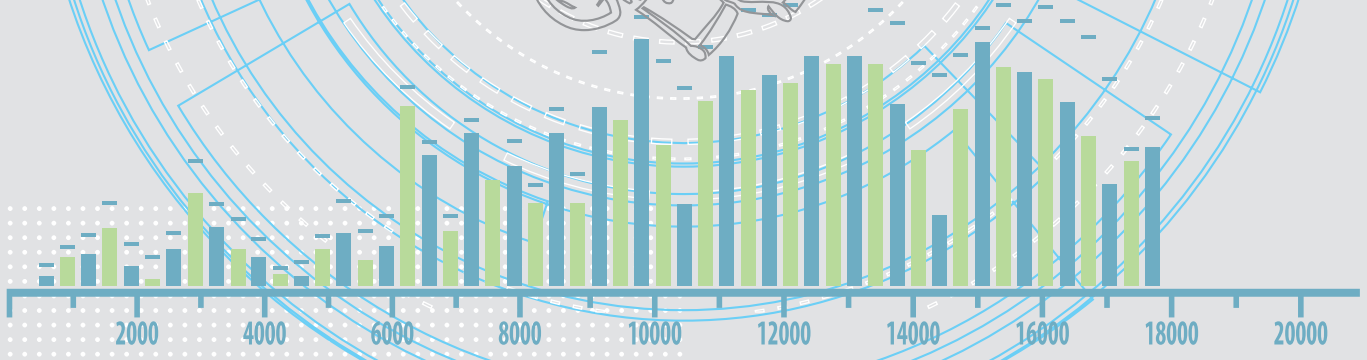
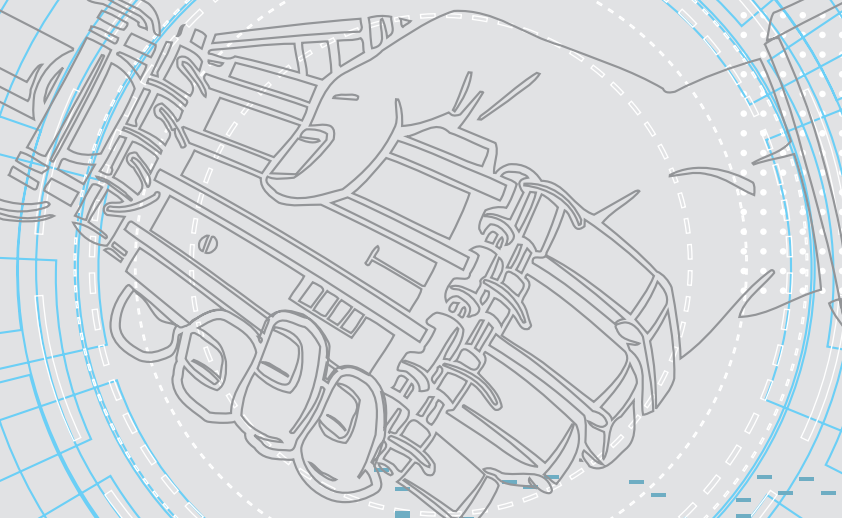
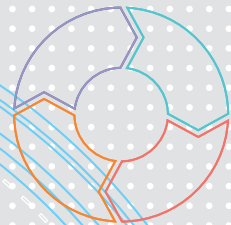


# ASEAN IN TRANSFORMATION



International  
Labour  
Organization

## PERSPECTIVES OF ENTERPRISES AND STUDENTS ON FUTURE WORK





# ASEAN IN TRANSFORMATION



**PERSPECTIVES OF ENTERPRISES  
AND STUDENTS ON FUTURE WORK**

July 2016

Bureau for Employers' Activities (ACT/EMP), Working Paper No 11

International Labour Office

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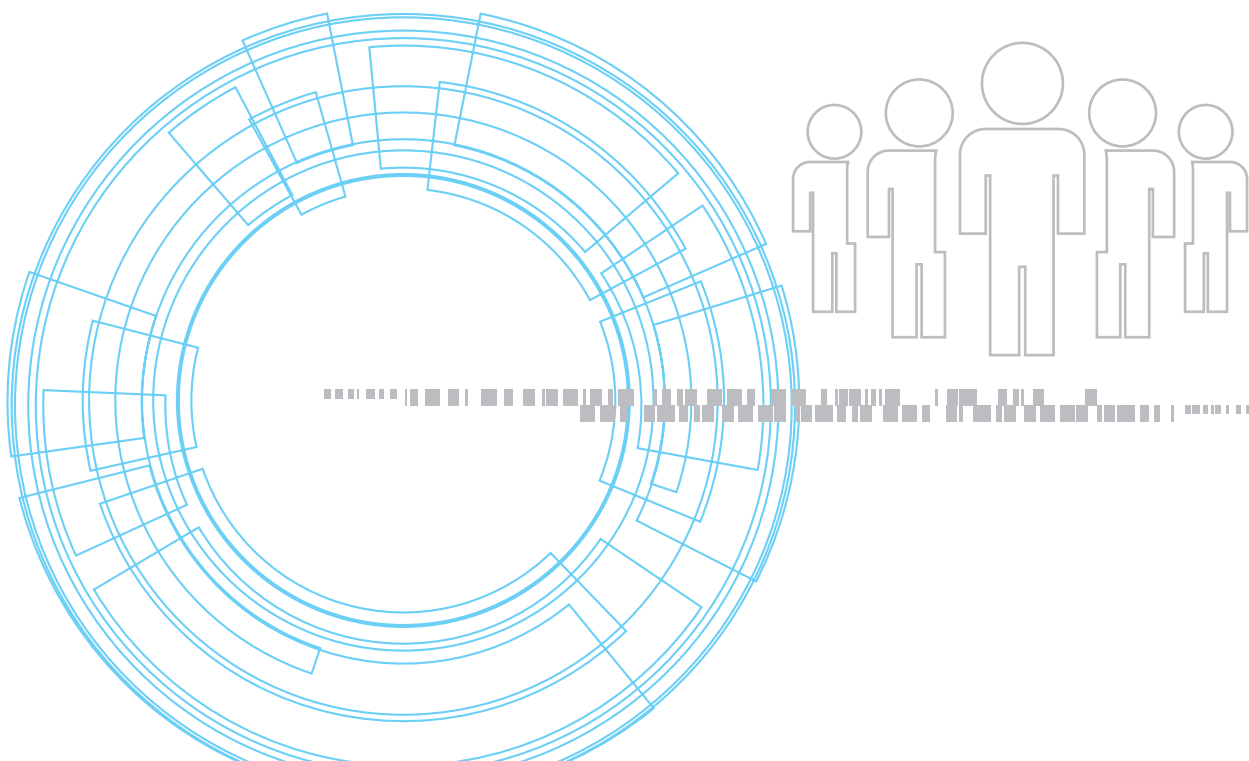


# PREFACE

The world is experiencing an unprecedented acceleration in technological advancement and implementation. Indeed, profound shifts are taking place – entire sectors are accommodating these innovations, rendering several human-performed occupations redundant. In the near future, these positions may be eliminated entirely. At the same time, other jobs are experiencing a rapid increase in demand, and some occupations are revising the skillsets they traditionally require.

Discussions surrounding this topic are often polarized, with one side expressing excitement for the opportunity to improve product quality and living standards and opponents voicing grave concern regarding the massive dislocation of jobs. However, a proper grasp of this topic requires a sector-specific understanding, as not all sectors are impacted equally by these advances in technology.

The ILO Bureau for Employers' Activities (ACT/EMP) began to extensively research this subject in 2015. Drawing from numerous interviews and case studies, the team examined current technological trends in the Association of Southeast Asian Nations (ASEAN) and how they impact enterprises and workers within five major labour intensive and/or growth manufacturing and services sectors: automotive and auto parts; electrical and electronics parts; textiles, clothing and footwear; business process outsourcing; and retail. Alongside these in-depth sectoral studies which consisted of over 300 primary interviews, the ILO gathered over 4,000 survey responses from ASEAN enterprises in the manufacturing and service industries. Additionally, survey responses from over 2,700 university and technical vocational education and training students were also collected, providing insight on the career aspirations and expectations of the next generation of workers.



Furthermore, over 50 interviews with key stakeholders in six ASEAN Member States, as well as early validation exercises with executives in Cambodia, Indonesia and Singapore, extended our qualitative insights. In November 2015, 23 global, regional and country experts examined preliminary findings and identified additional research needs. In March 2016, mid-point research findings were shared and consultations were conducted with representatives of the ASEAN Confederation of Employers and the ASEAN Trade Union Confederation during a bipartite regional meeting on labour mobility. Ultimately, these efforts have culminated into a collection of separate papers, each providing an in-depth examination on different aspects of how technology affects the ASEAN region:

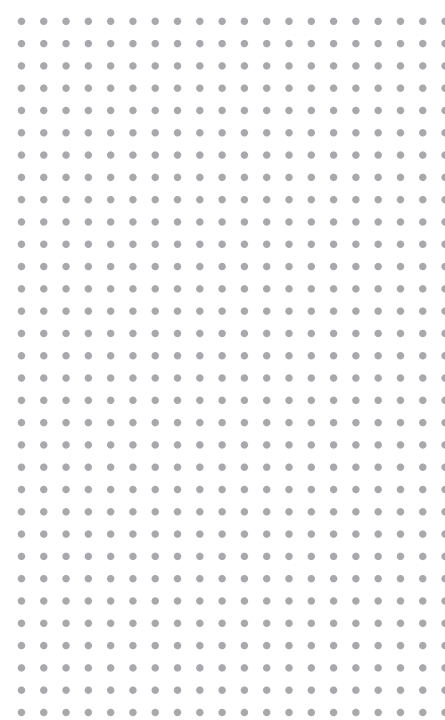
1. ***ASEAN in transformation: The future of jobs at risk of automation***
2. ***ASEAN in transformation: Perspectives of enterprises and students on future work***
3. ***ASEAN in transformation: Automotive and auto parts – Shifting gears***
4. ***ASEAN in transformation: Electrical and electronics – On and off the grid***
5. ***ASEAN in transformation: Textiles, clothing and footwear – Refashioning the future***

The findings for these documents are synthesized in a master paper entitled, *ASEAN in transformation: How technology is changing jobs and enterprises*.

We hope this paper and its associated research provide enterprises, workers and their representative organizations, governments and other stakeholders with useful empirical evidence and a rich knowledge base from which they can initiate national level policy dialogues and actions to address the future of work. Finally, it is our hope that this research makes a constructive contribution to the ILO's on-going efforts related to the Centenary Initiative on the Future of Work, as well as the 16th ILO Asia-Pacific Regional Meeting, to be held in December 2016.



**Deborah France-Massin**  
Director  
Bureau for Employers' Activities  
International Labour Office







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## **ABOUT THE BUREAU FOR EMPLOYERS' ACTIVITIES:**

The Bureau for Employers' Activities (ACT/EMP) is the specialized unit within the International Labour Office that maintains direct and close relationships with employers' organizations. Employers' organizations advance the collective interests of employers at country and regional levels. ACT/EMP assists employers' organizations with becoming strong representative organizations that help to shape conducive business environments.

# SUMMARY OF THE KEY FINDINGS

## ASEAN enterprises' performance, technology and skills requirements

- Enterprises in the Association of Southeast Asian Nations (ASEAN) are not especially oriented to producing new technologies. Of those surveyed, only 15.7 per cent protect intellectual property, only 20.7 per cent invest in research and development (R&D), and only 26.6 per cent explicitly delegate responsibility for upgrading technology. Although these numbers were slightly higher among manufacturing enterprises and larger enterprises, they still accounted for no more than one third in any case.
- The fixed costs associated with existing technologies are, reportedly, the single biggest barrier to enterprises in ASEAN in upgrading technology. Remarkably, this result holds equally true for manufacturing and services enterprises alike, small- and medium-sized enterprises (SMEs), larger firms, and among enterprises in each individual Member State.
- Enterprises in ASEAN value technical knowledge, teamwork and communication as the most important skills among workers. Strategic thinking and foreign language skills are reportedly among the most difficult to find. Services firms tend to value university degrees much more than technical vocational and educational training (TVET) qualifications, though manufacturing firms rank them equally.
- Enterprises in ASEAN value honesty and a positive attitude among the personal attributes they look for most in workers.

## ASEAN students' aspirations and expectations from work

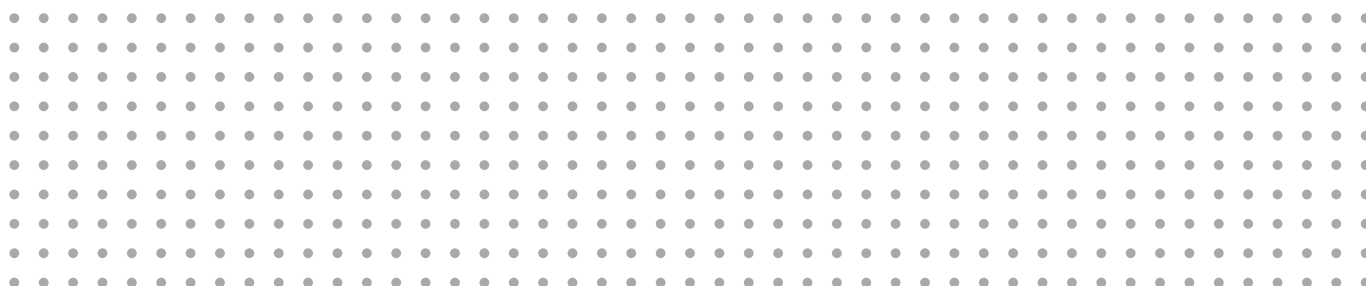
- About three-fifths of students in ASEAN desire regular, paid jobs after graduation. Of the others, most (particularly students at top-tier universities in ASEAN) want to continue their studies, travel or run their own business.
- Students in ASEAN identify a variety of business sectors as their ideal choice of employment. The most popular are: information communications technology (ICT) services, financial or insurance services, manufacturing, and education. A greater proportion of women students desire to work in human health and social work, while more men desire a job in scientific and technical research.
- When evaluating enterprises, students in ASEAN place significant value on: (1) success and stability and (2) workers' treatment. These two factors rank significantly higher than other reputational factors, such as the impact on local communities, impact on health and impact on the environment. Men students tend to place more weight on enterprises' innovative credentials while women care somewhat more about the impacts on people's health and wellbeing.
- In a hypothetical trilemma, in which respondents could only pick two out of three options of (1) doing work that is interesting or uninteresting, (2) doing work that is well paid or badly paid, and (3) doing work that offers ample leisure time or virtually none, the majority of students, both young women and men, are drawn towards work that is interesting and highly paid – over and above how little leisure time it might leave them. Though, some exceptions exist among the students in Thailand and Singapore and those at top-tier universities.
- The top three immediate work priorities for students in ASEAN are: secure stable employment, a high salary and a good work-life balance. These three factors are also top among students' longer term priorities, though health benefits and family-oriented benefits emerge equally strongly among women and men. Students in vocational courses tended to value stable and secure employment considerably more compared to university students, both in the immediate and longer terms. Students of top-tier universities tended to place more value on work-life balance, health and family benefits in the longer term.

## Recruitment and job-search activities in ASEAN

- It is commonplace and widespread for enterprises in ASEAN to use online recruitment tools, such as dedicated jobs-listings websites and social media. The exception is Myanmar, where Internet penetration is considerably low. However, most enterprises in ASEAN still rely heavily on personal networks and more traditional jobs advertising routes (mostly printed media).
- Students in ASEAN largely take an individual approach to looking for work, making extensive use of online tools and their own networks over any of the other services or tools on offer.

## Working modalities and working culture in ASEAN

- The stakeholder interviews conducted in six Member States reveal a general shift towards non-standard forms of employment taking place. This includes temporary or fixed-term employment, temporary agency or dispatched work, dependent self-employment, and part-time work. Some enterprises in ASEAN are reportedly downsizing to employ workers more flexibly. Others are contracting out a variety of design and pre-production tasks, as well as various marketing, ICT, legal and other functions. Entire new subsectors and business models are emerging to meet these new demands. Some employers, reportedly, remain resolutely closed to these non-traditional employment trends. Shifts in employment practices will ultimately come down to individual business needs and individual business cultures.
- Students in ASEAN appear very willing to engage in mobile work as international migrants, freelancers and remote workers, though many express they will engage in these forms upon the condition that such work is well-paid, suitable to their skills, stable and secure. Employers, on the other hand, appear much less willing to offer such work, and, of those who do, they offer it on the condition that it is temporary.
- International migrant work in ASEAN is largely seen as costlier to employers and better paid for workers. Both employers and students cite migrant work will be more difficult to find and harder to manage or carry out.
- Freelance work in ASEAN is largely seen as less expensive for employers, though students perceive it as more interesting than regular, salaried employment. Both employers and students alike, however, perceive such work as less reliable or secure.
- Working remotely in ASEAN is largely seen by enterprises and students as neither more nor less well-paid, motivating, stable and secure.



## ASEAN enterprises' and students' outlook on the future

- Stakeholders interviewed in the six Member States cited no significant, recent instances of large-scale unemployment. Where examples of large-scale unemployment could be named, however, arose from phenomena resulting from globalization more generally. New innovations developed abroad that allow for reshoring were seen as a bigger threat of impacting ASEAN labour markets by 2025. Stakeholders felt reshoring could eliminate ASEAN's current competitive advantages of offering relatively inexpensive labour.
- Enterprises in ASEAN feel positively that 2025 will bring increases in their domestic sales, labour productivity, profits and the number of high-skilled workers they employ. Beyond such benefits, however, they also feel costs will increase, particularly wages, energy, R&D spending and staff training expenditures.
- Enterprises in ASEAN report a significantly positive and hopeful outlook towards (1) technological advances, (2) the ASEAN Economic Community (AEC) and (3) rising skills within their countries' labour forces. The majority expect these factors will positively impact their domestic sales, labour productivity, business profits, high-skill employment and labour costs by 2025. The expected impact of these three factors on total employment, however, is somewhat moot, as a rise in demand for high-skilled workers will be offset by a lower demand for low-skilled workers. In other words, the composition of employed workers will change, but not the total number.
- Both manufacturing and services enterprises in ASEAN identify their biggest threats up to 2025 are rising local competition, rising labour costs, rising competition within ASEAN and potentially weaker domestic demand.
- The biggest opportunities in ASEAN from now until 2025, as identified by enterprises, predominately relate to rising local demand, technological advances and regional integration under the AEC. Manufacturing enterprises place a greater weight on trade-related opportunities, such as intra- and extra-ASEAN exports, falling trade costs and falling transportation costs. SMEs tend to place more weight on local factors, such as rising domestic demand and higher skills among local workers. SMEs place slightly less weight on technology and trade-related factors when compared to larger firms.
- The majority of students in ASEAN – students in top-tier universities, lower-tier universities and vocational training courses alike – feel they have more opportunities than their parents in terms of good work availability for young women, being able to start a business or self-employment, and finding work that is interesting and rewarding. The majority in each case also envisage more of these opportunities will be available by 2025.
- Students in ASEAN also express very optimistic views about their current and future opportunities for maintaining relevant skills in a rapidly changing labour market, having productive and well-paid work, and advancing in a career through honest hard work, skill and merit. One quarter of the students, however, perceive relatively fewer opportunities for stable and reliable work today, and around one fifth believe there will be fewer stable and reliable opportunities by 2025.
- A largely positive outlook was expressed across men and women students alike, a variety of educational institutions, and across every ASEAN Member State. Among the various concrete concerns acknowledged, however, were stable and reliable work, productive and well-paid work, and honest and fair career advancement. These concerns mainly came from the students surveyed in Indonesia, Malaysia and the Philippines.



## KEY STATISTICS

Illustration 1. Key findings from ASEAN enterprise survey

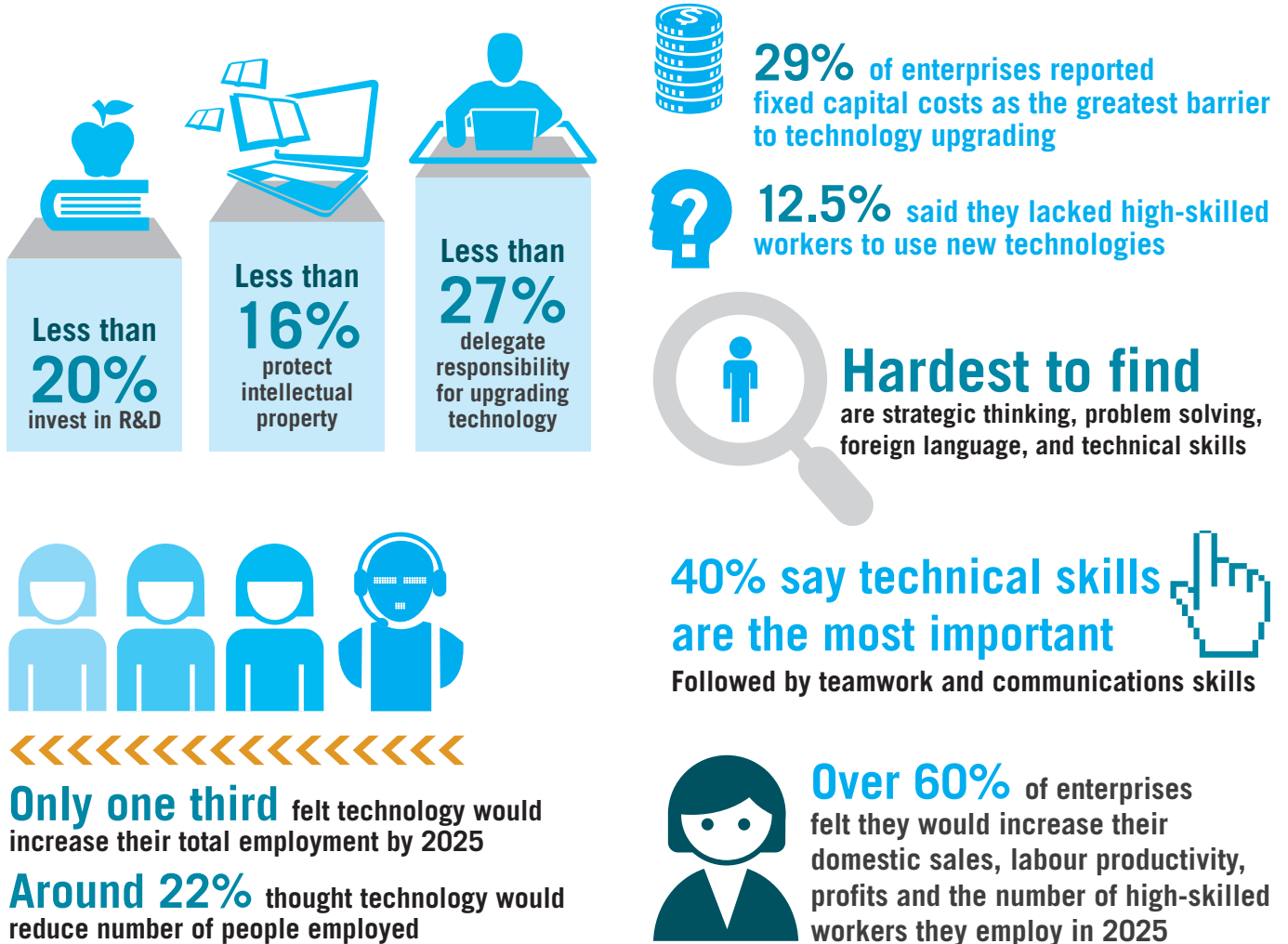


Illustration 2. Key findings from ASEAN student survey

The majority of students felt there will be more opportunities in 2025 for:



- Starting a business: **58.4%**
- Interesting and rewording work: **57.7%**
- Productive and well-paid work: **56%**
- Maintaining relevant skills: **53.5%**



Top three sectors sought by men students for employment are:



ICT: 14.3%



Financial or insurance services: 8.9%



Manufacturing: 8.9%



Top three sectors sought by women students for employment are:



Financial or insurance services: 11.1%



ICT: 10%



Arts, entertainment and recreation: 7.6%

# ABBREVIATIONS

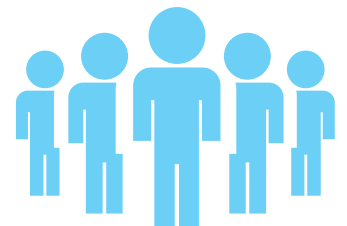
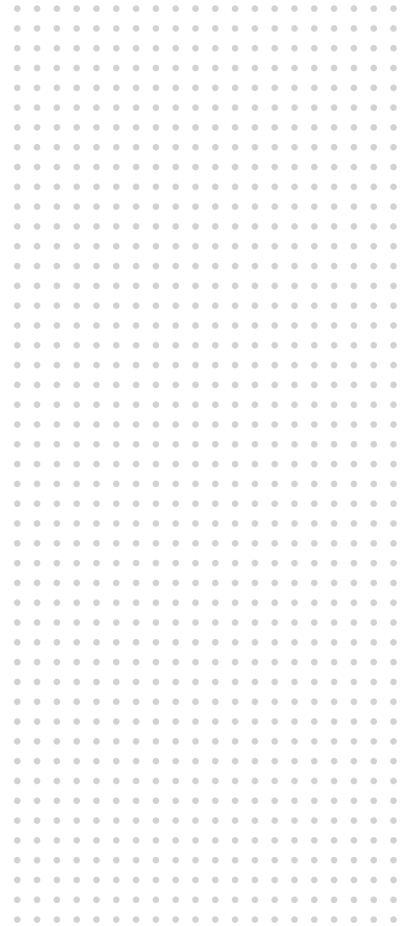
<b>AEC</b>	ASEAN Economic Community
<b>ASEAN</b>	Association of Southeast Asian Nations
<b>BPO</b>	business processing outsourcing
<b>CEO</b>	chief executive officer
<b>CSR</b>	corporate social responsibility
<b>EU</b>	European Union
<b>GDP</b>	gross domestic product
<b>ICT</b>	information communications technology
<b>IFR</b>	International Federation of Robots
<b>ILO</b>	International Labour Organization
<b>ILO-ACT/EMP</b>	ILO Bureau for Employers' Activities
<b>IT</b>	information technology
<b>R&amp;D</b>	research and development
<b>SME</b>	small- and medium-sized enterprises
<b>STEM</b>	science, technology, engineering and mathematics
<b>TVET</b>	technical vocational and educational training

# INTRODUCTION

Over the past two decades, advances in online, digital and mobile technologies have led to new business models, significantly shaking up several well-established markets. Virtually all sectors have been affected. Telecoms providers, airlines and newspapers are some of the most prominent examples in which business operations have drastically changed due to these advances. Additionally, with the rise of these technologies, relatively new industry players have made rapid gains while a few seasoned ones have declined or even disappeared altogether.<sup>1</sup>

To further understand the dynamics of these trends in the Association of Southeast Asian Nations (ASEAN), the ILO Bureau for Employers' Activities (ACT/EMP) explored the changing goals, needs and challenges facing the region's new generation of enterprises and workers. Overall, the project comprised of two large surveys (one surveying enterprises in the region and the other surveying university and vocational students). The surveys explored changes in the world of work and the alignment among these actors' goals and expectations. The study also conducted interviews with over 50 stakeholders in Cambodia, Indonesia, Malaysia, the Philippines, Singapore and Thailand.

The two surveys were designed by ACT/EMP and delivered by partners in the region. The data represent samples of over 4,000 manufacturing and services enterprises across ASEAN and approximately 2,700 young women and men studying across over 480 higher education institutions in ASEAN. The enterprise data were collected through face-to-face interviews in Cambodia, the Lao People's Democratic Republic and Myanmar. Online surveys were used for the remaining Member States from August to November 2015. The students' data were collected through an online survey during June 2015 and January 2016. Both surveys were disseminated in nine local languages: Bahasa Indonesia, Brunei Malay, English, Khmer, Lao, Malay, Myanmar, Thai and Vietnamese. The enterprise survey was additionally disseminated in Chinese and Tagalog. The stakeholder interviews were conducted between 8 to 26 June 2015, 2 to 4 November 2015, and 24 August to 29 September 2015.



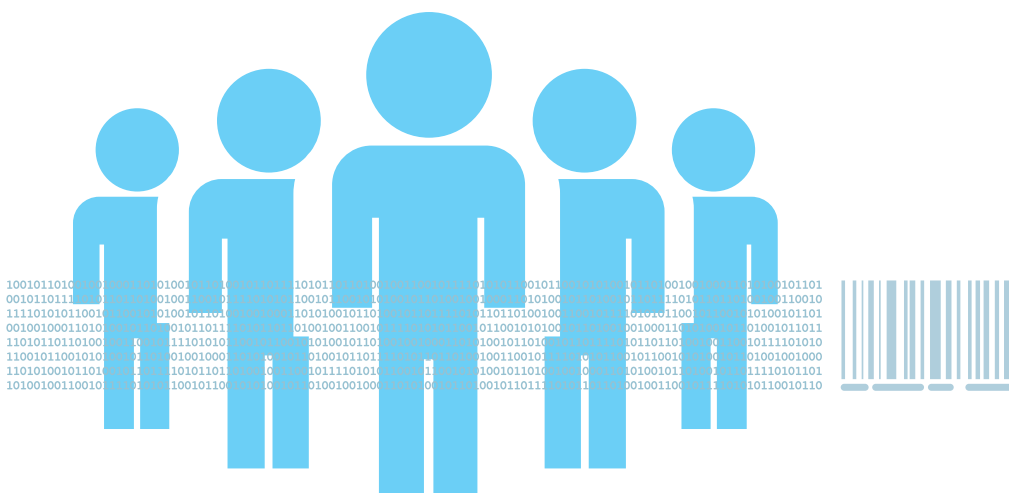
<sup>1</sup> For example in 2000s, film producers were replaced by digital cameras. Eastman Kodak, which once employed thousands of workers, filed for bankruptcy and no longer exists.

Three overarching themes shape the main body of this research:

- **Technologies' impact on enterprises**, such as changes in productive capabilities, business models, competitiveness, innovativeness and future growth prospects.
- **Technologies' impact on labour markets**, especially the total demand for labour, workers' skills and wages, enterprises' demand for given types of skills (both hard and soft), women's position within labour markets, and implications for job-security and employment benefits.<sup>2</sup>
- **New modalities and cultures of work**, which encompasses the spread of non-standard and more flexible employment models (including freelance and outsourcing) among formal employers, the rise of international labour migration in ASEAN, and the new capabilities for managing diverse teams across multiple locations.

Section 1 contains an overview of the two survey samples used. Section 2 details the findings on enterprises' performance and sentiments regarding technology. Section 3 looks at skills and personal attitudes in ASEAN. Section 4 reveals students' aspirations and expectations from work. Section 5 looks at recruitment and job searching in ASEAN. Section 6 explores working modalities and working culture in ASEAN. Finally, section 7 presents both surveys' findings on the outlook for the future, looking ahead towards 2025. All sections are supported by qualitative data captured through the stakeholder interviews.

The complete survey questionnaires are presented in appendix A and appendix B. The methodology used to derive the list of 'top-tier' universities is presented in appendix C. Appendix D contains the list of interview questions, while appendix E presents the full list of interviewees.



<sup>2</sup> While the ILO defines high-skill occupations as ISCO groups 1 (managers), 2 (professionals) and 3 (technicians and associate professionals) and low-skill occupations as ISCO group 9 (elementary occupations), for the purposes of the paper high-skill occupations are extended to cognitively intense and non-routine jobs and low-skill occupations extended to those that are labour-intensive and routine such as machine operators.

# ENTERPRISE AND STUDENT SURVEYS, AND STAKEHOLDER INTERVIEWS IN ASEAN



## 1.1 ASEAN enterprise survey sample

The ILO's ASEAN enterprise survey was carried out from August to November 2015. The survey collected a complete sample of 4,076 enterprises operating in ASEAN's broad manufacturing and services sectors. The sample included 1,003 manufacturing enterprises and 3,073 services enterprises.<sup>3</sup> Over 200 responses were gathered from each Member State (except Brunei Darussalam, which only had 53 responses). Of particularly large samples, 732 responses were collected from Indonesia, 664 from Thailand and 575 from the Philippines.

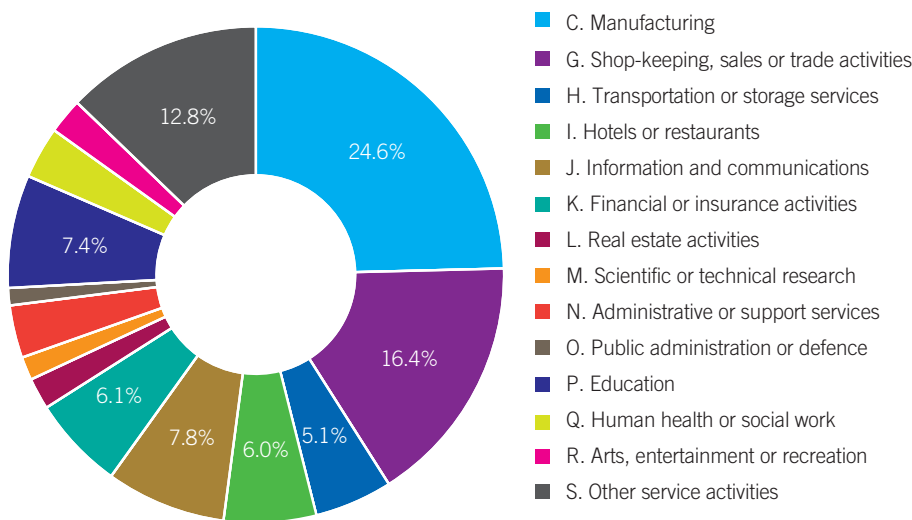
**Table 1. Enterprise sample by Member State and broad economic activity**

Member State	Total	Manufacturing sector	Services sector
Brunei Darussalam	53	4	49
Cambodia	304	57	247
Indonesia	732	241	491
Lao People's Democratic Republic	301	90	211
Malaysia	400	126	274
Myanmar	300	99	201
Philippines	575	92	483
Singapore	301	77	224
Thailand	664	171	493
Viet Nam	446	46	400
<b>Total sample</b>	<b>4 076</b>	<b>1 003</b>	<b>3 073</b>

Among the economic activities identified, the most frequent respondents came from manufacturing (24.6 per cent). Also popular were: wholesale and retail trade, information communications technology (ICT), and education at 16.4 per cent, 7.8 per cent, and 7.4 per cent, respectively.

<sup>3</sup> The research excludes those operating in agricultural and non-manufacturing industrial sectors because primary data were perceived challenging to gather. More specifically, the membership of ILO's employers' constituent largely cover manufacturing and services sectors.

**Figure 1. Survey sample by broad economic activity**

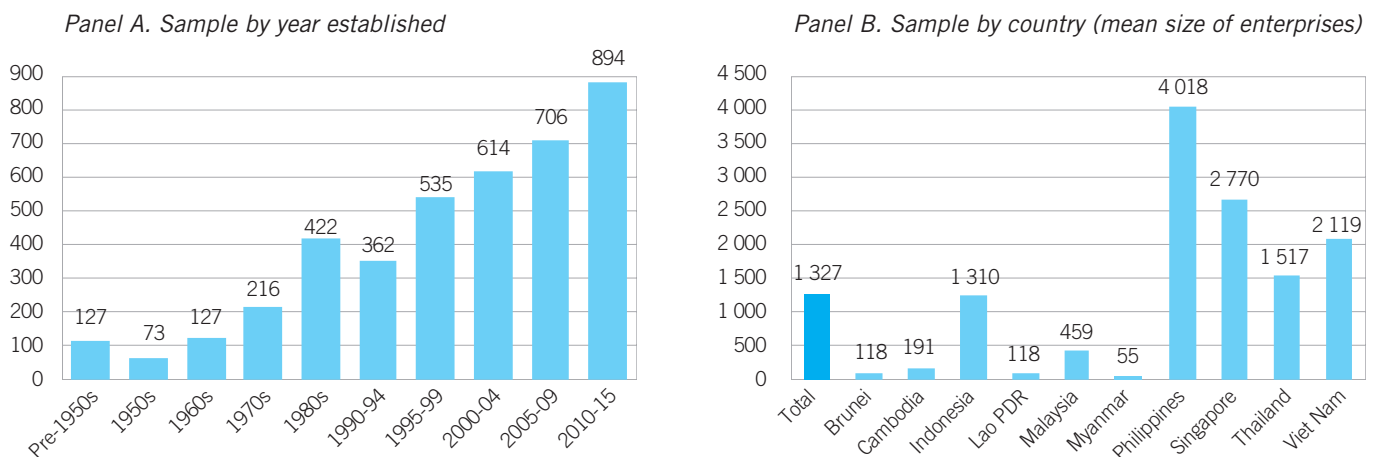


Note: Shares of less than 4 per cent are not labelled.

Some enterprises in the sample were established fairly recently, with 21.9 per cent operating for only five years or less. The median year of inception among the sample was 2000, though this was more recent in Cambodia, the Lao People’s Democratic Republic, Myanmar and Viet Nam (from 2006 to 2009 in each case) and lower in Indonesia, Malaysia, Singapore and Thailand (all with median years of inception in the mid-1990s).

The enterprises varied greatly in size, with both very small businesses and those consisting of hundreds of thousands of workers. The median enterprise had around 60 workers. The mean was 1,330. The smallest enterprises among the individual Member States came from Myanmar (median of 13, mean of 55) and the biggest from Indonesia (median of 136, mean of 1,310) and the Philippines (median of 134, mean of 4,018).

**Figure 2. Survey sample by year of establishment and by employment size**



The analysis distinguishes between enterprises based on their size in two categories: small- and medium-sized enterprises (SMEs) engaging 50 workers or less and larger firms with more than 50 workers. The former group encompasses 1,619 enterprises in the sample while the latter encompasses 1,750. A residual of 707 enterprises also exists for which the size was not known.

## 1.2 ASEAN student survey sample

The ILO's ASEAN student survey was carried out during June 2015 and January 2016. The overall sample comprises of 2,747 women and men in ASEAN currently studying for their undergraduate degrees, master's degrees or technical and vocational diplomas or certificates, with 1,529 women students and 1,218 men students. The smallest numbers of responses (both around 50) were collected from the Lao People's Democratic Republic and Brunei Darussalam. The biggest (each of 450 or more) came from Indonesia, Malaysia, Thailand and Viet Nam.

**Table 2. Student survey sample by Member State and gender**

Member State	Total	Men	Women
Brunei Darussalam	51	17	34
Cambodia	102	48	54
Indonesia	492	320	172
Lao People's Democratic Republic	50	18	32
Malaysia	451	251	200
Myanmar	104	46	58
Philippines	368	216	152
Singapore	206	122	84
Thailand	461	255	206
Viet Nam	462	236	226
<b>Total sample</b>	<b>2 747</b>	<b>1 529</b>	<b>1 218</b>

Undergraduate university students made up 74.2 per cent of the survey sample, with an additional 22.8 per cent studying for technical or vocational diplomas or certificates. Masters-level university students made up the remaining 3.1 per cent of the survey sample (students studying other tertiary-level courses, such as doctorate or Master of Business Administration degrees, were excluded). While university and TVET students only account for a small portion of all young, future entrants into the labour market in ASEAN, the sample was narrowed for the purposes of the research.

The students were enrolled in over 480 different higher education institutions in ASEAN.<sup>4</sup> Many institutions are among ASEAN's most prestigious. Singapore's National University of Singapore and Nanyang Technological University, for example (from which a combined 184 responses were collected), are ranked in the latest *QS World University Rankings* as Asia's number one and number four universities, respectively, while Malaysia's University of Malaya and the University of Science, Malaysia, and Thailand's Mahidol University are also ranked among the top-50 in Asia.<sup>5</sup>

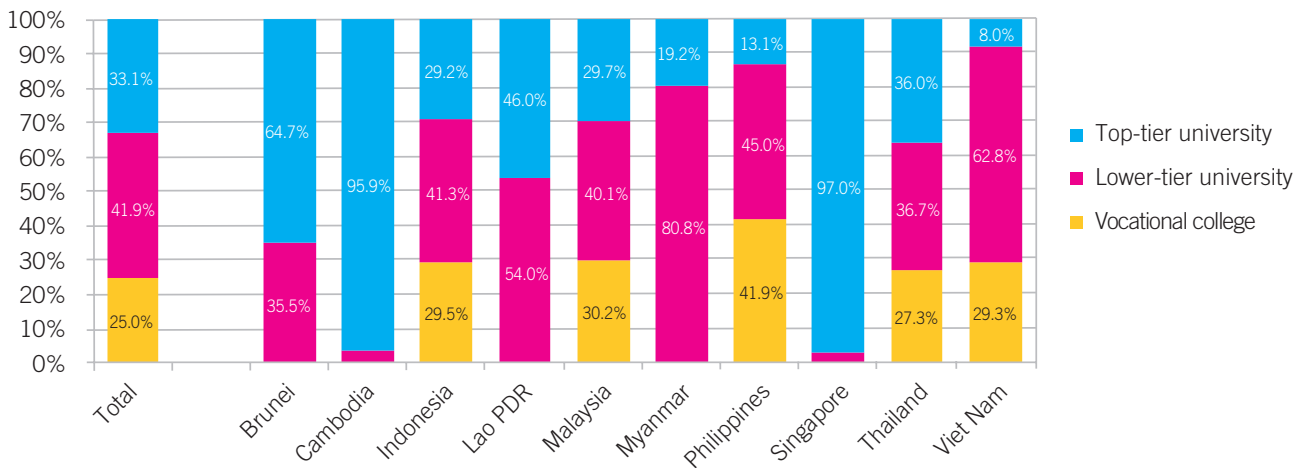
<sup>4</sup> The top ten institutions from which the sample was collected were: Nanyang Technological University (Singapore, 148 responses), Banking University of Ho Chi Minh City (Viet Nam, 131 responses), Putra University (Malaysia, 86 responses), Bangkok University (Thailand, 84 responses), Bina Nusantara University (Indonesia, 83 responses), Chulalongkorn University (Thailand, 72 responses), University of Indonesia (Indonesia, 72 responses), Tunku Abdul Rahman University (Malaysia, 49 responses), University of San Carlos (the Philippines, 41 responses) and National University of Singapore (Singapore, 36 responses).

<sup>5</sup> QS Top Universities, 2015.

The analysis distinguishes between top-tier and lower-tier universities based on a review of five leading international university rankings (see appendix C). Students in vocational courses were identified under the same variable as those studying towards a technical or vocational diploma or certificate. The sample included 828 students from top-tier universities, 1,049 students from lower-tier universities and 625 students studying for vocational courses in ASEAN. A residual 245 students also remained for whom the university was not known.

Top-tier university students made up the majority of those in Brunei Darussalam (64.7 per cent), Cambodia (95.9 per cent) and Singapore (97.0 per cent). Students on vocational courses were only surveyed in Indonesia, Malaysia, the Philippines, Thailand and Viet Nam.

