



Regional Mapping of Labour Market Information for Skills and Employment Policies in ASEAN Member States



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Regional Mapping of Labour Market Information for Skills and Employment Policies in ASEAN Member States

The Association of Southeast Asian Nations (ASEAN) was established on 8 August 1967. The Member States are Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Viet Nam.

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Foreword

As the Chairperson of the 27th Association of Southeast Asian Nations (ASEAN) Labor Ministers' Meeting (ALMM), let me express my gratitude and appreciation to the ASEAN Secretariat, Deutsche Gesellschaft für Internationale Zusammenarbeit for the Development of Technical and Vocational Education and Training (GIZ-RECOTVET), and the International Labour Organization (ILO) on the publication of the "Regional Mapping of Labour Market Information for Skills and Employment Policies in the ASEAN Member States." The Philippines together with our co-leads Vietnam (Ministry of Labour, Invalids and Social Affairs) and Indonesia (Ministry of Manpower), acknowledge the contributions of all ASEAN Member States (AMS) in the development of this report.

The valuable information in this report amplifies the shared commitments of AMS in the ASEAN Declaration on Human Resources Development for the Changing World of Work which calls for improving accessibility and quality of labor market information towards strengthened and coherent labor market information systems, including skills forecasts, to support the capacities of governments, educational institutions, business sector, and other stakeholders to promote labor market-oriented education and trainings.

In this era of rapid technological advancements, changing demographics, climate change, and economic integration, understanding the potential labor market impacts are indeed essential. The regional mapping study offers critical insights into skills needs, emerging employment trends, and opportunities and challenges of the future of work, which serve as valuable inputs to formulation and recalibration of employment policies, and in designing programs supporting the vulnerable groups of our society.

The success of this initiative is a by-product of the partnership between public and private sector, paving for a comprehensive data collection and methodologies thereby setting the stage for future collaborations and meaningful transformations in the ASEAN regional labor market.

Let us continue building an inclusive and dynamic regional labor market using our expertise and resources to benefit all people in the region. Together as one community, we can enhance regional coordination and cooperation using the information and tools contained in this report as we strive to develop a resilient, adaptive, inclusive, and future-ready workforce - ensuring no one is left behind.



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Minister of Manpower of the Republic of Indonesia

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The development of this Regional Report took into account background papers for Indonesia, the Philippines and Viet Nam, and assessments of the country situations and policies in Brunei Darussalam, Cambodia, Lao PDR, Malaysia, Myanmar, Singapore and Thailand. This Report provides a comprehensive analysis of labour market information for skills and employment policies at the national and regional levels, including the challenges and gaps in the areas of capacity, resources, infrastructure and institutions, among other areas. It also showcases good practices in the ASEAN region.

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Acronyms and abbreviations

ACCMSME	ASEAN Coordinating Committee on Micro, Small and Medium Enterprises
ACSS	ASEAN Community Statistical System
AI	artificial intelligence
APINDO	Employers' Association of Indonesia
AQRF	ASEAN Qualifications Reference Framework
ASEAN	Association of Southeast Asian Nations
ASEC	ASEAN Secretariat
BDNAC	Brunei Darussalam National Accreditation Council
BLE	Bureau of Labour and Employment (Philippines)
BPS	Statistics Indonesia
CAMFEBA	Cambodian Federation of Employers and Business Associations
CHED	Commission on Higher Education (Philippines)
CTUM	Confederation of Trade Unions in Myanmar
DepEd	Department of Education (Philippines)
DOLE	Department of Labor and Employment (Philippines)
EIS	Employment Insurance System
EMIS	Education Management Information System
ESCO	European Skills/Competences, Qualifications and Occupations
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GSO	General Statistics Office (Viet Nam)
ICT	information and communication technology
ILMIA	Institute of Labour Market Information and Analysis (Malaysia)
ILO	International Labour Organization
ILSSA	Institute of Labour Science and Social Affairs (Viet Nam)
ISCED	International Standard Classification of Education
ISCO	International Standard Classification of Occupations
KADIN	Indonesia Chamber of Commerce and Industry
KBJI	Indonesian Standard Classification of Occupations
KMITL	King Mongkut's Institute of Technology (Thailand)
KOICA	Korea International Cooperation Agency
KRIVET	Korea Research Institute for Vocational Education and Training
LSB	Lao Statistics Bureau
LFS	labour force survey
LISTRAF	Labour Market Information and Skills System Transformation for Labour Market Flexibility (Indonesia)
LMIA	labour market information and analysis
LMIR	labour market intelligence report
LMIS	labour market information system
LMS	labour market survey
LNCCI	Lao National Chamber of Commerce and Industry

LSCO	Lao Standard Classification of Occupations
MASCO	Malaysia Standard Classification of Occupations
MISC	Manpower Industry Steering Committee (Brunei Darussalam)
MMSIS	Myanmar Statistical Information System
MPEC	Manpower Planning and Employment Council (Brunei Darussalam)
NQF	National Qualification Framework
NSSA	National Skills Standards Authority (Myanmar)
PDF	Portable Document Format
PEIS	PESO Employment Information System (Philippines)
PEPM	Philippines Employment Projections Model
PESO	Public Employment Service Office (Philippines)
PSA	Philippine Statistics Authority
PSOC	Philippine Standard Occupational Classification
RECOTVET	Regional Cooperation for the Development of Technical and Vocational Education and Training
SAMENTA	Small and Medium Enterprises Association of Malaysia
SDGs	Sustainable Development Goals
SETG	Survey on the Employment of TVET Graduates
SLOM-WG	Senior Labour Officials Meeting Working Group on Progressive Labour Practices to Enhance the Competitiveness of ASEAN
SOM-ED	ASEAN Senior Officials Meeting on Education
SSG	SkillsFuture Singapore
SSOC	Singapore Standard Occupational Classification
SSTC	South–South and Triangular Cooperation
TESDA	Technical Education and Skills Development Authority (Philippines)
TVET	Technical and Vocational Education and Training
TWG	Technical Working Group
UMFCCI	Union of Myanmar Federation of Chambers of Commerce and Industry
VSCO	Viet Nam Standard Classification of Occupations

Executive summary

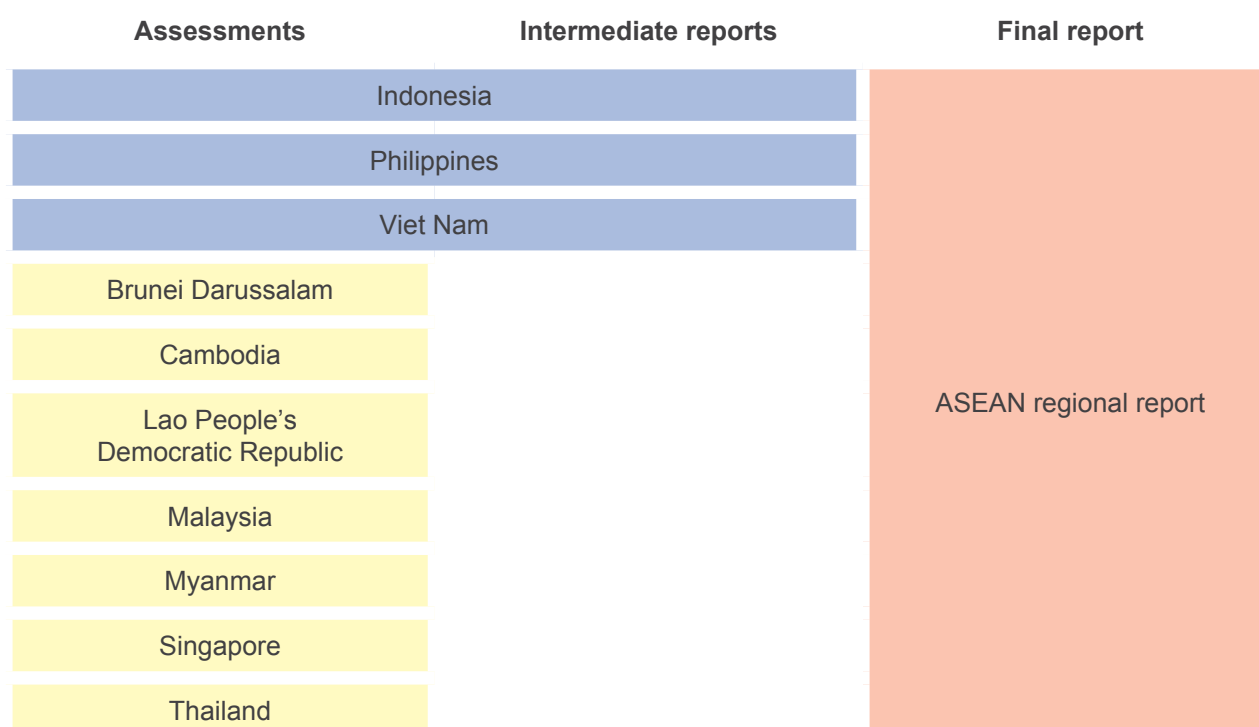
Context, background and methodology

Over the past few decades, the Association of Southeast Asian Nations (ASEAN) Member States have made important strides in adapting to the changing world of work, including substantial progress towards more inclusive growth and significant improvements in individual well-being. At the same time, the future of work continues to evolve in a complex manner, with multiple drivers of change unfolding in parallel, including climate change, population ageing, technological change and globalization. These ongoing developments have increased the importance of evidence-based policies and programmes, including skills development, which is one of the core pillars of employment and social policies. Moreover, the coronavirus disease (COVID-19) pandemic and accelerated changes in employment – in terms of its structure, nature and content – have placed more emphasis on the importance of a robust system of labour market information that encompasses a strong skills component. Given that the labour market will continue to undergo significant transformations, ASEAN Member States must intensify their efforts to promote a culture of lifelong learning that supports upskilling and reskilling, facilitates multiple career pathways and enables firms to access the talent that they need to grow and prosper.

A responsive system of labour market information is central to a country's ability to seize the opportunities presented by global, national and regional drivers and to mitigate employment and social challenges stemming from the rapidly changing world of work and the global economy. To that end, comprehensive and quality labour market information and insights, including on skills, are needed to inform a wide range of decisions for an array of stakeholders, including policymakers, employers' organizations, trade unions, education and training institutions and the wider public.

Considerable efforts are already under way in ASEAN Member States to improve and modernize the availability, quality and relevance of labour market information, in particular with regard to skills. In the light of the recent emphasis placed on skills, several innovative and cutting-edge initiatives in ASEAN Member States are still in the early stages of their conception and development. This means that there are tremendous opportunities for increased collaboration and the development of a community of practice. Efforts of this nature can help, among other things, to achieve greater efficiencies, facilitate the sharing of lessons learned and take advantage of economies of scale.

Against this backdrop, the development cooperation project entitled “Strengthening Labour Market Information Systems in ASEAN for Better Skills and Employment Policies” (ASEAN LMIS-SKILLS) was launched under the purview of the ASEAN Senior Labour Officials Meeting Working Group on Progressive Labour Practices to Enhance the Competitiveness of ASEAN (SLOM-WG). The project has been implemented by the International Labour Organization (ILO) and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), in collaboration with the ASEAN Secretariat (ASEC) and under the joint leadership of the Department of Labor and Employment (DOLE) of the Philippines, the Ministry of Labour, Invalids and Social Affairs of Viet Nam and the Ministry of Manpower of Indonesia. Under the project, a comprehensive regional mapping study was conducted to take stock of labour market information for skills and employment policies at the national and regional levels, with the aim of identifying challenges and gaps (in the areas of capacity, resources, infrastructure and institutions, among other areas), as well as good practices in the ASEAN region. This ensuing regional report is a culmination of the assessments of the respective labour market information of ASEAN Member States, in particular with regard to skills.

Figure 1 : Components of the study, national assessments and final report

Source: Author's compilation.

The assessments were conducted by international and national experts, with guidance and inputs from ILO and GIZ experts, as well as the ASEC, the Technical Working Group (TWG) of the ASEAN LMI-SKILLS project and the SLOM-WG. Each assessment broadly follows the same conceptual framework (Appendix I), with some minor differences to take into account country-specific information.¹ For the ASEAN LMIS-SKILLS project co-lead countries of Indonesia, the Philippines and Viet Nam, more detailed national reports have been prepared for this purpose, while shorter assessments were prepared for the other seven ASEAN Member States (figure 1). A summary of each of the national assessments is presented in Appendix II.

