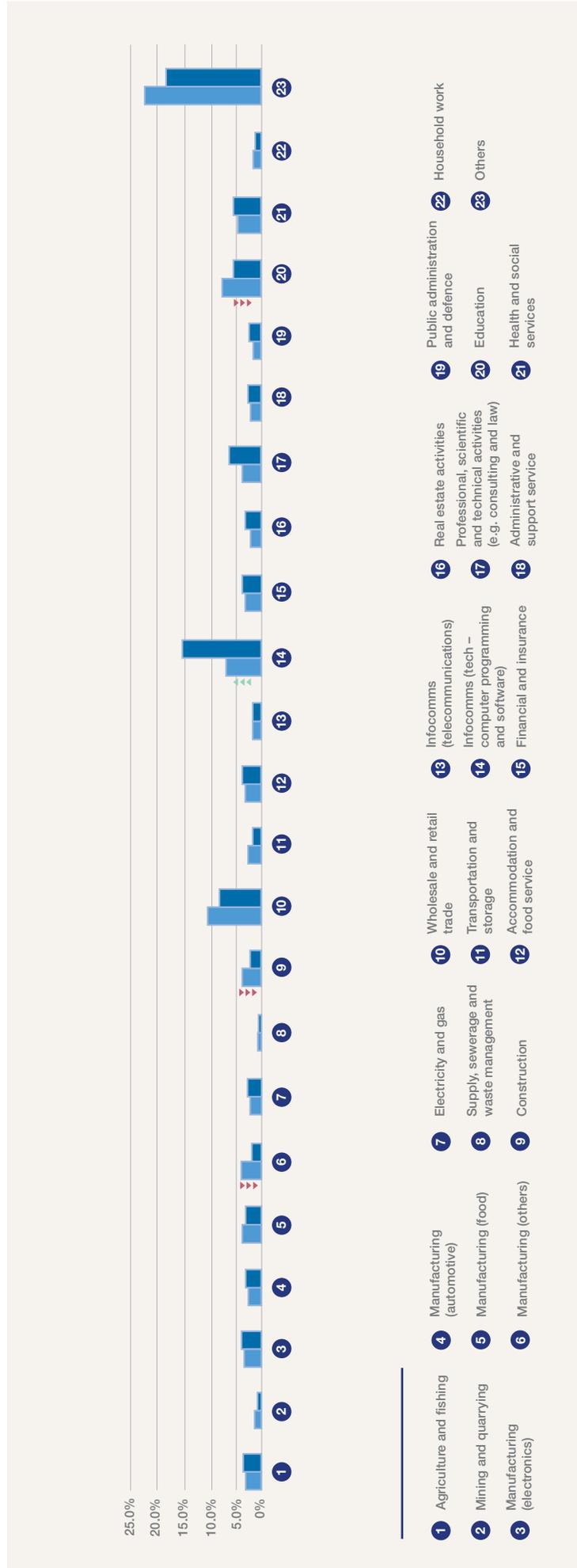
6. ASEAN youths favour jobs in the tech sector and look less favourably on traditional sectors

When asked what sector of the economy they would choose to work in, ASEAN youths show a preference for technology companies. Some 7% work in the technology sector today, but 16% want to work in the sector in the future (see Chart 7).

This trend is perhaps worrying for other sectors. Certain more traditional parts of the economy may struggle to recruit young workers in the future. In manufacturing, for example, 15% of youths work there today, but only 12% want to work there in the future. In construction, 4% work there today, but only 2% aspire to work there in the future.

Notably, the education sector, which is important for the quality of the workforce in an economy, faces a declining aspiration from ASEAN youths, from 8% today to 5% in the future. In the case of Indonesia, it drops from 10.2% down to 6.1%. If fewer youths aspire to become teachers, it may be tough for governments to design and implement the educational programmes required for the era of the Fourth Industrial Revolution.

Chart 7: Industry sectors where ASEAN youths work today, and sectors where they aspire to work in the future (% of respondents; average across all six ASEAN countries)



● In which sector do you work today? ● In which sector do you want to work in the future?