**Figure 3. Student survey sample by Member State and type of educational institution**



All students expected to complete their programme sometime between 2015 and 2017.<sup>6</sup> The majority of the sample (83.3 per cent) was aged 18-24. The median age was 22.

The students came from a variety of academic disciplines. Of these, the biggest shares were studying business, commerce or finance (29.5 per cent); followed by engineering, building or architecture (15.8 per cent); and information technology (also known as IT, 15.1 per cent). Science, technology, engineering and mathematics subjects (STEM) accounted for 21.9 per cent of the total sample; although, somewhat more male students were enrolled than female students (28.0 per cent compared with 17.0 per cent among the women). STEM subjects, together with IT, accounted for 49.4 per cent of the students sampled who were men but only 27.1 per cent of those who were women.

<sup>6</sup> Of these, 25.1 per cent graduated in 2015, 44.8 per cent will graduate in 2016 and the remaining 30.0 per cent will graduate in 2017.



Figure 4. Student survey sample by age and by field of study

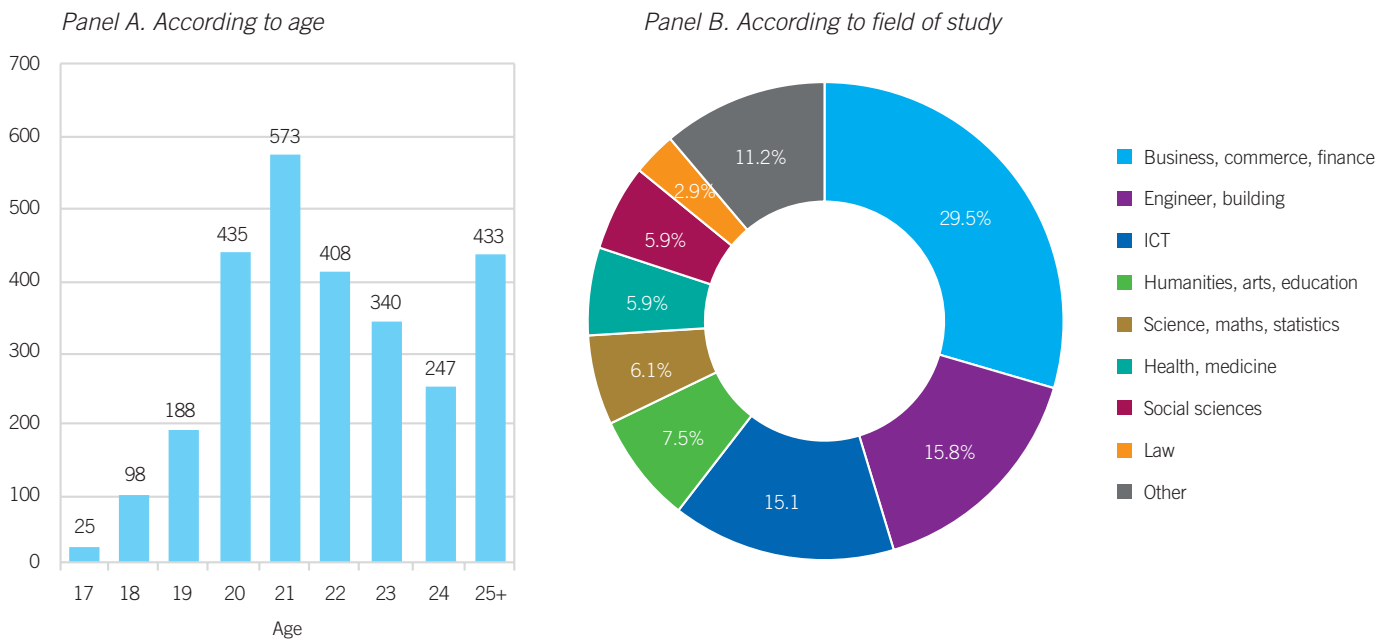
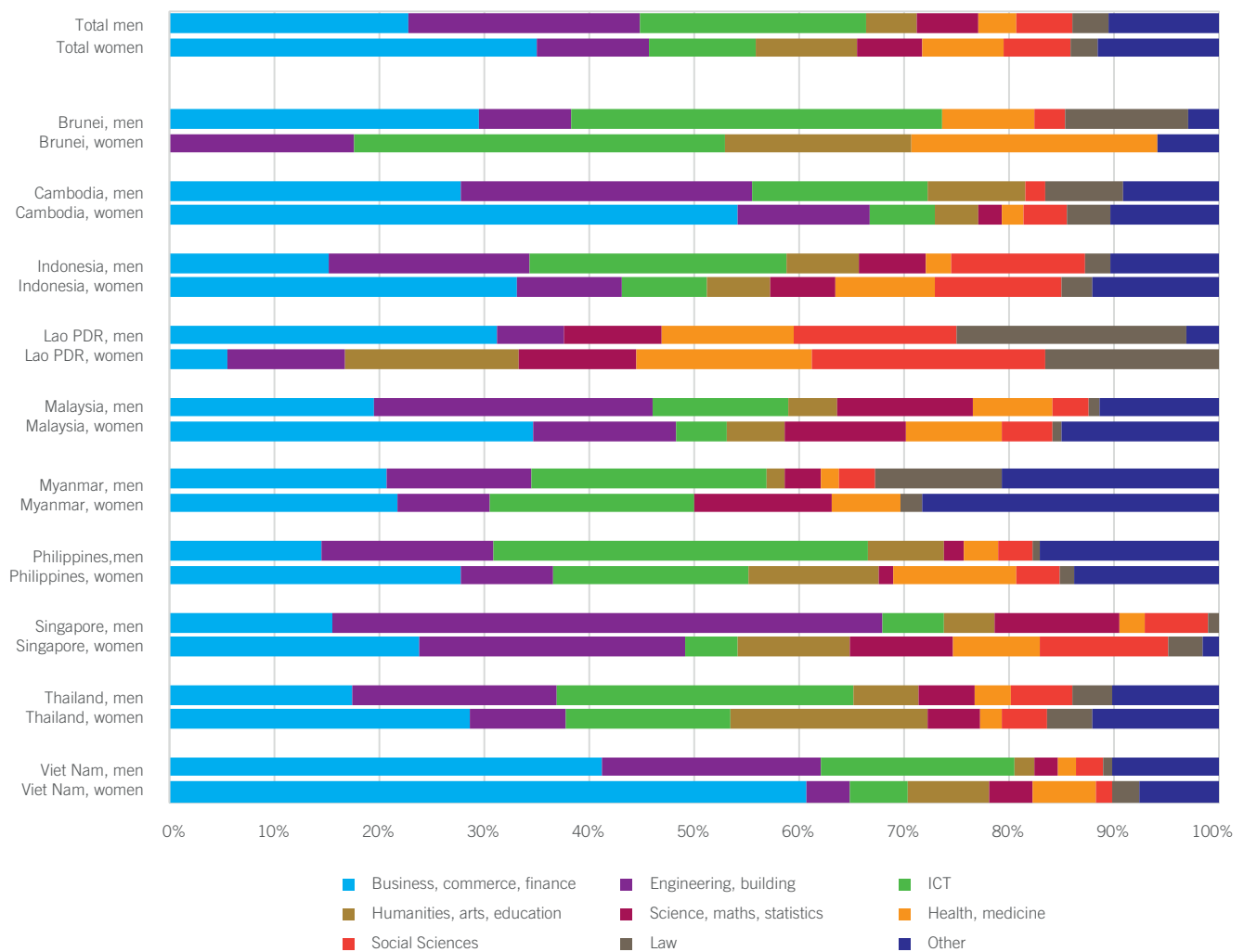


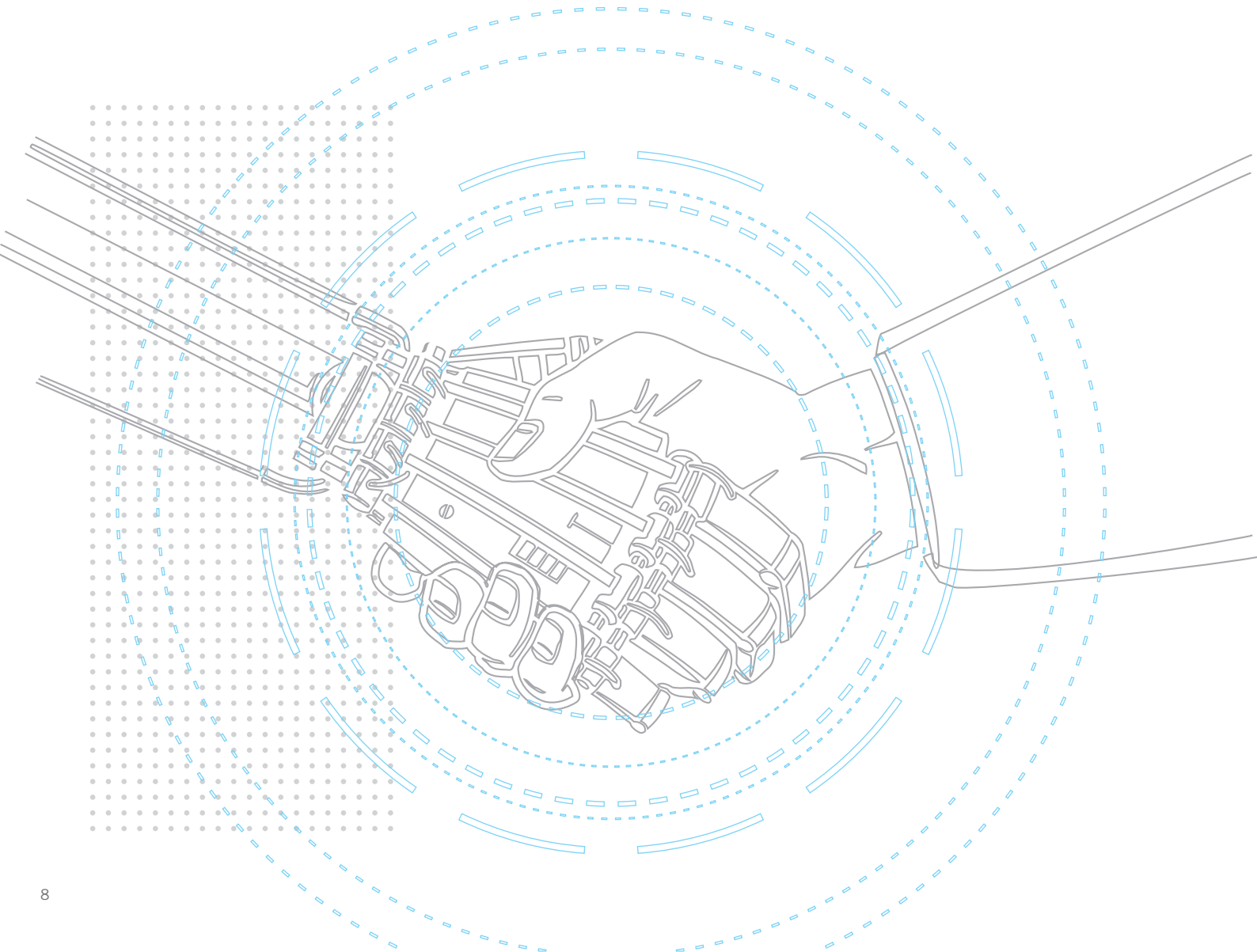
Figure 5. Student survey sample by Member State, sex and field of study



## 1.3 Stakeholder interviews

Face-to-face interviews took place during June and November 2015 in six cities: Bangkok, Thailand; Kuala Lumpur, Malaysia; Jakarta, Indonesia; Manila, Philippines; Phnom Penh, Cambodia; and Singapore, Singapore. Interviewees were selected from members of the employers' organizations, representatives from the employers' organizations, the wider business community, policy-makers and trade union representatives. Where possible, the study attempted to interview an employer's organization, trade union and government representative to incorporate tripartite perspectives.

This paper presents the key themes on the changing world of work in ASEAN and how stakeholders' needs might best be met for 2025 and beyond (see appendix D for the full list of interview questions and appendix E for the summary of interviewees).



# TECHNOLOGY IN ASEAN'S MANUFACTURING AND SERVICES SECTORS



## 2.1 Business functions and practices

### ASEAN enterprises are not at the forefront of technological innovation

Businesses' innovative performance in ASEAN – their ability to create new technologies, products or services – reportedly lags far behind other regions of the world. Indeed, recent literature indicates that most ASEAN Member States are not investing in research and development (R&D), except for Singapore and Malaysia. Investment in R&D in Asia and the Pacific has been mainly driven by China, Japan and the Republic of Korea.<sup>7</sup> All ASEAN Member States, with the exception of Singapore, are not using innovation as a core strategy to increase competitiveness and productivity.<sup>8</sup>

The interview data support the literature. Stakeholder interviewees were surveyed on both general business practices and activities related to technology. Overall, stakeholders reported that their businesses relied on technologies and ideas developed mostly overseas. Stakeholders generally perceive ASEAN as a region was a “taker” of technology, rather than its “maker”, lacking the necessary skills or initiative to compete in R&D. Several sectors said their equipment came from foreign investors in Germany, Japan, the United States, and increasingly, China. The Global Competitiveness Index 2014 ranks Germany, Japan and the United States among the top five world's most sophisticated and innovative economies.<sup>9</sup>

Moreover, when asked whether or not enterprises carried out certain functions or activities related to technology, responses revealed they are little practiced in ASEAN. Only 15.7 per cent of the enterprises protect intellectual property (e.g., through copyrights and patents). Only 20.7 per cent said they invested in any sort of R&D.<sup>10</sup> Only 26.6 per cent and 28.4 per cent said they delegate explicit responsibility for upgrading technology and data protection, respectively (these numbers were slightly higher among the manufacturing enterprises compared to services).

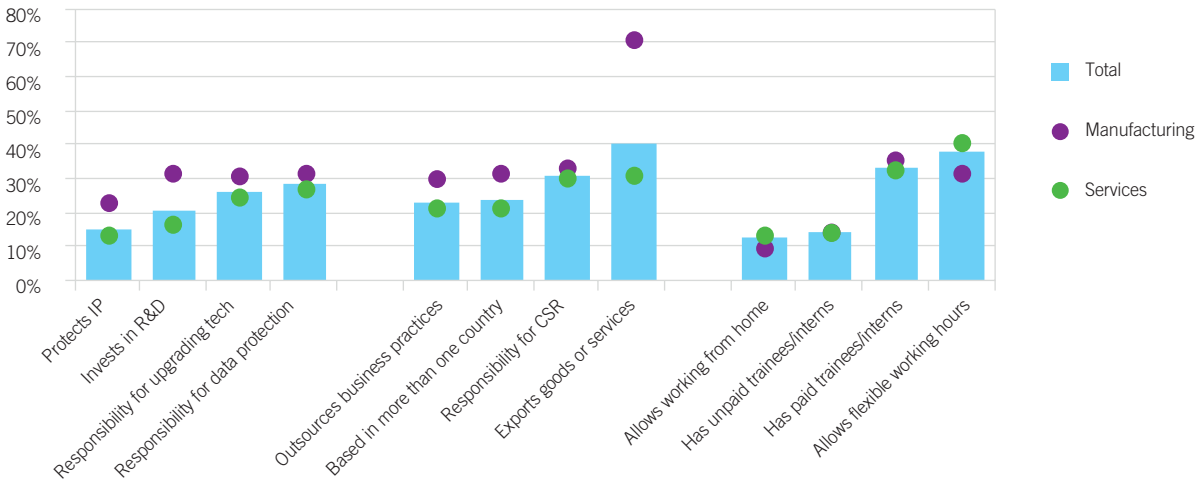
<sup>7</sup> UNESCAP, 2014.

<sup>8</sup> WEF, 2014.

<sup>9</sup> Ibid.

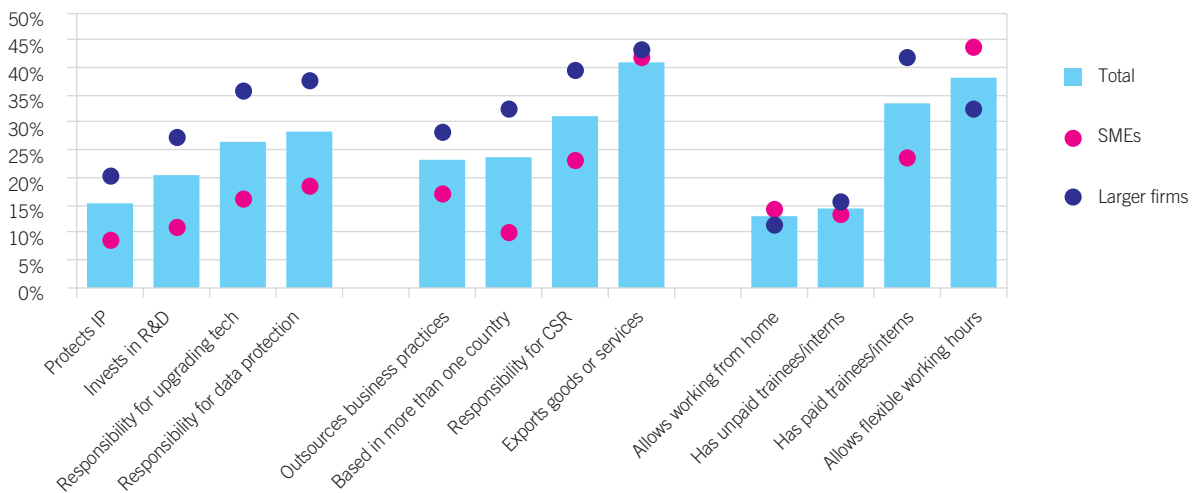
<sup>10</sup> Investment in R&D has been consistently low in ASEAN, from 1996 to 2010; all ASEAN Member States (except Singapore and Malaysia) spent on average between 0.02 and 0.22 of their GDP in R&D (ADB, 2014a).

**Figure 6. Which of the following business practices does your enterprise currently do? (by broad economic activity)**



Comparing the enterprises that engage 50 workers or less (SMEs) with those engaging more than 50 workers, the survey revealed that larger enterprises score significantly higher on almost every business function evaluated. Larger enterprises scored significantly higher among all four of the technology-related functions investigated and all four of those related to internationalization. Larger firms also offered significantly more paid traineeships, apprenticeships, internships and slightly more unpaid ones. Only among functions related to flexible work – allowing working from home and permitting flexible hours – were the figures higher among SMEs, though only slightly so.

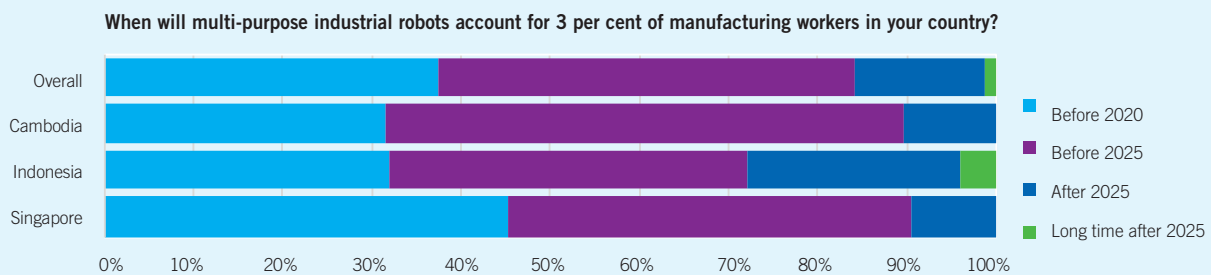
**Figure 7. Which of the following business practices does your enterprise currently do? (by firm size)**



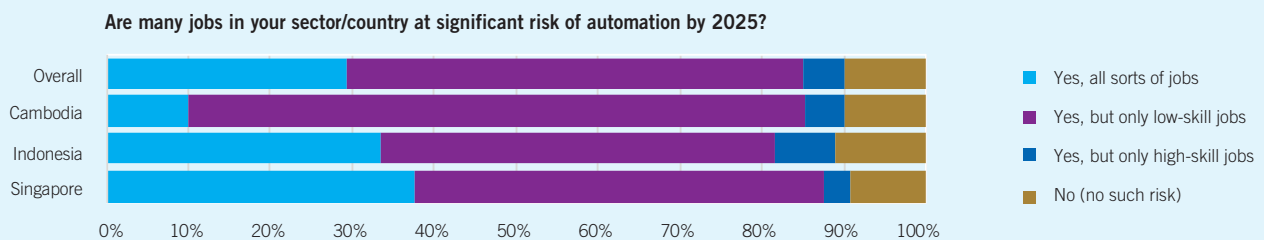
**Box 1. Polling of approximately 80 members of the business community in Cambodia, Indonesia and Singapore**

When validating preliminary survey results in November 2015, a live poll was conducted with executives in attendance. The questions probed the audiences’ understanding of technology advancement in the workplace and what impact this might have on jobs. In total, approximately 80 people answered the polling questions.

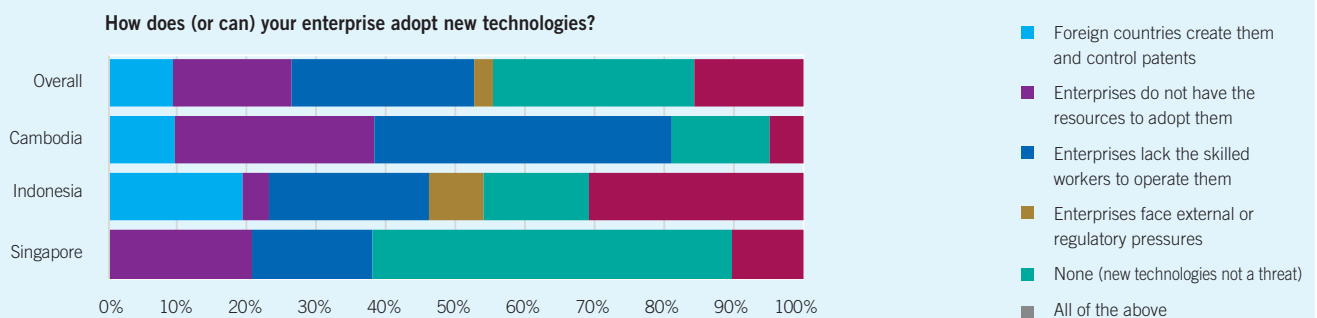
The majority of respondents felt that multi-purpose industrial robots would account for 3 per cent (the current average in economies such as Japan and the Republic of Korea) either before the year 2020 or before 2025.



This finding is echoed in the subsequent question, which measured what jobs (if any) were at risk of automation. The majority believed only low-skilled jobs were at risk of automation.



Responses on technology as a threat varied significantly across the audience, with the majority indicating all of the above, as well as the lack of skilled workers, to operate the technology.



## Marked differences exist between the approaches of ASEAN's emerging and developed economies

Several outliers exist among the individual ASEAN Member States. The region's less developed economies – Cambodia, the Lao People's Democratic Republic and Myanmar – tended to score below the sample average in the majority of functions and practices researched. The most developed economies – Brunei Darussalam, Malaysia and Singapore – tended to score more highly (see figure 8).

Business functions appear to be correlated with macroeconomic performance. However, technological upgrade in the enterprises of developing countries usually begins with adopting or imitating existing and widely used processes in developed economies.<sup>11</sup> This does not mean that developing countries cannot innovate by creating their own technologies. Rather, this indicates that developing countries tend, or prefer, to build on technology made by more advanced economies. Thus, most ASEAN Member States continue to be process imitators or followers, rather than leaders.

Two metrics in the 2014 Global Competitiveness Index, technological readiness and innovation, reveal further insight on ASEAN's relationship with technology and business practices. Technological readiness refers to enterprises' abilities to adopt existing technologies to improve productivity. Developed countries are in general more ready to adopt new technologies and innovate compared to less developed countries. In terms of technological readiness, it is worth noting that both Malaysia and Singapore rank highly, which is consistent with their levels of investment in R&D.

**Table 3. ASEAN Member States technological readiness and innovation from the Global Competitiveness Index**

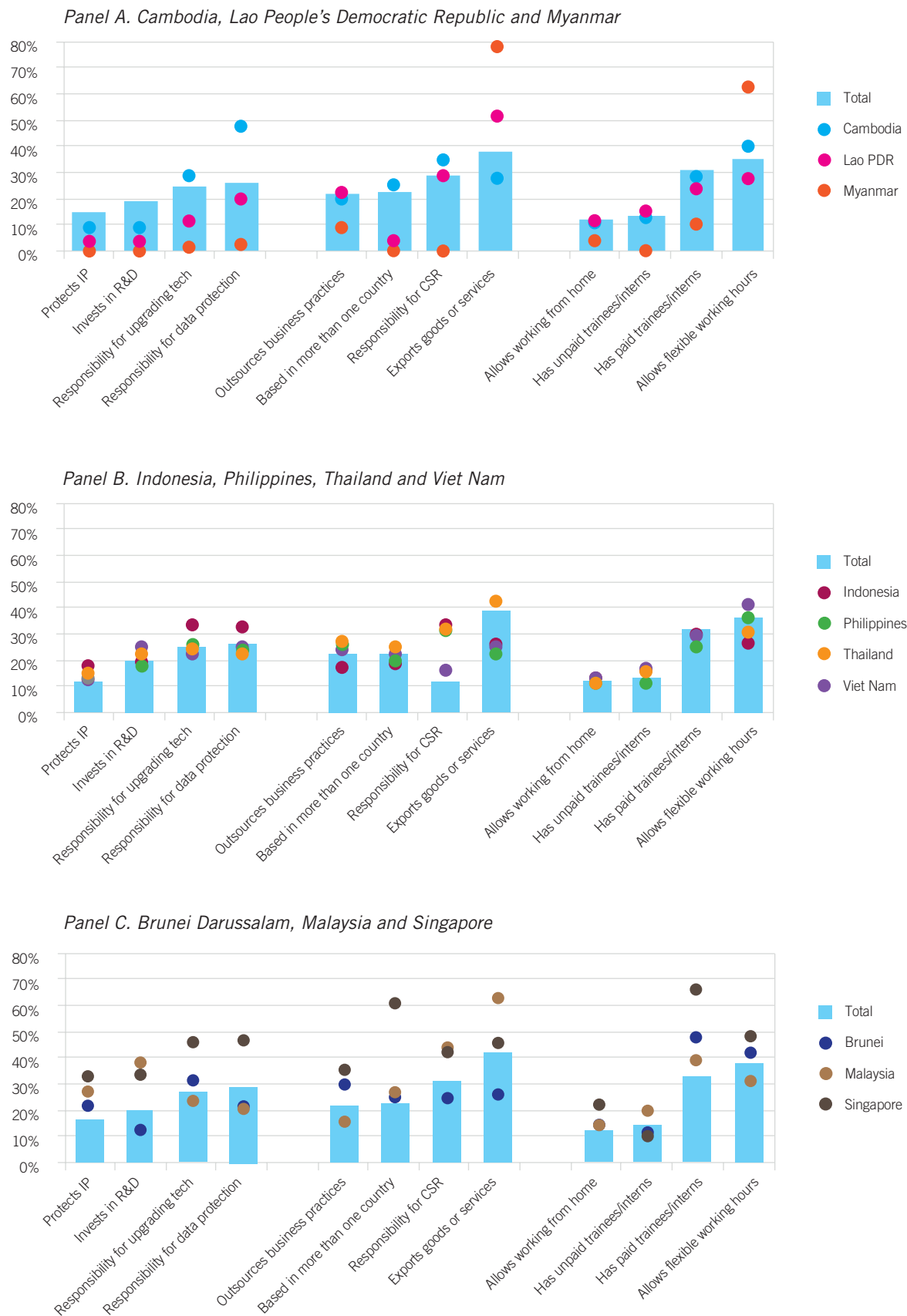
Member State	Technological readiness	Global rank	Innovation	Global rank
Singapore	6.09	7	5.18	9
Malaysia	4.18	60	4.67	21
Thailand	3.94	65	3.28	67
Indonesia	3.58	77	3.93	31
Philippines	3.78	69	3.48	52
Viet Nam	3.12	99	3.12	87
Lao People's Democratic Republic	2.83	115	3.14	84
Cambodia	3.02	102	2.79	116
Myanmar	2.07	144	2.34	138

Source: Adapted from WEF, 2014.

Note: World Economic Forum calculations exclude Brunei Darussalam. The Competitiveness Index ranges from zero to seven.

<sup>11</sup> ADB, 2014a.

**Figure 8. Which of the following business practices does your enterprise currently do? (by Member State)**



In a study examining East Asia, South-East Asia and South Asia, it was found that larger enterprises are more likely to upgrade their technology compared to SMEs, with more investments in technology occurring if the company was larger.<sup>12</sup> Several factors helped explain this relationship. Smaller enterprises tend to be more risk averse than larger enterprises; smaller enterprises face more difficulties with investing financial resources into new technologies; and the larger the enterprise, the easier it is to spread the fixed costs of investments over a greater volume of output.

Moreover, lower-income countries face greater challenges in innovating. For example, in stakeholder discussions, it was reported that in Cambodia, there is not very much innovation taking place and SMEs lack a certain dynamism. Between 2000 and 2014, Cambodian nationals filed 343 patent applications, none of which were granted during this period.<sup>13</sup> Some explanation can be inferred. The incentive to innovate can be dampened because intellectual property is not very well protected, and enterprises in Cambodia can be very quick to copy the successful model of a competitor. Moreover, many SMEs reportedly face barriers to getting patents, acquiring certain types of licences to implement R&D and benefiting from innovation due to corruption.

## 2.2 Essential technologies

To understand the extent to which and what kinds of technology enterprises in ASEAN rely on, the survey asked enterprises to identify technologies essential to their business operations.

Manufacturing enterprises mainly relied on hand tools (46.9 per cent), power tools (53.9 per cent) and automation (42.1 per cent) in their day-to-day work. Around two-fifths also relied on their company website and the Internet, while upwards of three-fifths depended on e-mail, mobile phones, computers and laptops.

Among the services enterprises, many more relied on online tools such as company websites, Internet browsers, search engines, e-mail, online transactions and data protection. Service enterprises tended to rely more on hardware, such as desktop/laptop computers and mobile phones in their day-to-day work.

Among the other essential technologies enterprises named, many reported reliance on social media, digital cameras and video equipment, as well as specific machines and industrial equipment related to individual business needs. A large number also reported reliance on international distribution, logistics and e-commerce solutions (a number specifically named the company Sky Net) to carry out online transactions and track the transit of documents and parcels throughout their value-chain.<sup>14</sup>

Stakeholder respondents reported that new technology made various business practices more efficient and enabled higher value-added tasks to be performed by more workers than before. These have quickly become indispensable to businesses adopting them. Online transactions software and safeguards, for example, have vastly increased the efficiency of enterprises' sales, sourcing and human resources functions. New software has greatly simplified data analysis, reducing the skill level required to collect, clean and analyse data. This has helped streamline numerous business functions. Various design and quality-control functions are also now being modelled in a virtual space using computers, eliminating the need in some cases for hard-copy prototypes or mock-up designs.

<sup>12</sup> ADB, 2009.

<sup>13</sup> WIPO, 2015a.

<sup>14</sup> See: [www.skynet.net/x.aspx?x=services](http://www.skynet.net/x.aspx?x=services).



Commenting on the very tangible benefits of automation for auto parts manufacturing, Mr Renato Almeda, Vice President of Yazaki-Torres Manufacturing, says:

“Before you had to check the quality of a wiring harness by pressing all sorts of buttons. Now after the product has been assembled it is put onto an inspection table and you just have to press the inspection machine and you know straight away which are correct and which are faulty. All of this has been developed gradually over the years. It has reduced significantly the amount of time it takes to make the product and it has improved competitiveness drastically.”

## 2.3 Barriers to technological take-up

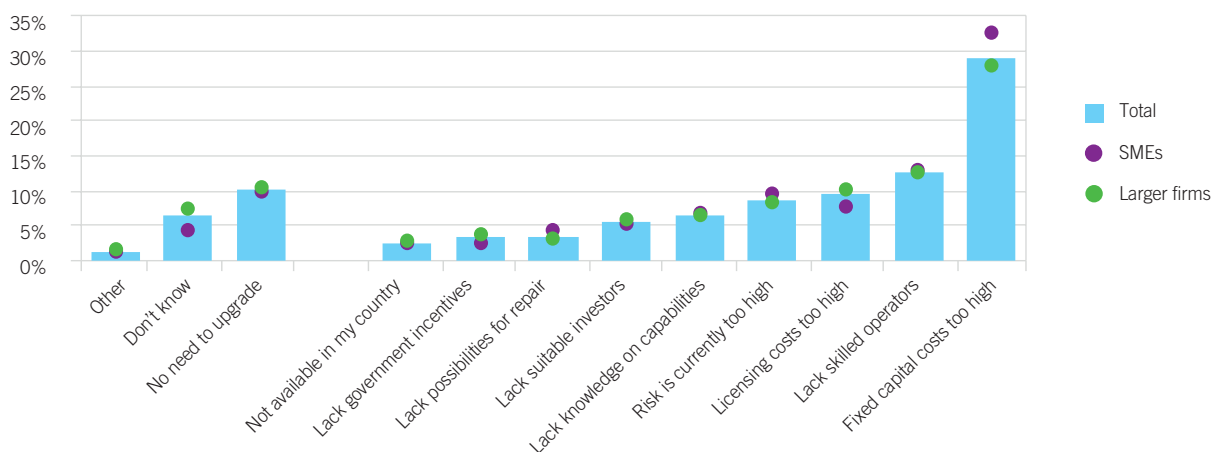
### Nearly 30 per cent of enterprises report affordability as the biggest barrier to technology uptake

Enterprises were asked what they perceived was the single biggest barrier to upgrading their current technologies. By and large, the biggest barrier was cost: 28.9 per cent reported fixed capital costs were their greatest barrier, while an additional 12.5 per cent said they lacked skilled operators to use new technologies and almost 10 per cent reported that the relevant licencing costs were too high. For services and larger enterprises, these three factors are the greatest barriers to uptake technology. For manufacturing enterprises and SMEs, other factors including the high risk involved in such investments and the lack of need to upgrade were also seen as barriers. These responses produce an unequivocal result. While the costs of buying or leasing technology, reportedly, are the biggest barrier to its uptake by enterprises in ASEAN, the lack of available skilled workers to operate new technologies also impacts on enterprises' technological take-up.

An additional barrier reported was the lack of suitable investors and government incentives. Relatively very few enterprises cited the availability of technology, repair difficulties, maintenance difficulties or government incentives around new technologies as significant barriers to their uptake.

**Figure 9. What is currently the single biggest barrier your enterprise faces to upgrade its technology?**

*Panel A. According to broad economic activity*



Panel B. According to firm size

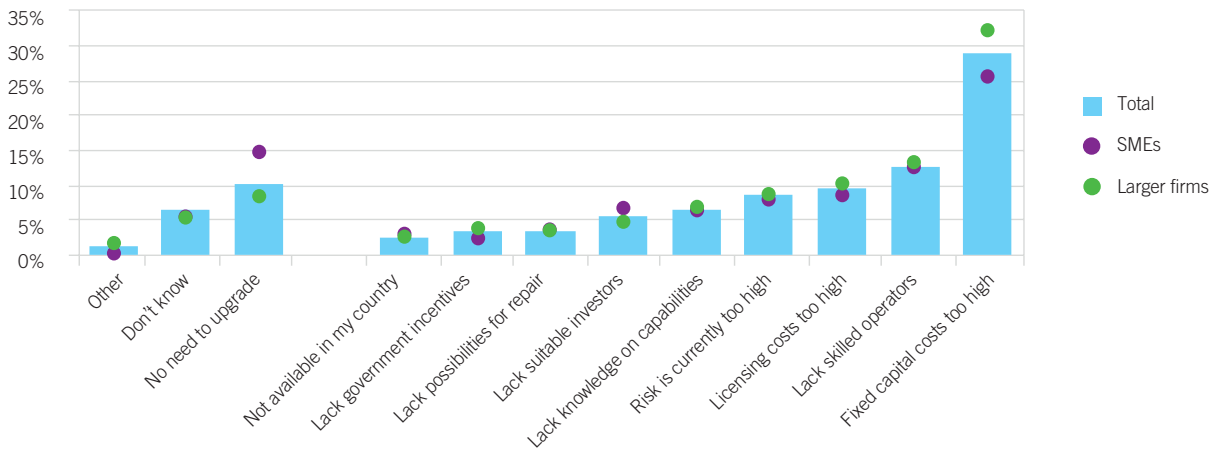
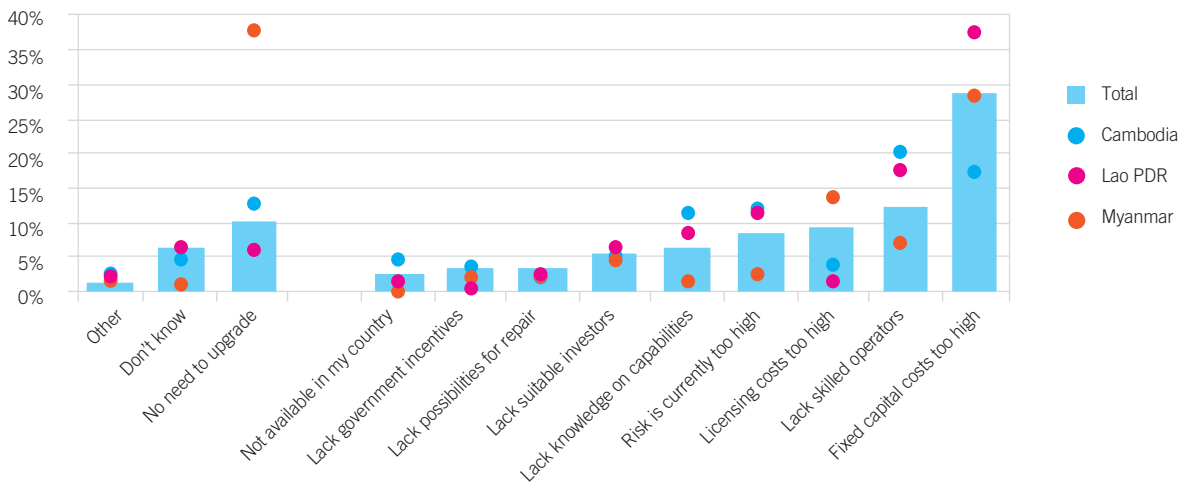
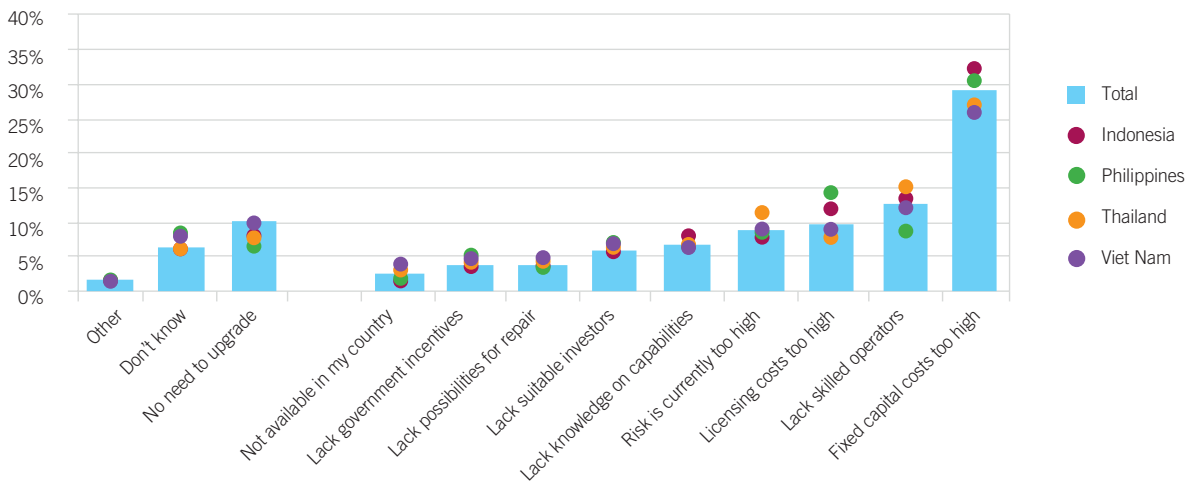


Figure 10. What is currently the single biggest barrier your enterprise faces to upgrade its technology? (by Member State)

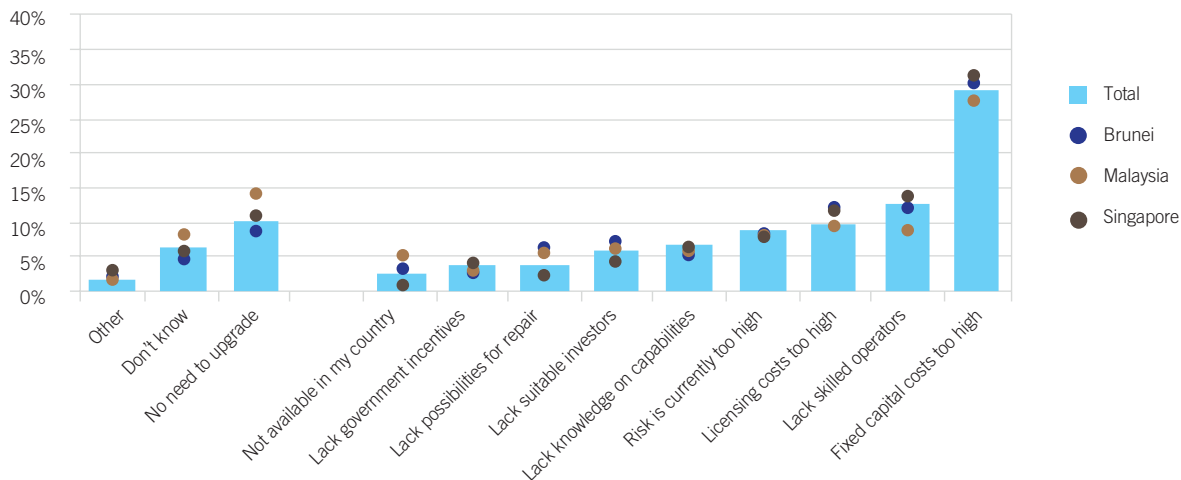
Panel A. Cambodia, Lao People's Democratic Republic and Myanmar



Panel B. Indonesia, the Philippines, Thailand and Viet Nam



Panel C. Brunei Darussalam, Malaysia and Singapore



## However, some ASEAN Member States are investing more than others

Within ASEAN, Singapore, Thailand and Malaysia are exporting high skill and technology intensive manufactured goods. Singapore accounts for half of ASEAN's high skill and technology intensive manufacturing exports, followed by Thailand (19.6 per cent) and Malaysia (15.7 per cent).<sup>15</sup> When looking at robotics sales, Asian countries are investing more in robotic technology. In Asia and the Pacific, sales of robots increased by 41 per cent from 2013 to 2014, with 139,300 industrial robots sold in 2014. These sales accounted for almost two-thirds of global industrial robot sales. The increased use of robots in manufacturing at the regional level is consistent with worldwide trends. In fact, 2014 represented the highest score of robot sales, with 229,261 units sold. The International Federation of Robotics (IFR) (2015) estimates that 400,000 industrial robots will be sold in the world solely in 2018, and 69 per cent would be acquired by enterprises in Asia and the Pacific.