Broadly guided by the ILO's framework on LMIS and its main components,² the report examines governance, institutional arrangements and coordination mechanisms relating to labour market information (with an emphasis on skills), data inputs and statistical infrastructure, analytical outputs and their uses and dissemination (figure 2). To facilitate a systematic approach in the national assessments, a conceptual framework was developed to ensure consistency and coherence among ASEAN Member States (see Appendix I). In addition, three methodological tools were developed, in particular (a) desk review checklist (Annex I); (b) a framework for key informant interviews (Annex II); and (c) semi-structured interview templates (Annex III) (see list of annexes in Appendix III). The methodological tools, including the semi-structured interview guides, were developed drawing on a variety of existing resources, including the analytical framework for recent work by the ASEC and the Korea Research Institute for Vocational Education and Training (KRIVET) (KRIVET 2020), as well as the survey used as part of an ILO study on skills anticipation and matching (ILO 2017). The conceptual framework and methodological tools, as part of the study's inception report, were endorsed by the SLOM-WG on 31 March 2023.

¹ For Myanmar, a national-level assessment was conducted, but due to restrictions on engagement it entailed no key informant interviews. This hindered the development of a section on uses and dissemination of labour market information.

² As described in the ILOSTAT database at <https://ilostat ilo.org/resources/labour-market-information-systems/>

Figure 2 : Conceptual framework categories and summary of methodology approach

Conceptual framework categories	
Governance, institutional arrangements, coordination mechanisms	Inputs and statistical infrastructure
	Analytical outputs
	Uses and dissemination
Interviews	
Government	<ul style="list-style-type: none"> Ministries of labour/manpower/human resources Public and private employment services providers Ministries of education/vocational training Technical and vocational education and training (TVET) institutions Public and private education and training providers TVET specialists National statistical offices Statistical/analytical units of other departments, including planning/ economy/ finance/industry departments and those responsible for general education/TVET/ higher education
Employers' groups and industry bodies	<ul style="list-style-type: none"> Employers' groups /industry bodies National skills councils, sector councils or other industry associations working on skills-related issues, including in the tourism sector
Workers' groups and trade unions	<ul style="list-style-type: none"> Workers' groups/trade unions Any interdepartmental bodies or tripartite bodies in charge of coordinating research or activities relating to skills matching
Research institutes	<ul style="list-style-type: none"> Research centres and institutions (including those housed in universities) and labour market observatories at the national or regional levels
International organizations and others	<ul style="list-style-type: none"> Intergovernmental/international organizations, such as the ILO and the World Bank Non-governmental organizations (NGOs)
Secondary analysis	

Main findings and strategic recommendations

The report sheds light on how robust systems of labour market information can help to inform employment and skills-related policies and programmes. At the same time, however, the report underscores that in order to be effective these systems must also respond to the needs of various users and stakeholders and support other aspects of workforce development, such as career planning and sectoral strategies.

Based on the findings of the country-level and regional assessments, strategic recommendations and actionable next steps are proposed along four main pillars that are aligned with the main sections of the conceptual framework. In addition, cross-cutting strategic recommendations are also proposed.

Moving forward, each ASEAN Member State should bear in mind how the recommendations stemming from this report align with their national-level plans. With that in mind, the following guidance and set of strategic recommendations are meant to help each ASEAN Member State assess their respective national circumstances and set in motion efforts to strengthen their labour market and skills-related information, institutions and infrastructure in order to improve evidence-based policies and decision-making processes.

Governance, institutional arrangements and coordination mechanisms

Generally, in all ASEAN Member States there is transparent legislation that clearly defines roles and responsibilities. In many cases, there are multiple acts pertaining to data collection and the safeguarding of individual and enterprise-level privacy. There exists, however, a certain level of fragmentation in the labour market information space, in particular with regard to the emergence of innovative approaches to skills assessment, which could be exacerbated if the overarching governance structure does not evolve.

Strategic recommendation 1: Strengthen governance, institutional and financial arrangements around labour market information

There is a need to ensure that governance and institutional arrangements evolve accordingly in ASEAN Member States in view of the increased emphasis on skills. This is due in part to emerging practices such as artificial intelligence (AI), machine learning and web-scraping, which often entail the collection and treatment of personal and corporate-level information. These novel approaches may close important gaps in labour market information, but their deployment must be carefully balanced against issues related to ethics, public interest, intellectual property and privacy. Such trade-offs should be reflected in legislation that stipulates how such information is gathered and disseminated. Many ASEAN Member States have laws that govern the use of personal information, but these will need to adapt in response to the onset of such new technologies.

In addition, given the complexity and range of actors engaged in the employment and skills development space, a central authority with a dedicated coordination mandate, along with institutionalized mechanisms to ensure collaboration, are highly recommended. However, national-level institutional coordination mechanisms must be complemented by regional and sectoral bodies that take into consideration the diversity of situations that prevail within ASEAN Member States. Official coordinating mechanisms will help to bring accountability, build synergies, and avoid duplication and inconsistencies in concepts and definitions. Moreover, the process of developing and refining labour market information systems (LMISs) is most successful when it is participatory in nature, as each of the various producers and consumers of information bring unique perspectives and needs to the table. Indeed, for each of the priority areas presented, collaboration and partnerships with stakeholders, such as policymakers, educators and individuals, should be emphasized.

Inputs and statistical infrastructure

A key pillar for comprehensive systems of labour market information is a robust statistical infrastructure that provides comprehensive, timely, reliable and relevant information on the demand and supply of labour and skills. Statistical infrastructure refers to statistics obtained from surveys, censuses, administrative and other sources, collected at the national and subnational levels, as well as the tools and processes involved in compiling, processing and storing these data. The basic statistical infrastructure in ASEAN Member States is well developed and established, especially in terms of labour force surveys (LFSs). Yet, there are some significant gaps that need to be addressed and a number of areas for improvement within the current infrastructure.

Strategic recommendation 2: Enhance the foundational statistical infrastructure to close key gaps, including with respect to skills-related information

Each ASEAN Member State should examine its statistics infrastructure with a view to identifying gaps in terms of both the supply of and demand for labour and skills. In relation to occupations, while a considerable amount of information can be gleaned from the respective LFSs, emphasis should be placed on how to make more granular and disaggregated information available for use and analysis (this will also help to support strategic recommendation 4 below). This may require, where relevant and feasible, improving the sample sizes and frequency of surveys. It is important to collect data that is disaggregated by occupation (and other dimensions) in order to enable analysis along various lines (age, gender, locality, ethnicity and so on) and thereby ensure the development of inclusive and equitable policies. Such efforts must also adhere to international and national classification systems (for example, on economic activities and occupations).

Strengthening foundational infrastructure in terms of LFSs will not be enough to close the existing gaps on the demand side. Each Member State should explore different methods to expand the availability and improve the quality of labour and skills demand data, taking into consideration their own priorities and existing gap areas, as well as the strengths and weaknesses of the different approaches. Efforts to undertake more regular establishment surveys, including via sectoral approaches, can help improve the availability of information on the demand for labour and skills. ASEAN Member States should also assess the feasibility of carrying out vacancy surveys (or improve data quality and access, where they exist) or other methods such as leveraging public (or private) job postings, which can serve as a complement to official surveys or help to close gaps where such information is not available or other methods are not feasible. Enhancing collaboration with employer organizations, in particular in the context of sectoral approaches, can expand possibilities through resource-sharing and support the institutionalization and sustainability of initiatives.

In terms of the supply side of labour market information, enhancements are also needed to each ASEAN Member State's capacity to document the skill content of education and training programmes, and to compile and integrate education and training data from different sources (basic, TVET, higher education and so on). In addition, putting in place systems that will measure the labour market outcomes of the graduates of post-secondary education and TVET programmes will help policymakers and others to measure the effectiveness of training and education programmes and identify areas of labour and skill shortages, surpluses and mismatches. In addition, strengthening the role of education and training providers in the process of not only using but also generating labour market information (consistent with strategic recommendations 4 and 5 below), can go a long way towards improving the design of targeted interventions that consider both supply and demand.

Qualitative approaches must be an integral part of efforts to strengthen the statistical infrastructure and inputs of the LMISs in ASEAN Member States. Well-developed and rigorous qualitative approaches, such as semi-structured interviews with key informants and focus groups, will enhance and complement quantitative data on both the supply of and demand for labour and skills.

Analytical outputs

Each ASEAN Member State recognizes the importance of skills in the broader labour market information environment. From the perspective of baseline data infrastructure, ASEAN Member States rely primarily on qualification and occupation as proxies for both the supply of and the demand for skills. In many instances, however, this approach remains underutilized. In most cases, advanced analytical products and outputs are devoid of skills-related insights. To improve the breadth and value of labour market information and ensure that, among other things, training and education systems and career guidance are aligned with the changing and emerging needs of jobs, each ASEAN Member State should take steps to ensure that skills are the cornerstone of workforce development policies and programmes.

Strategic recommendation 3: Ensure that occupations and skills are a central component of advanced labour market information and analysis

ASEAN Member States should leverage more fully existing qualification and occupation proxies to provide insights on the changing labour market landscape. At the same time, incremental efforts are needed to develop frameworks that depict the actual competencies that are required for different occupations, beyond educational attainments or qualifications. In the rare instances that such frameworks exist, they must continue to evolve and be designed in a manner that responds to the needs of various stakeholders (see strategic recommendation 5 below). In particular, collaboration and coherence among various ministries, training institutions, career development practitioners and social partners are crucial for creating a common national skills language and a responsive and user-centric framework.

Once they have been developed, the linkages between a skills framework and the country's statistical infrastructure, such as LFSS, vacancy data and occupational forecasts, should be established to provide valuable insights on changing labour and skills demands now and into the future. This will, among other things, help to inform the design of training and related policies and programmes. Establishing such linkages involves for instance using consistent classification systems and/or developing concordance tables or cross-walks (between occupations, skills and training programmes). For instance, insights on occupational or skills demand from establishment surveys may not be useful for TVET providers unless they have tools and mechanisms in place to interpret the implications of such information for their training programmes.

While many approaches exist for skills needs assessments, anticipation and matching, each with its strengths and weaknesses, these methods tend to be underutilized in most ASEAN Member States. Exploring different approaches and using them in a complementary way can help ensure that the labour market and skills information generated (analytical outputs) meet the specific needs of policymakers and other end-users, in line with strategic recommendation 4 below. This must take into account resource and capacity constraints, as well as ways to address any shortcomings. Indeed, the labour market information and analysis (in terms of range and quality of analytical outputs) available depends to an important extent not only on the statistical infrastructure but also on the capacity of the relevant actors and resources available and allocated to such activities (see strategic recommendation 5 below).

Uses and dissemination

Labour market information and skills-related information are central to the decision-making process of a variety of stakeholders. While the focus of this report is on policymakers, including those working with employment policy, education and TVET policy, labour market information and analysis is also used by a range of other actors, including individuals who are considering career and training alternatives, employers who are making investment and hiring decisions, and educators and trainers who are designing new policies, programmes and courses. Information needs – in terms of content, form and purpose – vary considerably among end-users. To be useful to the workforce development and career-related decisions facing stakeholders, information needs to be tailored, to the extent possible, to these various users. Consideration should therefore be given not only to the information requirements of policymakers but also to the wider use and dissemination of labour market information.

Strategic recommendation 4: Ensure that labour market information is used to inform evidence-based policies and programmes and to meet the various needs of users

LMISs are inherently complex, entailing a diverse set of quantitative and qualitative data, numerous actors and agents and a wide range of end-users. To some degree, the aspects of LMISs that relate to skills can be even more complex, because of the multiple concepts and potential definitions of skills. This can lead to over-sophisticated systems that fail to respond to needs of end-users. The development, maintenance and evolution of a comprehensive LMIS entailing an element of skills must be done in collaboration with – and designed for – end-users (that is, educators, policymakers as well as other stakeholders that rely heavily on this information, including career development practitioners, researchers and students, employers, workers and jobseekers, as well as others looking to make informed choices regarding employment and skills). Careful consideration must also be given to designing effective, inclusive, user-specific mechanisms for sharing and disseminating information so that relevant data are put into the hands of those making employment, training and skills-related decisions in a user-centric manner. Finally, there needs to be a mechanism for continuous feedback to ensure that the information that is being generated and shared is done so in a manner that meets the evolving needs of different users.