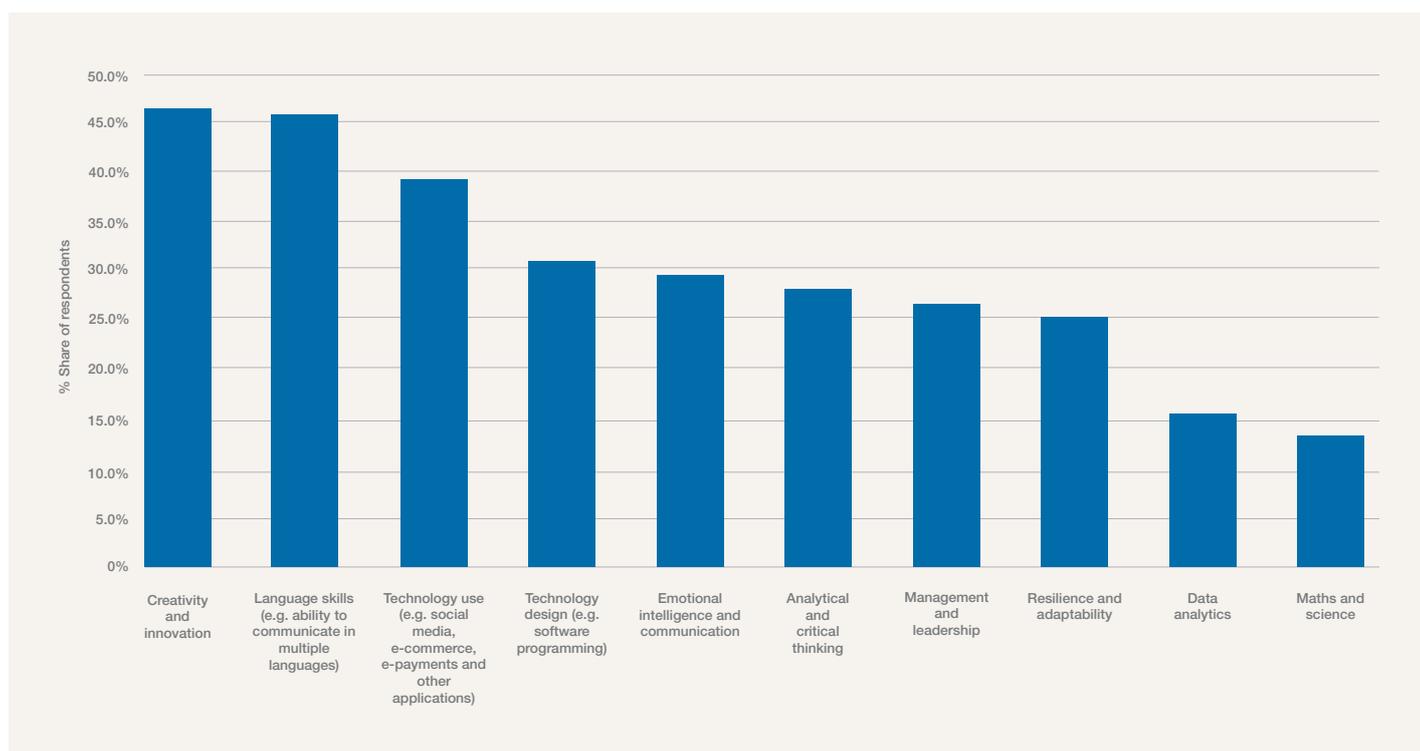
7. ASEAN youths value soft skills more highly than hard skills

When asked which skills they believe will be most valuable in the future, ASEAN youths place higher value on soft skills (such as emotional intelligence, resilience and adaptability) than hard skills (generally regarded as “STEM”: science, technology, engineering and maths).

The three skills considered most important are: creativity and innovation; language skills; and the ability to use technology (e.g. social media and e-commerce). The two least highly valued skills are: data analytics; and maths and science (see Chart 8).