In 2014, robotic supplies increased in Indonesia, Malaysia, Singapore and Viet Nam. Thailand has increasingly demanded robots, and its annual demand of robots ranked eighth in the world in 2014, with a stock estimated at 23,893 units.<sup>16</sup> As for sector-specific consumption, the automotive and electronics industries have been the main drivers of robot growth since 2010. In 2014, the automotive and electronics industries, respectively, consumed 43 per cent and 21 per cent of total supply of industry robots.<sup>17</sup> These figures have direct implications for ASEAN, in which both industries contribute considerably to countries' gross domestic product (GDP) and exports. Robots can quickly take on larger roles in these industries.

<sup>15</sup> ILO and ADB, 2014.

<sup>16</sup> IFR, 2015.

<sup>17</sup> Ibid.

# SKILLS AND PERSONAL ATTRIBUTES



## 3.1 Skills in ASEAN

### Technology is driving the skills needs up across sectors

Upgrading skills stood out as a recurrent theme throughout stakeholder responses. Many reported that technology drove up the skills required within the workplace. In the future, this challenge could be exacerbated. Indeed, skills shortages and mismatches remain an ongoing challenge worldwide. In 2020, the global labour market will face a potential surplus of 95 million low-skilled workers and a potential shortage of approximately 38 to 40 million high-skilled (or college-educated) workers.<sup>18, 19</sup>

Employers in ASEAN face shortages of hard skills and soft skills. Hard skills include English language proficiency, computer related skills and other technical skills; soft skills include time management, interpersonal communication, creative thinking, teamwork and leadership.<sup>20</sup> Soft skills such as teamwork, decision making, independent communication and cooperation, among others, are increasingly in high demand in the manufacturing enterprises of developed countries.<sup>21</sup>

### ASEAN today has more skilled graduates than ever, but female STEM take-up remains low

The number of tertiary graduates has risen manifold throughout ASEAN over the past two decades.<sup>22</sup> Tertiary education includes short-cycle programmes, bachelor's degrees and their equivalents, master's degrees and doctoral degrees.<sup>23</sup> The gross enrolment ratios in tertiary education in figure 11 report the total number of people enrolled in tertiary education in each Member State as a share of the total population of the five-year age group that has finished secondary education. While these numbers are still relatively low in Brunei Darussalam and in ASEAN's least-developed Member States, gross enrolment in tertiary education was around one third in Indonesia and Malaysia in 2012 and over one half in Thailand. By and large, however, gross enrolment in tertiary education has seen significant increases in almost every Member State over the past 20 years or so, gaining more than 20 percentage points in Indonesia, Malaysia and Viet Nam, and 31.1 percentage points in Thailand since 1995.<sup>24</sup>

<sup>18</sup> McKinsey, 2012.

<sup>19</sup> Globally, CEOs are looking for talent from other regions, industries and demographics due to perceived skills shortages (PwC, 2015a). Managers frequently experience difficulties finding talented workers for various reasons: scarce labour supply, insufficient technical competencies, lack of experience and lack of soft skills (Manpower Group, 2015). Having a skilled, educated and adaptable workforce has become so important that managers and CEOs in 83 countries reported it as being the most important outcome of society (PwC, 2016).

<sup>20</sup> Aring, 2015.

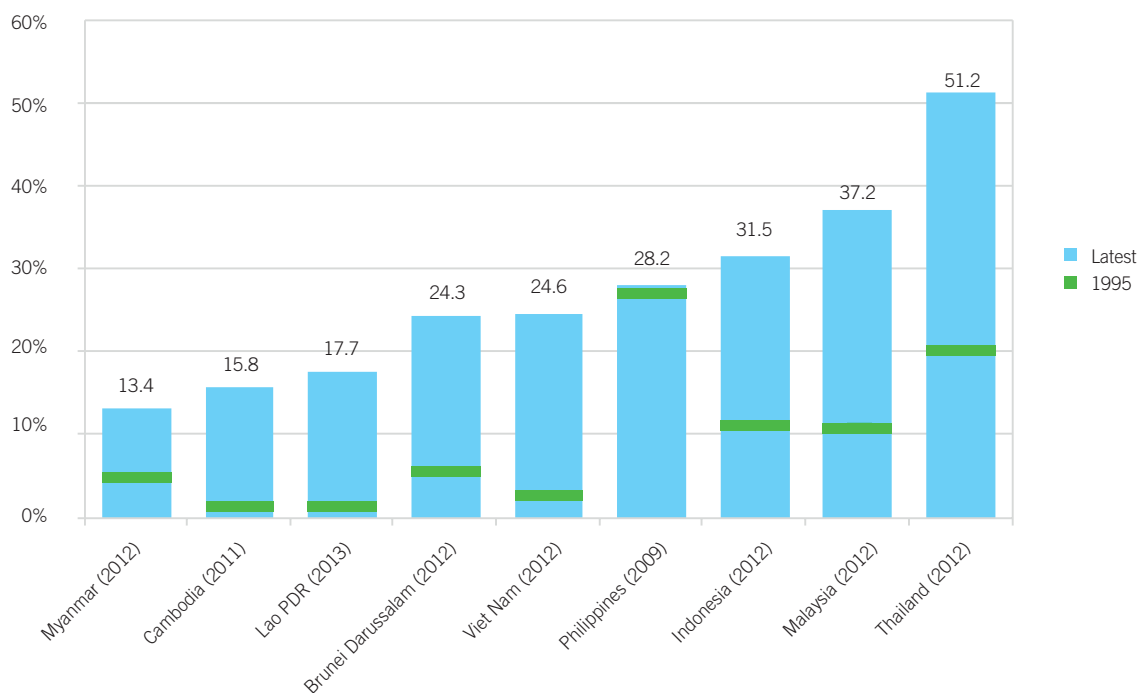
<sup>21</sup> Handler and Healy, 2009.

<sup>22</sup> Tertiary graduates encompassed students enrolled from International Standard Classification of Education (ISCED) level 5 to level 8. Tertiary programmes include short cycle tertiary education programmes (level 5), bachelor's degrees or equivalent (level 6), master's degrees or equivalent (level 7) and doctoral degrees or equivalent (level 8).

<sup>23</sup> OECD, EU and UNESCO-UIS, 2015.

<sup>24</sup> In the Philippines, this ratio only rose from 27.4 to 28.2 between 1995 and 2009, according to the latest data from UNESCO. Nevertheless, this might be a testament to the consistency of the Philippines' higher education system and its strong performance over time.

**Figure 11. Gross enrolment in tertiary education, ASEAN Member States, 1995 and latest (per cent)**



Notes: Latest years for each Member State are given in parentheses. The earlier figure for Brunei Narussalam is for 1994. Data for Singapore were not available. Gross enrolment is the ratio of total enrolment, regardless of age, to the population of the age group that officially corresponds to the level of education shown.

Source: UNESCO-UIS, 2016.

Moreover, based on the most recently available data, the highest enrolment in tertiary education for all ASEAN Member States was in the social sciences, business, and law, ranging between 25 per cent and 53.5 per cent of total enrolment.<sup>25</sup> The second highest enrolment in ASEAN Member States were engineering, manufacturing and construction in Malaysia, Singapore, Thailand and Viet Nam; science in Brunei Darussalam, Cambodia and Malaysia; and education in Indonesia, the Lao People’s Democratic Republic and the Philippines. The preference for business, social sciences and STEM programmes over services, humanities and arts, and agriculture-related programmes is well defined in the region. These trends in ASEAN are consistent with global trends of enrolment in tertiary education by field of study. For example, in 2015, the most popular undergraduate majors in selected 650 top-tier universities were business and marketing, social sciences, engineering, and business administration and management.<sup>26</sup> Table 4 presents the distribution of tertiary education enrolment by field of study.



<sup>25</sup> UNESCO-UIS, 2016.

<sup>26</sup> Forbes, 2015

**Table 4. Distribution of tertiary education enrolment by field of study in ASEAN Member States (expressed as percentages, most recent years)**

Member State	Agriculture	Education	Engineering, manufacturing and construction	Health and welfare	Humanities and arts	Unspecified	Science	Services	Agriculture
Brunei Darussalam	...	10.8	13.8	4.3	20.9	3.3	21.1	0.8	25.0
Cambodia	3.6	1.2	2.3	3.0	14.3	2.1	16.4	5.2	51.7
Indonesia	3.3	26.4	8.7	11.0	1.8	...	12.1	2.5	34.0
Lao PDR	5.4	20.0	6.7	3.8	13.3	...	6.0	2.0	42.8
Malaysia	2.1	10.6	21.1	10.0	8.7	...	13.0	5.2	29.4
Myanmar	0.9	0.6	17.1	4.1	18.8	0.0	23.4	0.4	34.7
Philippines	2.7	17.5	12.9	6.4	2.1	6.3	13.5	6.3	32.3
Singapore	0.1	2.5	25.4	6.7	9.4	0.3	14.5	1.5	39.6
Thailand	2.4	9.7	9.9	5.8	7.4	1.0	8.2	1.9	53.5
Viet Nam	5.8	23.7	24.1	5.0	3.9	2.6	...	3.9	31.0

Note: ... = data not available. Based on most recent data for ASEAN Member States: Cambodia (2004), Thailand (2011), Myanmar and Singapore (2012), Indonesia, Malaysia and Viet Nam (2013), Brunei Darussalam, Lao People's Democratic Republic and the Philippines (2014).

Source: UNESCO-UIS, 2016.

Gender differences in tertiary education enrolment are evident in ASEAN (also consistent with global trends). According to UNESCO (2015), worldwide, women are underrepresented in STEM fields within tertiary education and in labour markets. Indeed, science, engineering, manufacturing and construction were male dominated fields of study in most ASEAN Member States. Female students mostly enrolled in non-STEM programmes such as education, health and welfare, and humanities. However, a large proportion of women also studied social sciences, business and law. It is worth noting that gross female enrolment in tertiary education was relatively high in Brunei Darussalam, Malaysia, Myanmar, Singapore and Thailand. Cambodia accounts for the lowest rates of female enrolment in ASEAN.

Above all else, despite gender disparities in STEM enrolment among ASEAN Member States, data show that the number of tertiary graduates among the youth in virtually every Member State has risen very rapidly in the recent past. By and large, this signals a positive trend for employers insofar as it expands the pool of skilled workers they have access to, with potential positive effects on labour productivity, the generation of new ideas and the generation of new business opportunities. Yet, ASEAN enterprises continue to report skills shortages as a challenge to productivity and growth. The enterprise survey and stakeholder interviews conducted for this research delved further into the skills and personal attributes that remain critical for them.



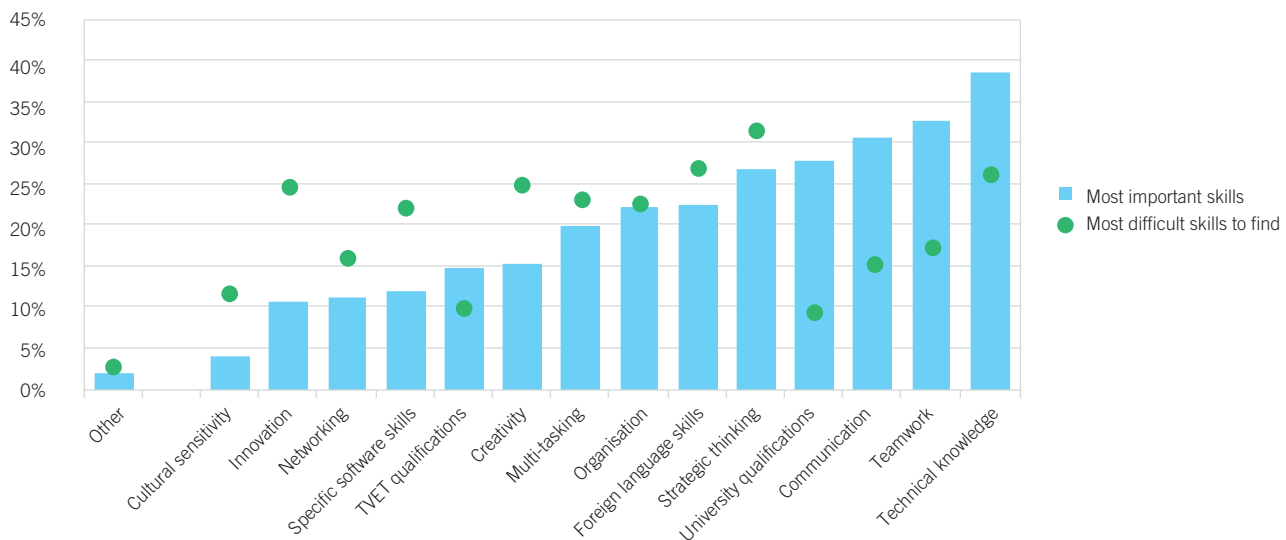
## 3.2 Critical skills

Enterprises were asked to identify the skills they currently think are most critical in terms of both their overall importance and how difficult they are to find. The respondents chose up to three responses in each case from a list of skills provided.

Among the skills considered most important, the most frequently identified skill was technical knowledge – cited by 38.6 per cent of respondents. Both teamwork and communications skills were also viewed as highly important. University qualifications featured much higher up than technical vocational and educational training (TVET) qualifications.

Among the skills considered the most difficult to find, topmost was strategic thinking and problem solving, followed closely by foreign language skills, technical knowledge and soft skills (which includes creativity and innovation).<sup>27</sup>

**Figure 12. Which types of skills are currently the most critical for your enterprise?**



Technical knowledge was identified by a higher proportion of manufacturing than services enterprises, though neither group found this skill more difficult to find than the other. Services enterprises tended to place more importance on communication skills and university qualifications though, again, they and manufacturing enterprises found these equally difficult to find. Manufacturing enterprises placed equal importance on university qualifications as they did on TVET qualifications.

<sup>27</sup> Foreign language skills showed the greatest variation among the most critical skills identified for enterprises in different Member States. While around one third or more of those in Cambodia, the Lao People's Democratic Republic and Viet Nam listed foreign languages among their most important skills, only a tenth or less did so in Brunei Darussalam, Singapore, Myanmar and the Philippines. Thailand, Indonesia, and several other Member States also listed foreign language skills among the most difficult to find.

## Challenges vary significantly across the ASEAN Member States

Several stakeholders from Cambodia felt their labour market was experiencing an excess supply of skilled graduates. They argued that the current demand among young business graduates for white-collar (or office, cubical-oriented) jobs was too high and could not be met under the current labour market conditions. Cambodian stakeholders also reported a shortage of skilled engineers, technicians and skilled manual workers due to a lack of interest in blue-collar (manual labour) jobs among youth, as well as a shortage of STEM tertiary education graduates. More than half of the tertiary students in Cambodia enrol in social sciences, business and law programmes, while tertiary enrolment in science, engineering, manufacturing and construction programmes accounts for only 18 per cent.<sup>28</sup> Similar sentiments were shared by other Member States.

Current labour shortages in Cambodia are reportedly felt among some medium-skilled occupations such as middle managers. Even though the Government, the private sector, and the Cambodian Federation of Employers and Business Associations are working together to promote such skills among the workforce, stakeholders felt more could be done to improve this medium-skill shortages. Corroborating stakeholders' sentiments, public expenditure on education in Cambodia, the Lao People's Democratic Republic, Indonesia and the Philippines accounts for less than 3 per cent of their national GDPs.<sup>29</sup>

The Eleventh Malaysia Plan 2016-2020 contains strategic goals around human capital development and how to make education more structured, formal and responsive to employers' needs. This includes transforming TVET to continually standardize professional categories and their skill requirements. However, vocational training and vocational jobs in general are reportedly unpopular in Malaysia. Thus, the challenge faced by several Member States appears to be twofold: The quality of vocational training courses should be raised as well as their appeal to young workers.<sup>30</sup>

Other research echoes these sentiments, demonstrating that a high proportion of young people believe vocational and skills development programmes are very helpful for getting a job, but only a small proportion think these types of programmes are highly valued by society.<sup>31</sup>

## Young people as digital natives

Young people today are sometimes labelled "digital natives" because many have grown up with digital technologies at their fingertips. They therefore enjoy a certain affinity towards, or aptitude for, using computers and other devices in their professional and social lives. Digital natives are said to be resourceful with online media and tools, forming a core part of the digital economy as both its primary consumers and potential producers. The impact this technological literacy can have on labour productivity is also quite tangible, according to Dr Federico Marquez Jr., Senior Vice President of the Human Resources Division at St. Luke's Medical Center in Manila:

"Now because of all these technologies there is so much information there. The current generation can easily move from one media to another – from one subject to another – and be able to understand it all much better... It's like channel-hopping. Young people simply have the knack of moving from one channel to the other and can simply understand everything that's going on..."

<sup>28</sup> UNESCO-UIS, 2016.

<sup>29</sup> ILO and ADB, 2014.

<sup>30</sup> How exactly this might be done, however, is a difficult question altogether.

<sup>31</sup> McKinsey, 2013b; McKinsey, 2014.



Nevertheless, some interviewees argued that workers' skills in an increasingly digital economy are failing to keep pace with the current technological capabilities as well as the demand from employers. Ms Tina Wu, General Manager of International Computer Driving Licence, said, "This has largely to do with the classical challenge of you not knowing what you don't know."

According to some interviewees, digital nativeness among the younger generations will not be enough by itself to bridge this gap. Ms Tina Wu cautioned strongly against the "digital native fallacy":

"There is an important distinction – that of lifestyle skills versus workplace skills. The younger generations grew up with applications and social media and are hence very familiar with them. These are the lifestyle skills. But when it comes to productivity tools – the workplace skills – they appear to be unaware and unequipped."

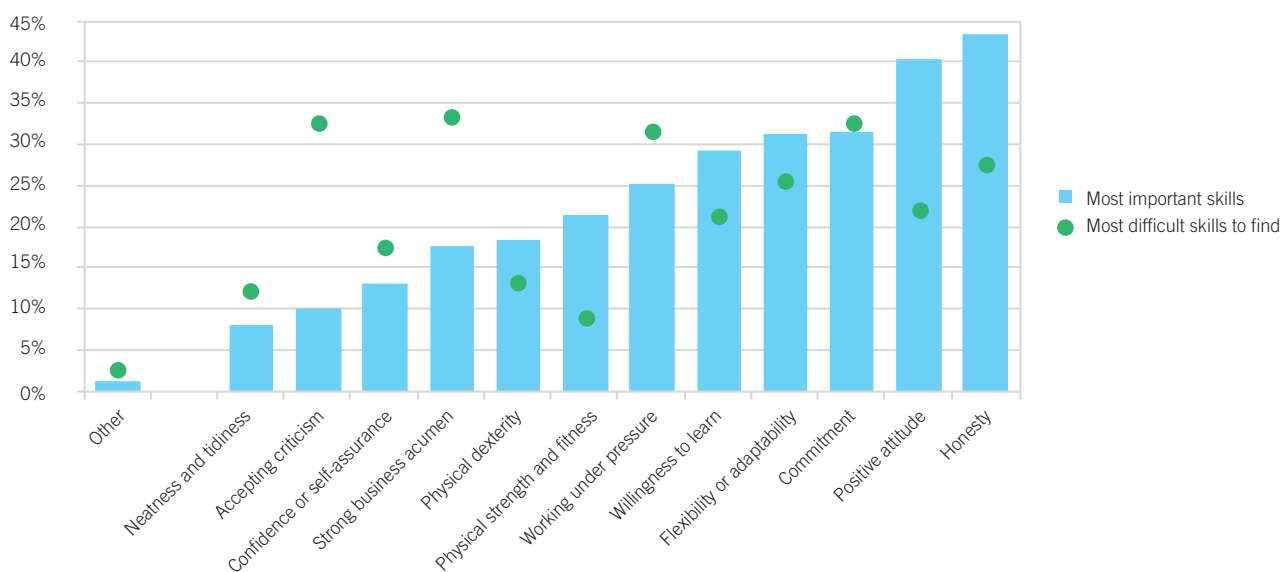
### 3.3 Critical personal attributes

#### Honesty and a positive attitude were among the personal attributes that were the most critical and difficult to find

Enterprises in the survey were asked to identify the types of personal attributes among workers they think are most critical in terms of both their overall importance and how difficult they are to find. The respondents chose up to three responses in each case from a list provided.

The highest ranking attributes considered most important were honesty and a positive attitude. While personal attributes of strong business acumen and accepting criticism were not deemed especially important, they were judged to be the most difficult ones to find. Commitment and the ability to work under pressure were also identified as difficult to find.

**Figure 13. Which personal attributes are currently the most critical for your enterprise?**



Manufacturing enterprises, predictably, placed greater importance on physical strength and physical dexterity than services enterprises. Services enterprises, conversely, placed more importance on honesty, a positive attitude, flexibility and adaptability.

# STUDENTS' ASPIRATIONS AND EXPECTATIONS FROM WORK



## 4.1 Young workers and changing attitudes to work

### Young people are approaching work differently compared to previous generations

Globally, existing research on young workers' expectations shows that they place an emphasis on flexibility, mobility and value-driven workplaces in which their personal values match those of their employers. Young workers also highly value a company's demonstrated corporate responsibility behaviour. While competitive wages and financial incentives continue to be important, a greater emphasis is placed on meaningful and relevant work, as well as more training, development and career progression opportunities.<sup>32</sup> Young workers also have relatively low levels of loyalty towards workplaces, contributing further to high job turnover and exacerbating the already existing skill mismatch in the region.<sup>33</sup>

Throughout the stakeholder interviews, several general points kept recurring. ASEAN's young people reportedly prefer white-collar jobs over manual ones. Many desire to become an employer or entrepreneur rather than to work for someone else. They also desire more of a work-life balance compared with older generations. Above other factors, young people desire freedom in their work because of their resourcefulness and overwhelming access to information and learning opportunities. They are often very confident and headstrong, have a lot of energy, are ambitious to achieve a highly paid and well-regarded position, and seek big responsibilities in their work from an early stage. Many desire work that is fun, meaningful and challenging all at once, and many want to make a positive change. Many young workers simply think differently to their colleagues of previous generations.

Ms Evangeline Chua, Head of Human Resources at Citi Singapore, provided her own experience:

“The younger generations joining the finance and banking industry are highly tech-savvy and are capable of tapping on online resources to find solutions and self-educate. They also tend to be more versatile and ambitious. The drawback, however, is that they become overly anxious and expect swift progression in their careers. As a result, many tend to change jobs without necessarily building up their depth of skill sets and experience.”

<sup>32</sup> PwC, 2015b.

<sup>33</sup> PwC, 2011.

Today's youth are also sometimes described as globally minded or global citizens, unbound by national boundaries as previous generations might have been. Ms Nantana Gajasen, Executive Director of the ASEAN University Network, said:

“Generation Y is overwhelmed with information. They can learn from everywhere in the world – they can study at Harvard or Princeton – to achieve more ambitious goals. That is the way the young generation thinks differently from the previous generations.”

Indeed more young people are travelling internationally to study and advance their professional careers. According to the Institute of International Education (2015), the number international students enrolled in higher education in the United States increased by 72 per cent in the last decade, reaching 974,926 international students in 2014. Surveys conducted with young university graduates show that the majority of them want to pursue their professional careers abroad as a way to enhance their experiences.<sup>34</sup> Developed countries including the Australia, France, the United Kingdom and the United States are the preferred destinations.<sup>35</sup> However, young graduates seem less convinced and somewhat reluctant about the possibility of working in less developed countries to further develop their careers.<sup>36</sup>

## 4.2 Main activity after graduation

### Most students want to work immediately after graduating

Students in the survey were asked what their main activity will be during the first six months after completing their studies. More than three-fifths said they will use that time to work in, or look for, a regular paid job. About 6 to 8 per cent said they will continue on to further study (7.6 per cent), take time out to travel (7.4 per cent), employ others in running their own business (6.5 per cent), or work on their own account (6.4 per cent). Relatively very few said they will volunteer, work in a family business or stay home to fulfil care duties during this time. This is consistent with global trends, as the majority of undergraduate and graduate students from top-tier universities worldwide desire to start working immediately after graduation.<sup>37</sup> The desire to study further is slightly lower than developing economy trends, in which between one tenth and one third of undergraduate graduates from top-tier universities worldwide enrol in graduate degrees after graduation.<sup>38</sup>

Comparing women's answers to those of men, slightly more said they will work or look for a regular paid job in the first six months after graduation, and more women respondents expect to continue their studies or pursue travel during that time. Roughly an equal number of women students will try to run their own business though, slightly fewer women will seek to become self-employed or volunteer during this time.

<sup>34</sup> PwC, 2011; PwC, 2015b.

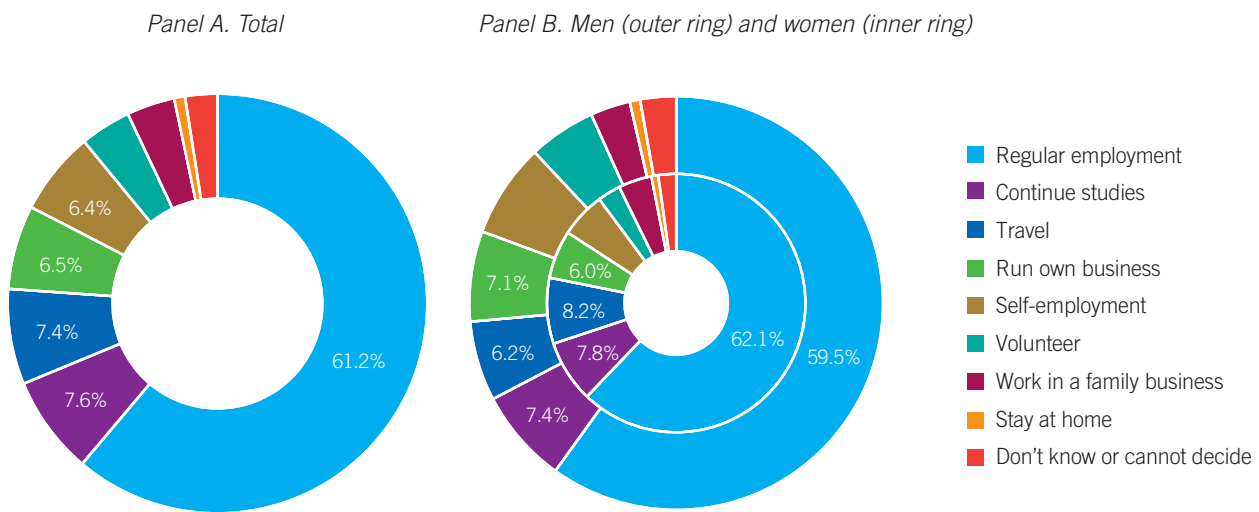
<sup>35</sup> PwC, 2008.

<sup>36</sup> PwC, 2011

<sup>37</sup> Accenture, 2014; Hult International Business School, 2015; MIT, 2015; UNESCO, 2012; Virginia Tech, 2015.

<sup>38</sup> Virginia Tech, 2015; MIT, 2015.

**Figure 14. What will be your main activity during your first six months after graduation?**



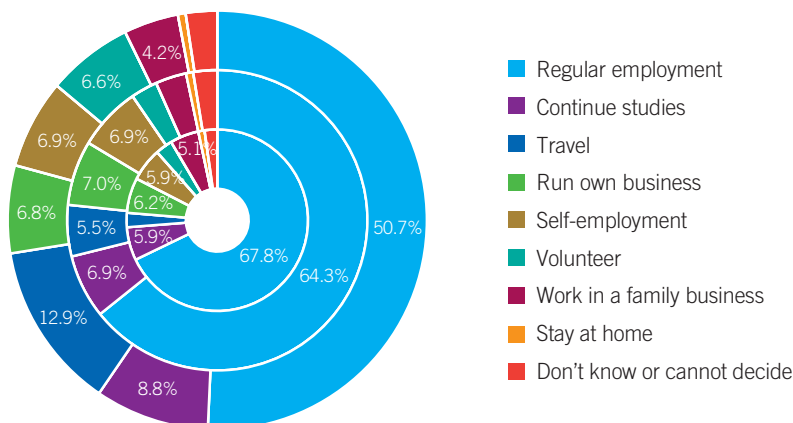
Note: Shares of less than 4 per cent are not labelled.

Disaggregating these findings by the types of institutions attended (top-tier university, lower-tier university and a vocational course) reveals interesting differences. Students in vocational courses, by far, desired regular salaried employment after graduation (67.8 per cent). For top-tier university students, only 50.7 per cent desired seeking regular employment. However, top-tier university students are likely to have greater confidence in their job opportunities and thus, be more at ease to explore alternative avenues after graduation. Many are also likely to come from wealthier economic backgrounds and therefore have greater means to invest in further education, travel and volunteering.

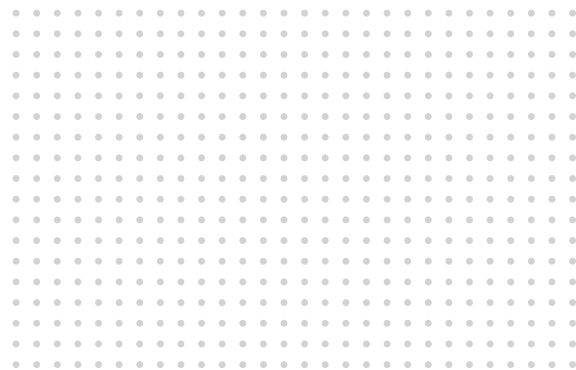


**Figure 15. What will be your main activity during your first six months after graduation? (by education-level)**

Top-tier university students (outermost ring), lower-tier university students (middle ring), and students on vocational courses (innermost ring)



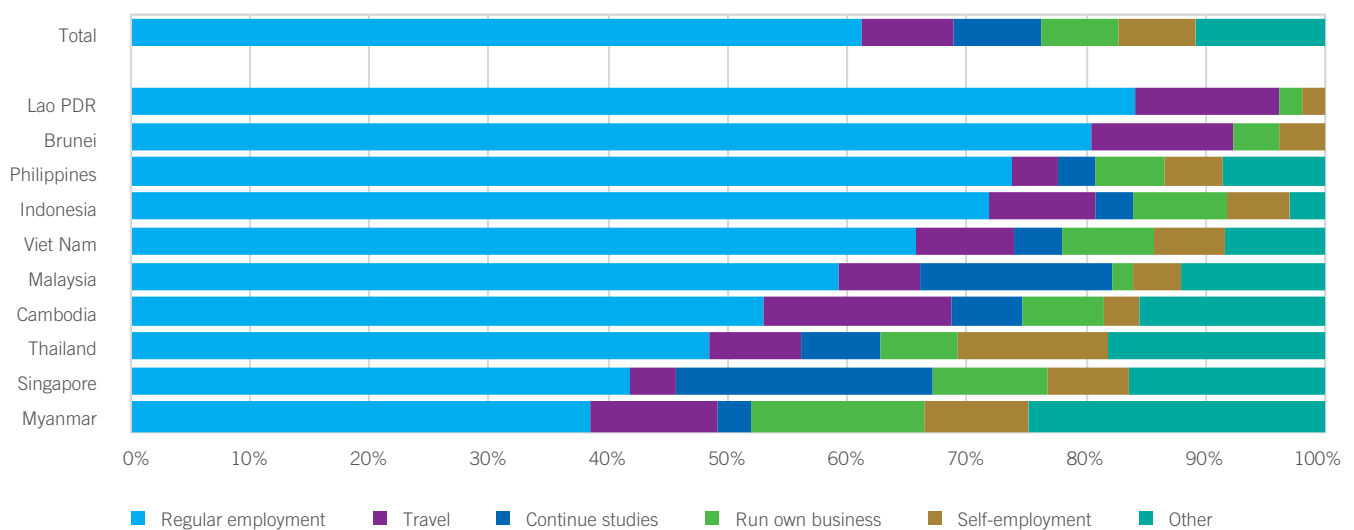
Note: Shares of less than 4 per cent are not labelled.



Examining responses by ASEAN Member States also reveals some noteworthy differences. The biggest shares of students expecting to enter regular salaried employment directly after graduation were from the Lao People's Democratic Republic (84.0 per cent), Brunei Darussalam (80.4 per cent) and the Philippines (73.6 per cent). This contrasts significantly with Singapore and Myanmar, whose shares remained around 40 per cent.

A significant percentage of students in Malaysia (16.0 per cent) and Singapore (21.4 per cent) expect to travel during their first six months after graduation. A larger share in Myanmar seek to run their own business (14.4 per cent). A large proportion of those in Thailand (12.6 per cent) expect to become self-employed.

**Figure 16. Main activities after graduation, total and individual Member States**



## 4.3 Most desired sectors for employment

Among university graduates worldwide, the most popular sectors in which to seek employment are finance and accounting, consulting, marketing, IT (also computer software), engineering and manufacturing.<sup>39</sup> Also, according to 4,364 millennial university graduates,<sup>40</sup> the five most unpopular sectors to work in, solely because of their reputation, were oil and gas, defence, insurance, government and public services, and chemicals.<sup>41</sup>

Research shows that only 30 to 40 per cent of tertiary graduates in developed countries (such as the United States), find jobs in fields that are related to their career choices.<sup>42</sup> Many graduates end up underemployed, performing jobs that do not require the skills or qualifications earned during their studies. A survey conducted by McKinsey highlights that only 38 per cent of 5,300 European graduates believe that their studies improved their chances of getting a job.<sup>43</sup> Increasing competition among graduates and skills mismatches make it difficult for graduates to find relevant work. This mismatch reveals an important difference between students' aspirations and the reality of what labour markets seek and offer.

<sup>39</sup> GMAC, 2015; MIT, 2015; Ball, 2015.

<sup>40</sup> Researchers and commentators use birth years ranging from early 1980s to around 2000 to define millennials. They are also known as Generation Y or Gen Y.

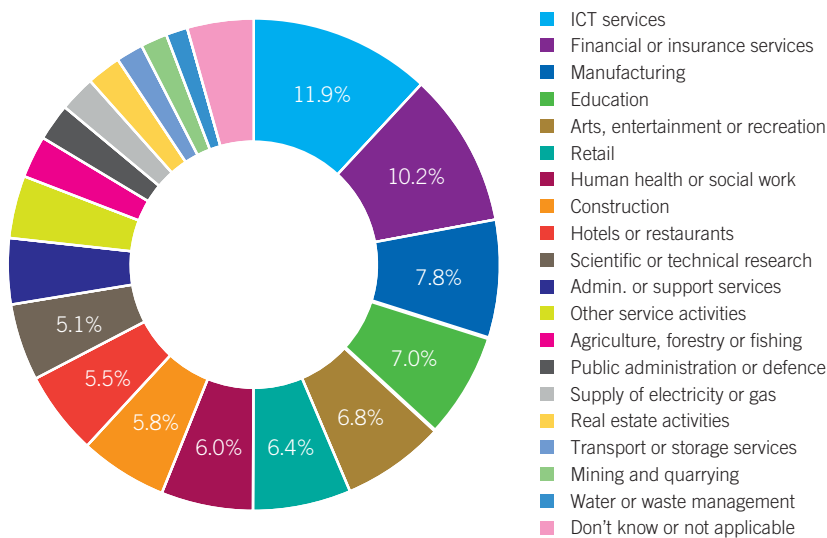
<sup>41</sup> PwC, 2011.

<sup>42</sup> Marshall Crotty, 2012; Plumer, 2013.

<sup>43</sup> McKinsey, 2014.

To understand the perspectives of students in ASEAN, students were asked to identify the sector in which they most wanted to work after graduation. The most desired sector was ICT services, closely followed by financial or insurance services. Conversely, agriculture, forestry or fishing activities acquired only 2.8 per cent students' top preferences, while six other sectors gained even fewer than that: public administration, energy, housing, transport, mining, and (last of all) water and waste management.<sup>44</sup>

**Figure 17. In which economic sector would you ideally want to work when choosing your first employment?**



Note: Shares of less than 5 per cent are not labelled.

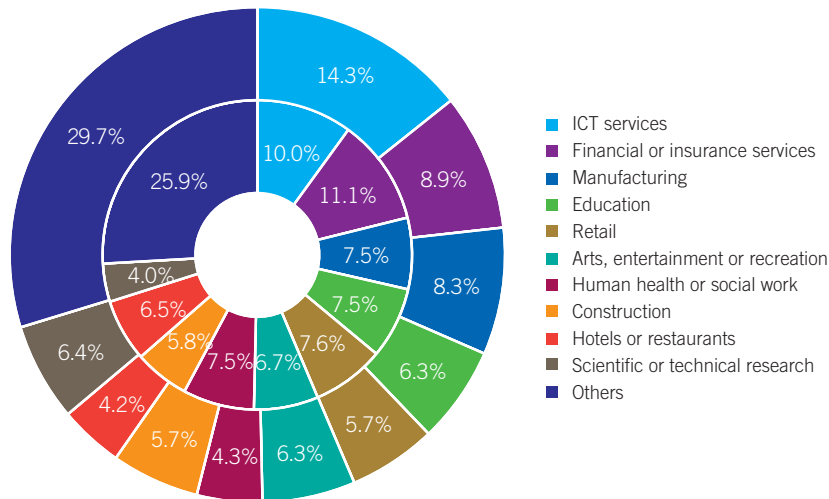
When responses were reorganized by ASEAN Member States, ICT services stood as the most popular sector in Brunei Darussalam (25.5 per cent), Indonesia (14.2 per cent), Myanmar (21.2 per cent) and the Philippines (21.5 per cent). Financial or insurance services were the most popular in Malaysia (14.2 per cent) and Singapore (15.0 per cent). Arts, entertainment, and recreation services was the most popular sector in Thailand (13.4 per cent). Shop keeping, sales or trade activities were the most popular in Viet Nam (21.0 per cent). The most popular sectors in Cambodia and the Lao People's Democratic Republic were, respectively, construction (14.7 per cent) and administrative and support services (18.0 per cent).

The top three sectors among men students were ICT services (14.3 per cent), financial or insurance services (8.9 per cent), and manufacturing (8.3 per cent). The top three sectors among women students were financial or insurance services (11.1 per cent), ICT services (10.0 per cent), and arts, entertainment and recreation (7.6 per cent).

<sup>44</sup> Agriculture, forestry and fishing, however, are sectors that employ the largest aggregate number of people in ASEAN (ILO, 2015b). These sectors employ primarily low-skilled or medium-skilled workers, which reflects, and is consistent with, the relatively low preference of surveyed students to work in this economic sector.

**Figure 18. In which economic sector would you ideally want to work when choosing your first employment? (by sex)**

Men (outer ring) and women (inner ring)

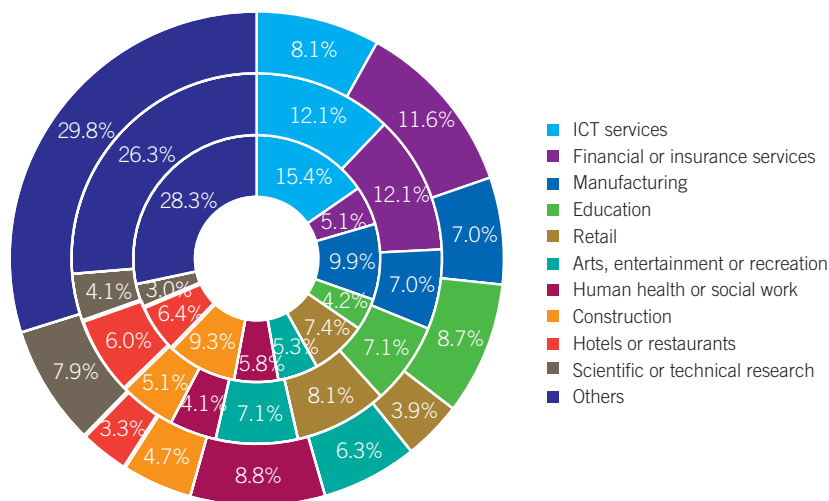


Students in vocational courses were more inclined to work in ICT services and industries such as manufacturing and construction. ASEAN aggregated data show that manufacturing and construction rank among the top five industries that employ the largest number of people.<sup>45</sup> Meanwhile, students in vocational courses were significantly less inclined towards other high-skill services sectors, such as financial and insurance services, education, arts and entertainment, and scientific research.

The single most attractive sector for students of top-tier universities was financial and insurance services (11.6 per cent), followed by human health and social work (8.8 per cent).

**Figure 19. In which economic sector would you ideally want to work when choosing your first employment? (by education-level)**

Top-tier university students (outermost ring), lower-tier university students (middle ring), and students on vocational courses (innermost ring)



<sup>45</sup> ILO, 2015b.

Cross-tabulating these findings with students' fields of study highlights a variety of expected and unexpected findings. Focusing on the STEM subjects, students of engineering, building or architecture were predictably attracted to working in construction, manufacturing and scientific/technical research. Among the students of natural sciences, mathematics and statistics, however, while scientific and technical research placed first, the second- and third-most popular sectors were, respectively, financial or insurance services and education.

Students of ICT, expectedly, desired overwhelmingly to work in the ICT services sector (44.2 per cent). Equally expectedly, a majority of health and medicine students desired to work in the human health and social services sector (62.6 per cent). Business, commerce or finance students predominantly sought to work in financial or insurance services (24.4 per cent), though the retail and hospitality sectors were also popular among them. Law students, likewise predictably, selected public and private administration services as their foremost two sectors.

Arts, entertainment and recreation services as well as education and ICT were also popular choices among students in social sciences, humanities, arts and education students.