Cross-cutting considerations

Not all ASEAN Member States face the same challenges or have the same focal areas with regard to labour market information and skills. Accordingly, each ASEAN Member State can draw on these recommendations on the basis of their national contexts. However, in doing so, a number of cross-cutting strategic considerations should be borne in mind. The first consideration is to ensure that any strategy to improve LMISs and skills-related insights should earmark resources to build internal capacity in order to ensure the sustainability of efforts. The second and related consideration is for ASEAN Member States to work collaboratively to share lessons and develop partnerships that can lead to significant savings, address capacity constraints, and improve the efficient allocation of limited resources (see strategic recommendation 7 below).

Strategic recommendation 5: Establish participatory processes for strengthening the governance, generation and use of labour market information and for monitoring progress

Regardless of the stage of development of a country's LMIS, it is important to understand what policy, career, training or programme questions need to be answered. This includes defining the end-users and their needs (see strategic recommendation 4 above) and the role that various actors play in the system, from those responsible for strategic oversight to those that generate labour market information and those that translate information into action. In particular, an effective LMIS should be progressively implemented, and institutional agreement on its overall design and purpose is critical from the onset. In this way, a central element of this strategic area for consideration is to strengthen overall coordination and cooperation at the national level by clearly articulating the roles and responsibilities of the various actors (see strategic recommendation 1 above). This includes providing adequate resources and capacity-building in order to ensure the sustainability of the labour market information and skills system (see strategic recommendation 6 below). Ideally, such a process would be participatory in nature, including not only relevant government bodies and social partners but also a broader range of stakeholders. Finally, there is a need to clearly define the intended goals of the different components of the labour market information and skills system and to put in place systems for monitoring and evaluating progress towards those objectives and ensuring that the systems are evolving alongside user needs and preferences. This would demonstrate a commitment to continuous improvement and accountability.

Strategic recommendation 6: Build upon and intensify efforts to strengthen internal capacity to manage – and undertake different functions associated with – an effective and responsive LMIS

Any plan to improve the generation, provision and use of labour market information in ASEAN Member States must adequately address capacity constraints in the medium-to-longer terms. To ensure sustainability and address capacity constraints, financial and human resources will need to be allocated accordingly. In this respect, each ASEAN Member State should establish targets and performance indicators and assign responsibilities to various ministries and agencies for each component of the efforts to improve their labour market information, while ensuring that adequate resources are assigned to establish and maintain effective implementation mechanisms. While partnerships and external support may be crucial, notably at the inception phase of projects, there needs to be a strategy from the outset to ensure knowledge transfer and capacity-building as core pillars of improving labour market information and institutionalizing various approaches and processes. This is key to the sustainability of efforts to bolster evidence-based policies and programmes.

Strategic recommendation 7: Optimize the use of ASEAN collaboration forums and explore new partnerships and joint initiatives for knowledge-sharing on labour market information

Each of the national-level assessments showcase a variety of innovative approaches – at varying stages of development – taking place within the region. ASEAN Member States and the ASEC should consider how best to strengthen the sharing of best practices and lessons learned through existing governance mechanisms, and should promote network-building, partnerships and collaboration in addressing common challenges and seizing new opportunities. Working together also opens up opportunities for efficient resource allocation for the benefit of all ASEAN Member States. Indeed, there are several areas in which sizeable efficiency gains may be obtained from such cross-country collaboration. For instance, by pooling resources to explore the efficacy of new techniques (for example, web-scraping) or developing common approaches that could be tailored to country-specific circumstances (for example, skills definitions). A shared approach to innovation would also help to inform the learning process and support the overall monitoring and evaluation framework proposed under strategic recommendation 5 above.

Given the wide range of regional bodies and initiatives working in the labour market information and skills space, there are many opportunities to share lessons learned through existing forums, including the ASEAN TVET Council and the SEA-VET.net platform, as well as the SLOM-WG, the ASEAN Senior Officials Meeting on Education (SOM-ED) and the ASEAN Coordinating Committee on Micro, Small and Medium Enterprises (ACCMSME). Each of the national-level assessments presented as part of this report showcases a variety of innovative approaches and, so that existing ASEAN bodies can provide important avenues for the sharing of best practices and lessons learned. Indeed, the topic of LMISs and skills must be given adequate attention and placed high on the policy agenda of ASEAN institutions. In addition, establishing and developing a network of actors and practitioners for knowledge-sharing in ASEAN Member States could significantly contribute to enhancing the use of labour market information in skills and employment policies.

1. Introduction

For several decades now, countries around the globe have been grappling with the implications of the future of work. The simultaneous onset of climate change, demographic shifts, technological change – and more broadly, globalization – are transforming the world of work in ways that, in the absence of effective policy interventions, pose considerable risks to economic, societal and individual prosperity.

The confluence of these global mega-drivers has played a significant role in placing skills at the forefront of the employment and social policy landscape. The onset of the COVID-19 pandemic in early 2020 only emphasized this transformation by accelerating ongoing shifts in the world of work. There is now widespread recognition that workforce development policies and programmes require a well-functioning and responsive LMIS with a strong focus on skills. Indeed, the growing discourse on skills is intricately linked with sustainable enterprises, productivity growth and the importance that lifelong learning must play in the context of the future of work.

Against this backdrop, the LMIS-SKILLS development cooperation project was launched under the SLOM-WG Work Plan 2021–2025 and implemented by the ILO and the GIZ, in collaboration with the ASEC and under the joint leadership of the DOLE of the Philippines, the Ministry of Labour, Invalids and Social Affairs of Viet Nam and the Ministry of Manpower of Indonesia.

Under the project, a key activity involved taking stock of labour market information for skills and employment policies at the national and regional levels, with the aim of identifying challenges and gaps (in the areas of capacity, resources, infrastructure and institutions, among other areas), as well as good practices in the ASEAN region. This ensuing report is the culmination of these national-level assessments in ASEAN Member States. Section 2 provides an overview of the background to this study, including a synopsis of the methodological approach taken, and discusses various approaches to layering skills-related information in the broader labour market information context. Section 3 examines the governance, institutional arrangements and coordination mechanisms related to labour market information in each of the ASEAN Member States. Section 4 looks at the inputs and statistical infrastructure in ASEAN Member States, with particular emphasis on data sources for labour supply, labour demand and skills-specific information. Section 5 documents the analytical outputs produced, based on the underlying inputs and statistical infrastructure that prevails in the respective ASEAN Member States. Section 6 provides insights into the uses and dissemination of these analytical outputs. Finally, section 7 provides concluding remarks and cross-cutting considerations based on the findings of this report.



2. Background and methodology

2.1. Background and context

The post-pandemic labour market has been characterized by changes in employment among and within sectors in ASEAN countries and beyond. In particular, there were considerable shifts in employment in some sectors of activity, such as tourism, and noticeable changes in worker preferences. Combined with ongoing shifts in labour markets due to technological progress and other drivers of change, this is leading to changes in the composition of jobs and the skills required to succeed. The changing world of work has created not only new opportunities for structural transformation and inclusive growth but also risks for greater inequalities and employment insecurities.

An effective and comprehensive system of labour market information,³ including a highly functional skills development and anticipation system, has a number of positive potential outcomes at the individual, enterprise, sectoral and national/regional levels. In the simplest sense, it can help individuals secure employment that is better matched to their skills and preferences; quality labour market information and insights can help employers' gain and retain the talent needed to grow and prosper; while educators, training institutions and career development practitioners rely on quality labour market information to design programmes, curriculum and other support measures to assist individuals and enterprises. Indeed, a responsive LMIS is central to achieving economic, environmental and social goals and providing equal access to decent work. However, a well-functioning system of labour market information needs to be not only comprehensive but also aligned with the different needs of various stakeholders, which can be achieved or facilitated through institutionalized mechanisms around labour market information.

To that end, the purpose of this report is to provide guidance to ASEAN Member States on how to improve labour market information in order to better inform a wide range of employment and skill-related initiatives. The report entails a stocktaking exercise of labour market information and its use for skills and employment policies at the national and regional levels. This is combined with an analysis of the challenges and gaps (in the areas of capacity, resources, infrastructure and institutions, among other areas), as well as good practices from in the ASEAN region. To facilitate a systematic approach, a conceptual framework was developed to ensure consistency and coherence among ASEAN Member States (see Appendix I).

³ For the purposes of this report, the term "labour market information" can be considered to refer to all forms of information with content on the labour market. This can include quantitative statistical information, such as LFS data, as well as qualitative information, such as insights from industry groups. For a detailed explanation of LMISs, see section 2.3 below.

2.2. Methodological approach to the regional mapping

This report is based on the findings of ten national assessments to understand ASEAN Member States' respective labour market information related to skills. Three of these assessments were in-depth national assessments with associated reports (for the ASEAN LMIS-SKILLS project co-lead countries of Indonesia, Philippines and Viet Nam), while seven were shorter national assessments (Brunei Darussalam, Cambodia, Lao People's Democratic Republic, Malaysia, Myanmar, Singapore and Thailand) – all of which were used in the development of this regional report.⁴ All the assessments were conducted by international and national experts, with guidance and inputs from ILO and GIZ experts as well as the ASEC and the TWG of the ASEAN LMI-SKILLS project and the SLOM-WG. Each report broadly follows the same conceptual framework (see Appendix I), with some minor differences to take into account country-specific level information. While more detailed national reports have been prepared for Indonesia, Philippines and Viet Nam, an overview summary for each ASEAN Member State is presented in Appendix II.

In addition to the conceptual framework, three methodological tools were developed in order to ensure coherence among the national reports: (a) a desk review checklist (see Annex I); (b) a framework for key informant interviews (see Annex II); and (c) semi-structured interview templates (see Annex III). The methodological tools, in particular the semi-structured interview guides, were developed drawing on a variety of existing resources, including the analytical framework for recent work by the ASEC and the KRIVET (KRIVET 2020), as well as the survey used as part of the ILO study on skills anticipation and matching (ILO 2017). The conceptual framework and methodological tools, as part of the study's inception report, were endorsed by the SLOM-WG on 31 March 2023.

2.3. Key considerations

Given the complex nature of labour market information and skills development systems, it is important at the outset to clarify key terminologies and other considerations. This is particularly the case with respect to skills, whose concepts continue to evolve, and is also true of labour market information, since the emergence of new technologies and methods are changing the ways in which data is collected, used and disseminated.

2.3.1. LMISs

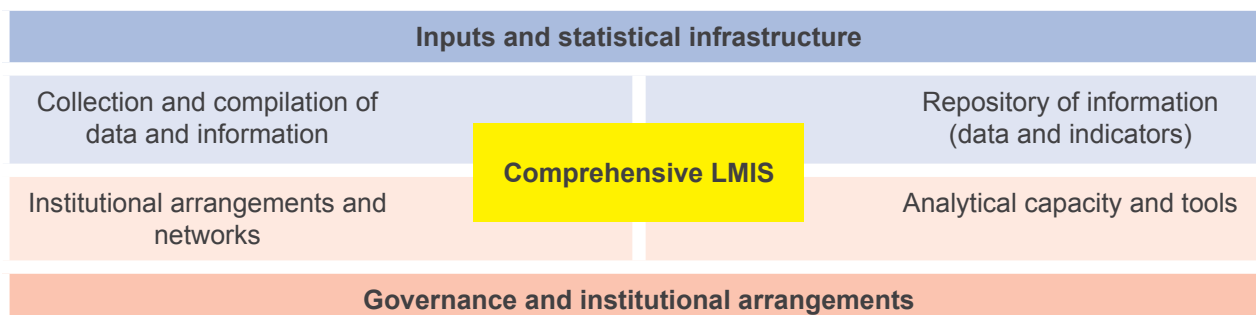
In the context of this study, an LMIS is defined as a comprehensive network of institutions, persons and information whose objective is to produce, store, disseminate and use labour market information to support policy and programme development (ILO n.d.a). As discussed in section 6 below, an LMIS can be considered to have a wider scope in terms of users and uses that span curriculum development, career planning and individual decision-making. Within each LMIS, there is a range of public and private actors, including policymakers, employers' organizations, trade unions, education and training institutions and the wider public. These actors – who ideally work collaboratively across the LMIS – have different roles and responsibilities with respect to overseeing and maintaining the system in order to maximize its potential for relevant policy application and programme formulation and implementation (ILO 2017).⁵

There are different interpretations, in particular at the national level, of what constitutes a comprehensive LMIS, which the ILO defines as consisting of four main elements: (a) the collection and compilation of data and information; (b) a repository of information; (c) analytical capacity and tools; and (d) institutional arrangements and networks (figure 3).⁶ The underlying framework of this report draws on these four broad elements of a comprehensive LMIS. An important consideration is the different attributes of labour market information and the various trade-offs that different approaches entail (see box 1).