The skills that ASEAN youths value vary by country, and it seems likely that the composition of important local industries in each country may influence these judgements. Thai youths place relatively higher importance on skills such as emotional intelligence and communication, which could be a nod to the importance of the tourism and hospitality industries. Youths in the Philippines place more importance on technology design and software programming, which could be due to the strong presence of the business process outsourcing industry. Singaporean youths give more weight to analytical and critical thinking. This makes sense given the country’s push towards higher value-added activities.

Chart 8: Share of respondents (%) who place each of these skills among their top three by importance (average across all six ASEAN countries)



8. ASEAN youths believe they are more competent in soft skills than in hard skills

In assessing their proficiency in different skills, three of the four skills that ASEAN youths regard as their weakest are in the STEM area: Ranked bottom is technology design (e.g. software programming); followed by language skills; then data analytics; and then maths and science (see Chart 9).

This self-diagnosis aligns with other assessments. Some of the countries with the largest youth populations in ASEAN are underperforming on international assessments, including PISA, which measures the maths and science skills of 15-year-olds in 70 countries. Indonesia ranks 62/70 and Thailand ranks 56/70. Singapore is an outlier in the region, consistently ranking first on the PISA assessment. Viet Nam ranks quite high (22/70), but somehow only 22.8% of the respondents in our survey from Viet Nam see themselves as proficient in maths and science.

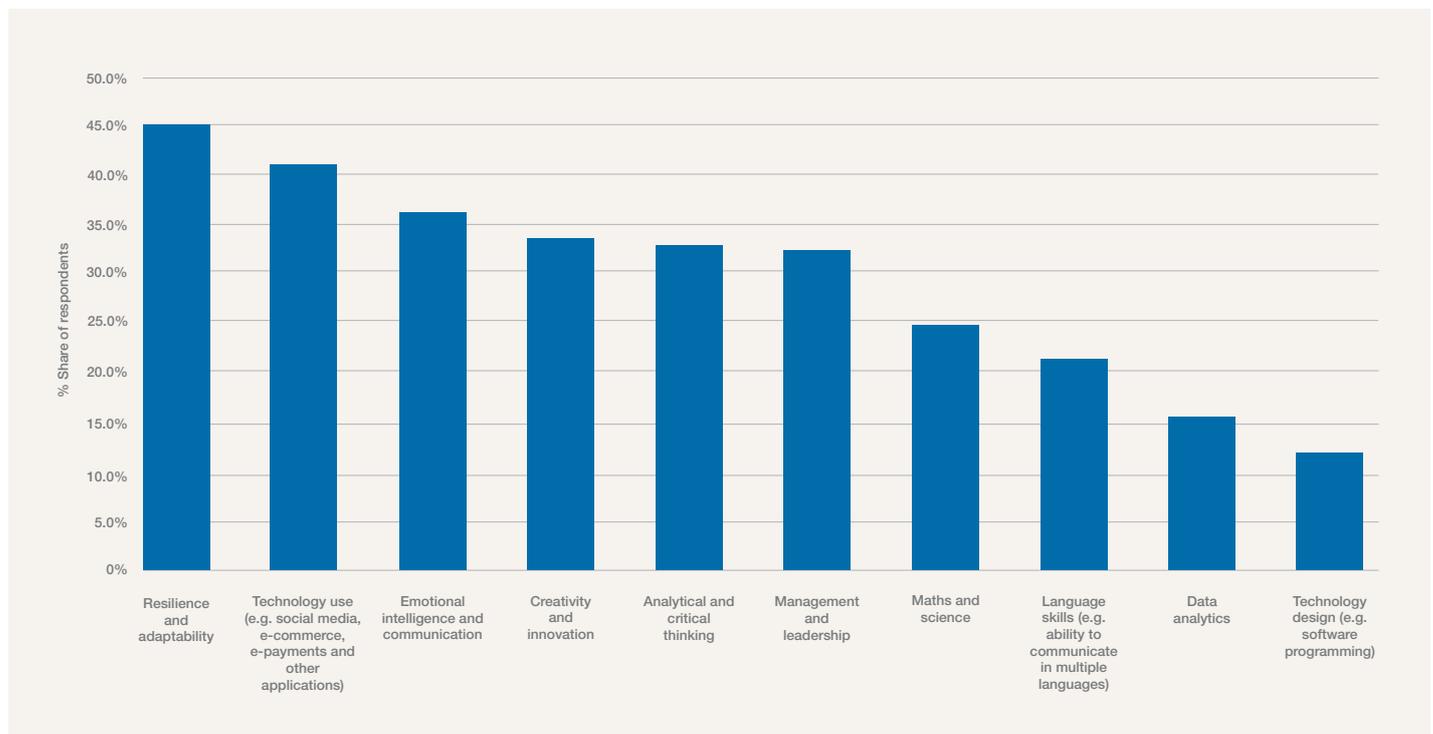
Given the strong desire from ASEAN youths to work in the tech sector, the perceived weakness in STEM subjects may be a barrier to future job aspirations. However, not all roles at tech companies require technical skills. Business development, marketing and other functions often call for soft rather than hard skills.