**Table 5. Top three ideal economic sectors of work by field of study**

Engineering, building, architecture		Business, commerce, finance	
Construction	(20.0 per cent)	Financial or insurance activities	(26.4 per cent)
Manufacturing	(19.1 per cent)	Shop-keeping, sales or trade	(14.3 per cent)
Scientific or technical research	(9.0 per cent)	Hotels or restaurants	(8.4 per cent)
Natural sciences, maths, statistics		Law	
Scientific or technical research	(21.6 per cent)	Public administration or defence	(25.9 per cent)
Financial or insurance services	(15.0 per cent)	Admin. or support services	(17.3 per cent)
Education	(10.2 per cent)	Other service activities	(8.6 per cent)
ICT		Social sciences	
ICT services	(44.2 per cent)	Education	(13.6 per cent)
Scientific or technical research	(7.0 per cent)	Arts, entertainment or recreation	(13.6 per cent)
Arts, entertainment or recreation	(5.8 per cent)	ICT services	(11.7 per cent)
Health and medicine		Humanities, arts, education	
Human health or social work	(62.6 per cent)	Education	(29.1 per cent)
Scientific or technical research	(7.4 per cent)	Arts, entertainment or recreation	(21.4 per cent)
Education	(4.9 per cent)	ICT services	(7.8 per cent)





## 4.4 Sentiments on employers' reputation

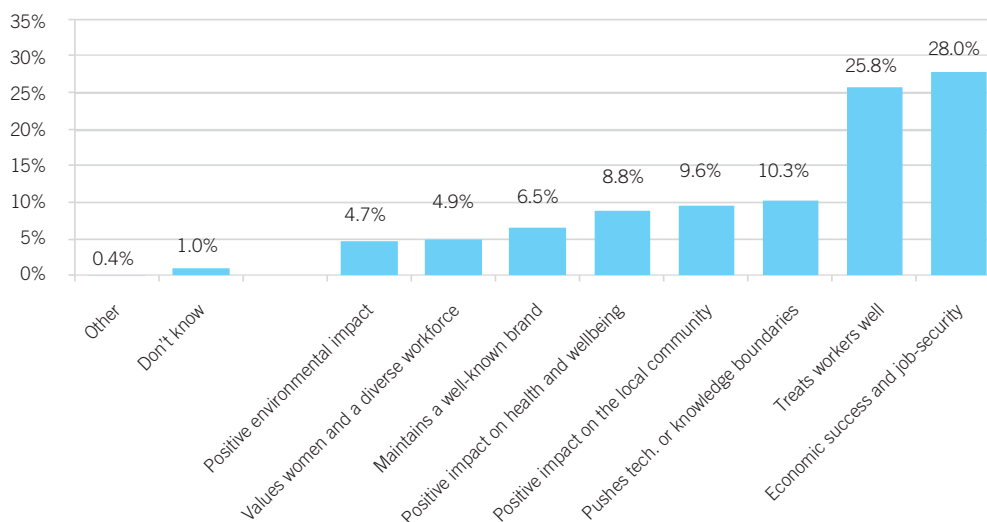
### Students today are much more informed about work choices they make

According to global surveys, young graduates care greatly about their employer's reputation. PwC (2011) reports that employer reputation is a key factor when young workers decide to accept an offer or not. Furthermore, in 2014, almost half of 7,867 college and university graduates reported that a prospective employer's reputation for innovation influenced their decision to accept or decline a job offer. Similarly, college and university graduates felt that innovative solutions to society's problems would come from businesses and entrepreneurs.<sup>46</sup>

Stakeholder interviews indicate that young workers scrutinize a potential employer's reputation, including Corporate Social Responsibility (CSR) activities, more closely, as well as what skills development and benefits they offer. This is in line with global sentiments, as 88 per cent of 3,096 university graduates felt their employer's CSR values had to reflect their own.<sup>47</sup> Other surveys reveal that access to professional training programmes influences how young graduates evaluate prospective jobs.<sup>48</sup>

To understand these factors in an ASEAN context, students identified what mattered most to them about a company's reputation. The two clear, leading factors were (1) a company's economic success and security and (2) how well they treat their workers. Combined, these accounted for 53.8 per cent of the total sample.

**Figure 20. What is the most important factor for a company's reputation?**



Women students tended to place slightly more importance on worker treatment and company impacts on people's health and wellbeing. Conversely, men students placed, albeit slightly, more weight on a company's economic success and security, as well as their ability to push technological, knowledge, and creative boundaries.

<sup>46</sup> Deloitte, 2014.

<sup>47</sup> PwC, 2008.

<sup>48</sup> Deloitte, 2016.

Students at top-tier universities tended to place less importance on a company’s success and security and worker’s treatment than students at other institutions (although these two categories were still their top choices). Top-tier university students also placed somewhat more importance on a company’s ability to push technological, knowledge, and creative boundaries and their impact on local communities.

## 4.5 Work priorities

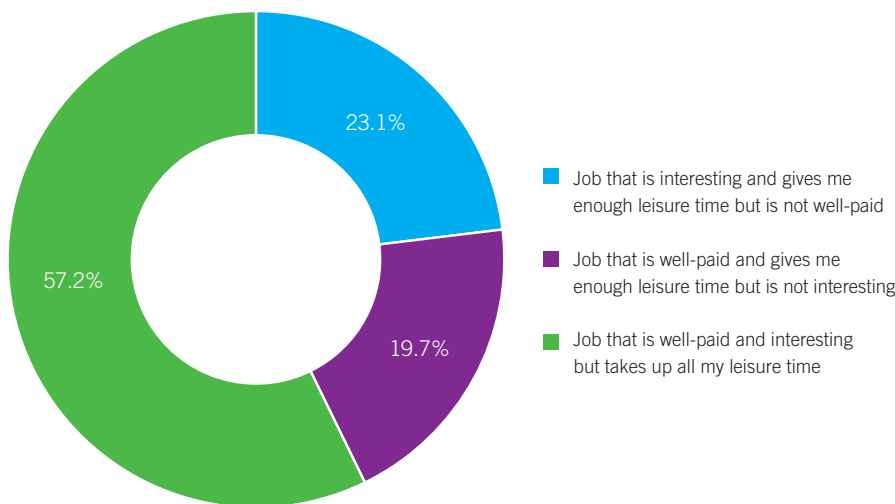
### Young graduates in ASEAN would give up their leisure time for interesting and well remunerated work

Among young graduates worldwide, the most important attributes when looking for employment or accepting a job offer were total compensation and benefits, interesting and challenging work, and opportunities for personal and professional development.<sup>49</sup> The common compromises young university graduates have to make when starting a new job are: accepting a lower salary than expected, working away from their preferred location and receiving fewer benefits than they hoped for.<sup>50</sup>

ASEAN students were asked to consider a hypothetical situation in which they could only have two (but not all) of the following three options: (1) a job that is well-paid, (2) a job that is interesting, and (3) a job that allows enough leisure time. Because the trilemma asks students to give up one of these three elements, the question sought to identify what aspect of a job students valued the most and what was most expendable.

Overwhelmingly, the students in the survey opted to give up their leisure time. In the sample, 57.2 per cent would choose to give up their leisure time, compared with 23.1 per cent who would give up high pay and 19.7 per cent who would give up on work that they found interesting.

**Figure 21. Which of the following work priorities would you currently prefer to choose?**



The sole exceptions among ASEAN Member States are the more developed ones (Singapore, in particular). These exceptions preferred leisure time and work that is interesting over high pay.

<sup>49</sup> GMAC, 2015; PwC, 2011; EY, 2015.

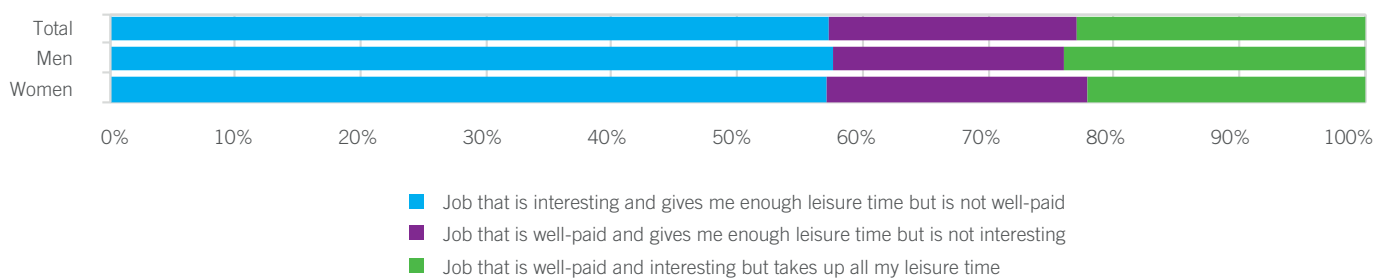
<sup>50</sup> PwC, 2011.

**Figure 22. Which of the following work priorities would you currently prefer to choose? (by Member State)**



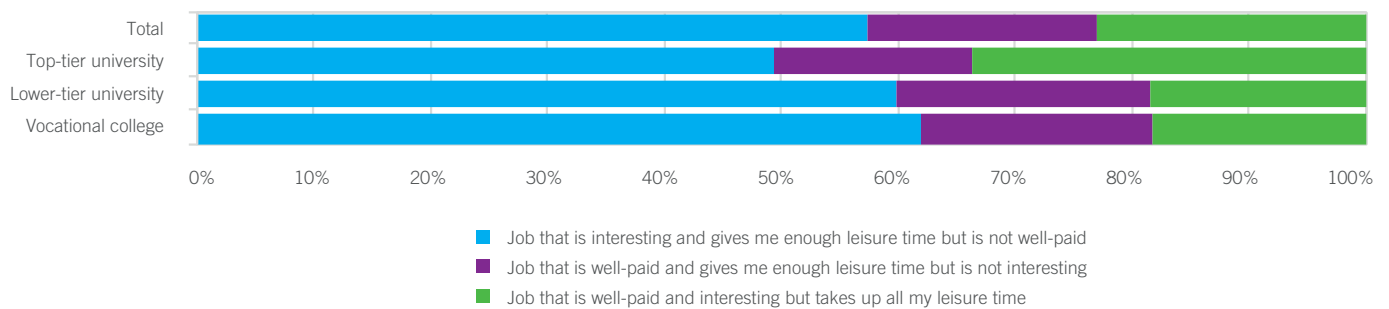
The equivalent shares among women and men in the sample were remarkably similar in this case.

**Figure 23. Which of the following work priorities would you currently prefer to choose? (by sex)**



Students from top-tier universities tended prefer interesting work. A higher proportion of them – 33.7 per cent, compared with 23.1 per cent among the complete sample – would relinquish high pay, provided their work was interesting and allowed enough leisure time.

**Figure 24. Which of the following work priorities would you currently prefer to choose? (by educational-level)**



## 4.6 Immediate and longer term goals

### Young workers in ASEAN today are difficult to retain – the idea of a job for life or a longer term commitment to a single employer is a fading concept

Stakeholders reported young workers tend to remain in a position for much shorter periods of time than might once have been the case. Several interviewees expressed concerns that a growing number of workers now lack depth in experience due to their tendency to ‘hop’ between jobs. They lamented that such a ‘touch and go’ approach cannot build the competencies and experience needed to justify higher compensation, leaving such workers (especially youth) in a worse-off position. A global survey conducted with 7,700 university graduates reflected these perceptions, as almost half of the surveyed graduates wanted to change their current jobs between six months and two years.<sup>51</sup> Another survey conducted in eight countries found that millennials are more inclined to leaving their jobs when confronted with less-than-ideal situations.<sup>52</sup> However, the latter survey points out a lack of opportunities to advance and excessive overtime as two key reasons for high rates of job turnover among the youth.

Mr N. Gopal Kishnam, Secretary General of the Malaysian Trades Union Congress, says:

“Employment is no longer a lifetime kind of thing. People before were really more committed to staying in work for longer. The younger generation is behaving very differently in this sense. They are always jumping around and trying their luck in another place...”

In a fast-paced labour market with many opportunities, the idea of a period of unemployment might not be negative for some. Arguably, many of today’s young workers might have their parents’ income and hospitality for support. As a result, employers are reportedly facing a challenge to motivate, engage and retain their young workers. In many ways, business managers and human resources directors are having to adapt to a new culture of work. As Mr Ahmad Raji Yaakub, Chief Operating Officer of Irshad HR Consulting, says:

“The challenge is the managers – the change needs to come from them.”

The younger workforce reportedly cares about gaining exposure. Young workers may avoid companies with burdensome hierarchies that might inhibit their opportunities to gain recognition, and, instead, be drawn to start-up companies or becoming self-employed. Mr Frank Becker, Human Resources Vice President (Asia Pacific) of the United Parcel Service (UPS), comments:



<sup>51</sup> Deloitte, 2016.

<sup>52</sup> EY, 2015.

“Human resources departments will have to learn to present individual career development plans and consult their employees regarding these, versus in the past where employees tended to take them as given.”

Several interviewees recommend giving today’s young workers more freedom than otherwise and to make sure they feel appreciated, can gain respect, and that their work is highly valued and visible. Within this context, Mr Ahmad Raji Yaakub, Chief Operating Officer of Irshad HR Consulting, says:

“It is very hard to get young people these days to be very loyal to one employee – generation Y gets bored with things, wants to try new things, to experience more, until they find something that they really can enjoy... The way to manage these young people is through emotion and giving them a bit more freedom and appreciate them better. Managers have to be more benevolent and not use the hard way to manage.”

ASEAN’s young workers are reportedly also motivated by having a clear career trajectory in place, with transparent short-term conditions and goals they can work towards immediately. Several interviewees spoke about the benefits of broadening young workers’ skills by rotating them through a variety of departments and business functions. This, arguably, lets them learn more about the enterprise and its work while improving soft skills like loyalty, adaptability and teamwork, as well as improving job satisfaction and reducing staff turnover. One coping strategy for high staff turnover is using more casual employment contracts.

Some interviewees observed that the millennial generation has different priorities. According to Mr Alexander Trost, Human Resources Director of Infineon Technologies:

“Unlike the previous generations who focus more on fulfilling the fundamental needs according to Maslow’s hierarchy, the millennial generation tends to also seek a long-term purpose in what they do – such as contributing positively to society and the environment.”

Despite these differences among millennials, certain values are judged as important to everyone: respectful treatment, dynamics that are understanding and a work-life balance. Some employers are thus offering their workers more flexible work arrangements through “job-sharing” and “compressed work” (in other words, working the usual five days’ hours of work in just four days).



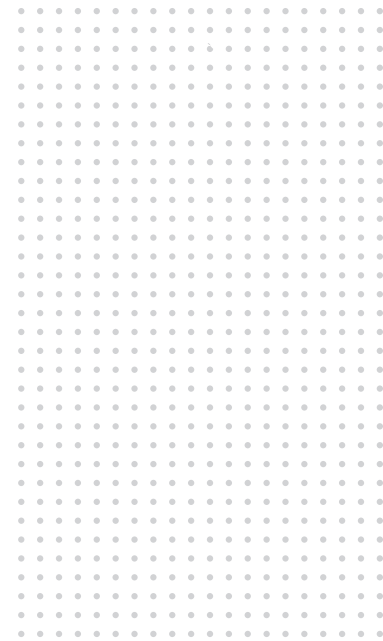
## A high income, stable and secure employment are key priorities for ASEAN’s young workers in both the immediate and the longer term

Global research indicates that young workers remain in organizations when they experience a good work-life balance, opportunities for growth and advancement, good skills match, flexible work options and a competitive salary.<sup>53</sup>

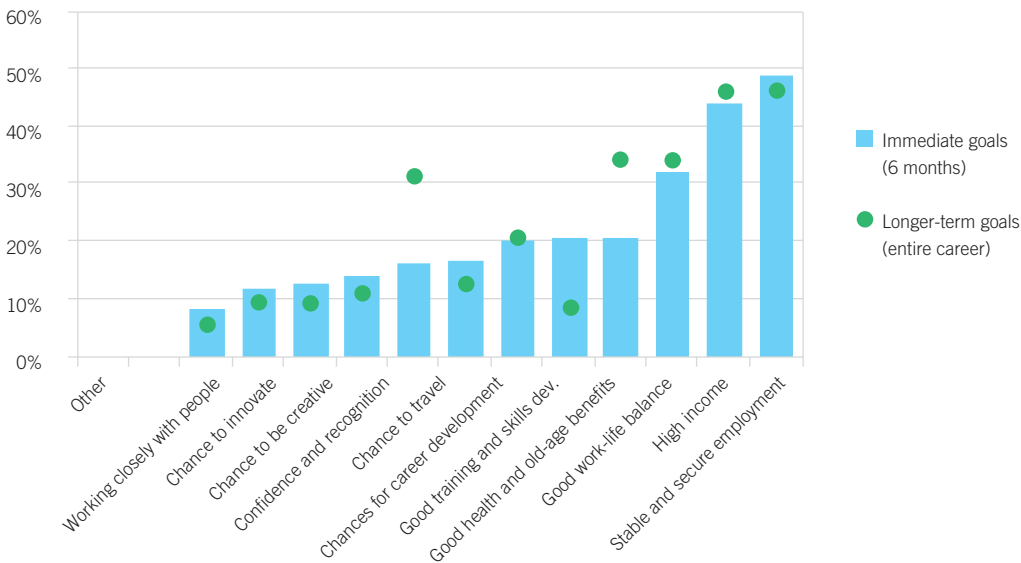
Students were asked about their immediate goals for work during the first six months after they graduate and their longer term goals over their entire working lives. In both cases, the students identified their main three priorities from among a list of options presented.

The students’ most commonly cherished immediate and longer term goals – both selected by nearly half of the sample in each case – were to have stable, secure employment and to earn a high income. This held true when the data were disaggregated by individual Member States (except Cambodia, in which the topmost priority for students was training and skills development). Having a good work-life balance was also seen as significant by around one third of students. However, according to the hypothetical trilemma mentioned earlier, students would give up their leisure time for interesting and well paid work. The students’ goal to have a good work-life balance, which implies an equilibrium between career and lifestyle, partly contradicts the possibility to give up pleasure for their professional careers.

Two other career priorities stood out among the students’ longer term goals: family benefits (including maternity or paternity benefits, support for children’s education, opportunities to work from home, and so on) and health and retirement benefits (including health insurance, injury and sickness cover, and pensions). Regarding retirement benefits, when comparing these perceptions to another survey, only 17 per cent of 3,898 millennial graduates thought that their employers would pay for their retirement and 57 per cent thought they would self-fund their retirement.<sup>54</sup> Receiving retirement benefits from employers is important for young graduates, but increasingly flexible and casual labour practices renders this rather challenging.



**Figure 25. Which career goal is the most important to you?**

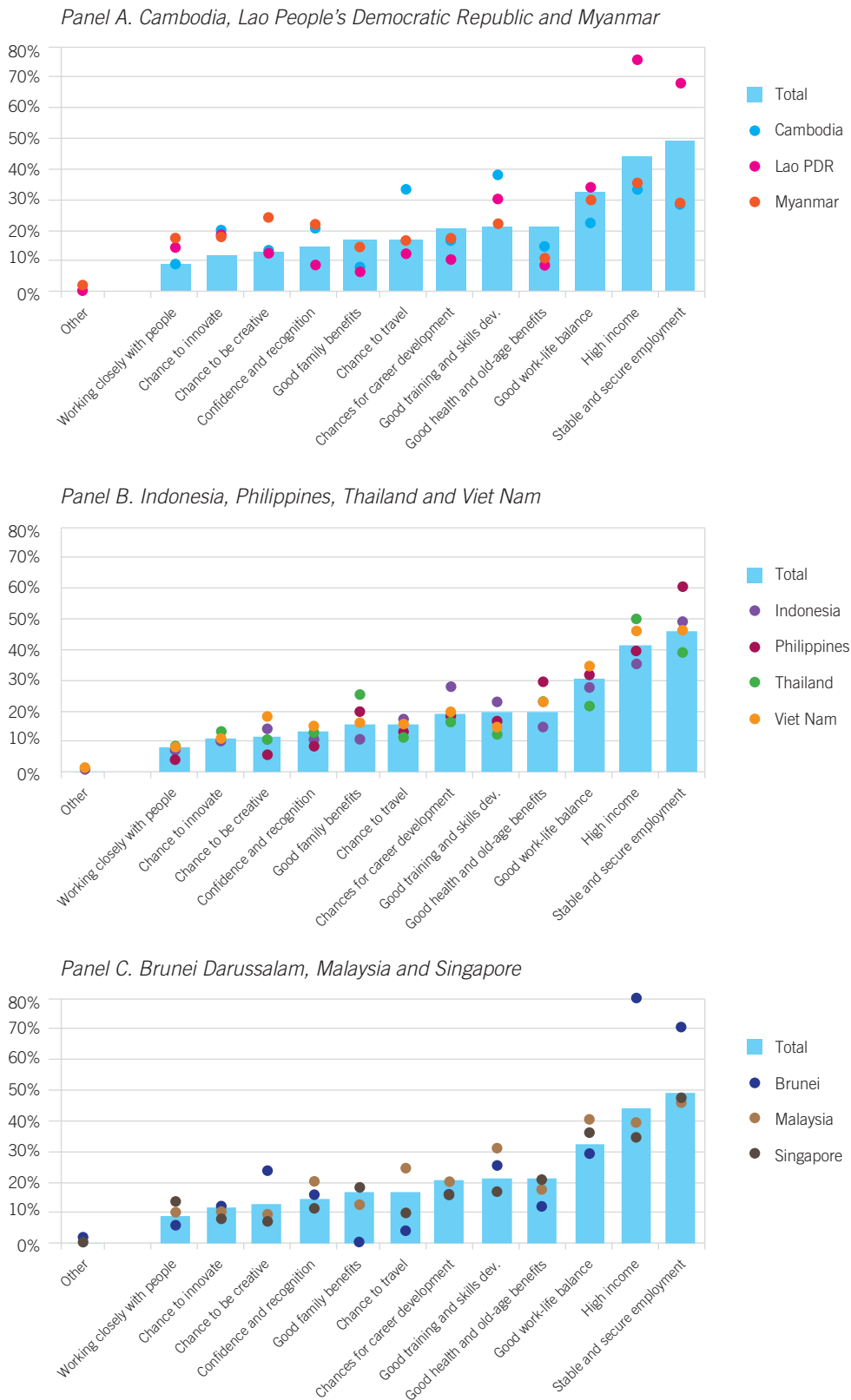


<sup>53</sup> Randstad, 2014.

<sup>54</sup> PwC, 2008.

Among other immediate goals identified were the opportunity to live or work abroad, being part of a competent organization, and the ability to save money for travel and further education. Other longer term goals identified were financial freedom, freedom over time and leisure, and meeting bigger challenges and life experiences.

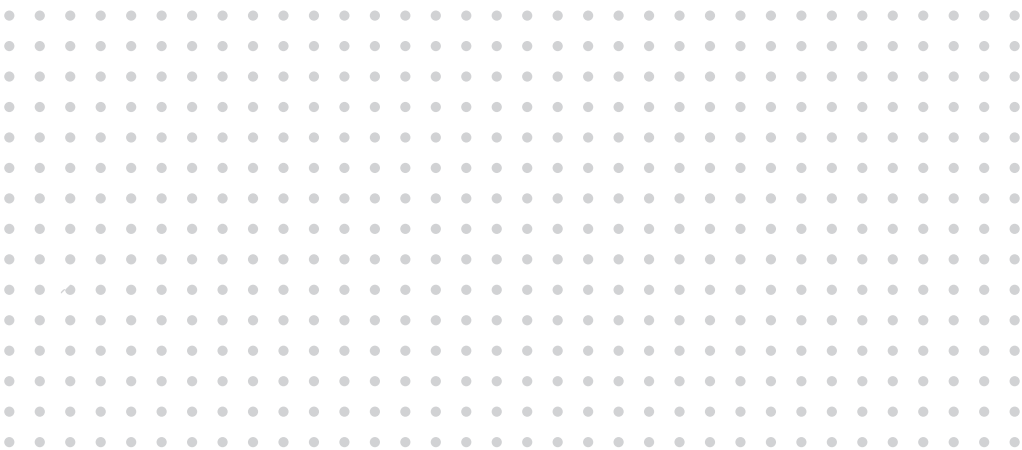
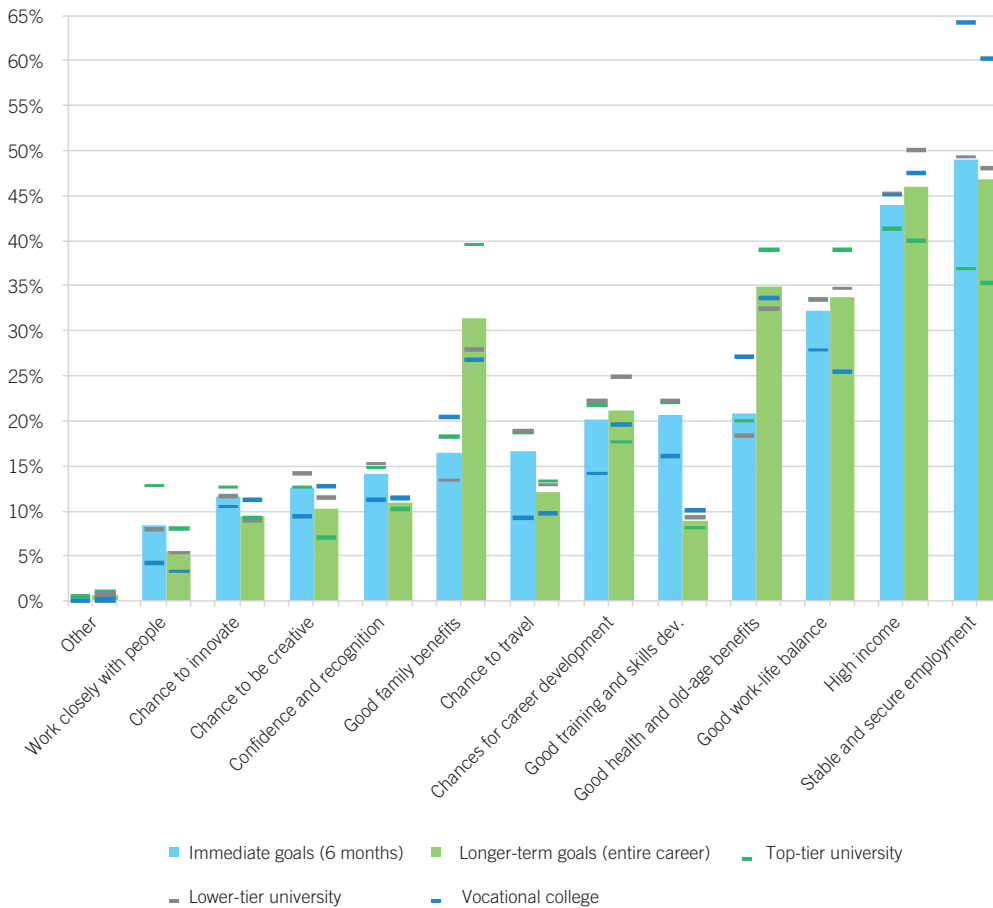
**Figure 26. Immediate career goals (six months) (by Member State)**



Students in vocational courses tended to value stable and secure employment considerably more than university students for both immediate and longer term goals. Students on vocational courses were also relatively less interested in having opportunities for good training and skills development, career development, and business travel among their immediate goals.

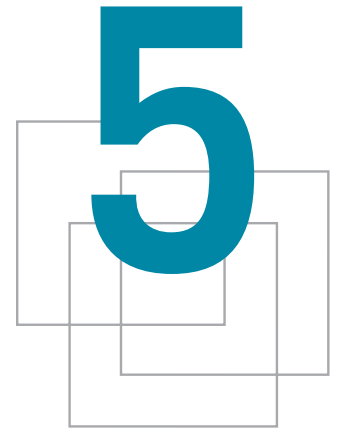
Conversely, students at top-tier universities placed much less value on stable and secure work for their immediate and longer term goals: Only one third of students at top-tier universities prioritized it in both cases, compared with roughly half of students overall. On the other hand, students at top-tier universities place more value on work-life balance, good health and retirement benefits, and good family benefits over the longer term.

**Figure 27. Which career goal is the most important to you? (by education-level)**





# RECRUITMENT AND JOB APPLICATION



## There is a definite shift away from traditional recruitment practices to new media

New platforms for recruitment and job search are increasingly used. Global studies indicate that enterprises are relying more upon online platforms and social networks such as LinkedIn, Facebook and Twitter to recruit. In one study, 78 per cent of 1,322 chief executive officers (CEOs) said they always deployed various channels when hiring, such as online platforms and social networks.<sup>55</sup> Similarly, 92 per cent of Fortune 500 companies use social media platforms such as Twitter, LinkedIn and Facebook when hiring. Online tools are used not only to advertise positions and contact candidates, but also to research potential hires and conduct online background checks. Currently, LinkedIn is the most commonly used platform for recruiting in 500 interviewed firms (93 per cent), followed by Facebook (66 per cent) and Twitter (54 per cent).<sup>56</sup>

Digital recruitment is reportedly growing very rapidly across ASEAN. A large online portal called JobStreet has recently become one of the biggest of its kind in the region, supplying tens of thousands of job listings to registered users in Indonesia, Malaysia, the Philippines, Singapore and Viet Nam.<sup>57</sup> Large online portals like JobsDB, Everjobs and LinkedIn have also gained popularity in the remaining Member States.<sup>58</sup> For employers and job applicants, this trend offers a uniquely inexpensive and effective way to reach a significant audience and much greater selection and customizability in their search.<sup>59</sup>

Social media websites such as LinkedIn, Twitter, Facebook, Google+ and Weibo are also increasingly becoming a tool for recruiters to advertise positions and for read about opportunities and potential employers. Figure 28 shows the number of Internet users in June 2015 and active Facebook users in December 2012 per 100 of the population in each Member State. Both indicators are relatively very high in Brunei Darussalam, Malaysia and Singapore.



<sup>55</sup> PwC, 2015.

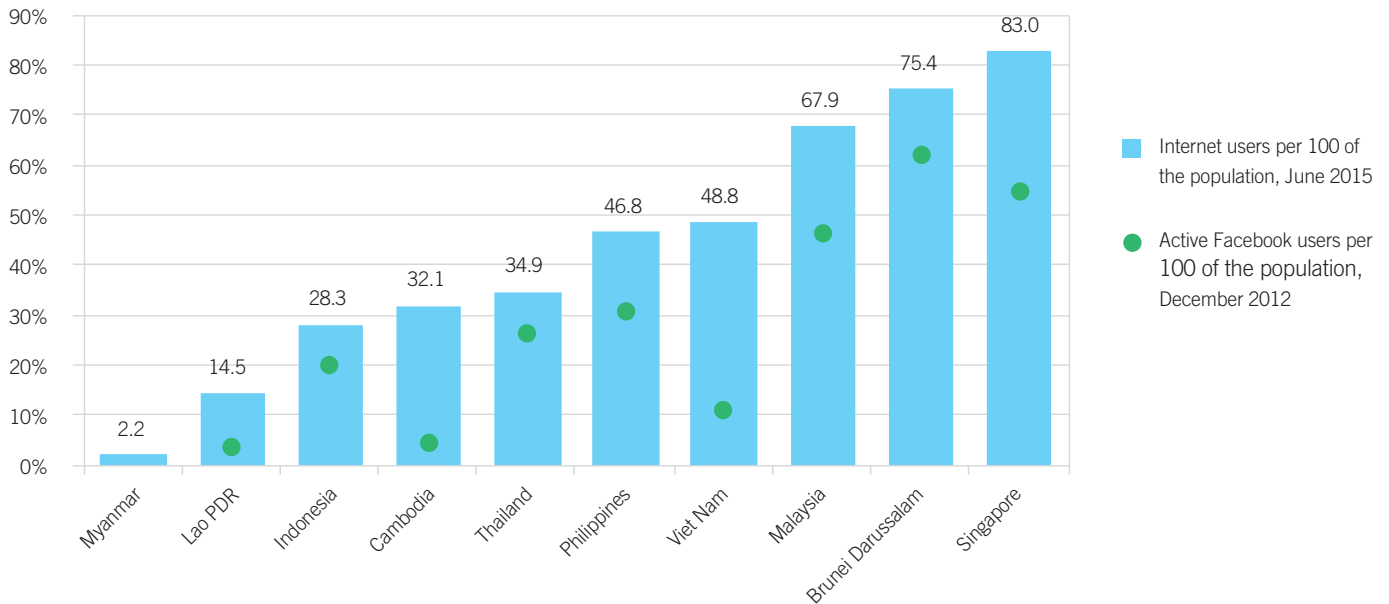
<sup>56</sup> Bennett, 2013.

<sup>57</sup> See: [www.jobstreet.com/](http://www.jobstreet.com/).

<sup>58</sup> See: [www.jobsdb.com/](http://www.jobsdb.com/), [www.everjobs.com/](http://www.everjobs.com/), and [www.linkedin.com/](http://www.linkedin.com/). Some smaller, local online jobs portals include Myanmar Job Hunter ([www.mmjobhunter.com/](http://www.mmjobhunter.com/)), 3wjobs (<http://la.3wjobs.com/>) and HR Vietnam (<http://hrvietnam.com/>).

<sup>59</sup> Recruitment in some of ASEAN's less developed Member States, however, still tends to happen informally. Many enterprises in Cambodia, for example, reportedly continue to rely on word-of-mouth to recruit their workers, or do so within closed networks without any fixed selection criteria nor outreach involved.

**Figure 28. Internet and Facebook users per 100 of the population, ASEAN Member States, latest years**

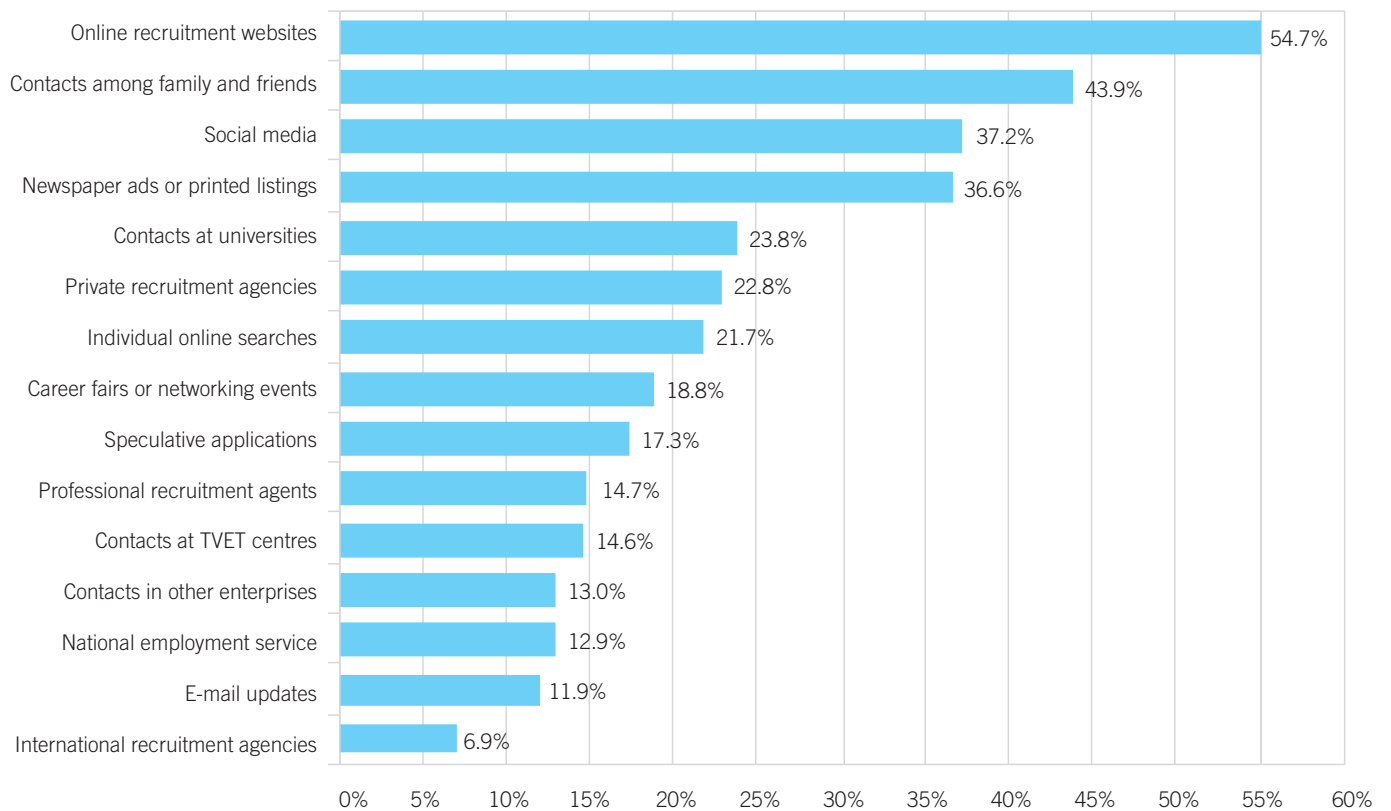


## 5.1 Recruitment by enterprises

**While online recruitment is growing, enterprises in Cambodia, the Lao People’s Democratic Republic, and Myanmar rely on more traditional methods**

Enterprises were asked how they advertise vacancies or gather information about candidates. The single most popular approach was through online recruitment websites, as reported by 54.7 per cent of the sample. Social media were also identified by 37.2 per cent and individual online searches by 21.7 per cent of respondents. Beyond these digital tools, more localized, traditional approaches (such as contacts among family and friends, advertising through newspaper ads, or printed listings) emerged prominently among the enterprises surveyed. Cambodia, the Lao People’s Democratic Republic and Myanmar especially relied on contacts among family and friends. Indeed, in Myanmar, contacts among family and friends were virtually the only recruitment practice reported, accounting for 89.7 per cent of the sample compared to less than 20 per cent for each of the other methods investigated and lower than 6 per cent for any online media.

Relatively much fewer enterprises reported using solutions that rely on third parties, such as international recruitment agencies (6.9 per cent), national employment services (12.9 per cent), professional recruitment agents (14.7 per cent) and private recruitment agencies (22.8 per cent). Nevertheless, such approaches did come across more strongly among the enterprises in Malaysia and Singapore compared with the rest of the sample.

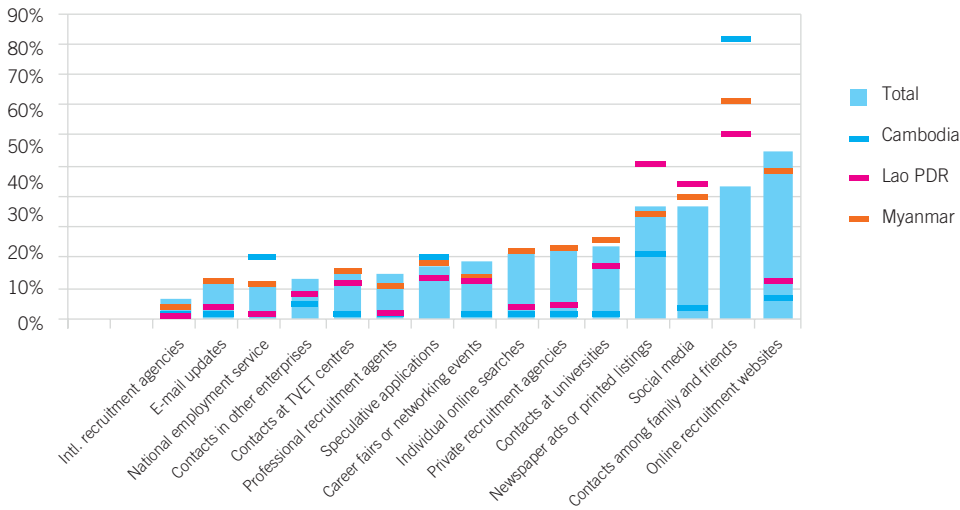
**Figure 29. How do enterprises learn about potential new recruits?**

Ultimately, the findings show a strong and definitive utilization of modern recruitment tools, such as dedicated online recruitment websites and social media among enterprises in ASEAN. Although, individual networks and more traditional job advertising in print also remain important tools.

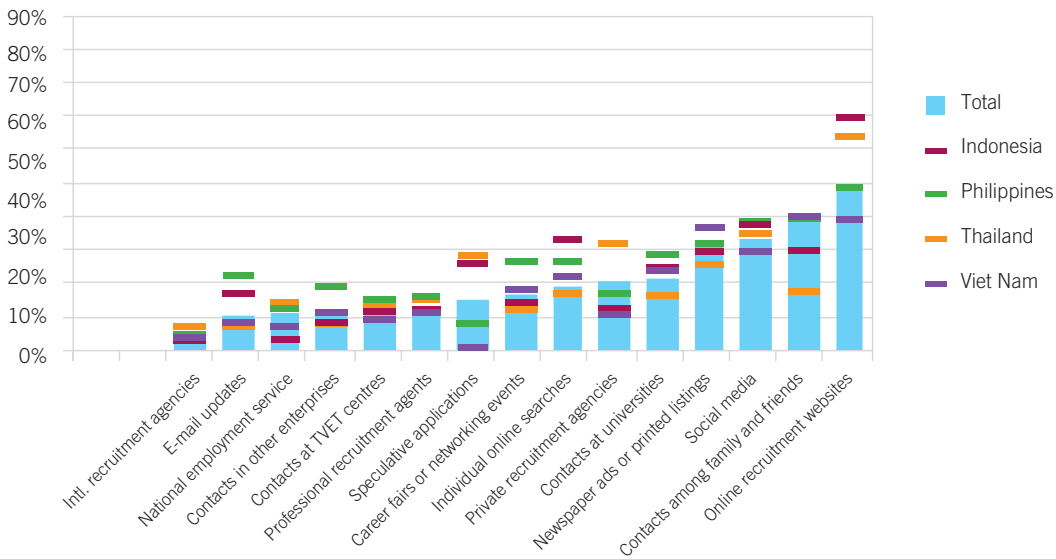


Figure 30. Ways enterprises recruit workers

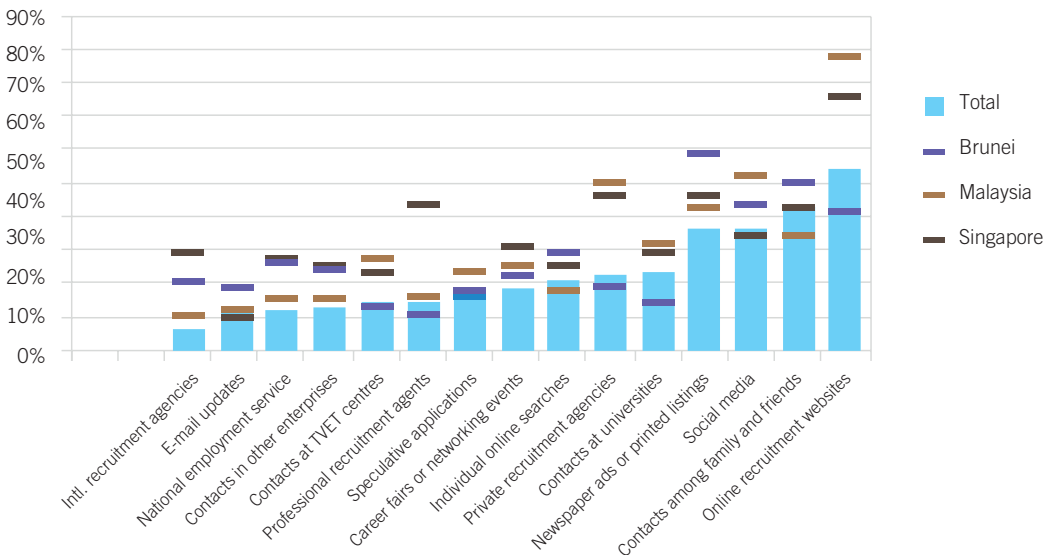
Panel A. Cambodia, Lao People's Democratic Republic and Myanmar



Panel B. Indonesia, Philippines, Thailand and Viet Nam



Panel C. Brunei Darussalam, Malaysia and Singapore



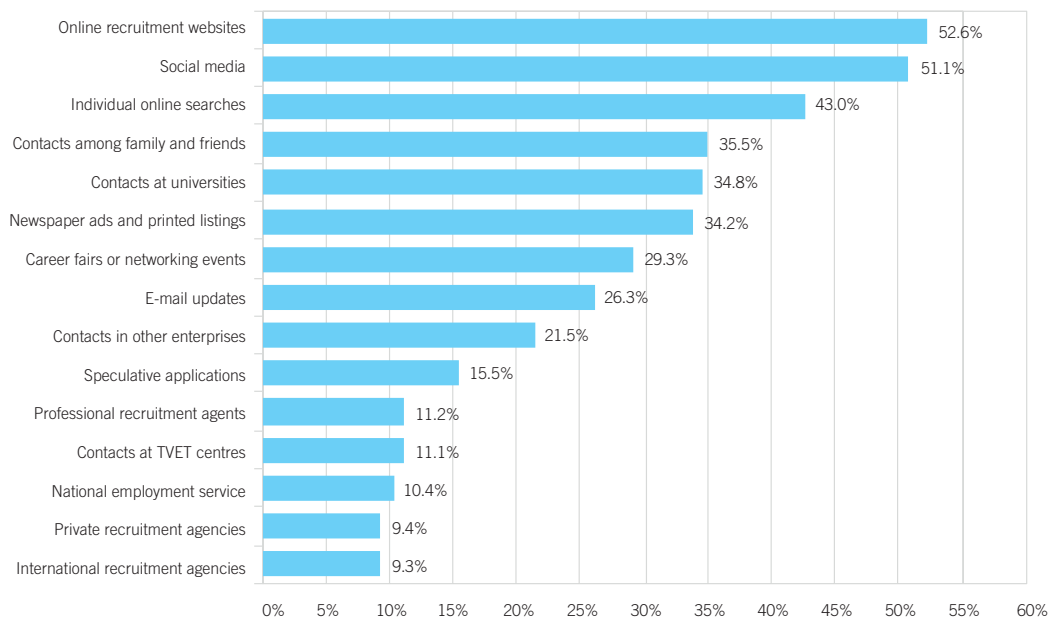
## 5.2 Job search by students

### Students are relying on online media and tools to find jobs and gather information

Students were asked how they apply for work opportunities or gather information about potential employers. Remarkably, the top three methods all used digital media: 52.6 per cent use dedicated online jobs portals, 51.1 per cent use social media and 43.0 per cent use individual online searches. Contacts at university and among family and friends and more traditional media such as newspaper ads and printed listings were also common.