⁴ For Myanmar, a national-level assessment was conducted, but due to restrictions on engagement, it entailed no key informant interviews. This hindered the development of a section on uses and dissemination of labour market information, which was left out of the Myanmar national report.

⁵ For further information on LMISs, see also ILO, "Labour Market Information Systems".

⁶ Owing to the various interpretations of the term "labour market information system (LMIS)", it is generally avoided in the context of this report, unless the concept described largely corresponds to all four components presented in this figure.

Figure 3 : Key elements of a comprehensive LMIS

Source: Adapted from various ILO sources, including ILO (n.d.).

Box 1. Data attributes⁷

When considering data derived from different sources of labour market information, a number of criteria and attributes should be borne in mind.⁸ In particular, it is challenging to find a single data source with all desirable qualities. Inevitably there are trade-offs to be made, depending on the source. For example, the collection of highly granular, geographically focused data (such as a population census) requires time to process and make available. In other instances, the frequency of collection of the information, such as online job postings, may be prioritized over geographic specificity. Striking a balance depends on the data's intended use and user needs, such as data for informed career decisions or to support training design. Accordingly, different data sources should be seen as complementary to one another.

- **Timeliness:** Delay between when the data is collected and made available (for example, a census is undertaken in 2020 but only processed and available one year or more later).
- **Frequency:** How often data is collected (for example, monthly versus yearly).
- **Granularity:** The level of detail related to the data collected and disseminated (for example, is information available at a broad occupational or sectoral level, such as for professionals or manufacturing, respectively, or at a more detailed level, such as for chemical engineers or the manufacturing of textiles).
- **Localness:** Smallest geographic area for which data is released (for example, nationally versus local geographies).
- **Openness:** The extent to which data is publicly available (free) and easy to access for a wide range of stakeholders and decision-makers (for example, from individuals seeking to make informed career choices to policymakers seeking to develop programmes and trainers and educators seeking to design new courses).
- **Comparability and viability:** Data adheres to national and/or international standards for definitions, concepts and reporting (for example, how unemployment is defined).
- **Privacy:** Data aligns with rules and regulations regarding data privacy and protection.
- **Robustness:** Data is statistically sound and reliable.

⁷ For the purposes of this report, the use of the terms "data" and "information" are used interchangeably. However, there is a potential nuance between data and information; that is, strictly speaking data is the collection of facts, whereas information is data that has been interpreted and been giving meaning in a certain context.

⁸ See LMIC, "[Labour Market Information: Best Practices Guide](#)".

- **User-friendliness:** The manner in which the data is made available is aligned with the needs of the target audience in question. That is, different actors require data in different forms (content of the information) and different formats (how it is shared), depending on their needs and circumstances. For example, researchers are more likely to have the capacity to engage with raw microdata in workable formats such as the CSV format, which are accessible through application programming interfaces (APIs) and other data repositories, whereas other individuals, depending on the decision at hand, will often prefer aggregated information that has already been analysed and is presented in a more user-friendly format.

2.3.2. Skills in a labour market information context

The role of skills-related data and insights in a comprehensive and effective LMIS is growing in importance. This is due in part to the changing landscape of work, in which the matching of the supply of and demand for labour is increasingly driven by skills rather than education. Indeed, there is increased emphasis placed on skills in the employment and social policy realm. There is also widespread acknowledgement that in order to navigate a dynamic labour market, workforce development policies and programmes need a robust LMIS with skills and related data as one of its cornerstones.⁹

A key ingredient of ensuring that skills form a central pillar of any LMIS is an improved understanding and clarity about what skills are (box 2). Definitions of skills vary widely among different sources and disciplines vary among different actors, including across the different ASEAN Member States. Moreover, education is often conflated with skills, although sometimes education is used as a proxy for skills. However, given the increased awareness of skills in broader employment policy spheres, there has been an improved understanding of how skills are defined and how they differ from proxies such as education.

Box 2. Key skills-related terminology

There is often considerable variation in how different organizations and stakeholders define a number of terms related to skills. Broadly speaking, the following delineations are important to bear in mind:

- **Skills:** A skill is understood as the ability to carry out a mental or manual activity that is acquired through learning and practice, whereby a “skill” is an overarching term that includes knowledge, competency and experience, as well as the ability to apply these in order to complete tasks and solve work-related problems.
- **Skills needs anticipation:** In a broad sense, skills needs anticipation refers to activities that assess future skills needs in the labour market in a strategic way, using consistent and systematic methods.
- **Skills forecasting:** A quantitative method, among other methods used for skills needs anticipation.
- **Skill mismatch:** the discrepancies between the skills that are sought by employers and the skills that are possessed by individuals. There are different interpretations of skills mismatch, including situations in which an individual does not meet job requirements or in which there is a shortage or surplus of a particular skill or of workers possessing a particular skill.
- **Knowledge:** The capacity or attribute required to execute a task, such as knowledge of a language or software.

⁹ Throughout this report, the term skills ecosystem and skills development ecosystem are used, often interchangeable. For the purpose of this study, the terms “skills” and “skills development ecosystem” refer to the subset of data inputs, institutional arrangements, outputs and intelligence that pertain specifically to skills and are directly relevant for skills development, including the provision of training.

- **Competency:** The proven or demonstrated individual capacity to use know-how, skills, qualifications or knowledge to meet usual or changing occupation situations or requirements.
- **Credential:** The action or process of providing someone or something with an official document attesting to a status or level of achievement.
- **Qualification:** An official record (certificate, diploma) of achievement that recognizes the successful completion of education or training, or satisfactory performance in a test or examination.
- **Occupation:** A set of jobs whose main tasks and duties are characterized by a high degree of similarity. A person may be associated with an occupation through their main job currently held, a second job or a job previously held.

Source: European Training Foundation, European Centre for the Development of Vocational Training, and ILO (2016); ILO (2017); and UNESCO, "[TVETipedia Glossary](#)".

The most common method for measuring skills in relation to employment is via a proxy approach. This is done by categorizing each occupation according to an associated occupational skill level (skill levels 1 to 4) that is typically required to perform that job. These can be further categorized into low, medium and high skills (table 1). The International Standard Classification of Occupations (ISCO) assigns these skill levels to occupations. This approach is often used for high-level international comparative studies rather than in-depth national assessments. It does not take into consideration any country-specific information or the extent to which the requirements of a job may vary in different circumstances (for example, in different countries or different sectors) but it does allow for a simple benchmark to be applied that does not rely on detailed occupation levels (that is, it applies already at the 1-digit level).

Table 1 : Aggregate categories of occupation and occupational skill levels and alignment with ISCO-08 and ISCO-88 classifications

Aggregate categories of occupation and occupational skill levels	ISCO-08	ISCO-88
Skill levels 3 and 4 (high): Managers, professionals and technicians	1 Managers	1 Legislators, senior officials and managers
	2 Professionals	2 Professionals
	3 Technicians and associate professionals	3 Technicians and associate professionals
Skill level 2 (medium): Clerks and service, agricultural, trades and plant workers	4 Clerical support workers	4 Clerks
	5 Service and sales workers	5 Service workers and shop and market sales workers
	6 Skilled agricultural, forestry and fishery workers	6 Skilled agricultural and fishery workers
	7 Craft and related trades workers	7 Craft and related trades workers
	8 Plant and machine operators, and assemblers	8 Plant and machine operators, and assemblers
Skill level 1 (low): Elementary occupations	9 Elementary occupations	9 Elementary occupations
Armed forces and not elsewhere classified	10 Armed forces occupations	10 Armed forces
	X Not elsewhere classified	X Not elsewhere classified

Source: ILO (n.d.a).

There are a number of benefits of using proxies such as education (educational attainment) or qualifications. First, qualifications such as degrees and diplomas are well defined and are generally internationally recognized. Another advantage of proxying skills by education is the relative ease with which they can be measured and collected – in terms of both what employers are seeking and delivery and acquisition. In particular, qualifications are discrete in nature, so that one either requires (or has) a degree or not.

However, despite increased educational attainment, skills mismatches and underemployment have been commonplace and there are increased perceptions among employers that educated individuals may nevertheless lack the necessary skills to perform their job. The latter is partly driven by the rapidly changing work environments and nature of work. As a result, there have been efforts to add clarity and precision to how skills are defined and measured. Such efforts are consistent with the notion that skills, as narrowly defined, refer to the capacity to perform a job or task, which is a function of not only education but also competency and experience, among other factors (see box 2).

Against this backdrop, one important resource is the LFS measurement module developed by the ILO in 2020 to capture information on occupational qualifications and skills mismatches, an add-on module for special work topics that provides a range of questions for an LFS to allow for the self-perception of qualifications and skill mismatches.¹⁰

Yet, efforts to be more concise have in some cases led to an expansive list of skills that sometimes number in the thousands, depending on the source (for example, public versus private), with little or no consistency between or within countries in terms of how skills are categorized and a variety of different forms and structures (see box 3).¹¹ Some examples include foundational skills (often referred to as essential or core skills), which often encompass skills such as literacy, numeracy, writing and comprehension, among others. In other instances, skills are categorized as analytical (sometimes referred to as technical or hard). Alternatively, there are also sets of skills that are referred to as soft (including social and emotional), which encompass skills such as team-building and negotiation skills. Others have tended to organize skills according to their cognitive nature; that is, they require the ability to understand complex ideas (cognitive skills) or relate more to interaction and attitudes (non-cognitive).

There are also cross-functional (or transferable/transversal) skills that can be deployed across a range of jobs, which may include a range of skill sets that may also be analytical or soft skills. Finally, there are instances in which there is no organizing structure, but the current skills identified are simply an exhaustive list of what is considered relevant.

Box 3. Organizing skills

- **Classification:** A classification simply groups skills into different categories based on the nature of the skills, such as cognitive or non-cognitive skills or hard versus soft skills.
- **Taxonomy:** Taxonomies typically organize skills according to a hierarchy and organize skills according to groups or clusters. In this way, a taxonomy is very much a system of multiple classifications that are connected.
- **Ontology:** With an ontology of skills, different skills (and sets of skills) are connected to one another, with cross-relationships (often displayed as a web rather than a tree-like structure).

10 See ILO, “Labour Force Survey (LFS) Resources: The Global Reference for Labour Force Survey Design”, “Add-On Modules on Special Work Topics”.

11 With this in mind, the ILO has made efforts to specify a terminology, taxonomy and definitions for core skills (ILO 2021).

The categories of skills described above are by no means exhaustive but rather seek to outline the vast array of approaches that currently prevail. Indeed, there is no universally used approach to defining and classifying skills. The issue is further complicated by the fact that many of the LMISs around the world are primarily devoid of inputs and statistical infrastructure related to gathering, compiling and storing skills-related data and indicators. By and large, the vast majority of labour market information and data sources have not been designed explicitly to capture insights on skills. The same can be said for much of the data captured through training and education systems (if it does exist, it often lacks important granularity). This has often led to the development and implementation of adjacent methods to capture skills information, such as using education as a proxy (see below).¹² Indeed, given the above-mentioned limitations to obtaining a more refined definition and classification of skills, the use of proxies is still a useful tool with a number of practical benefits. As the need for skills-related information and data is very diverse with multiple purposes, different types of skills measures – including direct and proxy measures – may be more appropriate, practicable and helpful, depending on the situation.

2.3.2.1. Measuring demand for skills

There are four main methods of measuring or assessing the demand for skills, each of which begins by determining what is meant by a skill. The first three methods share a common approach in that they associate skills with an occupation (table 2). The first method, as discussed above, assigns a skill level to occupations based primarily on educational requirements and attainment. The second method is based on the development of a taxonomy that defines the set of skills of interest¹³ and each job is assessed in turn and assigned those skills that are of most relevance to the tasks of that specific job. This is typically undertaken by a job analyst or occupational analyst – often in collaboration with other stakeholders in terms of validation – to determine whether the skill should be associated with a particular job.¹⁴ In some cases, this may even include the level of proficiency required and its relative importance compared to other skills. That type of method requires a significant amount of resources to initiate and maintain. Both the first and second methods are rather static in nature; that is, they not reflect how the skill requirements of occupations change over time. Also, since both methods are organized at the occupational level, they are unable to account for differences in the skills required across different sectors or regions for a given job.