More positively, ASEAN youths are particularly confident about their ability to use technology such as social media platforms, e-commerce sites and e-payment systems. They also rank themselves highly in terms of creativity and innovation.

Given the high preference that ASEAN youths show to be entrepreneurs (see Section 5, above), it seems likely that many youths aspire to be small and micro traders, using e-commerce platforms, online payment systems and social media to empower their businesses. Being an entrepreneur doesn't have to mean developing new apps, where STEM skills would be important. Instead, it can equally mean being a basket weaver from rural Kalimantan and using technology to sell regionally and even globally. Soft skills, coupled with a working knowledge of today's digital platforms, could serve these aspirations well.

The fact that youths attach high value to language skills is consistent with our survey findings that 46.4% of young people in ASEAN are keen to work overseas in the next three years. Experience gained in another country is a notable strategy for upgrading skills in the Fourth Industrial Revolution (see Section 10, below).

Chart 9: Share of respondents (%) who believe they are either very proficient or somewhat proficient in the following skills (average across all six ASEAN countries)



9. Identifying skills gaps among ASEAN youths

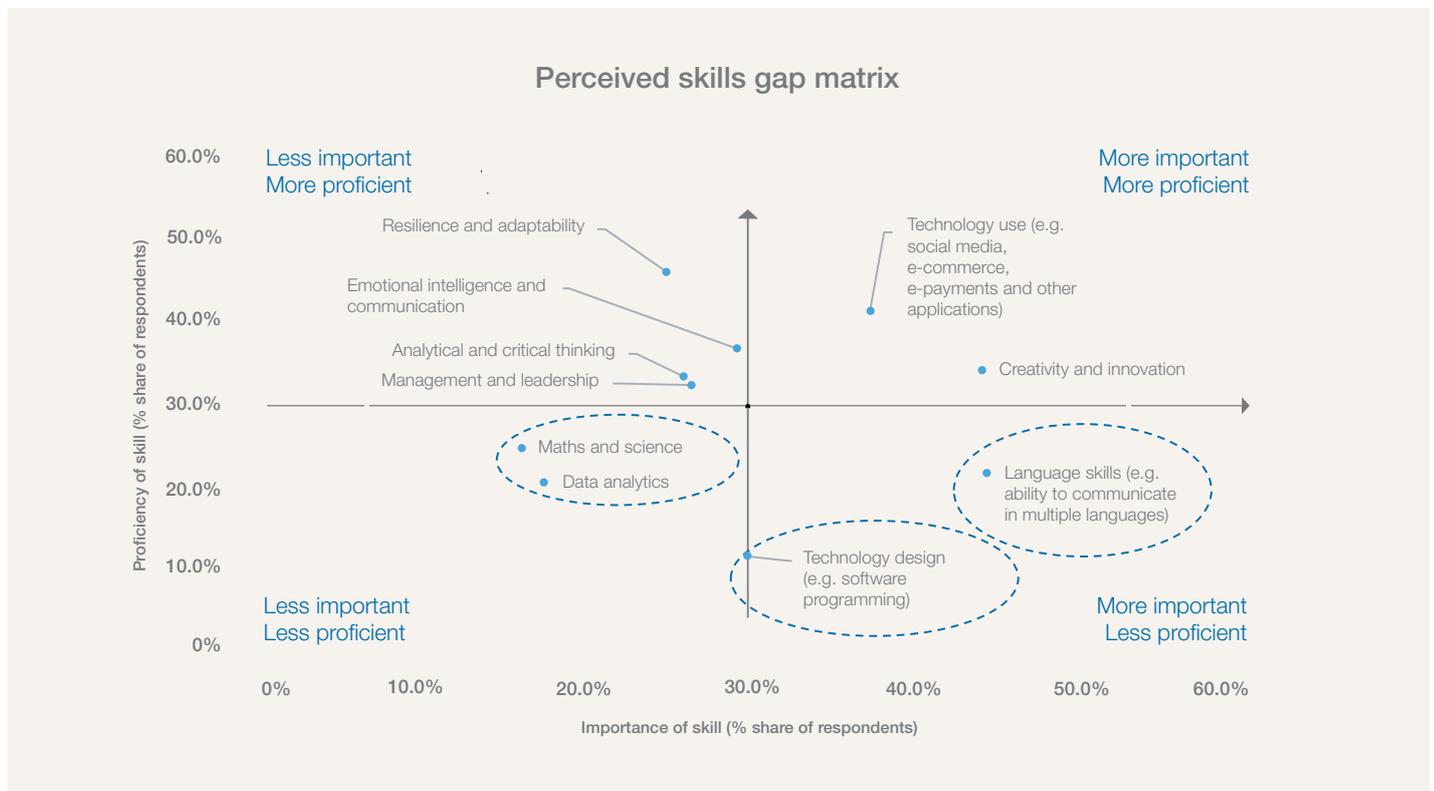
If we combine the views of ASEAN youths on which skills are important, and which they are good at, it is possible to identify perceived skills gaps for the future.

In particular, two skills stand out that ASEAN youths believe are very important for the future, but in which they believe they are not proficient: software design and programming; and language skills (see Chart 10).

In terms of STEM skills, the following are least valued by ASEAN youths, but they are also the areas that they regard as their weakest: software programming; data analytics; and maths and science.

The skills that ASEAN youths deem to be important and in which they are perceived to be proficient are: technology use; and creativity and innovation.

Chart 10: Identifying skills gaps for ASEAN youths: matching perceptions of the importance of certain skills against perceptions of proficiency in those skills (average across all six ASEAN countries)