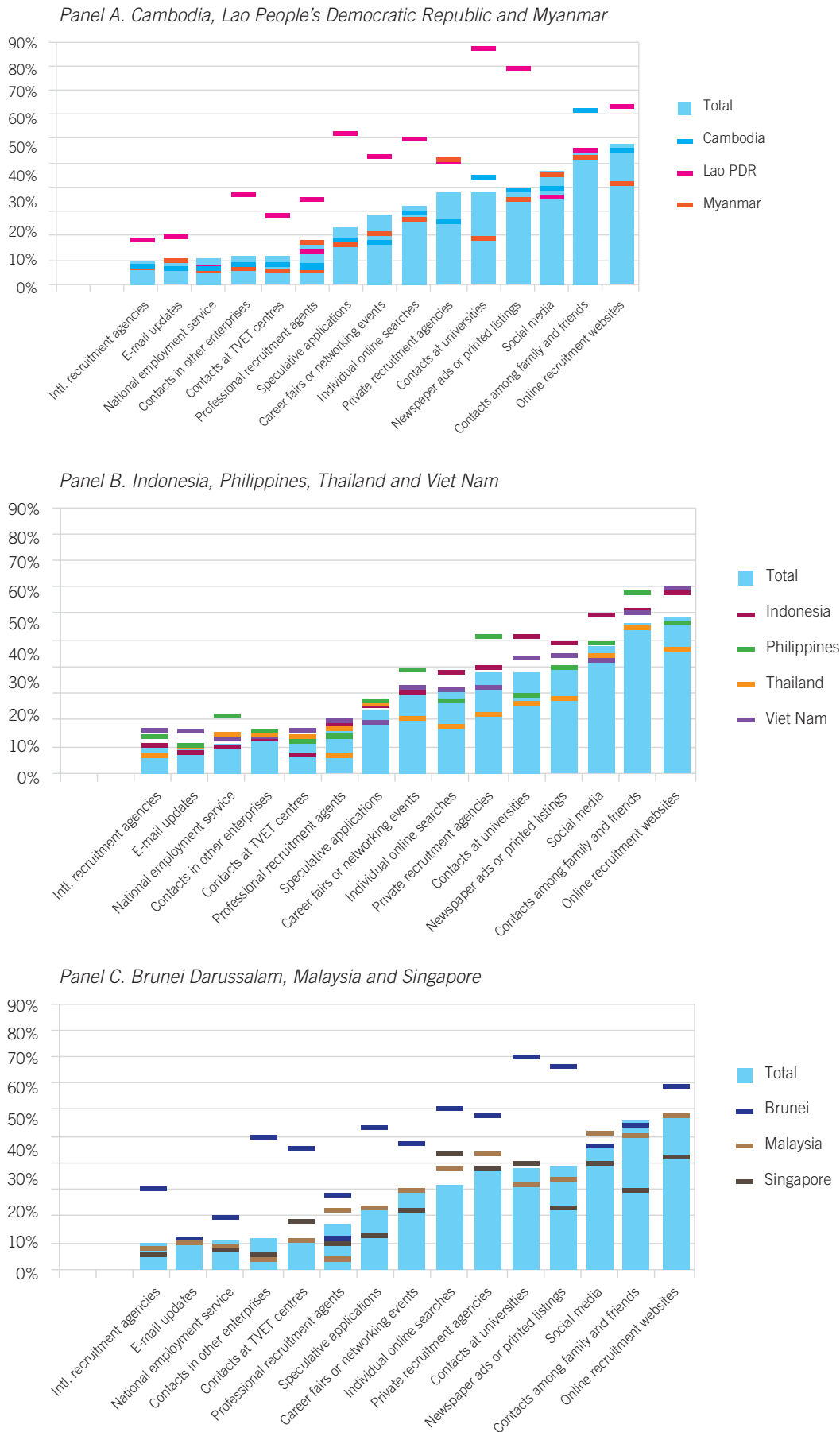
More traditional ways of looking for work were reported much less prominently among the students surveyed in some Member States. Newspaper ads and printed listings, for example, were only commonly referenced by students in Brunei Darussalam, the Lao People's Democratic Republic, Myanmar and the Philippines. Third-party services including national (public) employment services, dedicated national or international recruitment agencies, and individual recruitment agents (such as head-hunters) were reportedly relied upon extremely little by students in all Member States.

**Figure 31. How do students gather information about job opportunities and potential employers?**



Ultimately, the findings show that students in ASEAN tend to look for work on their own, making extensive use of available online media and tools and their own networks over more traditional tools and third-party services.

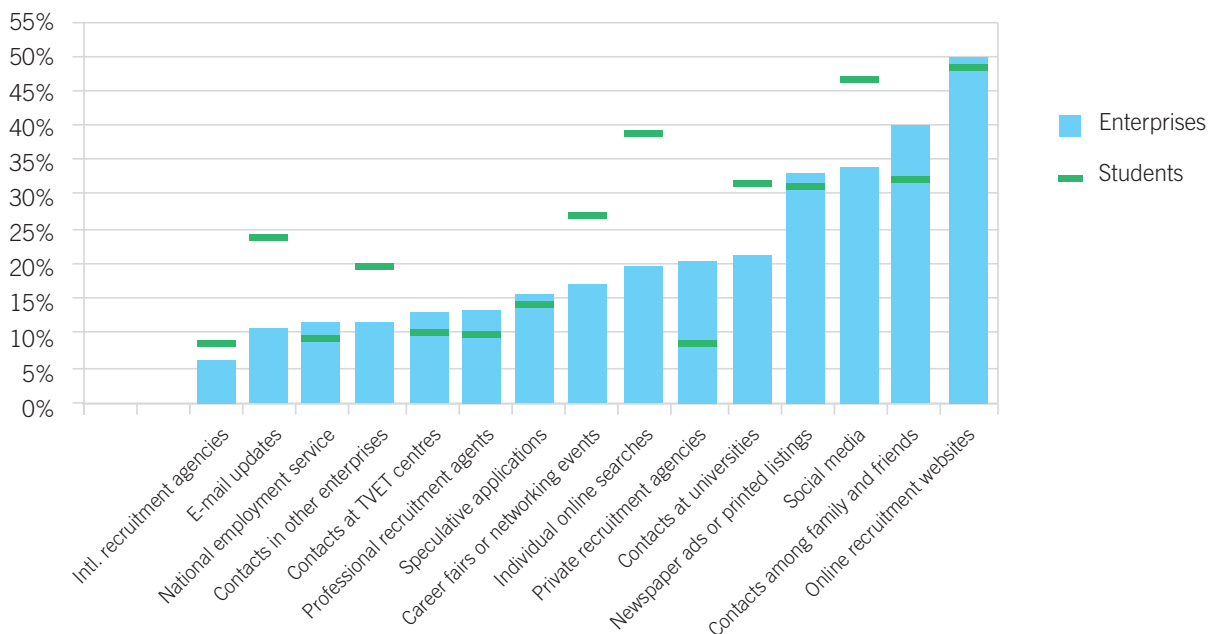
Figure 32. Ways students look for work



## 5.3 Comparing the enterprise and student findings

Comparing how ASEAN enterprises advertise employment opportunities and the ways students respond to them highlighted some interesting differences. The two groups were similar in that they rely most heavily on online recruitment websites, social media and contacts among their families and friends. The students surveyed, however, tended to pursue opportunities through individual online searches, e-mail, contacts at university and those they met through career fairs or networking events when compared with enterprises. Conversely, the students tended much less to work with private recruitment agencies than enterprises did (though such services might be of greater use to older, more experienced workers than for those entering the labour market for the first time).

**Figure 33. Comparing how enterprises recruit workers and how students look for work**



# WORK MODALITIES

## 6.1 Three trends in work modalities

### International migrant workers, freelance workers or workers working remotely are gaining traction in the world of work within ASEAN

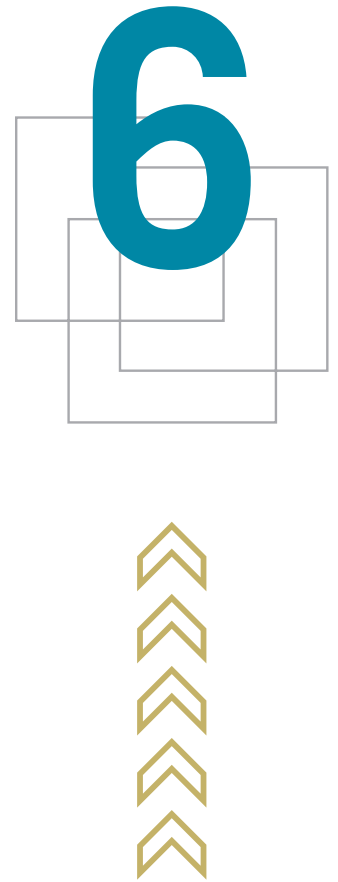
According to the ILO definition, non-standard work refers to jobs falling outside the realm of standard work arrangements (e.g., temporary or fixed-term contracts, temporary agency or dispatched work, dependent self-employment, and part-time work).<sup>60</sup> In the survey, stakeholders used an entire vocabulary to refer to such workers – own-account workers, freelancers, contractors, part-timers, cloud workers, side-liners, weekenders, temps, temporary-agency workers, dispatched workers, the semi-retired, members of the so-called “gig economy”, zero-hours workers, digital nomads, bogus self-employees, among others – all falling under the umbrella of non-standard employment.

Three specific forms of work are gaining significance in ASEAN’s labour markets and are expected to expand by 2025: (1) intra-regional labour migration, (2) freelance workers and (3) remote workers.

Intra-regional labour migration (for both high- and low-skilled workers) has risen for several decades in both nominal and relative terms. However, official estimates indicate that more than 87 per cent of total intra-ASEAN migrant workers are low-skilled.<sup>61</sup> The large proportion of low-skilled migration relates to language barriers and the lack of recognition for qualifications in ASEAN destination countries, which poses obstacles to skilled migration.

Non-standard forms of employment are also expanding among employers. This includes more flexible and casual employment, such as freelance and contract-based work. Advances in communications technologies are facilitating greater opportunities for employers to engage workers remotely and manage more diverse teams across multiple locations while allowing for more work-life balance on behalf of workers.

According to Mr Ahmad Raji Yaakub, Chief Operating Officer of Irshad HR Consulting, some Malaysian enterprises are downsizing their staff numbers in line with this trend, recruiting workers in more flexible ways. In multiple sectors, design and pre-production tasks are now commonly contracted out in this way, as well as some regular tasks for which the demand for workers varies from one month to the next. Various marketing, communications, legal, accounting, ICT-related and human resources functions are doing the same, creating new sub-sectors and business models in ASEAN.



<sup>60</sup> See ILO, 2016.

<sup>61</sup> Sugiyarto and Agunias, 2014.



Mr Timothy Cheong, Group Human Resources Director of Banyan Tree Holdings, says:

“The majority forms of employment we saw 20 years ago will become a minority by 2025 – especially in a country like Singapore which is already at a more technologically advanced platform.”

Commenting likewise on the situation in Cambodia, Mr Vutha Hing, Head of the Economic Department at the Cambodia Development Resource Institute, says:

“Freelance work is going up among both Cambodians and expats... New graduates and PhDs sometimes opt to work independently in the research field and prefer to stand alone than be affiliated with a particular employer – they seem to be choosing this more and more and higher education enables them to do it. There is also an increasing pool of freelancers in the development research sector driven by some NGOs and donors wanting lower costs and greater flexibility. Many IT students also work independently from home and design websites or software in that way. As long as the opportunity is there many of them will want to be independent.”

Interviewees across all Member States commented on the increasing number of alternatives to traditional employment and the rising demand coming from both workers and employers for greater flexibility, enabled in part through technological innovations.

Nevertheless, several interviewees argued that traditional forms of employment – a one-to-one employer-employee relationship, permanent and full-time work – will always remain the norm in a variety of sectors and occupations. Manufacturing sectors, for example, rely on plant-specific and process-specific skills that make their workers less portable within the labour market and thus, arguably, less susceptible to non-standard forms of work. Employers in other sectors pride themselves on being a lifelong employer and implement policies that promote internal recruitment and more traditional forms of employment. Others only rely on external consultants and freelance workers after overcoming great reservations. They engage them very temporarily, often to a limited extent for one project or to transfer subject-specific expertise to their regular employees. Thus, individual business needs and their culture will play important roles in the expansion of alternative work arrangements.

To further understand how these work modalities may manifest in ASEAN, enterprises were asked to comment on the conditions under which they would be engage international migrant workers, freelance workers, or workers working remotely. Students were also asked about the circumstances under which they would be willing to work in these three kinds of ways.

The findings reveal a greater reluctance from employers than students to engage in these kinds of work. Potential rises may thus be driven by the demand for such work, rather than its supply.

## 6.2 Prevalence of the three work modalities among employers

### Enterprises are somewhat reluctant to engage workers in employment with functional or geographical mobility

Several stakeholders praised working from home because of the greater productivity it can offer to some and the potential savings it creates for businesses. As Mr Amarit Charoenphan, Cofounder and Co-CEO of Hubba Coworking Space in Bangkok, puts it:

“Work is becoming less about the ‘nine-to-five’ tradition and more about getting things done. Creating value. It is no longer necessary to be in the office with everyone else... People have become location independent – and it’s very cheap.”

Nevertheless, the interviewees varied greatly in the extent to which their enterprises permitted or forbade working remotely. While some said they encouraged their employees to work more often from home, others provided such options only on given conditions or under specific roles.

These decisions ultimately come down to company culture and how willing, flexible, or even capable, they might be to accommodate such arrangements.

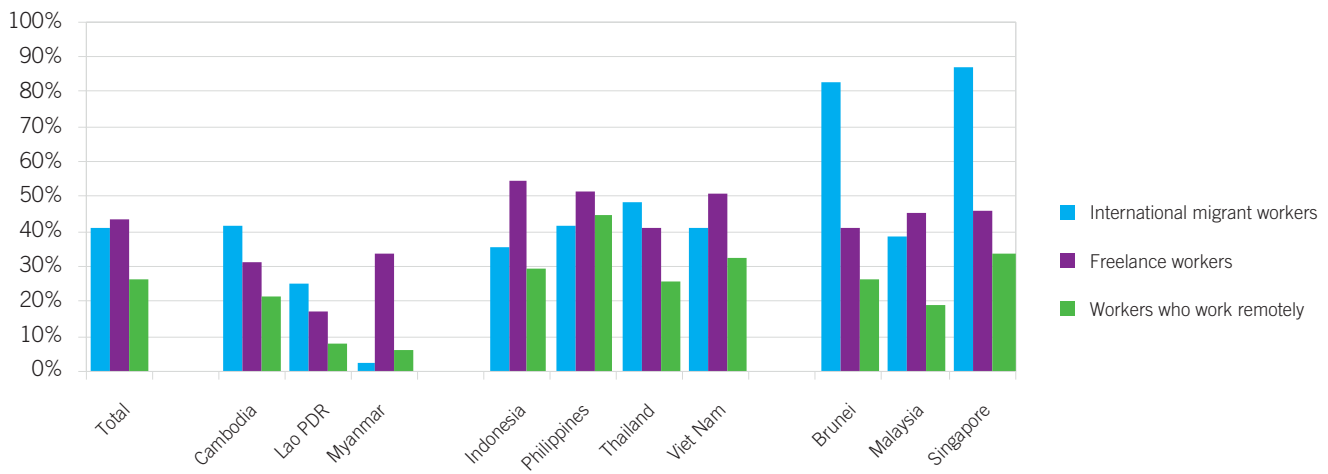
Enterprises were asked whether they currently engaged international migrant workers, freelance workers, or remote workers. While around 35 to 50 per cent among most Member States said they engaged international migrant workers, the relevant share was much smaller the Lao People’s Democratic Republic and Myanmar (at 25.6 per cent and 2.7 per cent, respectively) and far bigger in Brunei Darussalam and Singapore (at 83.0 per cent and 87.0 per cent, respectively). It is important to remember that 97 per cent of the more than 6.5 million intra-ASEAN migrants are mainly received in three Member States, namely, Malaysia, Singapore and Thailand.<sup>62</sup> The three largest net migrant sending countries are Indonesia, Malaysia and Myanmar.<sup>63</sup>

Moreover, about 40 to 55 per cent of employers in most of ASEAN’s high-income and middle-income Member States reported they engage freelance workers. The share of those employing remote workers was lower across the board but appeared highest in the Philippines at 44.7 per cent.

<sup>62</sup> Sugiyarto and Agunias, 2014.

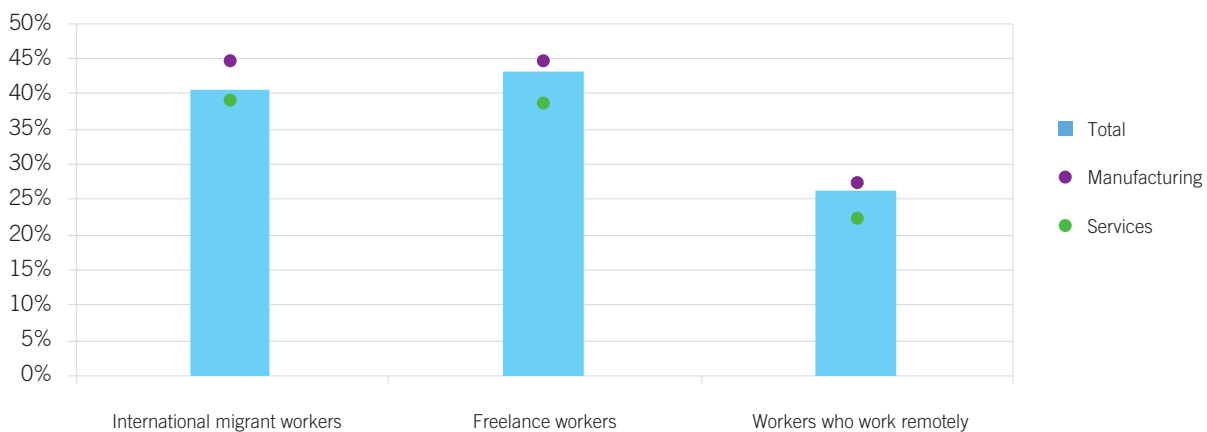
<sup>63</sup> UNDESA, 2015b.

**Figure 34. Does your enterprise currently engage the following types of workers? (by Member State)**



Both services and manufacturing enterprises currently employ international migrant workers, freelance workers and remote workers in roughly equal measure. Slightly more manufacturing enterprises, however, employ international migrant workers (45.3 per cent of those sampled, compared with 40.0 per cent among services enterprises), while services enterprises slightly engaged more freelance and remote workers.

**Figure 35. Does your enterprise currently engage the following types of workers? (by broad economic activity)**



## 6.3 Willingness to engage workers in mobile work

### Young people are more prepared to work abroad, remotely or freelance

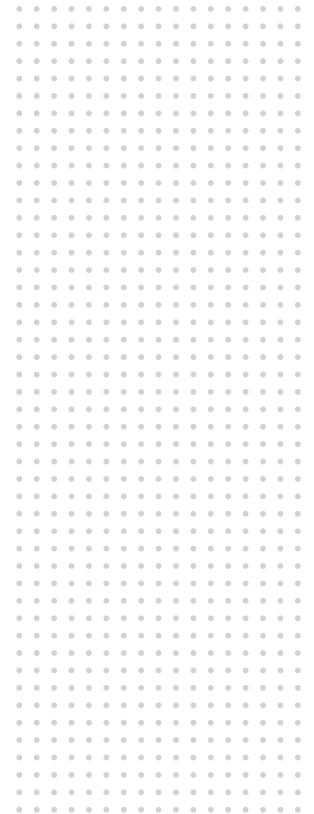
Employment with functional or geographical mobility can offer valuable secondary income and flexibility. These arrangements can also provide a liberating option for many women and men wishing to balance work with commitments to family or higher education. Moreover, the goal for many workers has shifted from job security to job satisfaction. According to Mr Amarit Charoenphan, Cofounder and Co-CEO of Hubba Coworking Space in Bangkok, some workers are reportedly more productive, less complacent and better-paid under contract-based work than they would be otherwise in a regular salaried position:

“With all the apps at your fingertips today you can work from any coffee shop, any airport, or from anywhere else you can deliver your services. All you need is your education and experience to put together plans that can be developed by various teams, working remotely.”

Research also shows that young professionals want to start and perform more remote work because it would enhance their productivity, job satisfaction and work-life balance.<sup>64</sup>

ASEAN students were largely open to working abroad, freelancing, and remotely. Only 8 per cent or fewer said they would decline to perform these kinds of work under any condition, while around three-quarters would undertake it under specific conditions. This is in line with a 2011 global study that indicated 71 per cent of 4,364 millennial university graduates wanted to pursue their professional careers outside their home countries; 66 per cent also believed that international experience would help to advance their careers.<sup>65</sup>

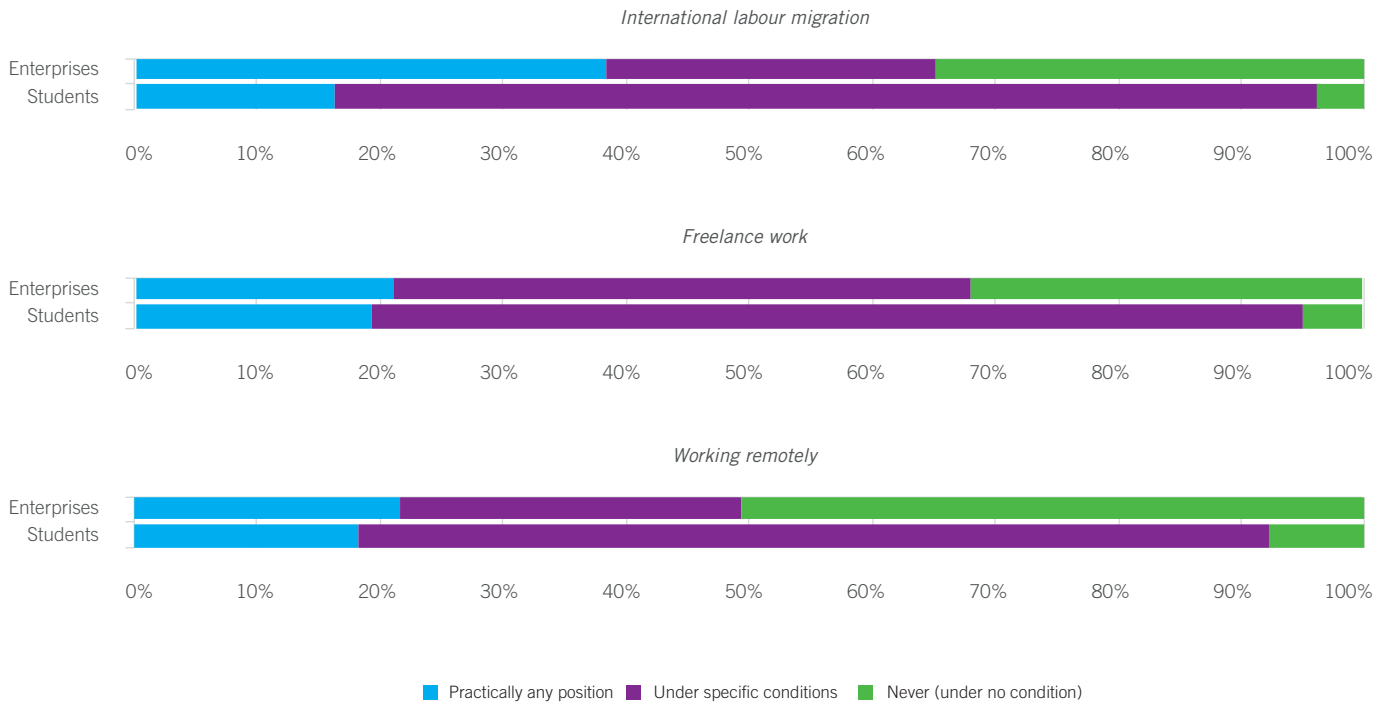
Conversely, the enterprises surveyed were more categorical – between one fifth and two-fifths said they would offer such work for practically any position for which they are hiring, while a significant proportion in each case said they would not offer it under any condition. Specifically, 35.0 per cent of enterprises said they would not employ international migrant workers under any condition; 32.0 per cent said the same for freelance workers; and a full 50.6 per cent said the same for workers working remotely.



<sup>64</sup> Deloitte, 2016; Randstad, 2014; Regus 2011; Regus 2012.

<sup>65</sup> PwC, 2011.

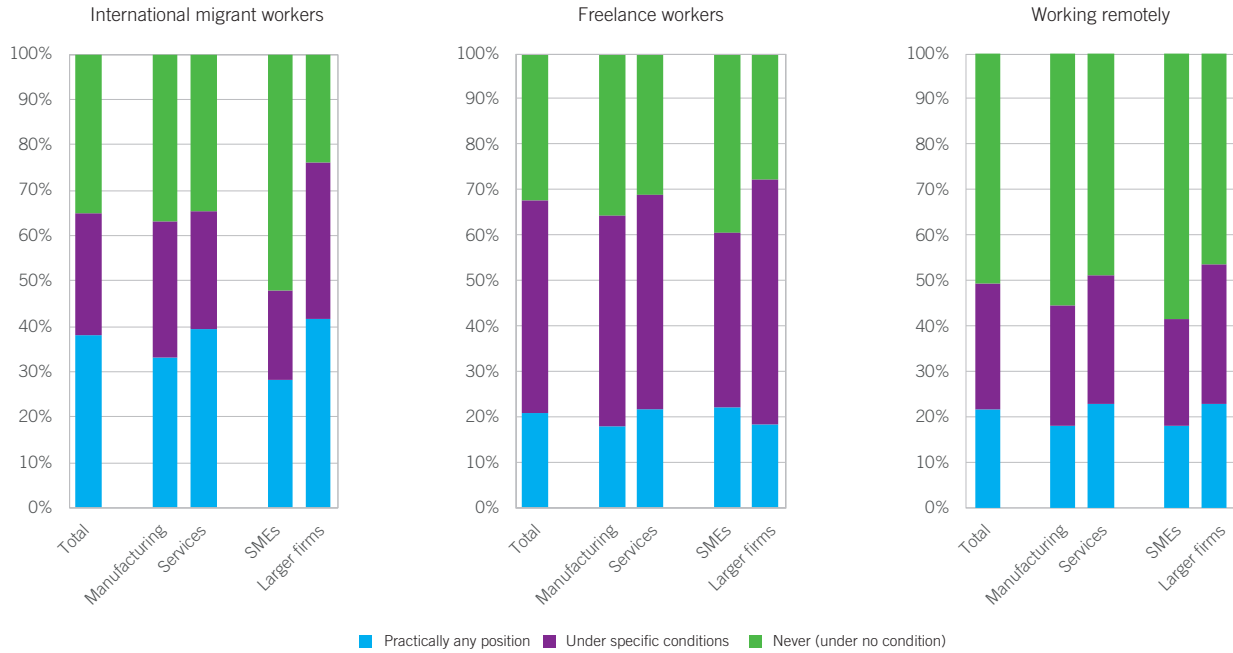
**Figure 36. Under what conditions would you be willing to engage international migrant, freelance, or remote workers (for employers) or engage in such work (for students)?**



These results varied among different types of enterprises, according to their sector and size. Manufacturing and services enterprises were alike in their willingness to hire international migrant workers, though manufacturing enterprises were somewhat more reluctant with hiring freelance workers and remote workers. This makes intuitive sense, as both sectors might benefit equally from low- and high-skilled migrant workers, but the more physical and tool-specific nature of many manufacturing tasks are not favourable to freelance and remote arrangements.

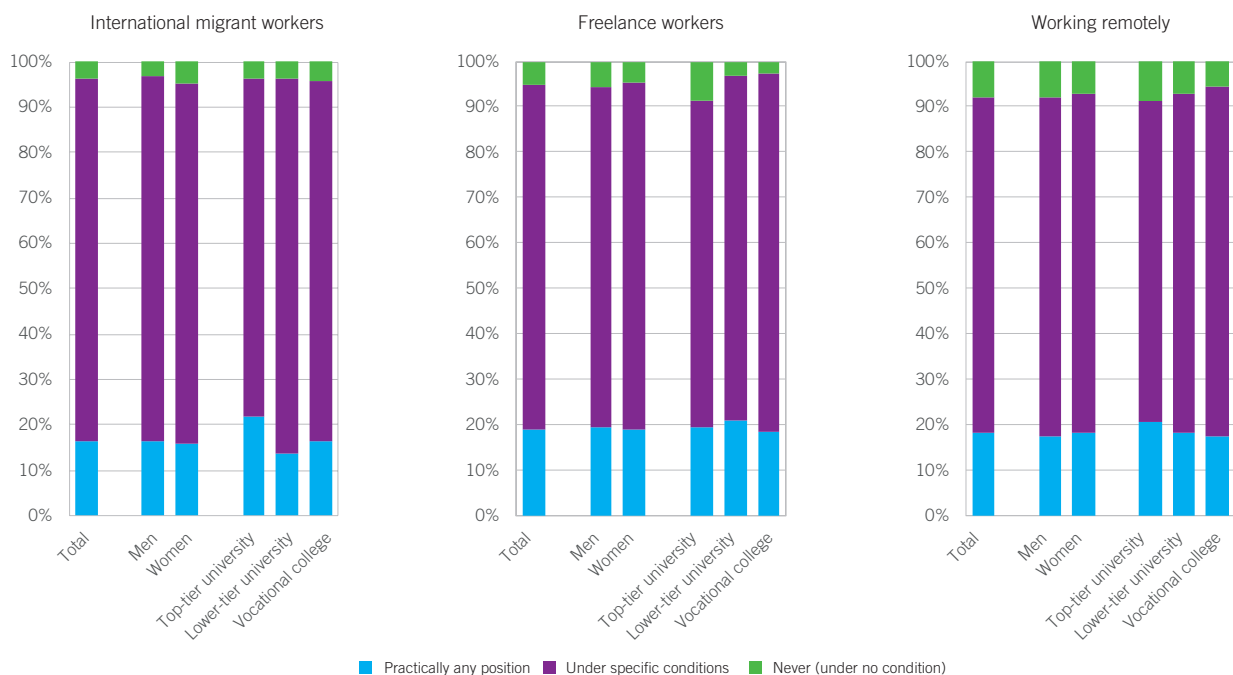
SMEs were much more likely to rule out all three types of work arrangements compared with larger firms. Of the SMEs surveyed, 51.8 per cent said they would never hire international migrant workers; 39.3 said they would never engage freelance workers; and 58.2 said they would never engage workers working remotely. SMEs operate on a smaller scale than larger firms, and thus, might be more averse to the risks and uncertainties presented by workers from different cultures, workers unbound by a traditional working relationship and workers in remote locations. Larger firms are positioned to experiment more and usually have more available positions to make beneficial use of them.

**Figure 37. Under what conditions would you be willing to engage international migrant, freelance, or remote workers? (by broad economic activity and firm size)**



The results held remarkably strongly, however, among various types of students. There were no significant differences among women and men students in their preferences over all three types of work. There were no significant differences among top-tier university students, lower-tier university students and those in vocational programmes in their preferences over all three types of work.

**Figure 38. Under what conditions would you be willing to engage in work as an international migrant, freelance worker, or remote worker? (by sex and education-level)**



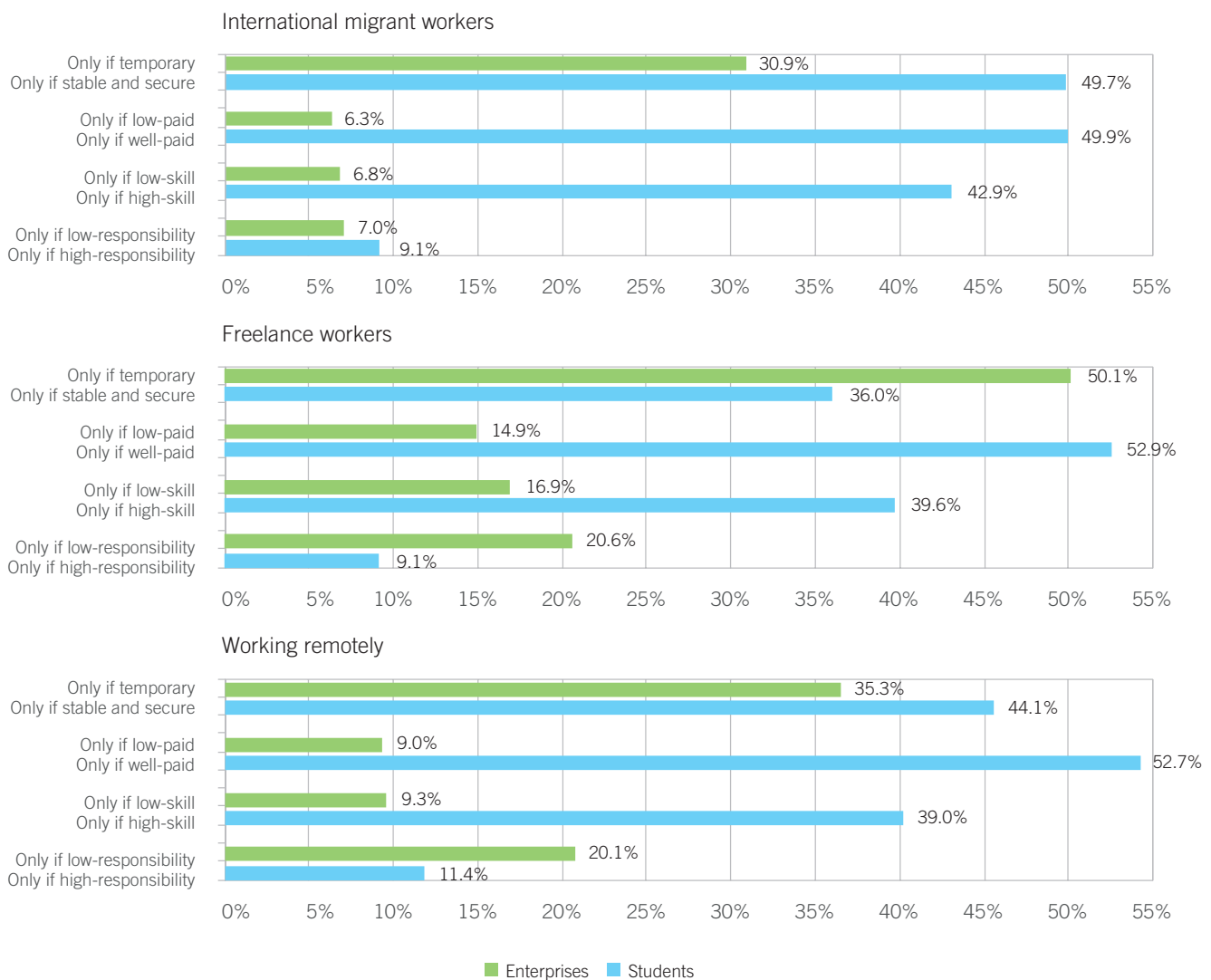
Among enterprises and students not categorically opposed to the three types of work – whether offering or accepting it unconditionally, or only under specific conditions – the types of conditions they gave highlighted a number of critical mismatches.

Of the enterprises open to engaging international migrant workers, 30.9 per cent said they would only do so for a temporary position. Simultaneously, 49.7 per cent of students said they would only be willing to undertake such work under a stable or secure position. The mismatch highlighted here suggests employers are mostly reluctant to engage international migrant workers unless the position is temporary, while young high-skilled graduates would be disinclined to accept it unless it offered them degrees of stability and security.

Virtually the same mismatch emerged for freelance work, where the majority of employers would not offer it except on a temporary basis; the students would not accept freelance work unless more permanent or secure elements came with the job (as well as highly paid and suitably matched to their skills). Almost an identical pattern emerged again in terms of working remotely.

The relevant shares were virtually the same among women and men students in the survey.

**Figure 39. Under what conditions would you be willing to engage international migrant, freelance, or remote workers?**



## 6.4 Comparing the three work modalities to more traditional types of employment

### Working abroad, remotely or freelance have their disadvantages and require new labour market protections

Own-account work (also referred to as self-employed workers) typically entails risks uncommon to regular, salaried employment. Insurance packages, pension programmes, and various loans or mortgages can often be more difficult to access for non-standard workers lacking formal, guaranteed income that would normally come from the employer. Some solutions are, however, surfacing. Drivers engaging with digital applications such as Grab, for example (working on a freelance or ad hoc basis), have been able to structure a collective driving insurance policy to make huge savings on overhead costs and spreading the risk accordingly.<sup>66</sup>

Online communities like freelancer.com enable users to post tasks they want completed by freelance workers all over the world. To date, the website currently boasts more than 16.7 million registered users, over 850 work categories, around 8.6 million completed projects and over US\$2.7 billion generated. Websites like freelancer.com and other, more specialized ones, open up new possibilities for freelance work.<sup>67</sup>

Stakeholders mention there have been some movement towards more flexible forms of work and new ways of accessing it in spite of the lack of labour protections. In fact, informal and flexible types of employment have become the norm, rather than the exception, worldwide. According to official estimates, Indonesia, the Philippines, Thailand and Viet Nam, employ 42.8 to 72.5 per cent of the total population in informal, non-agricultural work.<sup>68</sup> Own-account workers in Cambodia, the Lao People's Democratic Republic, the Philippines, Thailand and Viet Nam span between 28.3 and 55.1 per cent of the total employed population. The growth in co-working spaces to cater to remote and freelance workers also indicate that informal work is increasingly becoming the new norm.

In the United States, a campaign called the Freelancers Union reportedly organizes more than 270,000 freelance workers into a strong community to share advice, relay work opportunities, lobby for better conditions, and produce creative solutions to obtaining medical insurance and retirement benefits.<sup>69</sup> This could serve as a model for the ASEAN region beyond and before 2025.

<sup>66</sup> Grab, formerly “GrabTaxi” and “MyTeksi”, is a digital application offering fast transport booking services for taxis, private cars and motorbikes. Users can book transportation using their phone, and a vehicle will pick them up at an assigned destination.

<sup>67</sup> Based on ‘recent projects’ listed on freelancer.com, four examples include: the design project “Design a logo”, which received 59 responses (the first in under 16 seconds) and was awarded for €882; the programming project “C# Graphs: Shortest path”, which received 11 responses (the first in under 1 minute) and was awarded for 39 Australian dollars (AUD); the web-design project “Build a Website” that received 79 responses (the first in only 24 seconds) and was awarded for US\$530; and the writing project “15 x 500 word articles about dental services”, which received 47 responses (the first within 56 seconds) and was awarded for US\$141.

<sup>68</sup> ILO, 2015c.

<sup>69</sup> See: [www.freelancersunion.org/](http://www.freelancersunion.org/). In the “About us” section of the website, the Founder and Executive Director, Sara Horowitz, writes: “Nearly one in three working Americans is an independent worker. That’s 53 million people – and growing. We’re lawyers and nannies. We’re graphic designers and temps. We’re the future of the economy. Freelancers Union serves the needs of this growing independent sector. We’re bringing freelancers together to build smarter solutions to health care, retirement, wage security, and other broken systems. We call it New Mutualism. You can call it the future.”