The third method identifies the skills associated with a job by leveraging the extent to which skills appear in online job postings or job vacancies.¹⁵ This method is less resource-intensive (provided that adequate infrastructure and technologies are in place) and allows for country-specific analysis, where such data exists. In addition, depending on data availability, its results can be disaggregated by region. Indeed, big data can provide insights on the work requirements of jobs in near real time, with considerable specificity (in terms of skills and geographies), and can be analysed at a fraction of the cost of traditional survey methods. This is especially valuable in the context of informing curriculum development, given the fast pace at which the skill requirements of jobs are changing. There are, however, a number of important caveats to the use of this method (see also box 4), in particular with regard to the representativeness of the overall jobs available in the economy; for example, it is skewed towards jobs that require higher levels of education and reliability (for example, depending on the methods used to extract skills-related insights). Other critical factors to consider involve the unstructured and non-random nature of big data, and the fact that there are no consistent standards with respect to what skills should be included in advertisements (for example, some skills that are required may not necessarily be listed in a job posting because they are taken for granted by employers). Also, big data analysis requires specific technical and domain expertise and a dedicated hardware and software infrastructure (which may require substantial resources/investments) or partnerships with private entities that provide such services.

¹² It is important to note that skills are only one aspect of many approaches to understanding job demands. There are a number of other attributes that also form the basis of understanding the requirements of a job, such as the physical environment, the type of activities involved and so on.

¹³ As noted above, this can range from a few to thousands of skills.

¹⁴ Rather than developing a country-specific taxonomy, one could consider adopting and leveraging existing taxonomies. For instance, where a skills taxonomy exists (for example, the United States O*NET database), it can be applied to existing labour market information. This can be an efficient and practical way to gather skill-related insights but comes at the expense of (a) appropriateness (for example, how similar is the United States' occupational and job structure to the country in question); and (b) precision (for example, leveraging such taxonomies requires a mapping between the occupational classification systems of the country with the taxonomy to the national context, which inevitably leads to a loss of information).

¹⁵ In some instances, the scraping of online job postings is leveraged to make an determination of the set of skills of relevance and this is followed up by a more rigorous (and resource-intensive) occupational analyst approach.

Table 2 : Illustrative example of identifying and linking skills with occupations

ISCO-08 4-digit	Approach	Skill	Skill interpretation
Window cleaner (ISCO: 9123)	Proxy	Occupation skill level 1	For competent performance in some occupations at skill level 1, the completion of primary education or the first stage of basic education (International Standard Classification of Education (ISCED), level 1) may be required. A short period of on-the-job training may be required for some jobs.
Window cleaner (ISCO: 9123)	Taxonomy	Active listening	The skill is (or is not) associated with being a window cleaner and/or the skill is assessed in terms of its importance and proficiency (scale).
Window cleaner (ISCO: 9123)	Online job posting	Attention to detail	A certain percentage of jobs posted online contain attention to detail as a skill requirement for window cleaners.

Source: Author's compilation.

The fourth method simply asks employers about their skills needs, either through a survey or through focus groups or other qualitative methods. However, given the number of occupations and skills that prevail in an economy, this method is particularly useful in the context of sectoral approaches. Employer surveys are costly to implement, especially if undertaken on a regular basis, and may be limited in terms of what information can be feasibly collected (or divulged). Moreover, the survey characteristics (for example, if the information requested for a given occupation and/or skill follows predetermined lists, rather than simply open-ended questions) determine how easily data can be analysed and translated into policy-relevant information. Focus groups and other qualitative surveys are best undertaken with a view to gathering data on trends and drivers of change, at the level of the overall challenge (for example, the extent of skill gaps) or to validate empirical findings.

Box 4. Methods for associating skills with occupations

Each method of associating skills with an occupation comes with benefits and limitations. It is important to consider the objective of the overarching exercise in order to decide which methodological approach (or combination of approaches) should be applied.

Occupational analyst: Occupational or job analysts – often in collaboration with other stakeholders – make determinations about the skills associated with each job, including in some instances the importance and proficiency required of each skill. Job analysts follow detailed guidelines and procedures to associate a skill (usually from a predetermined set) with an occupation, based on the job title, tasks, work environment and so on. The level of precision regarding the skills associated with each occupation is thus high. However, approaches of this nature (a) are often static in nature; (b) do not account for differences that may exist within individual jobs across geographies or sectors; and (c) require a significant amount of time and resources, including a process for regular updating and maintenance.

Online job postings: In recent years, new methods have emerged that leverage techniques to scrape online job postings for, among other things, information on the skills demanded by employers – as measured by the words and text used to describe the duties and tasks of a given occupation. Datasets of this nature can be cleaned and compiled using natural language-processing techniques to identify and organize skill requirements in a coherent manner. A big advantage of this approach is that it produces near real-time data that provides indications on changes in skills requirements within occupations that may vary across regions and nations (and over time). Four important caveats in this respect must be kept in mind: (a) online job postings are not the same as levels of employment or the volume of job vacancies; (b) the types of jobs posted online are not necessarily representative of economy-side developments; (c) not all skills required for a job are necessarily listed on the job posting; and (d) the frequency with which a skill appears in a job posting is typically used to determine its importance, which should be viewed with some caution.

Establishment surveys: A representative survey of employers is often carried out to gain a better understanding of the demand for jobs and their skills. However, given that there are more than 400 occupations within the ISCO, asking employers about the set of skills required for even a small subset of these would not be ideal. Moreover, where the informal sector dominates – as is the case in many developing and emerging countries – such an approach is unlikely to yield representative economy-wide results. It is therefore recommended that such skills-oriented surveys be conducted as part of sectoral approaches and focus on a small set of occupations and a core set of skills of interest.

Regardless of the approach taken, a key step to improve the usefulness of all these methods is to link skills with occupational codes and leverage other sources of labour market information in turn, such as national LFSs or job vacancy data. This can be done by first assessing where employment is growing (using LFSs) or where jobs are hard to fill (using vacancy surveys); it can then be interpreted whether the demand for the skills associated with those jobs are also growing. For instance, if employment among chemists is rising, the skills associated with that occupation, such as teamwork, can also be assumed to be growing.¹⁶

It should be noted, however, that where data on skills is gathered through the web-scraping of online job postings or job vacancies, it is also possible to simply assess the number of times that a skill appears (or is in demand) without making explicit reference to specific occupations. For instance, analytical skills have appeared 1,210 times in all job postings, an increase of 10 per cent from the previous period.

2.3.2.2. Measuring the supply of skills

One method for approximating the supply of skills is through educational attainment or training completion. This would be typically achieved by analysing the levels of educational attainment among the population according to levels of the ISCED (UNESCO 2012). The acquisition of skills at the individual level can also be captured through the training system, following the successful completion of a programme or training intervention. In some instances, the certification may be associated with the acquisition of a particular skill, such as web design, but such certification often lacks standardization and widespread recognition.

A second related approach is to look at the occupation that is currently or has been previously held by an individual. Similar to measuring the demand of skills via a proxy approach, the supply of skills can be measured in this manner by assuming that an individual who holds (or has held) an occupation has also acquired the skills associated with that occupation.

A third approach is to directly measure skills at the individual level.¹⁷ However, unlike qualifications, the assessment of skills exists along a spectrum. In other words, it is no longer sufficient to say that you need (or have) a skill or not, but rather the level of proficiency required must be determined. For example, the Programme for the International Assessment of Adult Competencies tests the proficiency of adults in terms of literacy, numeracy and problem-solving. Similarly, public employment service agencies also often include a skills assessment of registered jobseekers (although in some cases, skills are self-reported). Such an approach is narrow in scope in terms of the skills assessed and is a rather costly endeavour, but it provides important benchmarks and barometers of success. Other tests are more occupation-specific and are undertaken primarily by employers; for example, individuals may have to pass a software programming test as part of a recruitment process. Psychometric tests can also assess a range of skills, such as aptitude and behaviour. These tests, however, are not standardized and are often proprietary and thus offer limited opportunities for generating insights on the supply of skills in a way that could contribute to an effective LMIS in order to inform employment and skills policies.

¹⁶ Where the skills being associated with the occupation in question are drawn from a taxonomy, it will be important to bear in mind the extent to which that taxonomy is updated and revised to reflect the changing nature of the occupation in question.

¹⁷ See also ILO, “[Labour Force Survey \(LFS\) Resources: The Global Reference for Labour Force Survey Design](#)”, “Add-On Modules on Special Work Topics”, “Add-On Module on Occupational Qualifications and Skills Mismatches”, which is designed as a supplementary module for LFSs using self-perceptions of mismatches.

2.3.2.3. Assessing skills mismatch

An important objective of undertaking an analysis of both the demand for and the supply of skills is to assess or anticipate the presence of skills mismatch, that is the extent to which the skills of individuals are aligned with those in demand (European Training Foundation, European Centre for the Development of Vocational Training and ILO 2016). In that regard, how one defines and measures skills should be consistent across the different methods used to capture both supply and demand. However, this is often challenging given that the data on skills supply and skills demand are often derived from different sources and different classifications. This is one reason why using qualifications as a proxy may be desirable and why this approach has been widely adopted.



3. Governance, institutional arrangements and coordination mechanisms

This section looks at governance, institutional arrangements and coordination mechanisms around labour market information as it relates to skills and employment policies in ASEAN Member States. It documents the main actors and their roles in their national systems for labour market information and policy development processes. In doing so, it draws on a number of promising practices that could be considered as examples to build upon when designing potential solutions.

The governance mechanisms, institutional arrangements and coordination mechanisms described in this section are focused on government policymakers, including those working with employment policy, statistics, education and TVET policy, as well as public employment services. Social partners were also covered in the assessment, including both employers' and workers' organizations. However, as demonstrated throughout this report, there is a broader range of other highly relevant stakeholders to consider in the production of labour market information, its analysis and use and dissemination (those issues are covered in subsequent sections of this report). In that respect, such stakeholders also represent key actors in this space and their inclusion is fundamental for effective governance, institutional arrangements and coordination mechanisms.

3.1. Governance mechanisms

Most ASEAN Member States have a statistics law or act that outlines responsibilities with regard to official data collection, often explicitly covering labour statistics. Typically, these laws and acts outline the roles and responsibilities of the lead authority on data collection, which is usually the national statistics office. In most ASEAN Member States, these laws and acts highlight the responsibilities around the LFS, the population census and the establishment censuses, among other key sources of labour market data. They will often specify the responsible lead ministries or agencies for other surveys, such as a tourism-specific survey or agriculture survey. The primary focus of these laws is on the collection and compilation of data by national statistics offices, rather than on the analysis, access or use of data.

In a few ASEAN Member States, there is explicit legislation on the collection and compilation of labour market information. For instance, the Sub Decree on Gathering and Compilation the Information of Labour Market, No. 117, 2010, and the Sub-Decree on the Establishment of National Training Committee, No. 790ANK. TT are the two main mechanisms in Cambodia that outline the rules and responsibilities with regard to both the compilation and dissemination of labour market information and the responsible parties for utilizing this information for skills policy. In the Lao People's Democratic Republic, labour market information is handled by different institutions and bound by different governance mechanisms; however, the Decree on Labour Market Information clearly outlines the roles and responsibilities in this regard. This includes the collection, processing, use and dissemination of data, as well as analytical definitions and concepts.

Some legislation includes mandatory requirements for establishments and employers to report on vacancies. In Cambodia, mandatory requirements are in place for the provision of data, including by employers and establishments. This is also the case in other ASEAN Member States – although not always enforced – such as the Employment Information Act in Brunei Darussalam, the Law on Employer Reports in Indonesia and the Employment and Skills Development Law in Myanmar, among others. This requirement, which is enshrined in law, provides a legislative basis for collecting demand-related data, even if not necessarily fully implemented.