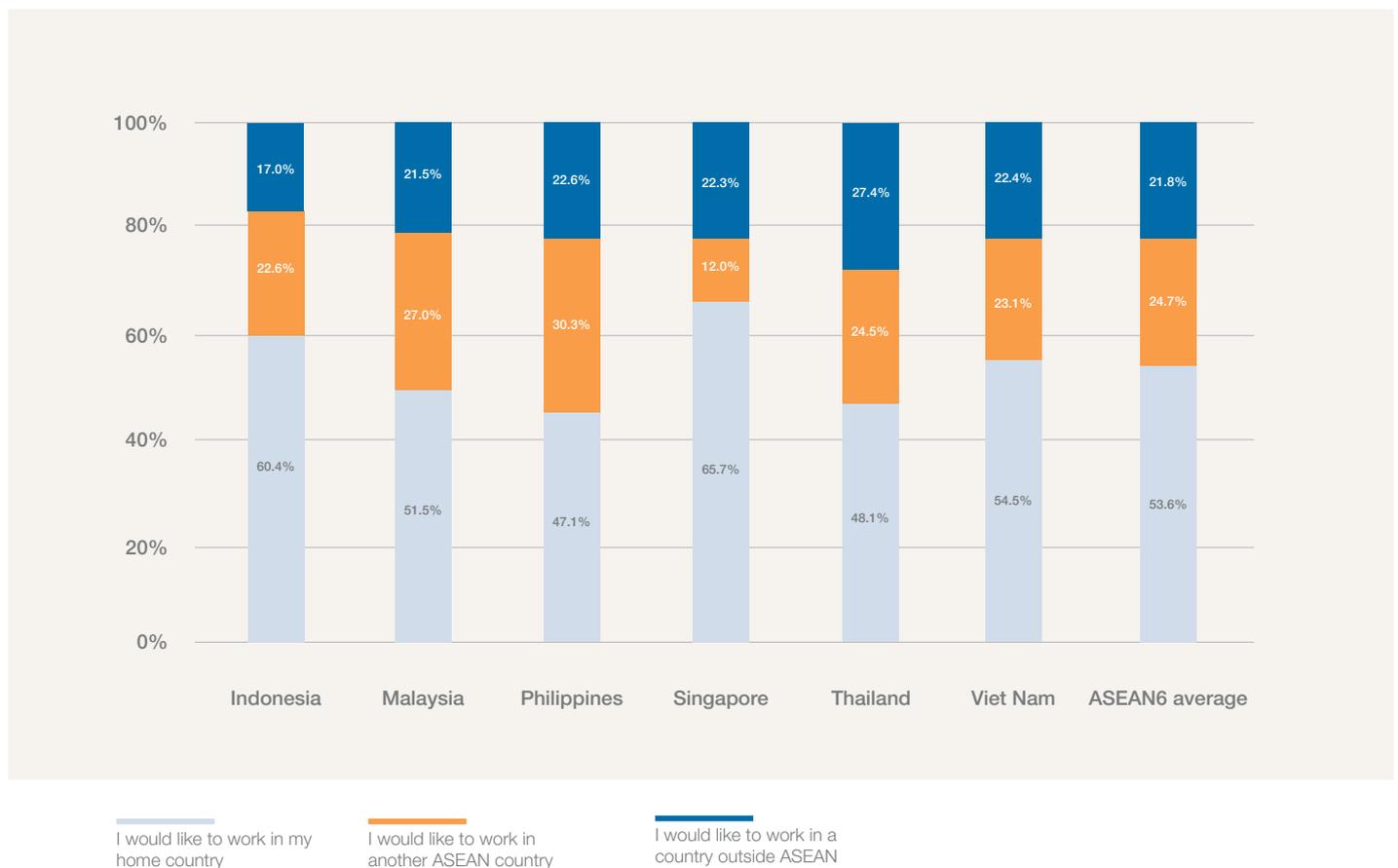
10. Working overseas as a path to skills development for ASEAN youths

Ricardo Hausmann, Professor of the Practice of Economic Development at the John F. Kennedy School of Government at Harvard University in the US, has developed a set of theories arguing that economic development is dependent upon the “knowhow” of a country’s workforce. Knowhow is different from education, because it implies practical skills rather than theoretical knowledge. A student can read and study all about how to manufacture a car, but unless the student spends time working in a car factory, he or she will not possess the necessary knowhow for car manufacturing. This knowhow, he argues, can be acquired in a number of ways: through foreign companies investing in a country and exposing local workers to new ideas and technologies,

through foreign workers moving to a country (and bringing their knowhow with them) or through domestic workers spending time overseas and learning new skills.

For ASEAN youths keen to upgrade their skills and stay relevant in the era of the Fourth Industrial Revolution, spending time working overseas may be a valuable strategy. Our survey shows that ASEAN youths are indeed very open to such a path to acquiring new knowhow (see Chart 11). The number of youths keen to work overseas varies by country, but across all six ASEAN countries, 46.4% are keen to spend time working overseas in the next three years.

Chart 11: The aspirations of ASEAN youths to work overseas in the next three years (% of respondents)





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