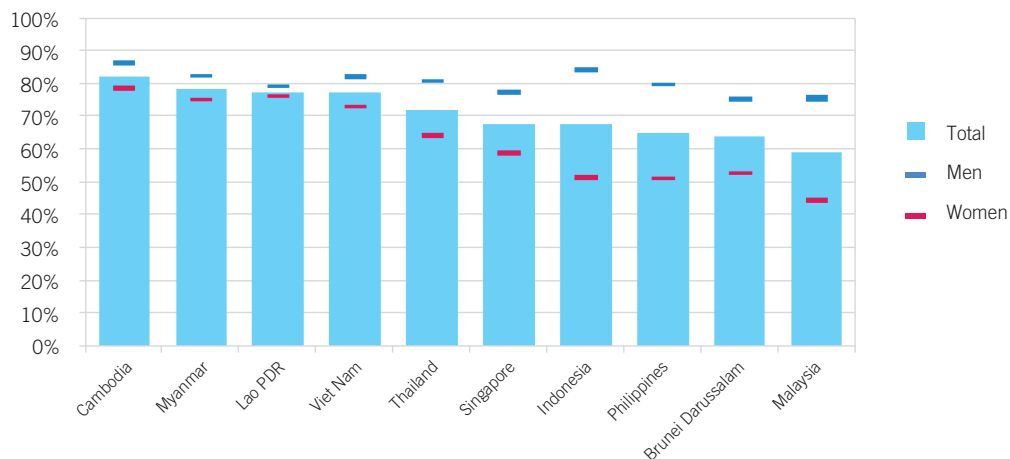
Today, workers in ASEAN are reportedly performing more work from home. Women, in particular, reportedly demand more flexible working arrangements to assist with managing childcare obligations and expenses. In fact, in the developing world, more women engage in informal work than men.<sup>70</sup> Working from home can also offer a welcome relief from long commutes. This is particularly ideal for some of ASEAN's capitals and larger cities, in which issues with vehicle traffic are prevalent.

Mr Christopher Raj, President of the Association of Hotel Employers for Peninsular Malaysia, argues that more flexibility from employers towards working remotely could have broader social benefits in terms of labour force participation, especially among women:

“The structure of working eight hours per day, 48 hours per week should go. There is no need for people to be in the office at all times. More flexibility on this will bring more people into the labour market.”

Labour force participation is indeed considerably low among women in several ASEAN Member States. Figure 40 shows the latest ILO estimates on this for 2013 by sex. The gap between women's and men's labour force participation rates is around 20 percentage points in Singapore (18.4 percentage point gap) and Brunei Darussalam (22.7) and as high as around 30 percentage points in the Philippines (28.6), Malaysia (31.1) and Indonesia (32.8), indicating some very significant imbalances.

**Figure 40. Labour force participation rate by sex, ASEAN Member States, 2013 (per cent)**



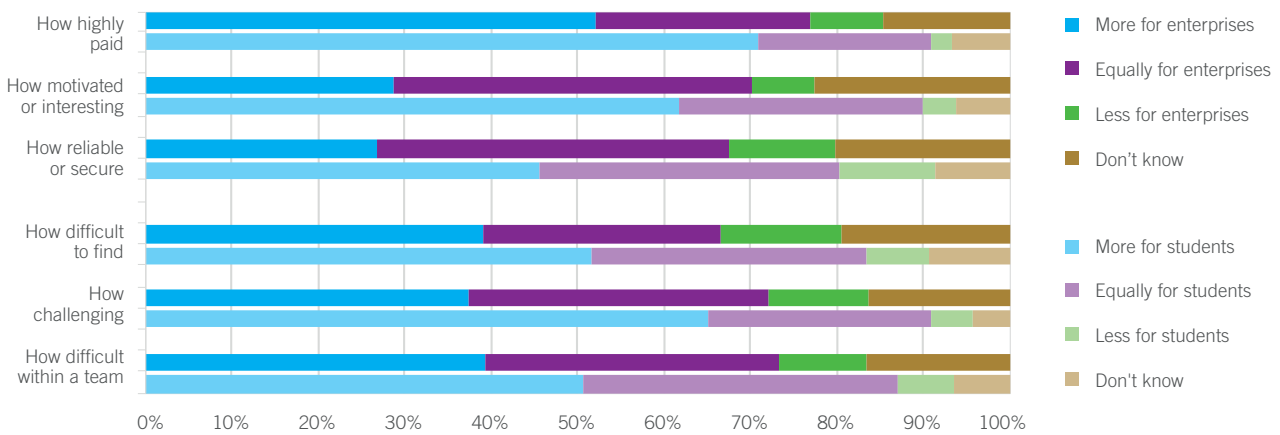
Enterprises and students in the two surveys were asked how international migrant work, freelance work and remote work compares with the respective opposites in each case: local work, regular salaried employment and in-house work.

<sup>70</sup> Chen, 2007.

Enterprises predominately said international migrant workers generate higher costs than local workers, and most felt they would be more-or-less equally motivated, equally reliable and equally dependable. Students asked overwhelmingly responded that working as international migrants overwhelmingly would offer higher pay, would be more interesting, and would be equally or more stable and secure as working in their home country.

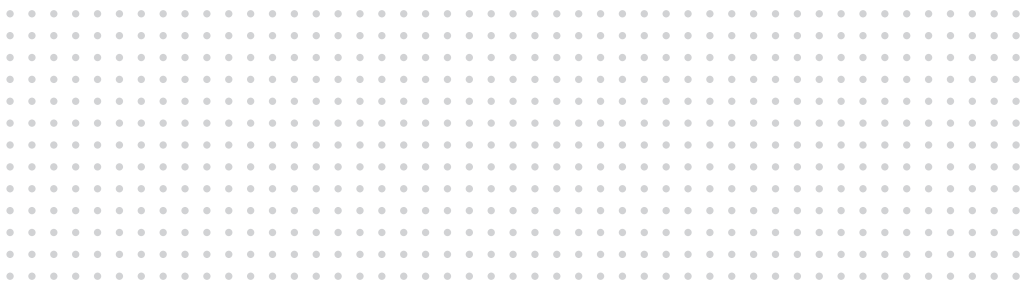
Among the possible drawbacks of such work, both students and enterprises felt international migrant workers be more difficult to find, more challenging to manage, and more problematic to undertake as part of a collaborative team.

**Figure 41. Engaging international migrant workers (or doing such work) compared with national workers (or working in a home country)**

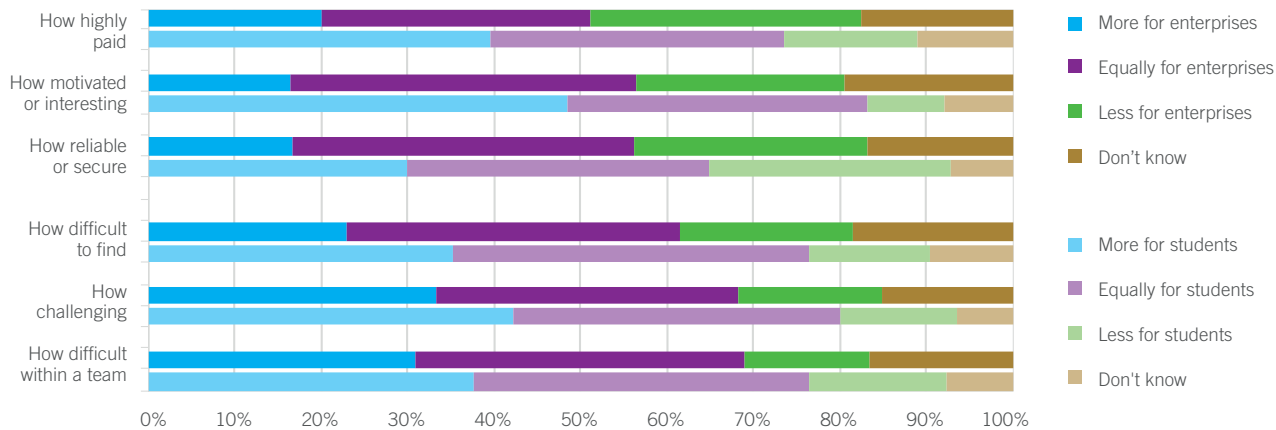


Freelance work was viewed less positively by both enterprises and students. While around one half of students felt freelance work would be more interesting and around two-fifths said it would offer better pay, relatively few thought it could offer more stability or security compared to regular, salaried employment. Enterprises felt freelance workers would be equally or less expensive; the majority also felt freelance workers would be less or equally motivated and less or equally reliable and dependable.

Among the possible drawbacks of such work, both enterprises and students thought freelance workers would be at least as (if not more) difficult to find, challenging to manage and difficult to do well within a collaborative team.

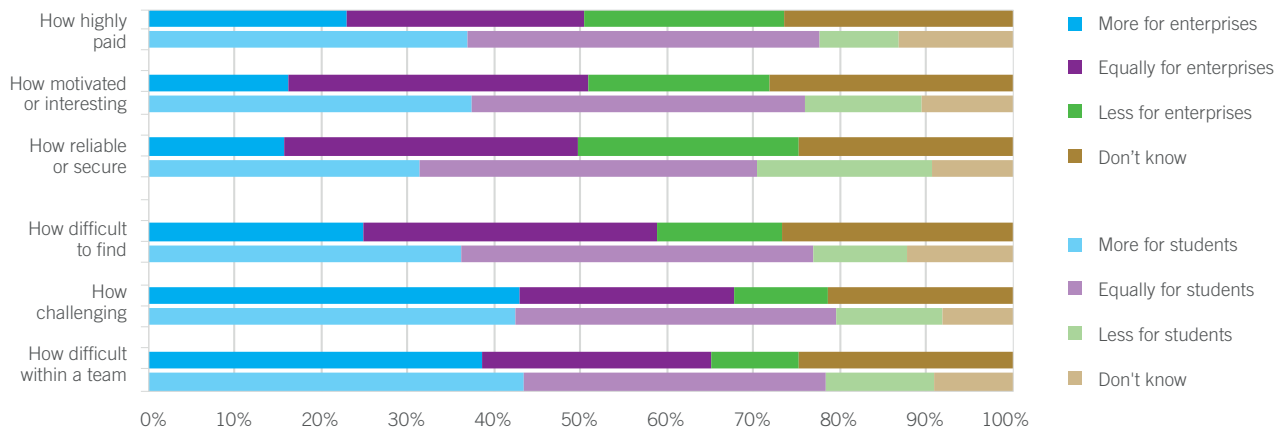


**Figure 42. Engaging freelance workers (or doing such work) compared with regular salaried workers (or doing such work)**



Remote work was largely perceived as being neither more nor less well-paid, motivating or interesting, or stable and secure than on-site work. On the other hand, it was seen by both students and employers as slightly more difficult to find, challenging to manage or carry out and difficult to do within a team. This highlights a few obstacles to popularizing such work, despite advances in modern communications technologies.

**Figure 43. Engaging workers who work remotely (or doing such work) compared with in-house workers (or doing such work)**



# LOOKING AHEAD TOWARDS 2025



## 7.1 Business performance by 2025

### Enterprises see that business performance will improve in key areas over the next decade

The survey asked enterprises how their business performance might change over the next decade or so. Enterprises evaluated a variety of aspects related to their performance, reporting if these aspects would be reduced, unchanged or increased beyond their present rates of change.

Overall, enterprises felt very positively that their business performance would improve in several areas. About two-thirds felt their domestic sales, labour productivity, profits and the number of high-skilled workers they employed would all accelerate or increase by 2025. Around half also felt their exports, total employment and number of women employed would increase.

The literature supports the enterprises' perceptions on labour productivity and number of high-skilled workers. Productivity projections for 2020 show that average labour productivity per worker in ASEAN will account for US\$68,871 in 2020, compared to US\$58,811 in 2015.<sup>71</sup> This represents a 17 per cent increase of average regional productivity between 2015 and 2020. However, ILO and ADB (2014) argue that if current national education trends persist, by 2025, over half of high-skilled jobs in Cambodia, Indonesia, the Lao People's Democratic Republic, the Philippines, Thailand and Viet Nam would be done by workers with insufficient qualifications.

In addition to these anticipated benefits, a plurality of enterprises also felt their major costs would increase. Virtually half or more felt labour costs per worker, investment in R&D and skills development costs would increase. Around half also felt regulatory burdens would increase, and around three-fifths thought they would require more energy by 2025. In every case, very few enterprises (virtually all below 10 per cent) felt any of these factors would decrease by 2025, though many did report things would stay the same or that they did not know.

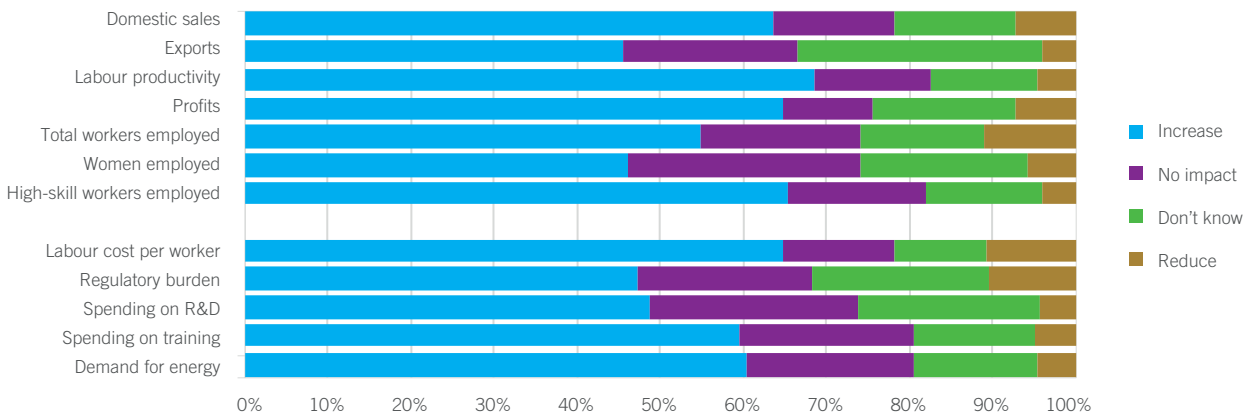
Regarding increased labour costs, investment in R&D and skills development, the literature also supports the views of enterprises. ADB (2014a) recommends ASEAN Member States increase investment in R&D and promote knowledge generation to avoid falling into a "middle-income trap" by 2030.<sup>72</sup> ILO (2015c) reports that wages in developing countries are gradually converging with wages in developed economies due to (1) increasing wages in developing countries and (2) declining, or immobile, wages in developed countries. Given these global trends, wages in ASEAN Member States will most likely continue to augment in the future. Additionally, other enterprise global surveys found that CEOs aim to overcome current and future skills shortages by providing training and learning opportunities to their staff.<sup>73</sup>

<sup>71</sup> ILO, 2015a.

<sup>72</sup> The middle income trap describes an economic development situation in which a country attains a certain income, but will get stuck at that level. Countries in this trap will lose their competitive edge in exporting manufacturing goods because their wages are rising and they are unable to keep up with more developed economies in high value-added production.

<sup>73</sup> The Conference Board, 2013; PwC, 2015.

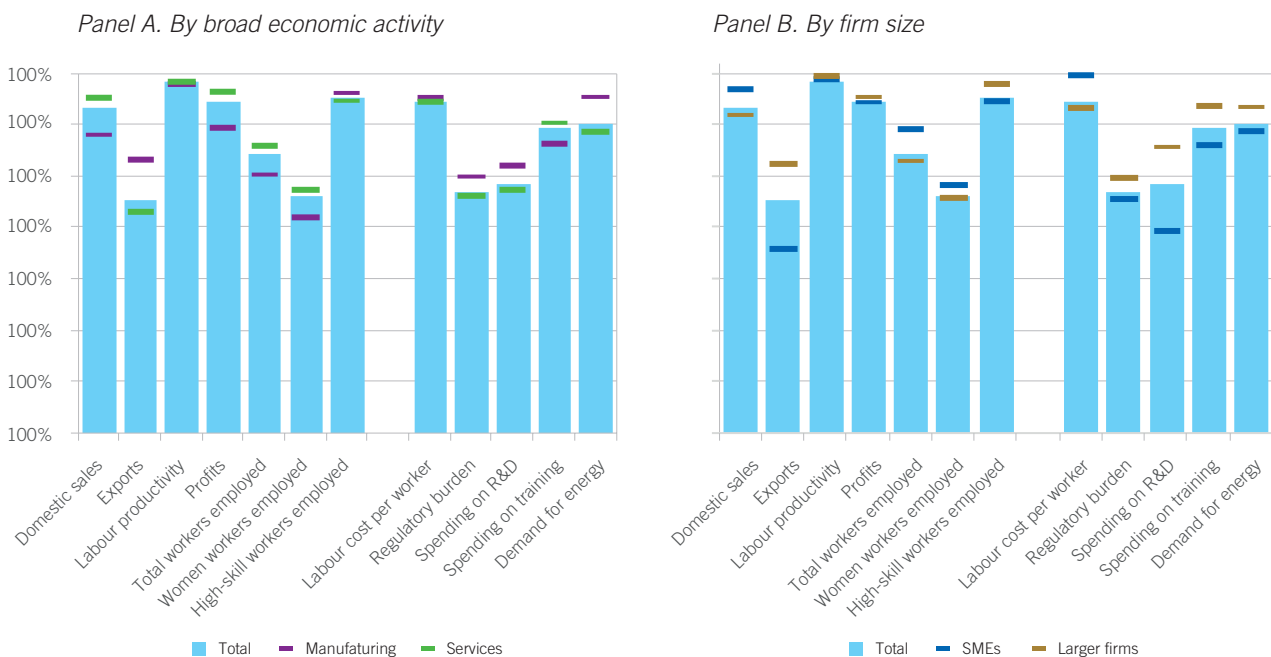
**Figure 44. How will enterprise performance be impacted by 2025 in each of the following areas?**



Comparing different types of enterprises reveals a few interesting findings. On the whole, there were no large discrepancies between either manufacturing and services enterprises or larger firms and SMEs. However, services enterprises tended to be slightly more optimistic than manufacturing ones in terms of their future domestic sales, profits and employment increases. Manufacturing enterprises, on the other hand, were more positive about their exports increases, though slightly more felt they would face more stringent regulations, invest more in R&D and consume more energy by 2025.

SMEs in the sample were slightly more optimistic than larger firms about selling more at home and growing in terms their employment by 2025. More so than larger firms, SMEs felt they would face higher labour costs. Larger enterprises, on the other hand, were more confident their exports would increase by 2025 and more frequently felt they would face higher regulatory burdens, invest more in R&D, spend more on staff training and consume greater amounts of energy.

**Figure 45. Enterprises who think performance will 'increase' by 2025 in each of the following areas (by broad economic activity and firm size)**



## 7.2 Specific impacts of technology, the ASEAN Economic Community and skills on enterprises by 2025

### Only 34 per cent of enterprises believe that technology advances will increase employment

Virtually all stakeholders expressed that technology drove the changes and momentum of trends in ASEAN. These changes were not only affecting employers, entrepreneurs and youth, but were also inalterably affecting the Member States’ economic trajectories, their cultures of work and how their societies are organized. This feeling was unequivocally expressed by interviewees.

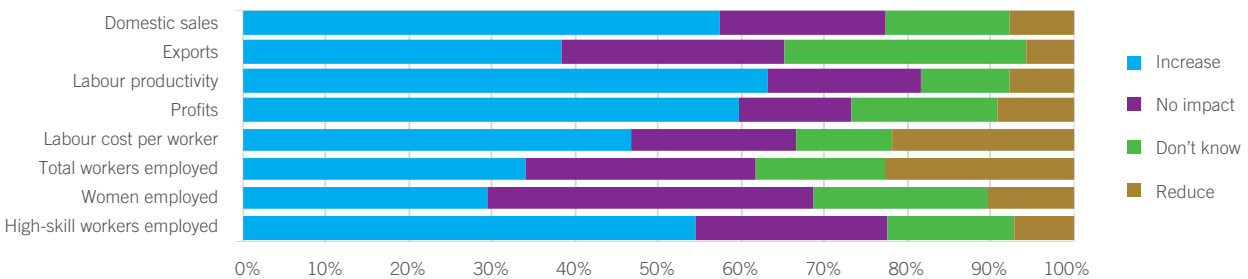
New technologies will continue to generate new markets and fresh competition, placing ever new demands on established business models until 2025 and beyond. Commenting on the breadth of the changes currently taking place, Mr Amarit Charoenphan, Cofounder and Co-CEO of Hubba Coworking Space in Bangkok, says:

“I don’t see any sector as being off the lead... even government. There are some very exciting things going on in this area.”

Enterprises in the survey were asked how they felt about three specific factors likely to affect them by 2025: technological advances, increased economic integration in ASEAN and a more highly skilled workforce in their countries. The sentiments on all three factors were highly positive.

More than half of the enterprises felt technological advances by 2025 would increase their domestic sales, labour productivity, profits and the number of high-skilled workers they employ. Only 34.0 per cent, however, thought technology would increase their total employment by 2025; 22.6 per cent felt technology would reduce total employment; and 27.8 per cent said there would be no impact.

**Figure 46. Impact of technological advances on enterprise performance by 2025?**



The survey results reveal some insecurity about technological unemployment taking place in ASEAN from now until 2025. Technological unemployment refers to the loss of jobs due to advances in technology. Usually, fears of technological unemployment relate to how new technology reduces the demand for skills, work-tasks and entire occupations, as advances typically increase productivity and cost effectiveness by replacing workers, merging jobs together and/or entirely eliminating the need for given roles. These fears from survey respondents are not limited to ASEAN, for they are also evident in other global surveys. For instance, 48 per cent of 1,896 executives in high management felt robots and digital agents would displace a significant number of people employed in blue-collar and white-collar jobs by 2025.<sup>74</sup> The remaining 52 per cent reported that technology would create more jobs than it would destroy by 2025.

Technological unemployment is also discussed in terms of social harm and inequality if it occurs rapidly, or on a large enough scale. The stakeholders interviewed in the six Member States, however, could cite no such recent instance that was particularly large or unmanageable. A few niche examples were given, however, relating to certain manufacturing sectors that could implement large-scale automation.<sup>75</sup> Service sectors also reported various administrative or otherwise routine jobs could be automated,<sup>76</sup> though none of this appears to be unmanageable.

Technological change, on the whole, does not appear to have caused any major shocks to employment in ASEAN in any sector over the past couple of decades. Employers and workers generally seem to have been able to adapt without any major incidents or challenges. As Mr Kim Chan Samnang, President of the National Union Alliance Chamber of Cambodia, says:

“The story is one of structural change and development through modernisation... not unemployment.”

People’s labour will still be needed to perform creative and problem-solving tasks across a variety of sectors and business contexts. As Mr Alan Owens, Director of CIPD Asia, says:

“One should not neglect the fact that machines do not innovate – it is people who innovate.”

While advances in artificial intelligence may indeed streamline work in the future, a variety of interviewees felt this would not present a significant trend by 2025. Artificial intelligence can certainly employ hindsight and foresight analyses using past information and predictive analytics, but there is a sense that it is not yet capable of handling random and unexpected events in the way humans can.

<sup>74</sup> Pew Research Center, 2014.

<sup>75</sup> The manufacturing of rubber gloves in Malaysia, for example, was cited as a clear example of technological unemployment. This well-established product has traditionally benefitted from Malaysia’s large and well-developed natural rubber supplies as its primary input. Given increasing labour costs and mounting competition from abroad businesses found their market shares slipping and shifted very rapidly at one stage towards greater automation. The resulting surge in productivity apparently reduced the manual labour needs by around one quarter while lowering the overall cost of the product, thus making it more competitive.

<sup>76</sup> Several services sectors have recently undergone large-scale restructuring, cutting various positions in favour of new ICTs and other technologies. Services workers and civil servants alike are reportedly being put to higher value-added functions, with machines and algorithms in place to streamline their work in various ways and improve their overall productivity. Some particular examples of direct technological unemployment were cited among manual or routine workers such as dock workers, toll-booth operators, bus conductors, car cleaners, various types of supervisors, and the like, though many of these took place not rapidly but over a number of years or decades. In any case, the critical driver appears to have been rising workers’ wages and labour shortages affecting such occupations.

While a multitude of jobs will thus probably never fully automated, as some might fear, there is a sense that occupations are becoming altered or pressed to evolve in parallel with technology. One key factor, in turn, will be to ensure the workforce has the right kinds of skills they need for the evolving tasks ahead. As Mr Alan Owens, Director of CIPD Asia, comments:

“Changes to the type of jobs on offer and the way we work are inevitable, but their impacts on employment can be managed and controlled. It is up to us to get used to a different paradigm and focus on upgrading our skills and maintaining our versatility and adaptability.”

### The ASEAN Economic Community is a key opportunity for enterprises

Virtually all stakeholders voiced their support for, and optimism about, the AEC and the growth opportunities it brings to their countries and sectors. The AEC enables businesses to move more freely within the regional market. With economic growth in China slowing down and Japan’s economy remaining somewhat stagnant, stakeholders in ASEAN said they look ever more towards the AEC to fuel their future growth.

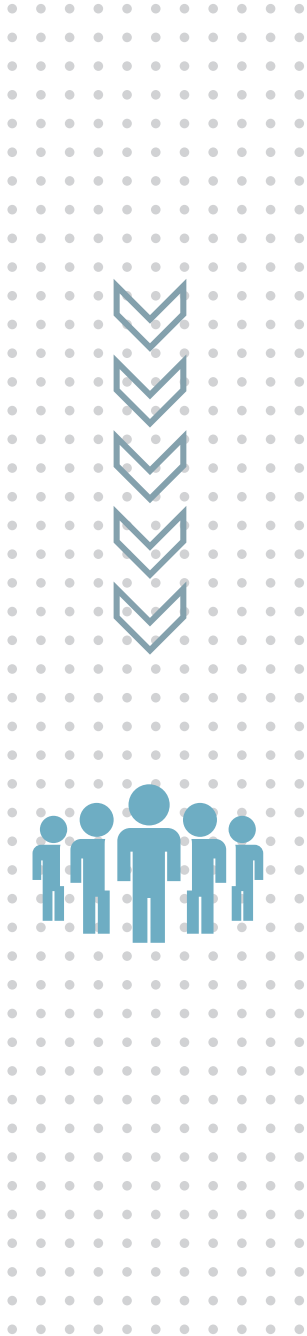
Some interviewees, however, acknowledged how structural changes will bring challenges to the ASEAN Member States’ economies and, in parallel, how greater competition under the AEC will bring new trials a variety of sectors. As Mr Renato Almeda, Vice President of Yazaki-Torres Manufacturing, comments:

“One thing that has caught the attention and concern of employers is the ASEAN integration. Some employers consider this as a threat, others are welcoming it as an opportunity. This AEC is definitely going to be a big challenge... Whoever can really manage the impact of this integration will be the best one to survive. For enterprises it is really going to be a question of survival.”

Commenting specifically on the challenges of managing structural change, Mr Chantira Jimreivat Vivatrat, Deputy Director-General of the Department of International Trade Promotion at the Ministry of Commerce in Thailand, says:

“Under the ASEAN integration, economies must make adjustments along the way. In theory it sounds very simple but implementing it presents a bumpy road where governments must make lots of adjustments along the way.”

Regarding the free movement of skilled labour in ASEAN under the AEC, however, several interviewees agreed national governments would have to do more to harmonize skills certification and recognition. By promoting certification of various occupational groups, interviewees also felt workers would gain more recognition and pride around their work, with positive effects on their labour productivity. It was hoped that skills certification will thus enable a new degree of market stratification within ASEAN and enable workers to gain distinction based on their merits.

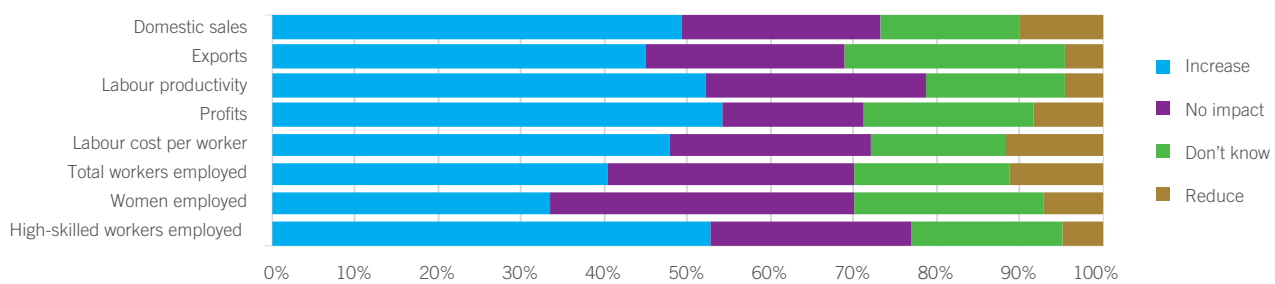




Several interviewees in Cambodia felt the AEC would encourage both the public and private sectors to catch up to their competition while modernizing business practices, bringing in new technologies, and improving the culture of work. Trade preferences with the European Union (EU) granted through its “Everything but Arms” initiative (currently open to Cambodia, Lao People’s Democratic Republic and Myanmar) would assist with attracting intra-regional investment in the least developed countries, boosting their economic growth and development.<sup>77</sup>

Some 40 to 55 per cent of enterprises felt economic integration in ASEAN – including the AEC beyond 2015 – will increase or accelerate aspects of business performance by 2025. Over half of the enterprises felt the AEC would improve labour productivity, profits and employment of high-skilled workers by 2025. Very few overall – around 10 per cent or fewer in every case – felt economic integration would reduce these factors for them by 2025.

**Figure 47. Impact of increased economic integration in ASEAN on enterprise performance by 2025?**



## Higher skills among workers will enhance business performance

More than three-fifths of enterprises felt higher skills among the workforce would increase domestic sales, labour productivity, profits and employment of high-skilled workers. As many as 70.6 per cent felt higher skills would improve labour productivity, though 60.7 per cent also felt higher skills would increase labour costs per worker.

It is worth noting that labour productivity greatly differs between ASEAN Member States and is directly correlated with the workforce’s average skill levels.<sup>78</sup> For instance, in 2015, labour productivity in Thailand was four times the level of labour productivity in Cambodia; labour productivity in Indonesia doubled the levels of labour productivity in Myanmar; and labour productivity in Singapore almost tripled levels of labour productivity in Malaysia.<sup>79</sup> By 2020, labour productivity in all ASEAN Member States (excluding Brunei Darussalam, Malaysia and Singapore), will be below the ASEAN regional mean. Differences in wage levels among ASEAN Member States also reflect the mentioned differentials in labour productivity.<sup>80</sup>

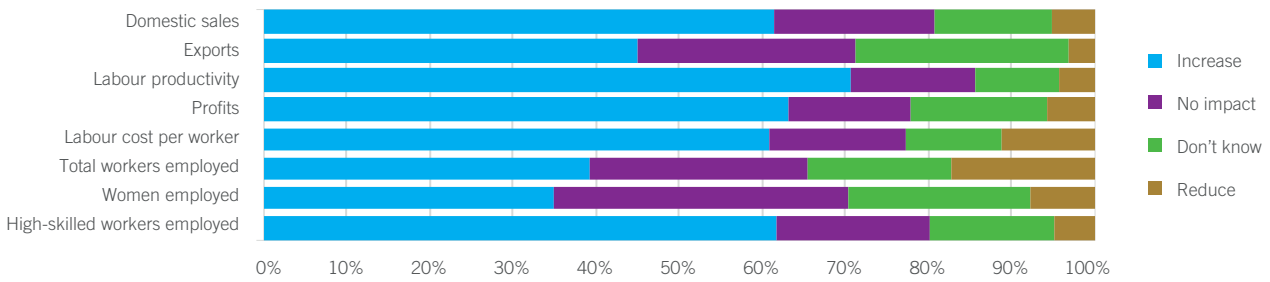
<sup>77</sup> The EU’s “Everything but Arms” initiative was created in 2001 to give the least developed countries full duty-free and quota-free access to the EU for all their exports, with the exception of arms and armaments.

<sup>78</sup> ILO and ADB, 2014.

<sup>79</sup> ILO, 2015a.

<sup>80</sup> ILO and ADB, 2014.

**Figure 48. Impact of a more highly skilled workforce on enterprise performance by 2025?**



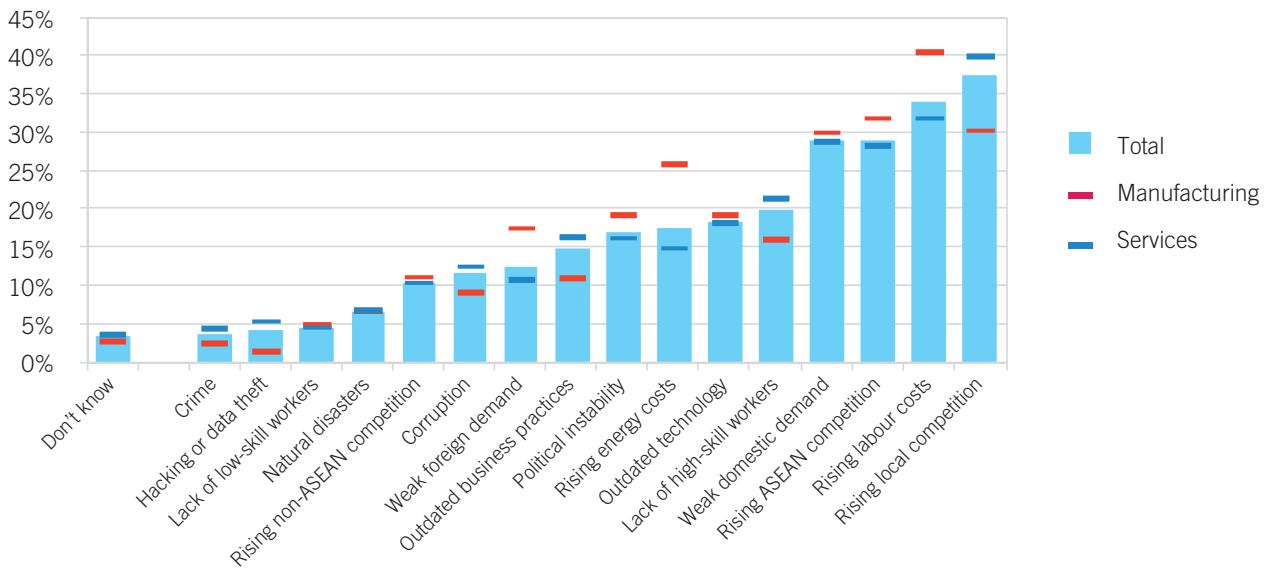
## 7.3 Challenges facing enterprises by 2025

### The biggest threats facing enterprises in 2025 are rising labour costs and weak domestic demand

Enterprises commented on the biggest threats they believed threatened their business from now until 2025, choosing up to three responses from a list of threats provided.

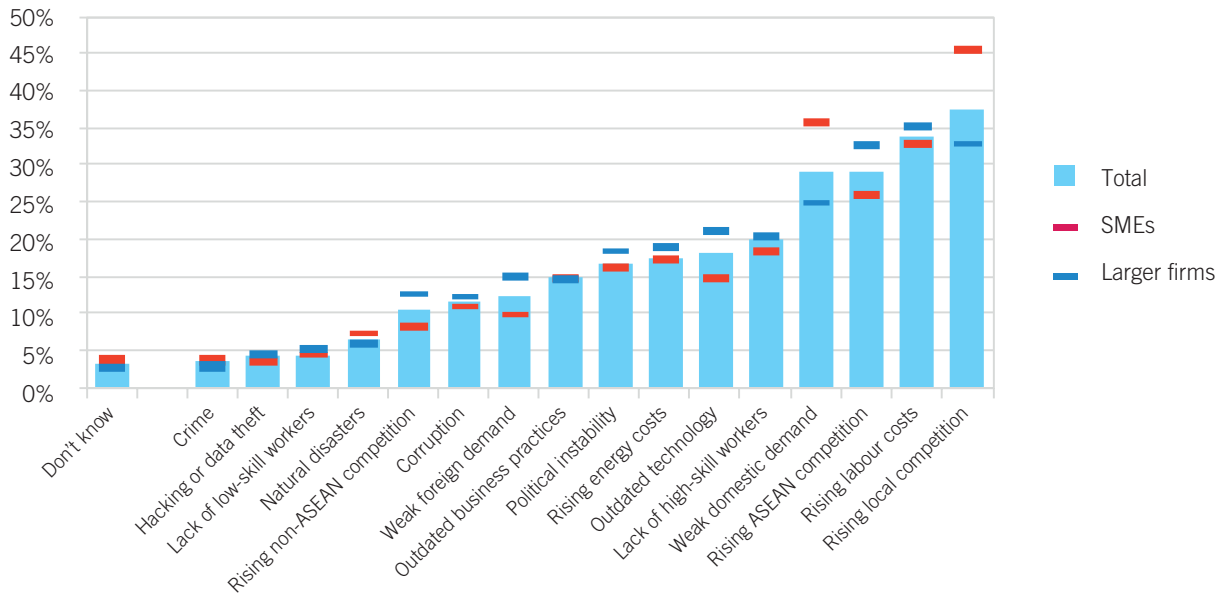
The biggest threats enterprises identified involved rising competition (both local and within ASEAN), rising labour costs and weak domestic demand. These threats featured topmost among manufacturing and services enterprises alike, though rising labour costs were felt as more of a threat by manufacturing enterprises and local competition more by services enterprises. Manufacturing enterprises also felt rising energy costs to be a major threat by 2025.

**Figure 49. What do you perceive are the biggest threats facing your enterprise up to 2025? (by broad economic activity)**

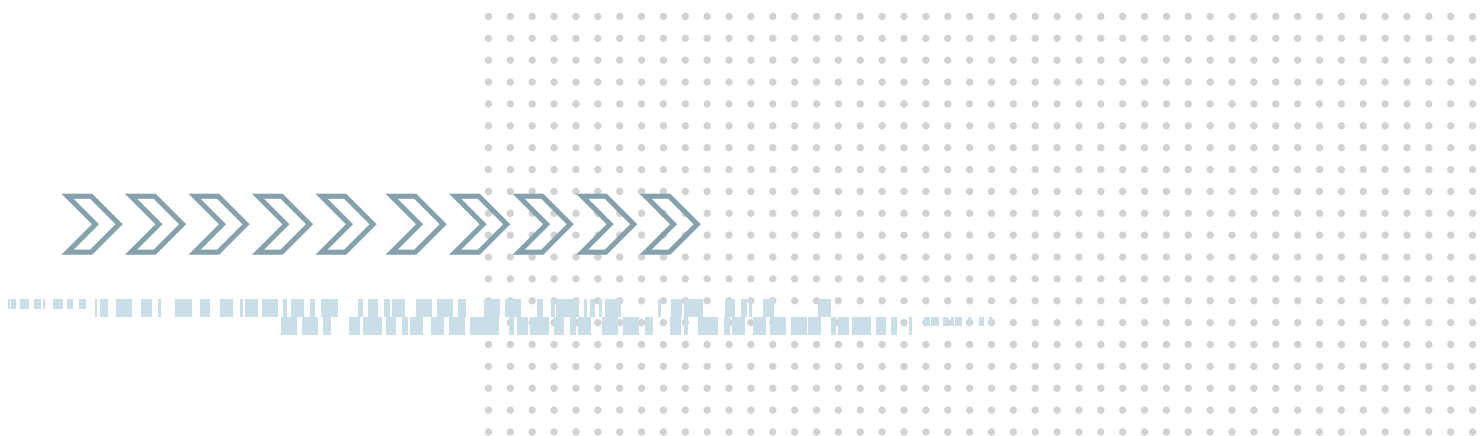


SMEs placed somewhat more weight on rising local competition and weak domestic demand as major threats. This somewhat highlights SMEs' reliance on local demand for more of their revenues – an element larger enterprises are better equipped to control through their economies-of-scale, broader business networks and broader financial networks. The remaining threats were shared more-or-less in equal measure by SMEs and larger enterprises.

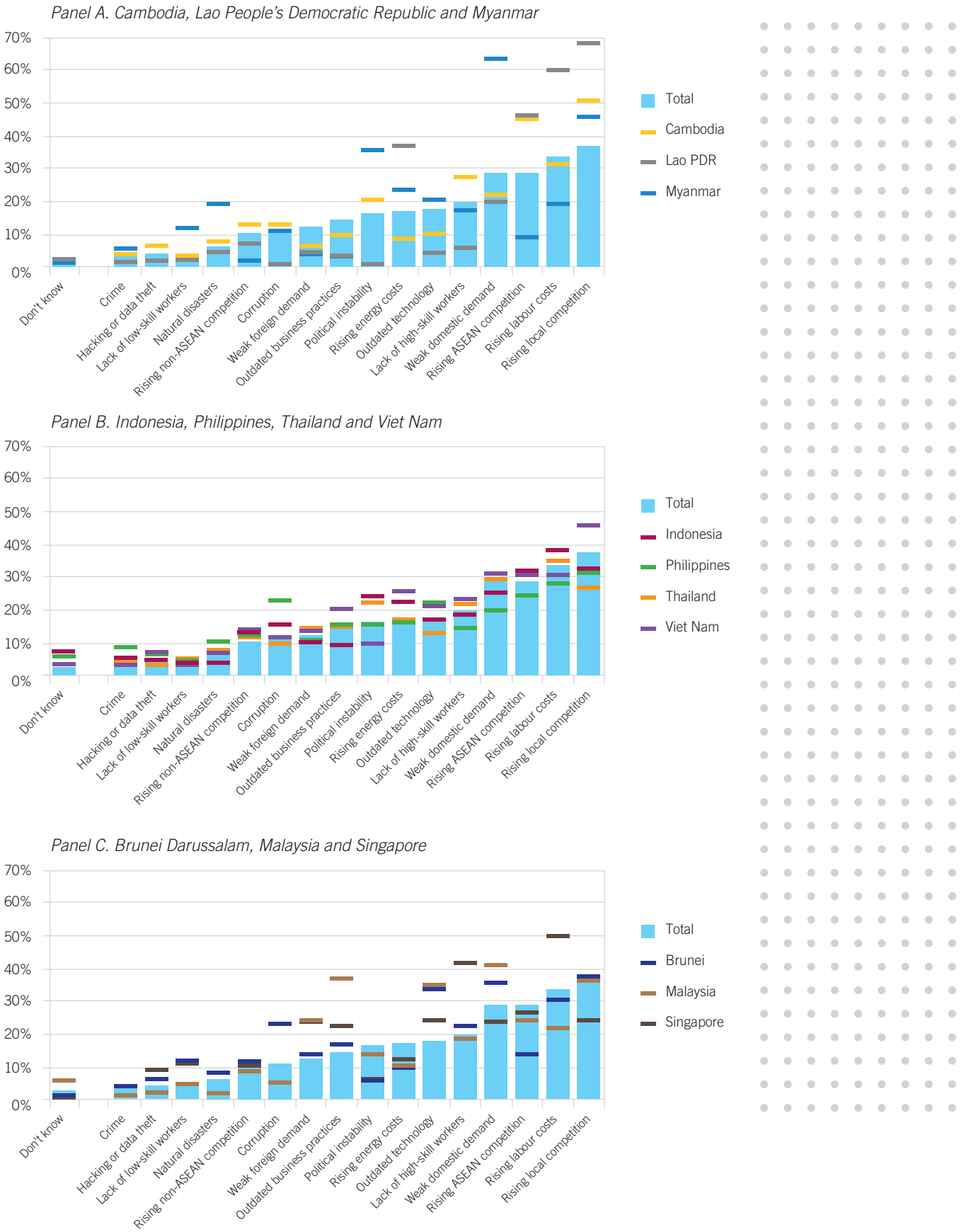
**Figure 50. What do you perceive are the biggest threats facing your enterprise up to 2025? (by firm size)**



Several key differences emerged among individual Member States. Weak domestic demand and political instability stood out as key threats by enterprises in Myanmar. The threat of corruption emerged very prominently in the Philippines and Brunei Darussalam. Outdated technologies and anachronistic business practices were among the topmost threats in Malaysia. Rising labour costs and a shortage of higher skills were, relatively, more significant threats in Singapore.