In terms of use and dissemination, labour market information is often featured within the mandates of education and skills training programmes, and only occasionally as a stand-alone policy focus. The need for demand-oriented curriculum and skills insights is regularly highlighted in manpower planning and TVET legislation or strategies. The extent to which labour market information is stated explicitly varies, although a number of countries have done so. For instance, in Thailand, the National Economic and Social Development Council has set milestones for national planning on labour market information, including milestone 12 of the 13th National Economic and Social Development Plan. There is also the TVET Revitalization Law and Strategy in Indonesia and the establishment of a national coordination team for its implementation.¹⁸ Similarly, the Technical Education and Skills Development Authority (TESDA), which is responsible for managing and supervising technical education and skills development in the Philippines, is tasked as part of its mandate to develop a national qualifications and certification system to ensure the quality of TVET training.

Table 3 : Selected governance mechanisms and legislation in ASEAN Member States

ASEAN Member State	Statistics	Labour market information	Skills and training	Other relevant
Brunei Darussalam	Statistics Act		Education Act, 2011	Employment Information Act, 1974
Cambodia	Statistics Law	Sub Decree on Gathering and Compiling Labour Market Information	National Technical Vocational Education and Training Policy, 2017–2025	Sub-Decree on the Establishment of National Training Committee, No: 790ANK.TT
Indonesia	Statistics Law, 1997; Government Regulation on One Data Indonesia	Law on Employer Reports; Government Regulation on Procedures to Obtain Manpower Information	Law on Manpower Affairs, 2003; Presidential Regulation on Revitalization of Vocational Education and Training, 2022	Ministry of Manpower and Transmigration Decree/Regulation on One Data Labour/ Manpower
Lao People's Democratic Republic	Statistics Law	Decree on Labour Market Information, 2022	Decree on Creating and Developing the Skill of Labour No. 036/PM, Dated 22 January 2010	National Rural Employment Strategy Vision 2030 and Goal 2025
Malaysia	Statistics Act 1965 (Revised 1989)		National Skills Development Act 2006	Personal Data Protection Act 2010
Myanmar	Statistics Law, 2018; National Strategy for Development of Statistics, 2016	Employment Statistics Act, 1948	Employment and Skills Development Law, 2013	
Philippines	Statistical Act, 2013		Technical Education and Skills Development Act, 1994	National Privacy Commission Circular 16-02
Singapore	Statistics Act			Personal Data Protection Act 2012

¹⁸ Over the past few years, the World Bank, in collaboration with the Ministry of National Development Planning/BAPPENAS, the Coordinating Ministry for Economic Affairs and the Ministry of Manpower, has supported various initiatives to improve labour market information in the country, as well as understanding of Indonesia's skills supply and demand. The World Bank analysed Indonesia's Labour Market Information System by benchmarking it against the Korea Information Employment System; initiated research around the foundations for advanced labour market intelligence services; provided critical occupation lists for the country; and prepared the reports entitled *Indonesia's Occupational Employment Outlook 2020*, *Indonesia's Occupational Tasks and Skills 2020* and *Indonesia's Online Vacancy Outlook 2020*. In line with its TVET revitalization strategy, the support of the World Bank in Indonesia is expected to continue in the coming years, namely through the Labour Market Information and Skills System Transformation for Labour Market Flexibility (LISTRAF) project.

Thailand	Statistics Act, B. E. 2550 (2007)	National Economic and Social Development Plan 13th	Skill Development Promotion Act, B.E. 2545 (2002)	
Viet Nam	Revised Law on Statistics, 2021	Resolution 06/NQ-CP	Circular 25/2009/TT-BLDTBXH of 2009; Circular 01/2022/TT	

Source: Author's compilation, based on national-level assessments.

3.2. Key institutions and lead authorities

A range of actors are involved in the different aspects of labour market information and skills, including a cross-section of ministries, numerous departments, agencies, social partners and others. Beyond the involvement of traditional government-related entities and social partners in this space, in ASEAN Member States there are also a range of other bodies engaged, including statutory boards within ministries, industry bodies, national human resources entities, social partners, public employment services, and education and training providers, as well as in some instances research entities that are focused on labour market information and/or skills. This is partly a reflection of the complexity of the employment and skills development ecosystems, which necessitate the distribution and devolution of various responsibilities across different levels of government.

National statistics offices are always the lead authorities on statistics, but not always on labour market information, which may instead fall under the mandate of ministries of labour. In many cases, labour market information falls under the mandate of the national statistics office, either implicitly or explicitly. In the case of Malaysia, for instance, a number of divisions within the national statistics office are dedicated specifically to labour market information, namely the Malaysian Bureau of Labour Statistics and the Institute of Labour Market Information and Analysis (ILMIA), which both fall under the broader Department of Statistics. In some cases, however, labour market information is explicitly within the mandate of a different entity. In some instances, this falls under the ministry of labour (or a similar body), such as the national employment agency (Ministry of Labour and Vocational training) in Cambodia or the Bureau of Local Employment (DOLE) in the Philippines; the Labour Market Information Division, Department of Employment (Ministry of Labour and Social Welfare) in the Lao People's Democratic Republic; and the Labour Market Information Administration Division (Ministry of Labour) in Thailand; and the Manpower Research and Statistics Department (Ministry of Manpower) in Singapore.

Employment, skills and training policy in ASEAN Member States typically fall under the responsibility of either the ministries of labour or the ministries of education. With respect to the governance of skills and training, a number of different models prevail (see also table 4). For instance, in many cases there may be stand-alone entities that are responsible for skills development strategies and curriculum development or oversee a TVET authority/governing body, either fully or partially, in collaboration with the ministries of education and higher education. In some countries, TVET is fully covered under ministries of education or higher education, whereas in some instances it falls within the mandate of ministries of labour,¹⁹ thereby allowing a closer linkage between employment policy and skills development.

The level of engagement on labour market information and skill-related initiatives in most of the ASEAN Member States is relatively high. As illustrated in table 4, the wide range of agencies and institutions engaged in the generation, use and dissemination of labour market information and skills-related data and policies is indicative of the high engagement and relative importance placed on the issue. In Singapore for example, there is a dedicated statutory body that works collaboratively with other ministries and social partners to promote skills development in the country. In the Philippines, the TESDA also collects, analyses and disseminates labour market information, using several methodologies and through various analytical outputs (such as workplace skills and satisfaction survey reports, tracer studies, TVET briefs and so on). A further example may be found

¹⁹ It should be noted that skills training can also fall within the scope of different ministries, such as trade and commerce, or agriculture. We focus here specifically on where TVET and skills are one of the main focuses of the respective ministry's mandate.

in Malaysia in the Ministry of Economy (Department of Statistics), which includes the Malaysian Institute for Labour Market Information and Analysis. To complement this, the Ministry of Human Resources in Malaysia has under its purview a number of departments and agencies that are responsible for training and public employment services, including key aspects of labour market information. This is similar to other Member States in the region, in which there are considerable efforts to develop, manage and improve national-level labour market information and skills-development ecosystems.

Social partners are also often engaged, either through tripartite consultations or through bipartite consultations with skills institutions, and are often important producers of labour market information.

Many social partners, particularly employers' organizations such as the local chamber of commerce, periodically conduct their own data collection, including through surveys of their members. This has been an important source – and may sometimes be one of the only sources – of labour market information on labour demand and human resource-related issues in a country. And while tripartite consultation is often a fundamental part of the employment and skills-related policy development in Member States, that is less so with respect to labour market information, for which there is a tendency for a lead organization (usually the national statistics office) to be the only entity that is consulted on any data collection. In fact, qualitative approaches such as key informant interviews to gather input from social partners and other stakeholders are rarely deployed in the region. Employers' organizations are more likely to be conducting their own data collection for their own purposes and mandates. A more participatory approach, facilitated by stronger coordination mechanisms, would improve the relevance of labour market information and skills-related data, raise awareness of what is available and foster collaboration in closing gaps in key areas of common interest.

Table 4. Selected relevant institutions for statistics, labour market information and skills policy, by ASEAN Member State

ASEAN Member State	Statistics	Labour market information	Skills and training policy	Other institutions, including social partners
Brunei Darussalam	Department of Statistics, Department of Economic Planning and Statistics	Department of Statistics, Department of Economic Planning and Statistics; Manpower Planning and Employment Council (MPEC) secretariat	Department of Labour, Ministry of Home Affairs; Institute of Brunei Technical Education	Centre for Strategic and Policy Studies
Cambodia	National Institute of Statistics	National Employment Agency, Ministry of Labour and Vocational Training	Ministry of Labour and Vocational Training	Cambodian Federation of Employers and Business Associations (CAMFEBA)
Indonesia	Statistics Indonesia (BPS)	BPS; Ministry of Manpower	Ministry of Manpower; Ministry of National Development Planning; Ministry of Education, Cultural, Research and Technology	Indonesia Chamber of Commerce and Industry (KADIN); Employers' Association of Indonesia (APINDO)
Lao People's Democratic Republic	Lao Statistics Bureau (LSB)	Labour Market Information Division, Department of Employment, Ministry of Labour and Social Welfare	Skills Development Institute, Ministry of Labour and Social Welfare; Technical and Vocational Education Training Department, Ministry of Education and Sports	Lao National Chamber of Commerce and Industry (LNCCI); Lao Federation of Trade Unions

Malaysia	Department of Statistics Malaysia, Ministry of Economy	Malaysian Bureau of Labour Statistics and ILMIA, Department of Statistics	Department of Skills Development, Ministry of Human Resources; Ministry of Higher Education; Ministry of Education	Malaysian Employers Federation; Small and Medium Enterprises Association of Malaysia (SAMENTA); Malaysian Trades Union Congress
Myanmar	Central Statistical Organization, Ministry of Labour	Central Statistical Organization, Ministry of Labour	Ministry of Labour; National Skills Standards Authority (NSSA)	Union of Myanmar Federation of Chambers of Commerce and Industry (UMFCCI); Confederation of Trade Unions in Myanmar (CTUM)
Philippines	Philippine Statistics Authority (PSA)	DOLE; public employment service offices (PESOs); PSA; TESDA	Technical Education and Skills Development Act, 1994	National Privacy Commission Circular 16-02
Singapore	Department of Statistics, Ministry of Trade and Industry	Manpower Research and Statistics Department, Ministry of Manpower	Ministry of Manpower; Skills Future Singapore, Ministry of Education	National Trades Union Congress; Singapore Business Federation; Singapore National Employers Federation; SkillsFuture Singapore (SSG)
Thailand	National Statistics Office	Labour Market Information Administration Division, Ministry of Labour; Labour Economics Division, Ministry of Labour; Department of Employment, Ministry of Labour	Department of Skills Development, Ministry of Labour; Ministry of Higher Education, Science, Research and Innovation; Office of Vocational Education Commission	National Economic and Social Development Council; Thai Professional Qualifications Institute
Viet Nam	General Statistics Office (GSO), Ministry of Planning and Investment	GSO, Ministry of Planning and Investment; Department of Employment, Ministry of Labour, Invalids and Social Affairs; Institute of Labour and Social Affairs	Ministry of Labour, Invalids and Social Affairs; Department of Vocational Education and Training	Ministry of Education and Training; sector skills councils

Source: Author's compilation, based on national-level assessments.

3.3. Coordination mechanisms

Given the breadth of different actors involved, there is a certain degree of fragmentation in ASEAN Member States, which is often a reflection of the lack of a dedicated coordinating entity or mechanism. In fact, while a number of countries have coordinating mechanisms, such as Brunei's MPEC or Thailand's Public–Private Committee for Vocational Education, few of them are dedicated to the issues related to labour market information, in particular skills (see table 5). Rather, much of the coordination that takes place is managed implicitly through any statistics coordination mechanisms that exist.

In the absence of stand-alone labour market information coordination mechanisms, coordination falls by default to the lead authority responsible for labour market information. For instance, the National Employment Agency in Cambodia is subject to the purview of a sub-decree on labour market information and is responsible for the compilation, analysis and dissemination of labour market information. In the case of Singapore, the SSG is responsible for centralizing and delivering a significant number of activities in the skills development ecosystem; yet, no official coordinating mechanism exists, so that the SSG acts as the de facto coordinating entity. The success of this model in the case of Singapore is bolstered by a high degree of centralization of government activities and a strong culture of tripartism and social dialogue.

An increased level of coordination will help to ensure the efficient use of resources and avoid – or at least limit – the duplication of efforts. It can also help to improve effectiveness of the disparate parts of the ecosystem; that is, it can ensure that the employment and skills-related policies and programmes as well as the training and education systems are designed in a manner that maximizes the insights being generated by labour market information. A dedicated coordinating entity can also help to ensure that the various efforts work towards a common objective.

Table 5. Selected relevant coordination mechanisms, by ASEAN Member State

ASEAN Member State	Coordination mechanism on statistics	Coordination mechanism on labour market information	Coordination mechanism on skills and training	Sectoral coordination mechanisms
Brunei Darussalam	None identified	MPEC secretariat	MPEC; Brunei Darussalam National Accreditation Council	Manpower Industry Steering Committees (MISCs)
Cambodia	Statistics Advisory Council; Statistics Coordination Council	None identified	National Training Board	Sector skills councils
Indonesia	BPS Statistics Indonesia leads coordination in statistics (statistics law) and as data steward (one data regulation)	Under the Revitalization of Vocational Education and Training Strategy, the Ministry of Manpower is assigned responsibility for labour market information coordination and the development of an LMIS	Coordinating Ministry for Human Resource and Culture; National Coordination Team for the TVET Revitalization strategy	Sector skills councils (under development)

Lao People's Democratic Republic	None identified	Under the national labour steering committees assigned to the Employment Department responsible for labour market information coordination and the development of LMIS	None identified	National labour steering committees
Malaysia	None identified	Labour Statistics Planning Committee	National Skills Development Council National TVET Council	Sectoral Training Committee Industry lead body
Myanmar	Central Committee for Data Accuracy and Quality of Statistics; Statistics Sector Coordination Group	None identified	Central body on employment and skills development	NSSA
Philippines	Interagency statistical committees; Philippines Statistics Authority	Interagency Committee on Labour and Productivity Statistics	None identified	TESDA coordination with industry boards
Singapore	None identified	None identified	SSG, Ministry of Education	Future economy council and industry transformation maps
Thailand	None identified	None identified	Multiple, including national and provincial boards of vocational training coordination; Public–Private Committee for Vocational Education	None identified
Viet Nam	Statistics Law	None identified	None identified	Sector skills councils

Source: Author's compilation, based on national-level assessments.

3.4. Key insights and select ASEAN Member State practices

This section takes stock of the key challenges in each ASEAN Member State related to governance, institutional arrangements and coordination mechanisms (table 6). It also highlights a number of promising practices that could be considered – if relevant – as examples for other countries or to build upon in the ASEAN Member State in question. In this respect, these promising practices are not meant to be exhaustive but rather to highlight different examples in various countries (box 5).

Table 6. Summary of key insights and main challenges for ASEAN Member States related to governance, institutional arrangements and coordination mechanisms

ASEAN Member State	Coordination mechanism on statistics
Brunei Darussalam	Summary: Brunei Darussalam has a particularly robust capacity with regard to councils, steering committees and working groups on manpower strategy and employment.
	Key challenges and focal areas: Many entities, including the MPEC secretariat, are focused on specific sectors in line with the country's economic blueprint. There may be benefits from widening the scope of these entities' activities to non-key sectors as the country focuses on diversification away from oil and gas.
Cambodia	Summary: Cambodia has a number of coordination mechanisms in place to facilitate the collection, dissemination and use of labour market information in the country. These include statistical committees and the National Training Board, which includes a labour market information committee, and the sector skills councils.
	Key challenges and focal areas: Further efforts are needed to raise the importance of labour market information related to skills in national data collection through these committees and mechanisms.
Indonesia	Summary: While a range of governance structures exist that incorporate many different public and private entities, a key piece of legislation in the context of this study is the Presidential Regulation on Revitalisation of Vocational Education and Training, 2022, which is accompanied by a comprehensive strategy for implementation that outlines roles and responsibilities for different actors, including the development of an LMIS as a preliminary activity and the establishment of a national coordination team to oversee its implementation.
	Key challenges and focal areas: The key challenge will be in implementation, as the stakeholders involved often lack the capacity to fulfil their tasks and responsibilities. While the strategy has targets, performance indicators and assigns responsibility, the challenge will be to ensure that the actors develop adequate capacity to fulfil their tasks and establish and maintain effective implementation mechanisms.
Lao People's Democratic Republic	Summary: While comprehensive labour market information governance structures are in place in the country, including the Statistics Law and the Decree on Labour Market Information, in practice, labour market information in the country falls short of legislative aspirations. In addition, the issuance of personal identification for the population is still limited, particularly for those who are living in rural and remote areas.
	Key challenges and focal areas: Enhancing coordination and cooperation between different stakeholders in both the private and public sector.
Malaysia	Summary: The Ministry of Economy and the Ministry of Human Resources are two of the main bodies involved in the coordination of employment and skills-related policies and programmes.
	Key challenges: A considerably high level of decentralized activities has led to some inefficiencies and duplication of efforts, notably with regard to skills.

Myanmar	Summary: There are a number of stakeholders engaged on labour market information and skills, despite only foundational governance mechanisms in this space. The key stakeholder is the Central Statistical Organization, as well as Ministry of Labour and Chamber of Commerce entities. Coordination mechanisms exist, which could serve to strengthen labour market information related to skills in the country.
	Key challenges and focal areas: There is a need for the various coordination mechanisms to address the need and coordinate the strengthening of labour market information related to skills in the country.
Philippines	Summary: The Philippines has well established legal and institutional frameworks around labour market information. In this process, the PSA and the DOLE take on a key role in ensuring a systematic method for data collection. Alongside these institutions, the TESDA plays a leadership role in ensuring that TVET programmes are demand-driven and aligned with labour market needs. The Government has also made considerable policy reforms recently in the area of education and skills development in order to improve the quality and relevance of education and skills training programmes.
	Key challenges and focal areas: Although the collaboration and cooperation among various stakeholders are well structured, there remains a need for improved coordination and data-sharing.
Singapore	Summary: The SSG acts as the dedicated entity responsible for coordinating skills-related activities in the country. Combined with a strong culture of tripartism, this helps to facilitate the overall cohesion of activities.
	Key challenges and focal areas: An official coordinating mechanism led by SSG to bring together key partners on a regular basis could improve overall coordination.
Thailand	Summary: The country has a wide range of actors and stakeholders engaged in the space of labour market information and skills, as well as accompanying governance structures. At the same time, Thailand also has a number of coordination mechanisms and councils, often with tripartite representation.
	Key challenges and focal areas: While the various coordination mechanisms and councils contribute to coordination and cooperation among the many actors on labour market information, particularly linked to skills development, there is still a large amount of fragmentation, which can result in the duplication of activities.
Viet Nam	Summary: The systems of legal documents and regulations related to data collection, as well as the sharing of labour market information, are fairly comprehensive and the implementation according to the roles and responsibilities of these governance structures is relatively effective.
	Key challenges and focal areas: There are some shortfalls with regard to skills components in labour market information, which is partly reflected in the lack of explicit reference to skills information in the various governance mechanisms on labour market information.

Source: Authors' compilation based on national-level assessments.

Box 5. A selection of promising country practices: Governance, institutional arrangements and coordination mechanisms

Governance mechanisms: In 2016, the SSG was established in Singapore as a statutory board under the Ministry of Education. The SSG aims to promote and support lifelong learning and skills development of the workforce. Accordingly, the SSG drives and coordinates the implementation of the skill-related initiatives in the country. Since it is dedicated exclusively to skills, the SSG heightens the discussion of skills and ensures that skills are an entrenched part of employment-related policy discourse and training programmes.

Key institutions and lead authorities: Cambodia's National Employment Agency provides employment services, as well as labour market information services, and is the authority responsible for the distribution of labour market information. The National Employment Agency is both a producer of labour market information (particularly through the online job portal) and also a user of labour market information, including official statistics from the National Institute of Statistics and also the information shared by the Council for the Development of Cambodia. The leading role of the National Employment Agency in gathering, compiling and disseminating labour market information is outlined in the Sub-Decree on Gathering and Compilation the Information of Labour Market, No. 117, 2010, which outlines the roles and responsibilities with regard to the gathering and compilation of labour market information in Cambodia (art. 1). It specifies the National Employment Agency as the nominated statistics entity by the National Training Committee, with the responsibility to "coordinate, gather, synthesize, produce, compile, analyse, study research, establish, develop information system of labour market and disseminate publicly employment information (art. 4). The purpose of the sub-decree is to consolidate in a single place all forms of labour market information for users, including policymakers, jobseekers, employers, education providers, employment service providers, researchers and the public (art. 2).

Coordination mechanisms: The MPEC in Brunei Darussalam is the centrepiece of coordination on human resource management and labour market information. The council was established in 2019 to help address unemployment challenges in the country, through collaboration and cooperation among different government agencies, industries and the education sector. There are three main pillars under the MPEC strategic plan: (a) supply (manpower supply), (b) demand (job opportunities and employment) and (c) enablers, which focus on linking and closing the gap between supply and demand. The MPEC is responsible for developing policies and strategies for the labour market, particularly to address current and future labour market and skill needs.

A key component of the MPEC is the MISC working groups, which are established for six focal industries that are identified in the economic blueprint, namely energy; hospitality and tourism; transportation; logistics; construction; and information and communication technology (ICT). These MISC working groups conduct a number of activities and serve as committees convening different stakeholders and identifying needs for the respective industries. For instance, they conduct skill needs assessments and occupational forecasting, and work with TVET institutions to develop curricula and also to facilitate the training of teachers.

3.5. Recommendations: Governance, institutional arrangements and coordination mechanisms

Generally, there is transparent legislation in all ASEAN Member States that clearly defined roles and responsibilities. In some cases, there are many laws pertaining to data collection, while safeguarding individual and enterprise-level privacy. However, despite these clear mandates, there exists a certain level of fragmentation in the labour market information space, particularly related to skills ecosystems, which could be exacerbated with the emergence of innovative approaches to skills assessment, if the overarching governance structure does not evolve. A number of areas for improvement could be considered.

Strategic recommendation 1: Strengthen governance, institutional and financial arrangements around labour market information

Characteristics of effective governance around labour market information

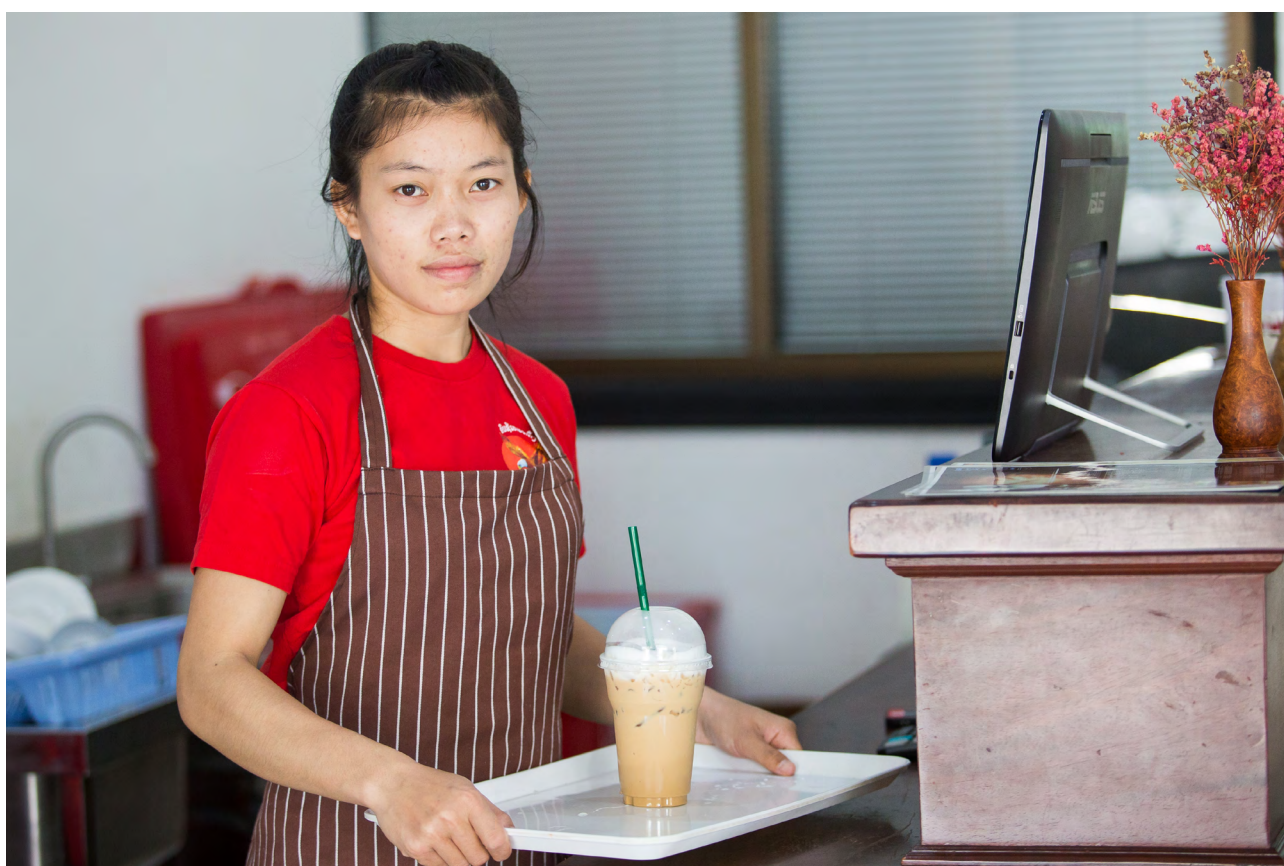
- ☐ Legislation exists that distinguishes between (a) the collection and processing of labour market information and (b) the analysis and dissemination of labour market information. Such legislation can be included within statistics legislation or within stand-alone labour market information legislation. **[priority: high]**
- ☐ Legislation exists that outlines clear allocation of roles for different actors, with one or more lead authorities (often the national statistics office for collection and processing and the ministry of labour for analysis and dissemination), as well as a coordination mechanism for accountability. Requirements for different actors should be consistent with other legislation and mandates for respective institutions. **[priority: high]**
- ☐ Legislation exists that obligates establishments/employers to share information on vacancies with the respective data collection entity, and can ensure that the governance structure is in place, for when the operational infrastructure is available for the collection and processing of labour market information related to labour and skills demand. **[priority: medium]**
- ☐ Lead organizations or entities are given the responsibility to provide oversight and direction on skills. Coordination mechanisms exist that help ensure complementarity, coordination and collaboration among different stakeholders, as well as allowing for knowledge-sharing, mobilization of resources and technical support. This can be particularly helpful when the collection and analysis of labour market information falls under the responsibility of different entities. **[priority: high]**