**Figure 51. What do you perceive are the biggest threats facing your enterprise up to 2025? (by Member State)**

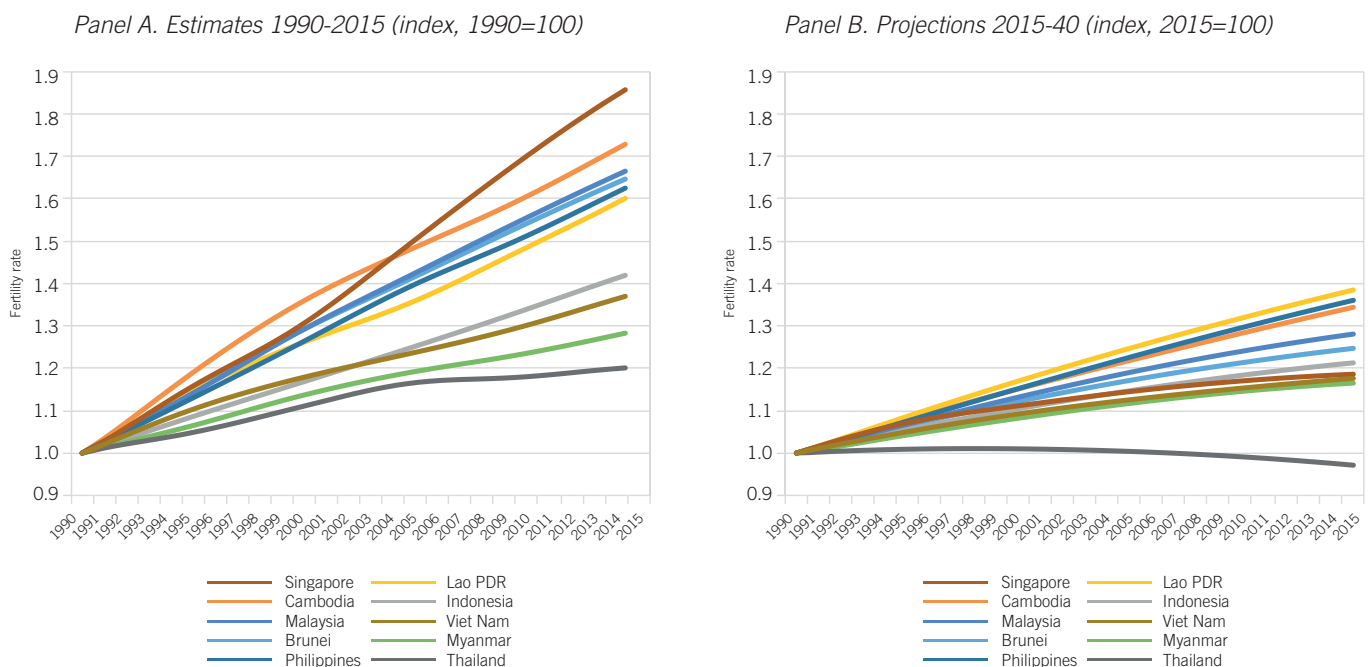


## Demographic factors are affecting the ASEAN Member States in different ways

While some populations within ASEAN Member States will grow significantly within the next decade or so, generating pressure to create education and work opportunities for all, others' populations will level off or decline, resulting in potential labour shortages, social pressures and fiscal pressures as more workers retire and dependency ratios increase.

As figure 52 shows, population growth in ASEAN is already forecast to be much smaller in the 25 years following 2015 than it was for the 25 years leading up to it. While Cambodia, the Lao People's Democratic Republic and the Philippines expect a considerable growth in their populations up to 2040, Myanmar, Singapore, Thailand and Viet Nam expect considerably less growth and may need to continue attracting more migrant workers to their economies.

**Figure 52. UN population estimates and projections, ASEAN Member States, 1990-2040**



Note: Projections are based on the “medium fertility” scenario.

Source: UNDESA, 2015c.

Among the stakeholders interviewed in Cambodia, most felt that the country's plentiful youth population was a key asset against its regional competitors. Among the stakeholders in Thailand, some noted that the demographic challenges facing the economy were already well publicized and understood. Stakeholders in Thailand commented that enterprises are currently preparing for labour shortages by investing in new technologies, as well as downsizing and restructuring business operations.

Several stakeholders in Singapore felt, given its small size and ageing population, the country faced unique labour shortages in manufacturing compared with other ASEAN Member States. Many Singaporean enterprises are, in turn, reportedly relying on technology to automate rudimentary business processes and tasks.

Interestingly, labour shortages might therefore be seen as drivers and catalysts for investing in technology and innovation. This somewhat reverses the traditional thinking that new productivity-enhancing technologies reduce the demand for labour (as in the case of technological unemployment). In other words, it is the reduced labour supply that drives up the demand for new technologies and increases in innovation and capital investment.<sup>81</sup>

### As opposed to technological unemployment, structural shifts in the economy, such as reshoring, may drive unemployment

Many interviewees opined that structural changes to their country's economy posed higher risks of sudden and large-scale unemployment than technological unemployment. Reportedly, these structural changes manifest due to the changing dynamics of foreign competition, trade liberalization and globalization more generally. Innovations developed abroad and productivity gains by foreign competitors were felt to more likely impact ASEAN's labour markets by 2025. Indeed, there has been much recent talk of Japan, the United Kingdom and the United States encountering the reshoring (the reversal of offshoring) of business and jobs.<sup>82</sup> Commenting on past offshoring by more developed economies into Asia, Dr Federico Marquez Jr., Senior Vice President of the Human Resources Division at St. Luke's Medical Center in Manila, said:

“There was a direction towards outsourcing production into [ASEAN] countries that companies really went for. Many multinationals went into this ‘mode’ and looked at producing their goods more cheaply. Globalization created this competition and found the cheapest prices globally though the main factor there was the labour costs, not so much technological advancement.”

With reshoring, more developed economies could potentially diminish, or eliminate, much of the competitive advantage South-East Asia has traditionally enjoyed with its lower labour costs. Given the relatively weak state of technological development in many of ASEAN's manufacturing enterprises, this trend could effectively reset the rules of the game, impacting on a number of key sectors by 2025 and beyond.

### The ever rising energy demand needs to be met for continued growth

Over several decades, economic growth in ASEAN has led to an ever-rising demand for energy. As Figure 53 shows, the nominal consumption of electric power in ASEAN has increased around three-fold during the two decades since 1995 (see figure 53, panel A). Electrical power consumption per capita has also grown by significantly over this period. Electrical power consumption per capita is highest in Brunei Darussalam and Singapore; it is growing very quickly in Malaysia, Thailand and Viet Nam (see figure 53, panel B).

<sup>81</sup> Japan's story could be interpreted in this way, as the country's rapid population-ageing and traditionally low levels of labour migration have created a demand for greater automation and capital intensiveness in a dynamic economy.

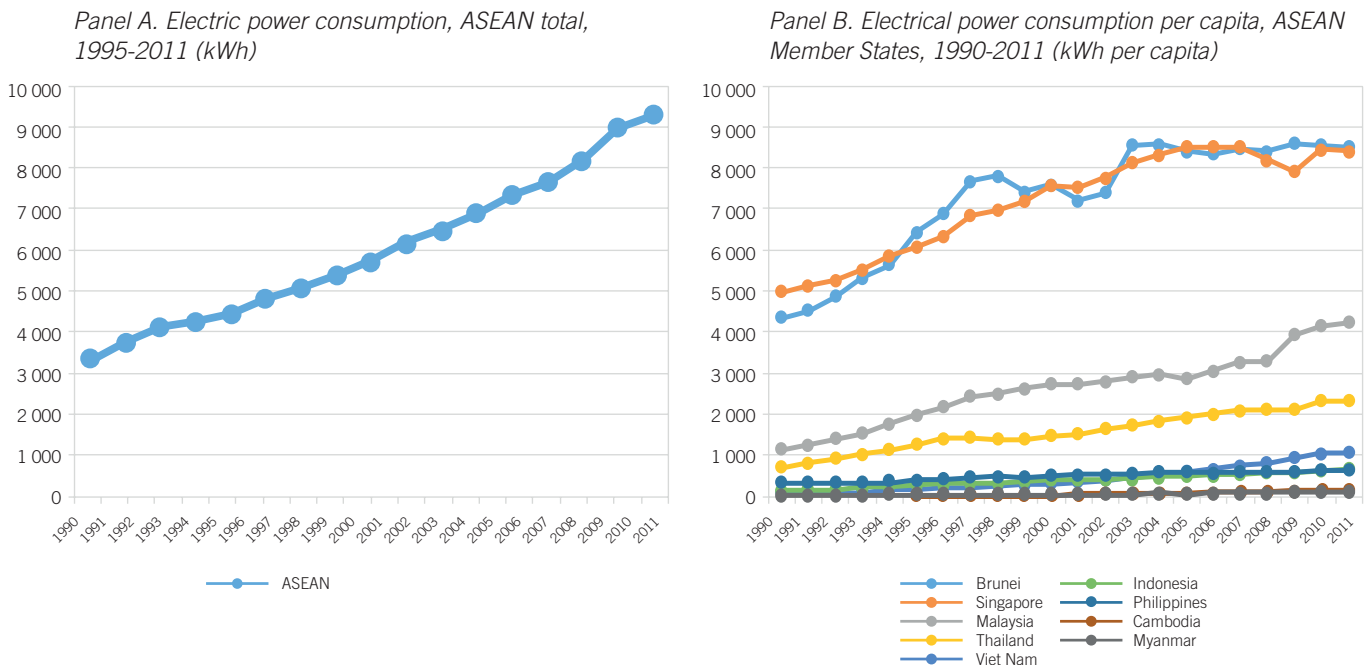
<sup>82</sup> For a quick sample of opinions, see the work of the Reshoring Initiative (<http://www.reshorennow.org/>) and recent articles from BBC News (<http://www.bbc.com/news/business-26235707>), The Economist (<http://www.economist.com/news/special-report/21569570-growing-number-american-companies-are-moving-their-manufacturing-back-united>), Time (<http://business.time.com/2013/04/11/how-made-in-the-usa-is-making-a-comeback/>), Guardian (<https://www.theguardian.com/business/2013/jul/24/us-manufacturing-troubled-promise-reshoring> and <http://www.theguardian.com/small-business-network/2013/nov/29/manufacturing-reasons-growing-production-uk>), and MetalMiner (<http://agmetaminer.com/2015/09/21/not-just-for-the-us-anymore-japan-is-reshoring-too/>).

The Government of Cambodia has developed a strategic master plan to secure its future energy needs. It has reportedly already implemented several large projects and made grand-scale sector improvements. Businesses reportedly now experience many fewer blackouts than before and the national power grid is reaching the most remote regions. The cost of energy, however, still remains several times higher than it is in some of Cambodia’s neighbouring countries and continues to impose a significant hurdle for the country’s business competitiveness.

Based on the World Bank’s Doing Business indicators, Singapore, Thailand and the Philippines ranked 11<sup>th</sup>, 12<sup>th</sup> and 16<sup>th</sup> in the world in 2015 in terms of their ease of “getting electricity”, while Cambodia, the Lao People’s Democratic Republic, Myanmar and Viet Nam were all in the 60<sup>th</sup> to 70<sup>th</sup> percentiles at the global level.<sup>83</sup> According to the report, it took 31 days on average for an enterprise to get electricity in Singapore, compared with 168 in Cambodia. The associated official cost of completing this procedure (excluding any bribes) is calculated to be 26.3 per cent of the per capita income in Singapore, but more than 2,800 per cent of that in Myanmar.

In Malaysia, stakeholders spoke optimistically about the country’s growing solar energy sector. Interest is reportedly very strong for two reasons. Malaysia’s natural supply of high-grade silicon, used to manufacture photovoltaic cells and solar panels; and the many hours of sunlight it receives annually. As investments and revenues grow in this sector, there are hopes that Malaysia will be a key player in the global market of renewable energy production in the future. The Malaysian Photovoltaic Industry Association was formed in 2007 to provide a stronger voice for enterprises within the sector.<sup>84</sup>

**Figure 53. Electric power consumption in ASEAN**



<sup>83</sup> For more information, see: <http://www.doingbusiness.org/>

<sup>84</sup> See: [www.mpia.org.my/](http://www.mpia.org.my/).

## Stakeholders see political instability as a tangible threat on the horizon for enterprises

In Cambodia, for example, stakeholders noted that potential political instability due to turbulent, or delayed transfers of power, continue to threaten business performance. While many hoped that the current wave of young political leaders in Cambodia can usher the economy in a healthy direction, a fear of future political tension and the breakdown of leadership remain. Similar sentiments were expressed in the Philippines and Thailand. Moreover, fears of high-level government corruption were expressed in all other Member States visited except Singapore.

Stakeholders in Cambodia also named a few obstacles to industrial development that threaten enterprises. Currently, Cambodia lacks any home-grown technology, lacks nationwide R&D efforts and has steep energy costs. Stakeholders also felt Cambodia would have to overcome its reliance on low cost labour and invest much more in skills before it can compete in higher value-added sectors to attract more foreign investment.

For the Philippines, one major threat stakeholders named was competitive pressure exerted by the global economy. Several stakeholders expressed their doubts that the recent growth and international success of the Philippines' business process outsourcing (BPO) sector could be maintained. According to Dr Rene E. Offreneo, Director of the Center for Labour Justice at the University of the Philippines, the BPO sector appeared out of nowhere in the mid-2000s and has grown unprecedentedly ever since to over 1 million workers, most of them young and educated:<sup>85</sup>

“The BPO sector was an accident – it was a gift of globalization! Nobody planned it and nobody in government can claim they did it.”

If globalization can bestow a million-fold gift of jobs onto a country within the span of a few years, the worry then is it can also take them away. The threat of reshoring underscores this point.

## 7.4 Opportunities facing enterprises by 2025

### According to the survey, local economic development, new technologies and regional integration through the AEC are the three biggest opportunities for enterprises

Enterprises commented on the biggest opportunities facing their business up to 2025, choosing up to three responses from a list of opportunities provided.

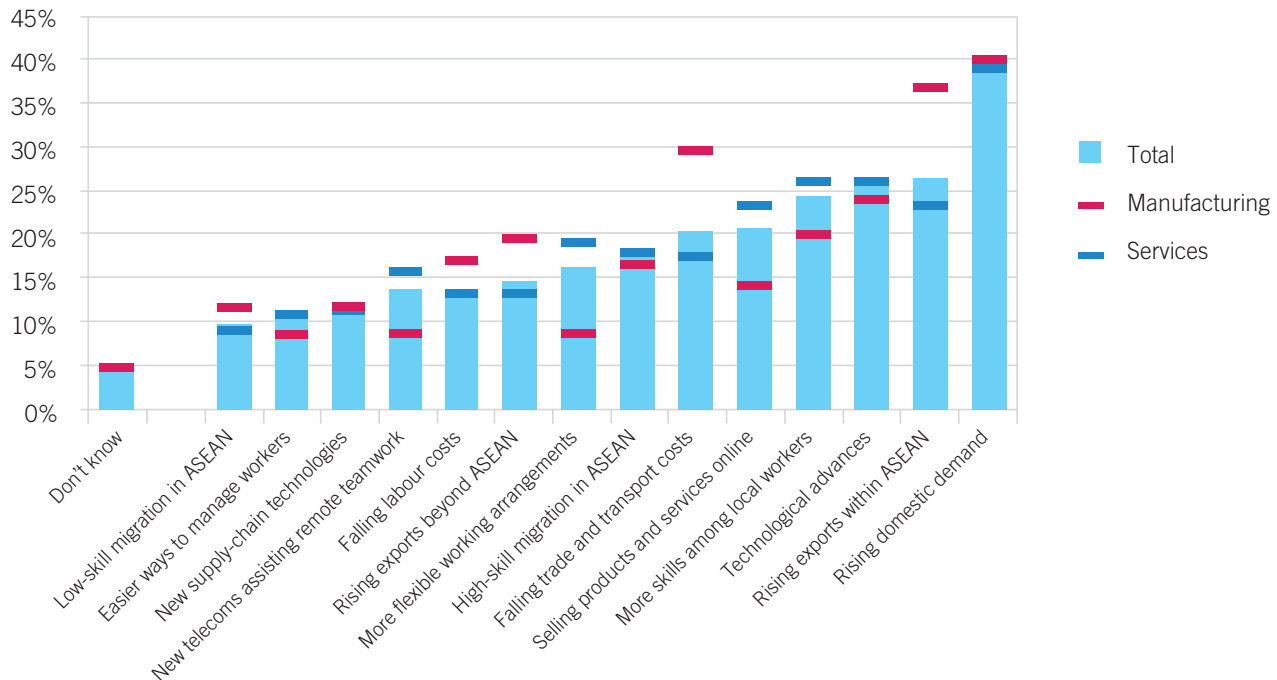
The biggest opportunities enterprises felt mainly related to local economic development, new technologies and regional integration through the AEC. Topmost among the opportunities identified were rising domestic demand, rising intra-ASEAN trade, technological advances and skills improvements in the workforce.

<sup>85</sup> World Bank, 2013.



Manufacturing enterprises placed a greater weight on trade-related opportunities (such as exports to other ASEAN Member States), falling trade costs and falling transportation costs. Services enterprises saw bigger opportunities in rising local skills, the ability to sell their services online and more flexible working arrangements. The remaining key opportunities were shared more-or-less in equally by manufacturing and services enterprises.

**Figure 54. What do you perceive are the biggest opportunities facing your enterprise up to 2025? (by broad economic activity)**



## Education has a key role to play in realizing opportunities

When asked about future opportunities the ASEAN Member States could envisage by 2025, stakeholders interviewed in all six Member States discussed improving education quality and skills.

The STEM subjects were said to be the key to success and a priority going forward. Mr Tauch Choeun from the Ministry of Education, Youth and Sport in Cambodia comments, “The whole world is interested in STEM.” While some government STEM initiatives and incentives have already been put into action, several stakeholders felt more investment would be needed to fund research facilities, support research laboratories, recruit high quality teachers and engage more students, especially young women, in STEM. Many agencies, including employers’ organizations, might need to come together to implement a STEM policy effectively. Mr Tauch Choeun commented, within the context of Cambodia:

“There are many barriers to implementing STEM education to its full capacity. The budget is one; the capacity of human resources is another; and facilities are another. The contribution of the private sector to share the responsibility of the education system is also a key factor.”

Several interviewees in Cambodia, Malaysia and Thailand highlighted English language skills as a key factor for business success, both within the AEC and worldwide.<sup>86</sup> Interviewees in Thailand named strong critical skills among youth and a culture of lifelong learning among all workers as necessary for developing a world-class labour force in ASEAN.

Respondents from Singapore highlighted their Government's new skills development programme, SkillsFuture, launched in February 2015 as a future opportunity.<sup>87</sup> The programme has four "key thrusts" listed on its website, as follows:

1. To help individuals make well-informed choices in education, training and careers;
2. To develop an integrated high-quality system of education and training that responds to constantly evolving needs;
3. To promote employer recognition and career development based on skills and mastery; and
4. To foster a culture that supports and celebrates lifelong learning.

SkillsFuture contains programmes for students, early- and late-career employees, and employers. For students, structured internship programmes help them discover career pathways and assist with making informed career decisions. An "earn-and-learn" programme also helps young workers gain more structured on-the-job training and mentorship while completing vocational training or certification. For those already employed, SkillsFuture subsidizes courses from selected higher education institutions and training providers. Individuals are also supported to develop specialist skills required by Singapore's future growth clusters under certain occupations, including software developers, satellite engineers and master craftsmen. New forms of cross-sectoral collaboration will take place to identify future skills needs and help plan their development in a more systematic and collaborative way.

The Government of Singapore also issued a "Tripartite Advisory on Flexible Work Arrangements" in November 2014, providing clear guidance to employers on how to handle workers' requests to change the timing of their work, the duration of their work, work location and employment scope (in terms of duties and workload) in a fair and supportive manner.<sup>88</sup> Singapore's "Tripartite Committee on Work-Life Strategy" promotes flexible work arrangements as a progressive employment practice. By and large, activities of this kind may be seen as a best practice for other Member States to adopt.

Stakeholders in Cambodia also mentioned the positive contribution youth will bring in terms of entrepreneurial ideas and new markets by 2025. Educated young people are now thinking much more entrepreneurially than previous generations, according to Mr Pech Bolene, Vice-President of the Young Entrepreneurs Association of Cambodia (YEAC):

"Not just in terms of how to 'get a good job' but thinking about the directions in which the economy will grow and how they can best meet coming market demands in a variety of creative ways."

<sup>86</sup> English language skills in the Philippines, by contrast, are already seen to be very well advanced. As is sometimes said in the Philippines: "We don't 'speak good English'... we 'speak English'."

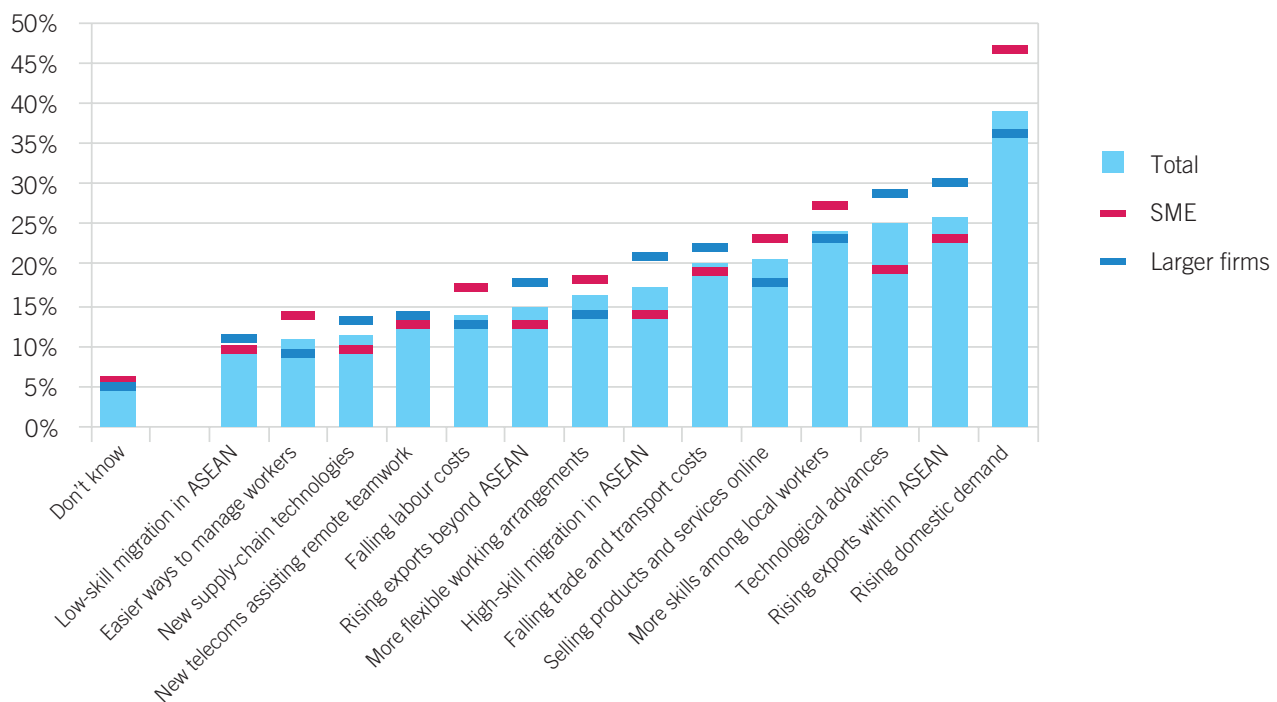
<sup>87</sup> The programme is jointly run by Singapore's Ministry of Education, the Ministry of Manpower, and the Singapore Workforce Development Agency, with additional funding donated by employers, workers' organizations and the public. For more information, see: [www.skillsfuture.sg/](http://www.skillsfuture.sg/).

<sup>88</sup> The new advisory body encompasses the efforts of its tripartite partners to support employers in the implementation of flexible work arrangements. It also raises awareness of how these could help organizations and individuals balance their work-life needs. The body provides useful information to employees and supervisors about broaching the subject of flexible work arrangements and managing such requests. See: [www.mom.gov.sg/fwa-advisory](http://www.mom.gov.sg/fwa-advisory).

To help best prepare for future skills needs, interviewees commented that company executives often did not give a prominent enough role to human resources departments. These departments can plan for future skills, address future workforce needs, introduce new employment practices and shift work cultures. Some enterprises are, reportedly, losing out on a strategic opportunity by regarding their human resources departments as mere “administrative workhorses” tasked simply with recruiting individuals based on specifications handed down from executives. Tapping into the potential and insights of human resources managers could help enterprises transition towards better workplaces, better workforce arrangements and meet future needs.

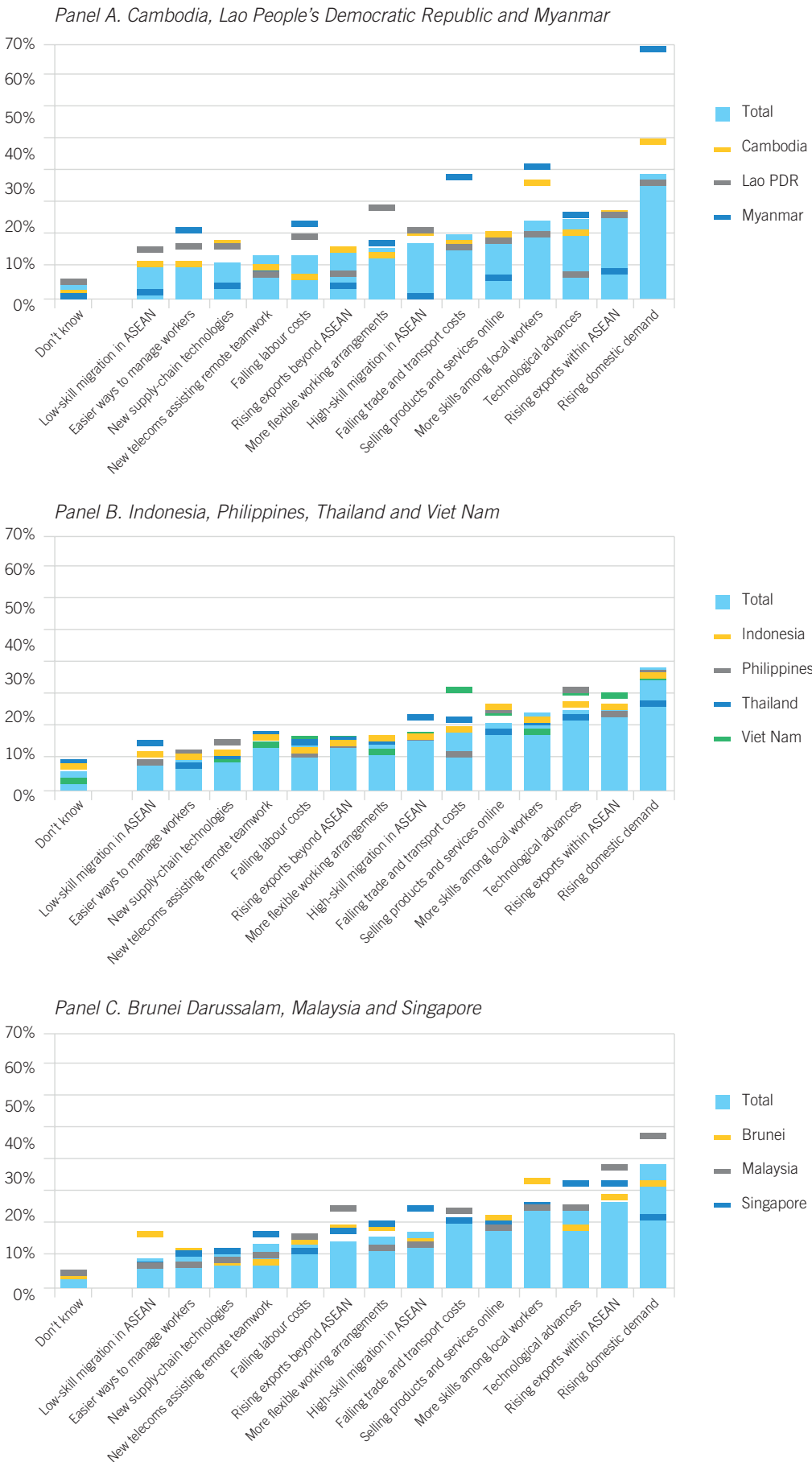
Overall, though, stakeholders generally held a bright and encouraging outlook. As workers develop higher skills, work abroad, return to their country of origin and embrace new challenges, stakeholders clearly expect some positive changes over the next ten years.

**Figure 55. What do you perceive are the biggest opportunities facing your enterprise up to 2025? (by firm size)**



Some interesting differences emerged among the individual Member States. Enterprises in both Cambodia and Myanmar viewed rising local demand and human capital gains among local workers as their topmost opportunities. Enterprises in the Lao People’s Democratic Republic placed much greater significance on the opportunity for more flexible forms of work and considerably less weight on technological advances, falling trade costs and falling transportation costs. Enterprises in the three most developed Member States (Brunei Darussalam, Malaysia and Singapore) identified rising exports (both within and beyond ASEAN) more frequently, and, less frequently, growth in their domestic markets, when compared with the overall sample.

**Figure 56. What do you perceive are the biggest opportunities facing your enterprise up to 2025? (by Member State)**



## 7.5 Students' outlook on the future

Students explained how their opportunities are different from their parents' generation and how they think these might change again by 2025. The opportunities given to them were grouped under seven headings:

1. Opportunities for productive and well-paid work
2. Opportunities for stable and reliable work
3. Opportunities for interesting and rewarding work
4. Opportunities for young women to have good work
5. Opportunities to start a business or become self-employed
6. Opportunities to advance in a career through honest hard work, skill and merit
7. Opportunities to maintain relevant skills in a rapidly changing labour market

Under all seven headings, the students' outlook was overwhelmingly positive for both progress made and future opportunities: 65.9 per cent of students felt there were more opportunities today for young women to have good work, 62.7 per cent think there will be more opportunities in the future, 59.3 per cent of students felt there were more opportunities today to start a business or become self-employed, and 58.4 per cent think there will be more opportunities by 2025. Approximately half of the students thought there were more opportunities today for interesting and rewarding work, productive and well-paid work, maintaining relevant skills, and developing in a career through honest hard work, skill and merit. Half felt there would be even more such opportunities for them by 2025.

In terms of stable and reliable work, however, only 41.6 per cent thought there were more opportunities today compared with 25.0 per cent who thought there were fewer. This finding highlights potential insecurities about opportunities for job stability among students in ASEAN. Despite optimistic student perceptions, secondary research and official statistics demonstrate that youth unemployment is a global and regional challenge. McKinsey (2013b) argues that young people worldwide are three times more likely to be unemployed than their parents. Among ASEAN Member States, as of 2015, youth unemployment rates ranged between 0.8 per cent and 15.7 per cent of the total unemployed population. The share of youth unemployment in total unemployment accounted for more than 43 per cent in all ASEAN Member States except Singapore. Additionally, by 2020, youth unemployment is projected to increase in Brunei Darussalam, Cambodia, the Lao People's Democratic Republic, Myanmar, the Philippines and Singapore.<sup>89</sup>

<sup>89</sup> ILO, 2015c.

**Figure 57. Comparing your generation today with your parents' generation, how have opportunities changed for young graduates in your country? Thinking about what things might be like in 2025, compared to today, how do you think opportunities will change for young graduates in your country in the following areas?**

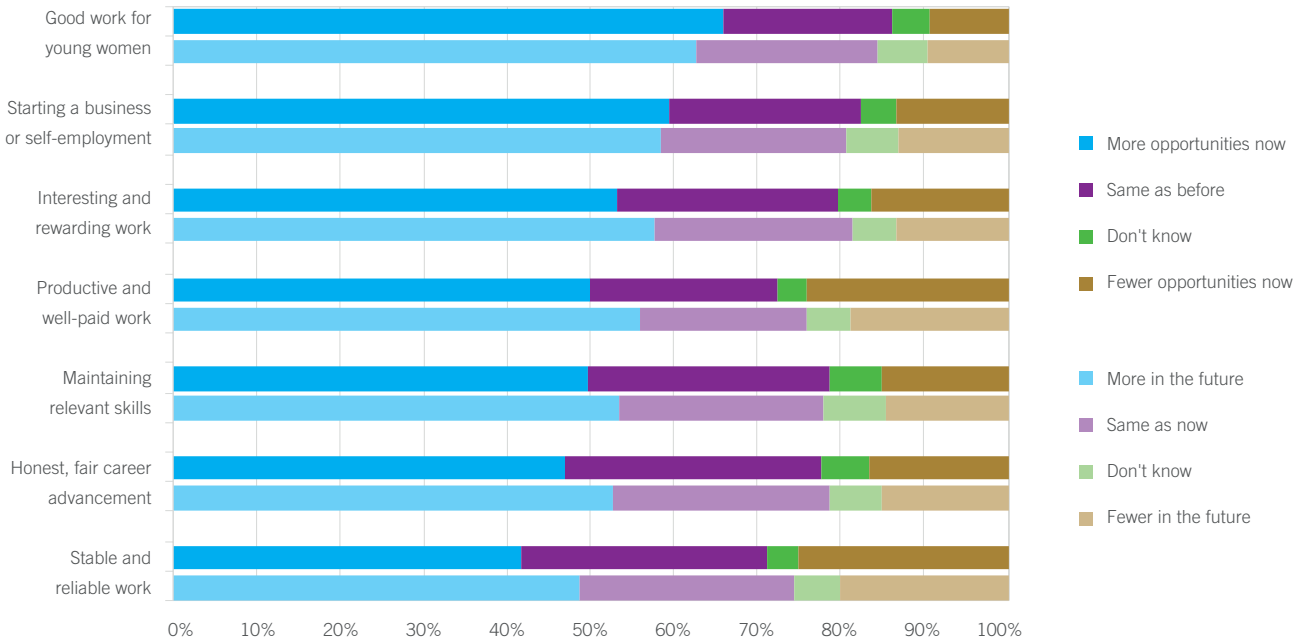
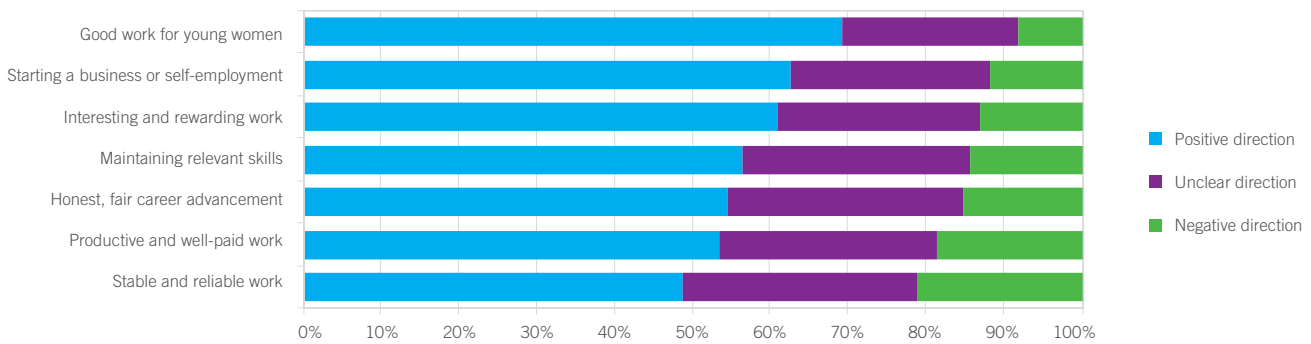


Figure 58 pinpoints the shares of students who felt the opportunities in their country were moving in a positive direction, a negative direction or were unclear.<sup>90</sup>

Among the students surveyed, 69.2 per cent felt positively about future work opportunities for young women in their country, compared with only 8.1 per cent who perceived a negative trajectory. A majority of students perceived positive directions in their countries for other survey elements: opportunities to start a business or become self-employed; to find interesting and rewarding work; to maintain relevant skills within a fast-changing labour market; to have productive and well-paid work; to develop in a career through honest hard work, skill and merit; and (though to a somewhat lesser extent) to have stable and reliable work. In each case, around 20 to 30 per cent of the students either did not know or did not think the direction was clear.

<sup>90</sup> Students who thought their country was moving in a “positive direction” were identified as those who thought that either: a) there were more opportunities now and will be more still by 2025; b) there were the same opportunities now as before but will be more by 2025; or c) there were more opportunities now but will be the same by 2025. Conversely, those who thought their country was moving in a “negative direction” included those who thought that either: a) there were fewer opportunities now and will be fewer still by 2025; b) there were the same opportunities now as before but will be fewer by 2025; or c) there were fewer opportunities now but will be the same by 2025. A residual category of those who did not think their country was moving in a clear direction included those who thought that either: a) there were fewer opportunities now but will be more by 2025; b) there were more opportunities now but will be fewer by 2025; c) there were the same opportunities now as before and will be the same still by 2025; or d) who answered “don’t know” on either of the two questions under that category.

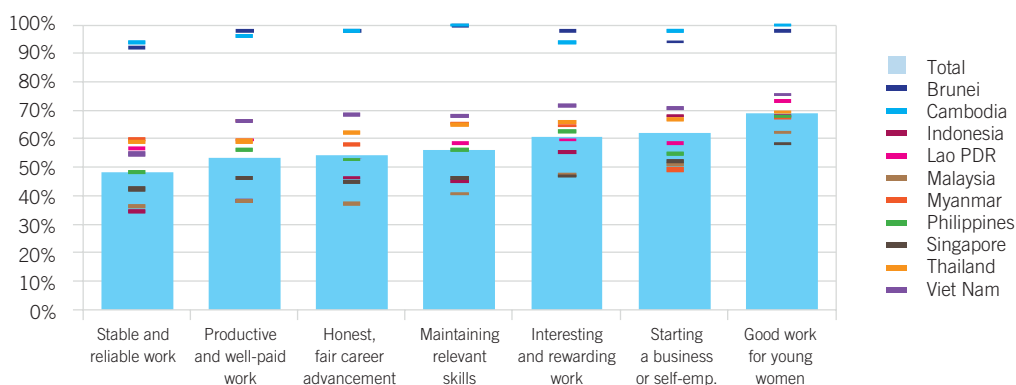
**Figure 58. Student perceptions on the direction opportunities are moving in**



On the whole, the most positive outlooks were expressed by the students in Brunei Darussalam and the Lao People’s Democratic Republic (though these were also the two countries with the smallest sample sizes – 51 and 50 respectively – more research might overturn this finding). Highly positive outlooks were also expressed by a majority of students in Viet Nam across all categories.

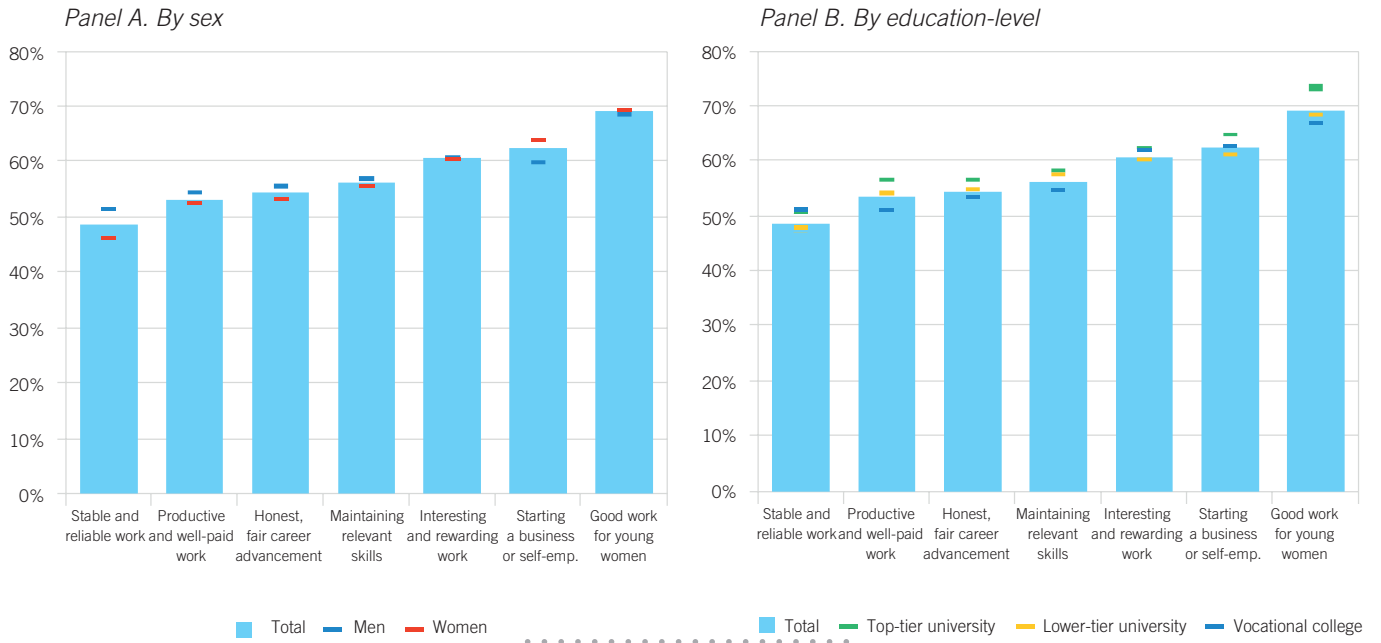
Negative outlooks generally came from students in Indonesia, Malaysia, the Philippines and Singapore. Around 20 to 35 per cent of students in Indonesia, Malaysia and the Philippines felt their countries were moving in a negative direction with regards to opportunities for stable and reliable work, productive and well-paid work, and honest and fair career advancement. Students in Singapore were generally more ambivalent in their answers, with a high proportion stating an unclear direction under the opportunity categories provided.

**Figure 59. Student perceptions on the direction opportunities are moving in (by Member State)**



An equally positive outlook was presented by both women and men in the sample as well as among students of top-tier universities, lower-tier universities and those in vocational courses. Moreover, the direction felt under each of the different categories was equally positive across these different groups within the sample.

**Figure 60. Student perceptions on the direction opportunities are moving in (by sex and education-level)**





## CONCLUSION

The ASEAN-wide enterprise surveys, student surveys and stakeholder interviews were conducted to acquire initial insights of how enterprises and future workers understand technology and its impact on working environments across the region. Subsequently, the findings obtained served as the foundation for further sectoral analyses that form one component of *ASEAN in transformation: How technology is changing jobs and enterprises*. The overall findings are summarized below:

- Overall, ASEAN enterprises are not at the forefront of technological innovation.
- However, enterprises are cognizant that technology can serve as a positive component for their business operations, providing many benefits in terms of growth, efficiency, productivity and enhanced quality, among others.
- Technology's affordability and the human capital required to manage it stand as the biggest obstacles to technology's implementation at the enterprise level.
- Currently, technology is driving up enterprises' demands for technically skilled workers, who are increasingly difficult to source.
- In their choice of study, the majority of young people in ASEAN are not pursuing employment in sectors that are anticipated to grow, especially flourishing sectors in manufacturing.
- Young people in ASEAN want what young job seekers have always wanted: money, security and work that is interesting.
- There is broad optimism throughout the region from both enterprises and young people.

In general terms, this paper demonstrates that technology is largely perceived as a facilitator of growth and opportunity for both enterprises and young workers in the ASEAN region. However, the dominant discourse on technology's trajectory and its impact paints a concerning, negative picture for workers, especially those engaged in lower skilled, labour-intensive sectors. In previous periods of rapid, technological change – such as the Industrial Revolution and the more recent Digital Revolution – new manufacturing technologies mainly benefited low- and medium-skilled workers by simplifying the tasks they had to perform. New technologies did not induce a long-term rise in unemployment. Rather, production increased drastically, prices fell and consumers could purchase more goods. This stimulated job growth in many sectors. However, today's improved computerized technologies and the upcoming, newer, disruptive ones are about to change the landscape of jobs in ASEAN and globally. Increased automation and robotization will displace certain occupations, especially lower skilled jobs, and in parallel, enhance the complexity and skills-intensity of existing jobs while creating new ones.

It is up to numerous agents to mobilize the creativity and capabilities of new technologies and to manage the threats and opportunities these technologies present. Robust policy frameworks will be needed to support the transformation of key economic sectors and generate more jobs. Policy-makers must effectively assess and map key sectors and identify vulnerabilities and opportunities. Enterprises must reconsider how they plan to move forward, and young workers should carefully consider how the future labour market may or may not accommodate their aspirations.

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# APPENDIX A. FUTURE OF WORK IN ASEAN ENTERPRISE SURVEY QUESTIONNAIRE

## Introduction

The International Labour Organization (ILO) is conducting a survey among manufacturing and services enterprises in order to understand labour market expectations, desires and concerns around the future of work in ASEAN.

Your firm has been selected to participate in this survey as your responses will help guide the ILO's research in this area. The survey findings will underpin a forthcoming paper by the ILO.

Thank you for your participation!

## Basic enterprise information

This section of the questionnaire includes basic information about your enterprise and its workers.

### 1. What country does your enterprise currently operate in?

- Brunei Darussalam
- Cambodia
- Indonesia
- Lao People's Democratic Republic
- Malaysia
- Myanmar
- Philippines
- Singapore
- Thailand
- Viet Nam
- Others (Screen out)

### 2. What year did your enterprise start its operations?

### 3. What is the main economic activity of your enterprise? (Select one only)

- Agriculture, forestry or fishing (Screen out)
- Mining or quarrying (Screen out)
- Manufacturing
- Supply of electricity, gas, water or waste management (Screen out)
- Construction (Screen out)
- Shop-keeping, sales or trade activities
- Transportation or storage services
- Hotels or restaurants
- Information and communications
- Financial or insurance activities
- Real estate activities
- Scientific or technical research
- Administrative or support services
- Public administration or defence
- Education
- Human health or social work
- Arts, entertainment or recreation
- Other service activities

### 4. Which of the following does your enterprise currently do?

(Select all that apply)

- Exports goods or services
- Has offices in more than one country
- Invests in research and development (R&D)
- Protects intellectual property (e.g. through patents and copyrights)
- Outsources some of its business practices
- Allows workers flexible working hours
- Allows workers to work from home for one day a week or more
- Delegates responsibility to a person/team for corporate social responsibility (CSR)
- Delegates responsibility to a person/team for upgrading technology
- Delegates responsibility to a person/team for data protection
- Offers paid apprenticeships, traineeships or internships
- Offers unpaid apprenticeships, traineeships or internships

### 5. How many workers are currently engaged in your enterprise (both full- and part-time)? (Optional)

#### Total

Of them, approximately how many are women?

Of them, approximately how many have tertiary-level education?

## Business performance, skills, technology, and the future

This section of the questionnaire addresses the types of skills and technologies your enterprise currently relies on and the impacts you envision future trends will have on its performance by 2025.

### 6. Which types of skills are currently the most critical for your enterprise? (Select up to three in each case)

#### The most important three

#### The most difficult three to find

- University qualifications
- Vocational training qualifications
- Technical knowledge
- Foreign language skills
- Specific software skills
- Organization skills and attention to detail
- Communication skills
- Teamwork and collaborative skills
- Networking skills
- Creative skills
- Innovative skills
- Strategic thinking/problem-solving skills
- Multi-tasking skills
- Cultural sensitivity
- Other (Please specify)

### 7. Which personal attributes are currently the most critical for your enterprise? (Select up to three in each case)

#### The most important three

#### The most difficult three to find

- Physical strength and fitness
- Physical dexterity
- Positive attitude
- Honesty
- Commitment
- Flexibility and adaptability
- Confidence and self-assurance
- Willingness to learn
- Ability to accept constructive criticism
- Ability to work under pressure
- Strong business acumen
- Neatness and tidiness
- Other (Please specify)

### 8. Which of the following does your enterprise currently rely on to learn about potential new recruits? (Select all that apply)

- Newspaper ads and printed listings
- Recruitment websites
- Individual online searches
- Social media

- E-mail updates (e.g. sector-level newsletters)
- Contacts at universities
- Contacts at vocational training centres
- Contacts in other enterprises
- Contacts among family and friends
- Career fairs and networking events
- Executive search agents ('head-hunters')
- National employment agencies
- Private recruitment agencies
- International recruitment agencies
- Speculative applications
- Other (Please specify)

### 9. Which of the following technologies are currently essential for your business operations? (Select all that apply)

- Hand tools (e.g. hammer, screwdriver, shovel, chisel, saw...)
- Power tools (e.g. electric saw, electric drill, cement mixer...)
- Mobile phones
- Computers or laptops
- E-mail
- Internet browser/ search engines
- Company website
- Online supply-chain management
- Online payments and transactions
- Data protection software and backup drives/cloud solutions
- Satellite navigation / GPS
- Automated production processes
- Other (Please specify)

### 10. What is currently the single biggest barrier your enterprise faces to upgrade its technology? (Select one only)

- Fixed capital costs would be too high
- Licensing costs and requirements would be too high
- Lack of suitable investors
- Lack of knowledge on current capabilities
- Lack of skilled staff who can operate the technology
- Lack of possibilities to repair technologies
- Lack of relevant Government incentives
- Risk is too high in the current business environment
- Not available in my country
- No internal need (i.e. current technologies are adequate enough)
- Other (Please specify)
- Don't know or cannot decide

**11. What sort of an impact do you think technological advances will have on your enterprise's performance by 2025?**

*(Please evaluate)*

- Reduce
- No impact
- Increase
- Don't know or cannot decide

**Domestic sales**

**Sales abroad (exports)**

**Labour productivity (output per worker)**

**Profits**

**Labour costs per worker**

**Total number of workers employed**

**Number of women workers employed**

**Number of high-skilled workers employed**

**12. What sort of an impact do you think increased economic integration in ASEAN will have on your enterprise's performance by 2025? *(Please evaluate)***

- Reduce
- No impact
- Increase
- Don't know or cannot decide

**Domestic sales**

**Sales abroad (exports)**

**Labour productivity (output per worker)**

**Profits**

**Labour costs per worker**

**Total number of workers employed**

**Number of women workers employed**

**Number of high-skilled workers employed**

**13. What sort of an impact do you think a more highly-skilled workforce in your country will have on your enterprise's performance by 2025? *(Please evaluate)***

- Reduce
- No impact
- Increase
- Don't know or cannot decide

**Domestic sales**

**Sales abroad (exports)**

**Labour productivity (output per worker)**

**Profits**

**Labour costs per worker**

**Total number of workers employed**

**Number of women workers employed**

**Number of high-skilled workers employed**

## Working culture

*This section of the questionnaire asks questions about three different types of workers your enterprise might employ: a) foreign workers; b) freelance workers; and c) workers who work remotely. Whether or not your enterprise is currently employing such workers, please answer all of the questions below – your opinion is still very valuable to our research.*

### Foreign workers

*Foreign workers are workers who have moved to work in your country as foreign citizens. They might be regulated under separate labour laws and might not necessarily have the same skills, qualifications or cultural understanding as local workers.*

**14a. Does your enterprise currently employ foreign workers?**

- No
- Yes

**14b. For which of the following types of positions would you be willing to employ foreign workers?**

*(Please select as many as applicable)*

- Practically any position I would otherwise hire for
- Only for a temporary position
- Only for a low-paid position
- Only for a low-skill position
- Only for a position with little responsibility
- Never (i.e. not for any position)

**14c. For your enterprise, how would employing a foreign worker compare to employing a local worker in terms of the following? *(Please evaluate)***

- Less
- Equally
- More
- Don't know or cannot decide

**How difficult it would be to manage such workers**

**How difficult it would be to integrate such workers as part of a collaborative team**

**How dependable or reliable such workers would be**

**How costly such workers would be**

**How motivated such workers would be**

**How difficult it would be to find such workers**



**Freelance workers**

Freelance workers are workers who don't necessarily have the same job security, employment rights, employment benefits, loyalty, or opportunity to adapt to enterprises' needs as regular salaried workers might otherwise do. Their skills can be used in a range of individualized tasks through short-term contracts, selling their services by the hour/day/job, sometimes for multiple 'clients'.

**15a. Does your enterprise currently engage freelance workers?**

- No
- Yes

**15b. For which of the following types of positions would you be willing to employ freelance workers?**

*(Please select as many as applicable)*

- Practically any position I would otherwise be hire for
- Only for a temporary position
- Only for a low-paid position
- Only for a low-skill position
- Only for a position with little responsibility
- Never (i.e. not for any position)

**15c. For your enterprise, how would employing a freelance worker compare to employing a regular salaried worker in terms of the following? *(Please evaluate)***

- Less
- Equally
- More
- Don't know or cannot decide

**How difficult it would be to manage such workers**

**How difficult it would be to integrate such workers as part of a collaborative team**

**How dependable or reliable such workers would be**

**How costly such workers would be**

**How motivated such workers would be**

**How difficult it would be to find such workers**

**Remote workers**

Workers who work remotely are regularly employed by an enterprise but rely on communications technologies and e-mail to deliver the majority of their work from home or from another location outside of your main business premises or where the majority of your staff usually operate. They do not necessarily have the same sort of direct, face-to-face contact with their managers, supervisors and colleagues as on-site workers do.

**16a. Does your enterprise currently employ workers who work remotely?**

- No
- Yes

**16b. For which of the following types of positions would you be willing to employ workers who work remotely?**

*(Please select as many as applicable)*

- Practically any position I would otherwise be hire for
- Only for a temporary position
- Only for a low-paid position
- Only for a low-skill position
- Only for a position with little responsibility
- Never (i.e. not for any position)

**16c. For your enterprise, how would employing a worker who works remotely compare to employing an in-house worker in terms of the following? *(Please evaluate)***

- Less
- Equally
- More
- Don't know or cannot decide

**How difficult it would be to manage such workers**

**How difficult it would be to integrate such workers as part of a collaborative team**

**How dependable or reliable such workers would be**

**How costly such workers would be**

**How motivated such workers would be**

**How difficult it would be to find such workers**

## Looking ahead and preparing for 2025

This final section of the questionnaire asks about your expectations, worries and hopes by the year 2025.

### 17. How do you think your enterprise's business performance will be impacted over the next ten years in each of the following areas? (Please evaluate)

- Reduce
- No impact
- Increase
- Don't know or cannot decide

#### Domestic sales

#### Sales abroad (exports)

#### Labour productivity (output per worker)

#### Profits

#### Labour costs per worker

#### Total number of workers employed

#### Number of women workers employed

#### Number of high-skilled workers employed

#### Burden of government regulation

#### Spending on research and development (R&D)

#### Spending on staff training

#### Demand for energy

### 18. What do you perceive are the three biggest threats facing your enterprise up to 2025? (Select up to three)

- Weak domestic demand
- Weak foreign demand
- Failing to adopt new technologies
- Failing to adopt new business practices
- Rising local competition
- Rising competition from within ASEAN
- Rising competition from non-ASEAN countries
- Rising labour costs
- Rising energy costs
- Failing to attract or retain high-skilled workers

- Failing to fill low-skilled vacancies
- Crime
- Corruption
- Political instability
- Computer hacking / data theft
- Natural disasters
- Other (Please specify)
- Don't know or cannot decide

### 19. What do you perceive are the three biggest opportunities facing your enterprise up to 2025? (Select up to three)

- Rising domestic demand
- Rising exports within ASEAN
- Rising exports to non-ASEAN countries
- Rising labour mobility for low-skilled workers from ASEAN
- Rising labour mobility for high-skilled workers from ASEAN
- Falling trade barriers and transportation costs
- Falling labour costs
- Ability to sell products and services online
- Technological advances in your sector
- More skills among local workers in your sector
- More flexible working arrangements
- Easier ways to manage workers
- New communications technologies to assist remote teamwork
- New supply-chain technologies to speed up transactions
- Other (Please specify)
- Don't know or cannot decide

To submit your answers click "Finish".

Many thanks again for taking the time to answer the questions!

# APPENDIX B. FUTURE OF WORK IN ASEAN STUDENT SURVEY QUESTIONNAIRE

## Introduction

The International Labour Organization (ILO) is conducting a survey among students in order to understand career expectations, desires and concerns of the new generation of workers in the ASEAN region. The information you give will be treated completely anonymously and will be formulated into an ILO paper which will provide recommendations to your current and future employers. The questionnaire will take about 10 -15 minutes to complete.

Thank you in advance for your participation!

## Personal profile

We will now ask you a few questions about yourself. Your answers will be treated confidentially and the information will only be used to gain insights about student opinions and preferences as a group.

### Background information

- 1. In which country do you currently study?**
  - Brunei Darussalam
  - Cambodia
  - Indonesia
  - Lao People's Democratic Republic
  - Malaysia
  - Myanmar
  - Philippines
  - Singapore
  - Thailand
  - Viet Nam
  - Other (Screen out)
- 2. What is your current age?**
  - 17 years old or younger
  - 18
  - 19
  - 20
  - 21
  - 22
  - 23
  - 24
  - 25 years or older
- 3. What is your gender?**
  - Female
  - Male
- 4. What academic degree are you currently pursuing?**
  - High school (Screen out)
  - Diploma/certificate
  - Bachelors
- Master's (non-MBA)
- MBA (Screen out)
- PhD (Screen out)
- Other (Screen out)
- 5. In which year do you expect to finish your current university degree?**
  - 2015
  - 2016
  - 2017
  - 2018 (Screen out)
- 6. Which educational institution do you currently attend?**
- 7. What is your main field of study? (If you are pursuing academic degrees in more than one field of study, please pick the one that you consider to be your major area of focus.)**
  - Business/Commerce/Finance
  - Engineering/Building/Architecture
  - IT
  - Natural Sciences/Mathematics/Statistics
  - Humanities/Arts/Education
  - Social Sciences
  - Health/Medicine
  - Law
  - Other

### Career goals

- 8. What will be your main activity during your first six months after graduation? (Please select an alternative)**
  - Work in (or look for) a job with regular pay
  - Run my own business that employs other people
  - Work by myself (i.e. self-employed)
  - Work in a family-owned business

- Volunteer
- Take time out to travel
- Stay at home (e.g. to care for children or family)
- Continue on to post-graduate study
- Don't know or cannot decide

**9. In which economic sector would you ideally want to work when choosing your first employment after graduation? (Please select one)**

- Agriculture, forestry or fishing
- Mining and quarrying
- Manufacturing
- Supply of electricity or gas
- Supply of water or waste management
- Construction
- Shop-keeping, sales or trade activities
- Transportation or storage services
- Hotels or restaurants
- Information and communication
- Financial or insurance activities
- Real estate activities
- Scientific or technical research
- Administrative or support services
- Public administration or defence
- Education
- Human health or social work
- Arts, entertainment or recreation
- Other service activities
- Don't know or not applicable

**Aspirations and expectations from work**

We will now ask you a few questions about the sort of career you would like to have after you graduate, keeping in mind the sort of employment opportunities that might be open to you.

**10. Which of the following would you currently prefer to choose?**

- A job that is well-paid and interesting but takes up all my leisure time
- A job that is interesting and gives me enough leisure time but is not well-paid
- A job that is well-paid and gives me enough leisure time but is not interesting

**11. Think about what your immediate goals will be during the first six months after you graduate, which of the following is the most important to you? (Please select maximum 3 alternatives)**

- Stable and secure employment
- High income
- Good health and retirement benefits (e.g. health insurance, injury and sickness cover, pension, etc.)
- Good family benefits (e.g. maternity/paternity package, support for children's education, opportunities to work from home, flexible leave, etc.)
- Good life and work balance (e.g. flexible hours, paid holiday leave, steady workload, etc.)
- Good staff training and skills development
- Self-confidence and recognition
- Opportunities to be creative
- Opportunities to innovate and create new technologies/knowledge
- Opportunities for promotion and career development
- Opportunities to work closely with people
- Opportunities to travel and experience different cultures/markets
- Other (Please specify)

**12. Think about your longer term goals over the entire course of your working life, which of the following is the most important to you? (Please select maximum 3 alternatives)**

- Stable and secure employment
- High income
- Good health and retirement benefits (e.g. health insurance, injury and sickness cover, pension, etc.)

- Good family benefits (e.g. maternity/paternity package, support for children's education, opportunities to work from home, flexible leave, etc.)
- Good life and work balance (e.g. flexible hours, paid holiday leave, steady workload, etc.)
- Good staff training and skills development
- Self-confidence and recognition
- Opportunities to be creative
- Opportunities to innovate and create new technologies/knowledge
- Opportunities for promotion and career development
- Opportunities to work closely with people
- Opportunities to travel and experience different cultures/markets
- Cannot say at this stage
- Other (Please specify)

**13. Which of the following is the most important for a company's reputation? (Please select one)**

- Economic success and job-security
- Treats its workers well
- Values women and a diverse workforce
- Pushes technological, knowledge or creative boundaries
- Maintains a well-known user-brand
- Makes a positive impact on the local community
- Makes a positive environmental impact
- Makes a positive impact on people's health and wellbeing
- Other (Please specify)
- Don't know or cannot decide

**14. Which of the following do you currently use to gather information about job-opportunities and potential employers? (Please select all that currently apply to you)**

- Newspaper ads and printed listings
- Dedicated job-search websites
- Individual online searches (e.g. companies' websites)
- Social media (e.g. Facebook, LinkedIn, Twitter...)
- E-mail updates (e.g. careers newsletters)
- Contacts at university

- Contacts at vocational training centres
- Contacts in companies
- Contacts among family and friends
- Career fairs and networking events
- Career advisors and agents

- National employment services/public employment agency
- Private recruitment agencies
- International recruitment agencies
- Contacting companies directly
- Please select an alternative

## Working culture

We would like to ask what you are thinking about: a) working abroad; b) working freelance; and c) working remotely.

### Working abroad

*Thinking about working abroad as an international migrant in a country of which you are not a citizen and might not necessarily have the same employment rights as local workers nor the local know-how and support networks you might have in your country of origin.*

#### 15a. Have you ever worked abroad before?

- No
- Yes

#### 15b. Under what conditions would you be willing to work abroad? (Please select as many as applicable)

- Practically any job I would otherwise accept
- Only if the job is stable and secure
- Only if the job is well-paid
- Only if the job is appropriate to my level of qualification
- Only if the job involves a lot of responsibility
- Never (i.e. under no conditions)

#### 15c. For you, how would working abroad compare to working in your home country in terms of... (Please state the extent for each alternative):

- Less
- Equally
- More
- Don't know

**How challenging it would be**

**How difficult it would be as part of a collaborative team**

**How secure or reliable it would be**

**How well-paid it would be**

**How interesting it would be**

**How difficult it would be to find such work**

### Working freelance

*Thinking about working on a freelance basis, using your skills to complete a range of individualised tasks on short-term contracts, selling your services on hour/day/job basis, sometimes for multiple employers and without necessarily having the same job-security nor employment rights as those working for a single employer on a regular salary basis.*

#### 16a. Have you ever worked on a freelance basis before?

- No
- Yes

#### 16b. Under what conditions would you be willing to work freelance? (Please select as many as applicable)

- Practically any job I would otherwise accept
- Only if the job is stable and secure
- Only if the job is well-paid
- Only if the job is appropriate to my level of qualification
- Only if the job involves a lot of responsibility
- Never (i.e. under no conditions)

#### 16c. For you, how would working freelance compare to working on a regular salary in terms of... (Please state the extent for each alternative):

- Less
- Equally
- More
- Don't know

**How challenging it would be**

**How difficult it would be as part of a collaborative team**

**How secure or reliable it would be**

**How well-paid it would be**

**How interesting it would be**

**How difficult it would be to find such work**

*Working remotely*

Thinking about working remotely in the majority of your work, relying on communications technologies and e-mail to deliver your workload from your home or from another location outside of your traditional workplace (office, workshop, farm...) and without necessarily having the same sort of direct, face-to-face contact with your supervisors and colleagues as on-site workers do.

**17a. Have you ever worked remotely before?**

- No
- Yes

**17b. Under what conditions would you be willing to do such work? (Please select as many as applicable)**

- Practically any job I would otherwise accept
- Only if the job is stable and secure
- Only if the job is well-paid
- Only if the job is appropriate to my level of qualification
- Only if the job involves a lot of responsibility
- Never (i.e. under no conditions)

**17c. For you, how would working remotely compare to working on-site in terms of... (Please state the extent for each alternative)**

- Less
- Equally
- More
- Don't know

**How challenging it would be**

**How difficult it would be as part of a collaborative team**

**How secure or reliable it would be**

**How well-paid it would be**

**How interesting it would be**

**How difficult it would be to find such work**

*Current and future possibilities*

Finally, we would like to ask what you are thinking about the current prospects for young graduates in your country today and those that might be there in the future.

**18. Comparing your generation today with your parents' generation, how have opportunities changed for young graduates in your country in the following areas?**

*(Please state the extent for each alternative)*

- Fewer opportunities now
- Same as before
- More opportunities now
- Don't know

**Opportunities for productive and well-paid work**

**Opportunities for stable and reliable work**

**Opportunities for interesting and rewarding work**

**Opportunities for young women to have good work**

**Opportunities to start a business or become self-employed**

**Opportunities to advance in a career through honest hard work, skill and merit**

**Opportunities to maintain relevant skills in a rapidly changing labour market**

**19. Thinking about what things might be like in 2025, compared to today, how do you think opportunities will change for young graduates in your country in the following areas? (Please state the extent for each alternative)**

- Fewer opportunities in the future
- Same as now
- More opportunities in the future
- Don't know

**Opportunities for productive and well-paid work**

**Opportunities for stable and reliable work**

**Opportunities for interesting and rewarding work**

**Opportunities for young women to have good work**

**Opportunities to start a business or become self-employed**

**Opportunities to advance in a career through honest hard work, skill and merit**

**Opportunities to maintain relevant skills in a rapidly changing labour market**

*To submit your answers click "Finish".*

*Many thanks again for taking the time to answer the questions!*

## APPENDIX C. METHODOLOGY TO IDENTIFY TOP-TIER UNIVERSITIES

The survey analysis made use of a listing of ‘top-tier universities’. The listing was put together based on five leading international university rankings: three at the global or regional level and two at an individual country level. This approach was selected as a relatively straightforward and balanced way to identify the top-tier universities across the ten Member States.

These five source included and the selection criteria under each one were:

- QS, QS University Rankings: Asia 2015, selecting those among the top-150 universities in Asia.
- Times Higher Education, World University Rankings 2015-2016, selecting those among the top-800 universities worldwide.
- Shanghai Ranking, Academic Ranking of World Universities 2015, selecting those among the top-500 universities worldwide.
- Webometrics, Ranking Web of Universities, selecting those among the top-five universities in each Member State.
- 4International Colleges and Universities, 2016 University Web Ranking, selecting those among the top-five universities in each Member State and excluding any colleges listed.

Table 6 presents the complete list of top-tier universities identified that appear in the sample of the *Future of work in ASEAN student survey*. A number of universities in the sample were identified across multiple rankings. Potential top-tier universities that did not appear in the survey sample are not listed below.

**Table 6. Top-tier universities appearing in the ASEAN student survey sample and their original rankings across the five sources used**

ASEAN Member State	University	Global or regional rankings			Country rankings	
		QS Asia top-150 <sup>(a)</sup>	THE global top-800 <sup>(b)</sup>	Shanghai global top-500 <sup>(c)</sup>	Webometrics top-five <sup>(d)</sup>	4ICU top-five <sup>(e)</sup>
<b>Brunei</b>	<i>Brunei Institute of Technology</i>	-	-	-	2	3
<b>Darussalam</b>	<i>Sultan Sharif Ali Islamic University</i>	-	-	-	3	2
	<i>University of Brunei Darussalam</i>	118	-	-	1	1
<b>Cambodia</b>	<i>Institute of Technology of Cambodia</i>	-	-	-	4	4
	<i>Royal University of Agriculture</i>	-	-	-	3	3
	<i>Royal University of Law and Economics</i>	-	-	-	-	5
	<i>Royal University of Phnom Penh</i>	-	-	-	2	1
	<i>University of Puthisastra</i>	-	-	-	1	-
<b>Indonesia</b>	<i>Diponegoro University</i>	-	-	-	4	-
	<i>Gadjah Mada University</i>	138	-	-	3	2
	<i>Bandung Institute of Technology</i>	122	-	-	2	1
	<i>Padjadjaran University</i>	-	-	-	-	5
	<i>Sebelas Maret University</i>	-	-	-	-	4
	<i>University of Indonesia</i>	79	601-800	-	1	3
<b>Lao PDR</b>	<i>National University of Laos</i>	-	-	-	2	1
	<i>University of Health Sciences</i>	-	-	-	1	-

(table is continued from previous page)

ASEAN Member State	University	Global or regional rankings			Country rankings	
		QS Asia top-150 <sup>(a)</sup>	THE global top-800 <sup>(b)</sup>	Shanghai global top-500 <sup>(c)</sup>	Webometrics top-five <sup>(d)</sup>	4ICU top-five <sup>(e)</sup>
Malaysia	<i>National University of Malaysia</i>	57	-	-	5	-
	<i>Universiti Putra Malaysia</i>	66	601-800	-	4	-
	<i>Universiti Teknologi Malaysia</i>	62	401-500	-	3	3
	<i>Universiti Teknologi MARA</i>	-	-	-	-	4
	<i>Universiti Tenaga Nasional</i>	-	-	-	-	5
	<i>University of Malaya</i>	29	-	301-400	1	1
	<i>Universiti Sains Malaysia</i>	49	-	401-500	2	2
Myanmar	<i>University of Computer Studies, Yangon</i>	-	-	-	1	1
	<i>University of Medicine 1, Yangon</i>	-	-	-	2	2
	<i>Yangon Technological University</i>	-	-	-	4	-
Philippines	<i>Ateneo de Manila University</i>	114	-	-	5	4
	<i>De La Salle University</i>	-	-	-	2	2
	<i>University of Santo Tomas</i>	144	-	-	-	-
	<i>University of the Philippines</i>	70	-	-	1	1
Singapore	<i>Nanyang Technological University</i>	4	55	151-200	2	2
	<i>National University of Singapore</i>	1	26	101-150	1	1
	<i>SIM University</i>	-	-	-	-	4
	<i>Singapore Management University</i>	-	-	-	3	3
Thailand	<i>Assumption University</i>	-	-	-	-	3
	<i>Chiang Mai University</i>	99	601-800	-	-	5
	<i>Chulalongkorn University</i>	53	601-800	-	2	2
	<i>Kasetsart University</i>	-	-	-	-	4
	<i>Khon Kaen University</i>	-	601-800	-	3	-
	<i>King Mongkut's University of Technology</i>	-	601-800	-	4	-
	<i>Mahidol University</i>	44	501-600	-	1	1
	<i>Prince of Songkla University</i>	-	601-800	-	5	-
Viet Nam	<i>Thammasat University</i>	143	-	-	-	-
	<i>Foreign Trade University</i>	-	-	-	-	5
	<i>Hanoi National University of Education</i>	-	-	-	5	-
	<i>Hanoi University of Science and Technology</i>	-	-	-	3	4
	<i>Ho Chi Minh City University of Technology</i>	-	-	-	-	3
	<i>VNU University of Science</i>	-	-	-	1	1

Note: Universities are listed in country and then alphabetical order (the ordering presented does not imply their overall or composite ranking in relation to one another). University names are shown in English where these align with official publications or online materials used by the institution; otherwise the original-language name is given.

Sources: (a) QS, *QS University Rankings: Asia 2015* [online: [www.topuniversities.com/university-rankings/asian-university-rankings/](http://www.topuniversities.com/university-rankings/asian-university-rankings/)]; (b) Times Higher Education, *World University Rankings 2015-2016* [online: [www.timeshighereducation.com/world-university-rankings/2016/world-ranking#!/](http://www.timeshighereducation.com/world-university-rankings/2016/world-ranking#!/)]; (c) Shanghai Ranking, *Academic Ranking of World Universities 2015* [online: [www.shanghairanking.com/ARWU2015.html](http://www.shanghairanking.com/ARWU2015.html)]; (d) Webometrics, *Ranking Web of Universities* [online: [www.webometrics.info/en/Asia](http://www.webometrics.info/en/Asia)]; (e) 4International Colleges and Universities, *2016 University Web Ranking* [online: [www.4icu.org/Asia/](http://www.4icu.org/Asia/)].



## APPENDIX D. INTERVIEW STRUCTURE AND QUESTIONS

*Let's begin by talking about technological advances and their effect on skills demand and productivity...*

- 1.1. How well do enterprises in your country/sector compete on technological terms?  
Where is the strongest competition coming from?
- 1.2. What sorts of new technologies do enterprises most depend on? Who develops these?
- 1.3. How have such technologies impacted on labour productivity in your country/sector?
- 1.4. Do you think such technologies have affected the overall demand for workers?
  - *What types of workers have been affected the most?*
  - *Is there a skills gap here? A gender gap? An age gap...?*
  - *Are there any disruptive technologies you particularly fear might impact on employment in the future (e.g. 3D printing, self-driving cars, general-purpose robots...)?*
- 1.5. What types of skills are particularly important today, compared to in the past?
  - *What types of skills are currently the most important for enterprises in your sector?*
  - *What types of skills or attributes are currently the most difficult to find?*
  - *What types of workers are the most difficult to retain? Is there a skills gap here...?*
- 1.6. In your country, which sectors are the big generators of new jobs?
- 1.7. Which sectors do you perceive are shrinking or replacing traditional jobs? Why?
- 1.8. What common barriers might enterprises in your country/sector face to upgrade technology?
- 1.9. Are there any policies currently in place to help enterprises catch up technologically?  
What has been their impact so far?
- 1.10. Are there any policies currently in place to help enterprises innovate and lead the way with their own new technologies? What has been their impact so far?
- 1.11. Are there any ASEAN-wide initiatives in this area at all?
- 1.12. What can policy-makers do to boost technology in key sectors? Do you know of any best practices from other parts of the world?

*Thinking about the current culture of work in your country/sector and the different ways in which employers are currently engaging workers...*

- 2.1. How has the relationship or interaction between workers and employers changed over time in your country/sector?  
Have there been positive changes or not?
  - *What might be some of the benefits of hiring more foreign workers? What might be some of the risks or drawbacks? Are there any legal barriers?*
  - *What might be some of the benefits to hiring more freelance workers? What might be some of the risks or drawbacks? Are there any legal barriers?*
  - *What might be some of the benefits to hiring more workers who work remotely? What might be some of the risks or drawbacks associated with this?*

- 2.2. What other new types of work are emerging in your country/sector?
- 2.3. Are there any clear emerging trends among women workers in this area?
- 2.4. Are there any clear differences here between formal and informal enterprises?
- 2.5. What about foreign-owned and local enterprises? Any effect from outsourcing...?
- 2.6. In your opinion, have there been any key changes in this area driven more by young workers than enterprises (e.g. workers now seem to expect to change many employers over their working lifetime, which wasn't typically the case before...)?
- 2.7. What sort of policy interventions or reforms do you think might help enterprises and young workers align their interests in this area?
- 2.8. What sort of policy reforms in general would be beneficial for enterprises in this area?

*Thinking now about the future of your enterprise over the next ten years or so, let's talk about some of the 'big topics' that might affect enterprises' performance in your country...<sup>91</sup>*

- 3.1. What sort of opportunities do you think technological advances will bring to enterprises in your country by 2025? What sort of costs do you think they might impose?
- 3.2. What sort of opportunities do you think increased economic integration in ASEAN will bring to enterprises in your country by 2025? What sort of costs do you think it might impose?
- 3.3. What sort of an impact do you think demographic factors like population ageing will have?
- 3.4. What sort of an impact do you think a more highly-skilled workforce in your country will have?
- 3.5. What sort of an impact do you think greater female participation in the labour force will have?
- 3.6. What sort of an impact do you think energy and resources demand in your country will have?
- 3.7. Are there any other 'big topics' you can think of that would be worth discussing?

*Finally, thinking about 2025 in very broad terms and considering all of the different trends and uncertainties going on, there are just two remaining questions I'd like us to close on.....*

- 4.1. What are the biggest threats facing your country/sector up to 2025?
  - *What types of skills are currently the most important for enterprises in your sector?*
  - *What might policy-makers do to address these?*
  - *What about at the ASEAN-wide level...?*
- 4.2. What are the biggest opportunities facing your country/sector up to 2025?
  - *What initiatives could enterprises take to help benefit more from some of these?*
  - *What might policy-makers to help boost or encourage some of these?*
  - *What about at the ASEAN-wide level...?*

<sup>91</sup> Think about some different aspects of business performance here: domestic sales / exports / productivity / profits / labour costs / government regulation / overheads / spending on R&D / spending on staff training / total workers employed / numbers of women workers employed / number of foreign workers employed / number of high-skilled workers employed...

## APPENDIX E. COMPLETE LIST OF INTERVIEWEES

### *Phnom Penh, Cambodia*

- 15 Jun 2015 **Interview 1,** Secretary General, Garment Manufacturers Association in Cambodia (GMAC)  
**Interview 2,** Economics and Prosperity Officer, British Embassy Phnom Penh  
**Interview 3,** Executive Director, Cambodia Hotel Association (CHA)  
**Interview 4,** Economic Researcher, Cambodian Federation of Employers and Business Associates  
**Interview 5,** President, Malaysian Business Council of Cambodia (MBCC)  
**Interview 6,** Executive Director, British Chamber of Commerce in Cambodia (BritCham)
- 16 Jun 2015 **Interview 7,** Vice-President, Young Entrepreneurs Association of Cambodia (YEAC)  
**Interview 8,** Director, Centre for Policy Studies for Cambodia Development  
**Interview 9,** Executive Director, International Business Chamber Cambodia (IBC Cambodia)  
**Interview 10,** Research Associate & Head of Economic Dept., Cambodia Development Resource Institute (CDRI)
- 17 Jun 2015 **Interview 11,** General Director, Ministry of Education, Youth and Sport Cambodia  
**Interview 12,** Senior Partner, Sok Siphana and Associates  
**Interview 13,** President, National Union Alliance Chamber of Cambodia

### *Kuala Lumpur, Malaysia*

- 18 Jun 2015 **Interview 14,** President, SRT-EON Security Services  
**Interview 15,** Director, Panasonic Appliances Air-Conditioning Malaysia  
**Interview 16,** General Manager of Group Human Resources, Star Publications (Malaysia)  
**Interview 17,** Chief Operating Officer, Irshad HR Consulting
- 19 Jun 2015 **Interview 18,** Secretary of the Policy Division, Ministry of Human Resources Malaysia  
**Interview 19,** President, Association of Hotel Employers (AHE)  
**Interview 20,** Professor, Faculty of Economics and Administration, University of Malaya  
**Interview 21,** Economist, Malaysian Employers Federation (MEF)  
**Interview 22,** Senior Manager of the Research and Information Department, MEF
- 22 Jun 2015 **Interview 23,** President, Malaysian Employers Federation (MEF)  
**Interview 24,** Secretary General, Malaysian Trades Union Congress (MTUC)

### *Manila, Philippines*

- 24 Jun 2015 **Interview 25,** Senior Vice President of Human Resources Division, St. Luke's Medical Centre  
**Interview 26,** Vice President of Human Resources, SM Supermalls
- 25 Jun 2015 **Interview 28,** Vice President for Administration, University of the Philippines  
**Interview 29,** Director of the Center for Labour Justice, School of Labour and Industrial Relations (SOLAIR), University of the Philippines  
**Interview 30,** Vice President of Human Capital and Administration, Medicotec
- 26 Jun 2015 **Interview 31,** Vice President, Yazaki-Torres Manufacturing  
**Interview 32,** Area Vice President – South Luzon, Employers Confederation of the Philippines (ECOP)

### *Bangkok, Thailand*

- 29 Jun 2015 **Interview 33**, Secretary General, Thai Garment Manufacturers Association  
**Interview 34**, Deputy Director-General, Department of International Trade Promotion, Ministry of Commerce
- 30 Jun 2015 **Interview 35**, Executive Director, ASEAN University Network
- 3 Jul 2015 **Interview 36**, Cofounder and Co-CEO, Hubba Coworking Space  
**Interview 37**, Assistant Permanent Secretary, Office of the Permanent Sec., Ministry of Labour

### *Singapore*

- 24 Aug 2015 **Interview 38**, Group Human Resources Director, Banyan Tree Holdings
- 26 Aug 2015 **Interview 39**, Human Resources Director, Infineon Technologies
- 21 Aug 2015 **Interview 40**, Assistant Executive Director, Singapore National Employers Federation (SNEF)
- 21 Sep 2015 **Interview 41**, General Manager, International Computer Driving Licence (ICDL Asia)  
**Interview 42**, Human Resources Manager, KMG Ultra Pure Chemicals (KMG Singapore)
- 23 Sep 2015 **Interview 43**, Human Resources Vice President (Asia Pacific), United Parcel Service (UPS)
- 25 Sep 2015 **Interview 44**, Head of Human Resources, Citi Singapore
- 28 Sep 2015 **Interview 45**, General Manager, NSC Asia Pacific  
**Interview 46**, Director, CIPD Asia
- 29 Sep 2015 **Interview 47**, Human Resources Director, National Kidney Foundation  
**Interview 48**, Managing Director, Microsoft Singapore

### *Jakarta, Indonesia*

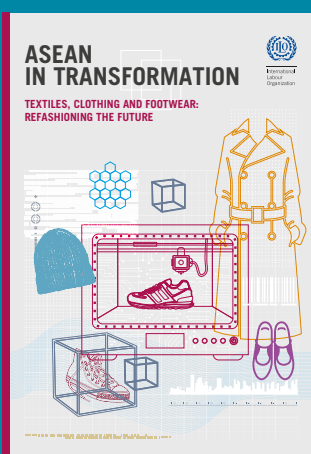
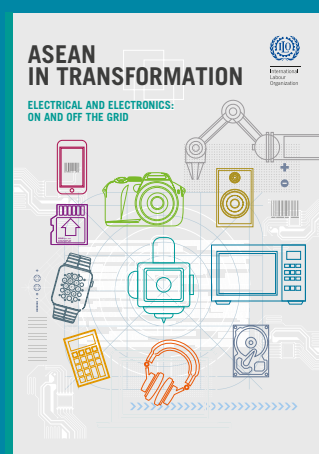
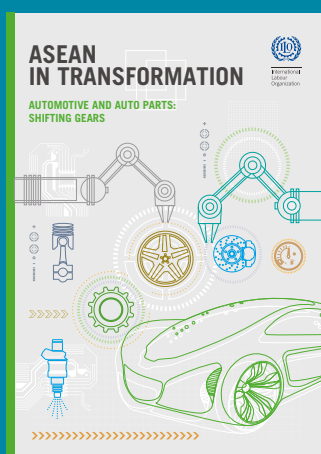
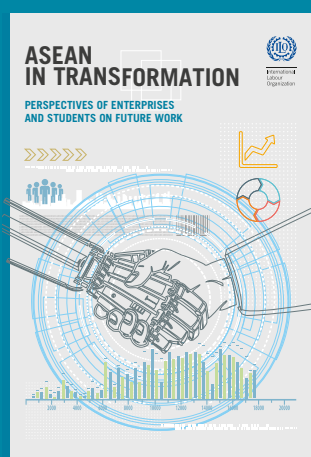
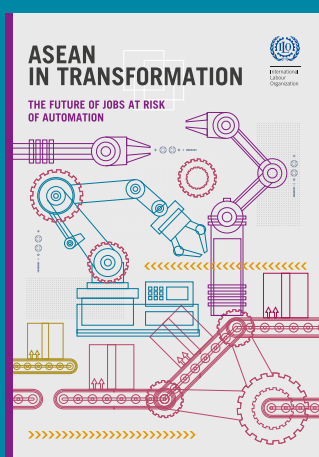
- 2-4 Nov 2015 **Interview 49**, Board Member, APINDO  
**Interview 50**, Human Resources Division Director, Toyota  
**Interview 51**, Deputy Chairman, APINDO  
**Interview 52**, Deputy Chairman, APINDO  
**Interview 53**, Human Resources Division General Manager, Toyota  
**Interview 54**, Chief of Corporate Human Capital Division, ASTRA International



## ASEAN in transformation: Perspectives of enterprises and students on future work

During 2015, extensive enterprise surveys, student surveys and stakeholder interviews were conducted ASEAN-wide to probe the impact of technology on enterprises in the manufacturing and services industries as well as understand new work cultures and working modalities over a ten-year horizon. Overall, both ASEAN enterprises and students reported a positive outlook on the future and the impact that technology would have on jobs. In addition, enterprises and the young workforce reveal that they are seemingly ready to embrace new working modalities and cultures. This paper presents key findings from the primary research with notable messages for businesses, students and policy-makers in the region.

*ASEAN in Transformation: Perspectives of enterprises and students on future work* comprises one document in a collection of papers examining the impact of technology across key labour-intensive and/or growth sectors among ASEAN Member States. While some of the findings of this paper were integrated into the master paper *ASEAN in transformation: How technology is changing jobs and enterprises*, this paper provides a more in-depth summary of the results of the enterprise and student surveys conducted as well as interviews with key stakeholders from across the region.



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