Specific focal areas for effective governance around labour market information

- **Legislation needs to evolve with emerging practices in labour market information:** ASEAN Member States have a solid legislative and regulatory framework for the collection and dissemination of labour market information. However, as new techniques are explored and adopted, such as machine learning and the web-scraping of job postings and individual resumes, legislation governing these new methods, especially when it entails partnerships with the private sector, will need to adapt. These amendments will need to balance factors such as fair use and public interest against the respect for intellectual property and privacy, among other considerations.
- **Strengthen coordinating mechanisms:** Many ASEAN Member States lack a dedicated entity (or lead entity in charge of coordination) that is responsible for ensuring that activities related to labour market information and skills are coherent. In a number of cases, this has led to the duplication of efforts or inconsistent insights (for example, two different methods of defining skills are being developed by different actors in Malaysia, although the Talent Corp is currently leading the work on an integrated labour market information platform and skills framework). Efforts of this nature would also help to promote the consistent use of key terms. Too often, different actors refer to different concepts when discussing, analysing and

presenting skills, which can lead to ineffective policy design. As a result, there is an opportunity to improve clarity by providing and promoting consistent definitions of key terms regarding the labour market and skills. Such a coordination mechanism is likely to be best achieved if led by a government ministry or agency and should also include the representation of other key actor types, such as employers, workers and training institutions.

- **Leverage external capacity within ASEAN Member States:** There are a broad range of stakeholders engaged in both the production of labour market information and the analysis, use and dissemination of such information. These actors go beyond government agencies and social partners and include academia, observers and other entities. These actors are often commissioned for ad hoc pieces of work but are not incorporated within mechanisms and their expertise and insights are not always used to their full potential. Leveraging this external capacity more by institutionalizing partnerships and collaborations can support the internal capacity-building of government agencies while contributing to developing LMISs in countries.



4. Inputs and statistical infrastructure

This section documents the main sources of data in each of the ASEAN Member States, with particular emphasis on the supply of and demand for labour and skills. The section begins by discussing statistical infrastructure,²⁰ in particular quantitative sources such as LFSs, census and other surveys, as well as administrative and other sources of data. This is followed by an assessment of skill-related statistical infrastructure²¹ and how skills are defined and measured, as well as a brief section on the importance of qualitative data and how it improves the reach and relevance of labour market information.

4.1. Foundational data infrastructure

The basic statistical infrastructure is well established in ASEAN Member States, in particular with regard to regular LFSs and national censuses, but it is typically weaker in terms of additional data sources that capture information on labour demand and supply. Accordingly, there are a number of important areas for improvement in terms of the data that is collected.

4.1.1. Labour supply

The main source of labour supply information in the ASEAN Member States is LFSs. Labour supply information can be thought of as information on the socio-demographic characteristics of the workforce (age, gender, race and so on); educational attainment; and labour force status (employed,²² unemployed, not in the labour force). The main sources of labour supply data are LFSs, population census and administrative data (box 6). Every ASEAN Member State conducts both LFSs and population censuses, which as discussed below can also help to provide insights on skills supply. Intercensal surveys, where they exist in ASEAN Member States, are typically conducted every 10 years as well but are designed to be conducted mid-way between the population census rounds).

Box 6. Main data sources of labour supply information

Data on labour supply information is gathered through a variety of methods, notably:

- **LFS:** The primary survey instrument conducted by countries to produce national statistics, in alignment with international definitions and concepts, on a range of labour market indicators, including both supply of and demand for labour. Key relevant information from the LFS is the employment structure of the economy by industry and occupation. Because the LFS is a household-based survey, it captures information on informal employment and employment in micro and small enterprises that are often lacking in establishment-based surveys. The strengths of LFSs are that they contain in-depth information on a range of labour market concepts, usually in alignment with international definitions. The challenges of LFSs arise when samples are small, which impedes disaggregation at a detailed level, as well as when there are long periods between surveys or delays and lags in processing and publishing the information.

20 Statistical infrastructure in this context refers to statistics collected at the national and subnational levels in the country, as well as the tools and processes involved in collecting, processing, compiling and storing these data. It includes official statistics such as LFSs and population census data – there are often national definitions of what constitute official statistics, which typically fall under the remit of national statistics offices – as well as unofficial statistics such as employer surveys implemented by a chamber of commerce or sectoral assessments.

21 Skills-related statistical infrastructure refers to the statistics (see preceding footnote) that contains information on skills.

22 Employment in this context is also considered a demand-side variable, as it represents an outcome between labour demand and labour supply; see also box 8.

- **Population census:** These aim to gather information on the total population of a country in order to provide essential information on the socio-demographic characteristics of individuals and households in terms of key social and economic characteristics. This can include employment information of persons by occupation and sector. Censuses are usually only collected every 10 years, which means that findings can quickly go out of date, but these provide important sample frames for other surveys and can also provide detailed information on small groups (such as migrant workers) that may be under-sampled in household surveys.
- **Administrative data:** Typically, these are individual records gathered at the institutional level. In terms of labour supply information this could include student level information (for example, graduates or number of trainees or the number of registered jobseekers available through public job boards/unemployment benefit registries). Administrative data can be important sources of timely information and sometimes allow for near real-time information, but there are also challenges in complying with international definitions and standards that render them incomparable with other sources of data.

Source: See [ILO STAT](#) and Bennett et al. (2022)

The frequency of LFSs varies considerably by country, with about half of ASEAN Member States conducting LFSs monthly or quarterly. Monthly surveys are implemented by Malaysia, the Philippines, Singapore and Thailand. Viet Nam also conducts the LFS monthly, but only releases information on a quarterly basis. Indonesia conducts the LFS on a semi-annual basis, while Brunei Darussalam conducts it annually. The remaining countries conduct the LFS on ad hoc basis; for example, it is conducted every five years in Myanmar (although this was annual between 2017–2020) and Cambodia, as well as the Lao People's Democratic Republic (although the LSB plans for a quarterly survey in the coming years). Frequent and timely data collection and processing is central to an effective LMIS.

Table 7. Main sources of data on labour supply, by ASEAN Member State

ASEAN Member State	LFS	Population census	Education statistics	Other data sources
Brunei Darussalam	Annual, detailed granularity, latest in 2022 occupational and education skills proxies	Every 10 years, last census in 2022; occupation and education skills proxies	Administrative data; enrolment and participation, qualifications, fields of study, location	Annual census of employees and employers, latest in 2022, (education and occupation proxies for skills)
Cambodia	LFS (every 5 years, latest in 2019, detailed granularity, occupational and education skills proxies)	Every 10 years, last census in 2019; occupation and education skills proxies	TVET management information system, education management information system; enrolment and participation, qualifications, fields of study, location	Socio-economic survey (annual, occupation and education proxies for skills)
Indonesia	Twice a year (February and August), latest in August 2023, detailed granularity, occupational and education skills proxies	Every 10 years, latest 2020–2022; occupation and education skills proxies	Socio-economic Survey, one data education, and administrative data; enrolment and participation, qualifications, fields of study, location	Socio-economic survey; semi-annual, latest in August 2023; less detailed on occupation than the LFS

Lao People's Democratic Republic	Every 5 years, latest in 2022, detailed granularity, occupational and education skills proxies	Every 10 years, latest in 2015; occupation and education skills proxies	Administrative data; enrolment and participation, qualifications, fields of study, location	Expenditure and consumption survey, every 5 years, latest 2020, occupation and education proxies
Malaysia	Monthly, latest in 2023, detailed granularity, occupational and education skills proxies	Every 10 years, latest in 2020; occupation and education skills proxies	Administrative data; enrolment and participation, qualifications, fields of study, location	Malaysian Skills Integration Management System (MySPIKE)
Myanmar	Ad hoc, latest in 2020, detailed granularity, occupational and education skills proxies	Every 10 years, latest in 2014; occupation and education skills proxies	Administrative data; enrolment and participation, qualifications, fields of study, location	Intercensal survey, every 10 years, latest 2019, occupation and education skills proxies
Philippines	Monthly, latest 2023, detailed granularity, occupational and education skills proxies	Every 10 years, latest 2020; occupation and education skills proxies	Administrative data; enrolment and participation, qualifications, fields of study, location	Survey on the Employment of TVET graduates (SETG), annual, looks at quality and relevance of qualifications in employment; Public Employment Information System (PEIS), database on qualifications and skills of the applicants as well as the job vacancies posted by the employers
Singapore	Monthly, latest 2023, detailed granularity, occupational and education skills proxies	Every 10 years, last census 2020; education skills proxies	Administrative data; enrolment and participation, qualifications, fields of study, location	
Thailand	Monthly, latest 2023, detailed granularity, occupational and education skills proxies	Every 10 years, latest 2010; occupation and education skills proxies	Administrative data; enrolment and participation, qualifications, fields of study, location	Informal employment survey (module to the LFS), annual, latest in 2022; education and occupation skills proxies
Viet Nam	Monthly (released quarterly), latest 2023, detailed granularity, occupational and education skills proxies	Every 10 years, last census 2019; education skills proxies	Administrative data; enrolment and participation, qualifications, fields of study, location	Household living standards survey, every 2 years, latest in 2020; occupation and education skills proxies

Source: Author's compilation, based on national-level assessments.

All ASEAN Member States have population censuses. These provide excellent granular information, especially for smaller socio-demographic groups for which information from sample-based surveys such as LFSs is limited. However, they are typically carried out every 10 years (typically with an intercensal survey at the 5-year mark) due to their high cost and only gather a small subset of employment-related information. Recent population censuses are also fundamental for up-to-date sampling frames for other household surveys, including LFSs.

Beyond censuses, there is limited data availability for certain population groups. Given the infrequent nature of censuses, there is a gap in labour market information on the supply side with respect to data disaggregated by age, gender, locality, ethnicity, and other critical categories needed to shape inclusive and equitable policies (box 7).

Box 7. Importance of disaggregation for inclusive policies

For the design, monitoring and evaluation of inclusive and targeted employment and skills policies, refined categories of information are needed and careful attention needs to be paid to under-represented groups. Given the relatively small population of these groups, labour market information and insights on their characteristics is often limited. Efforts are needed in ASEAN Member States to improve the availability of labour market information that is disaggregated by sex, ethnicity, age and other categories, as appropriate for a given context. For instance, in a country that is heavily reliant on migrant workers, it is important to have data that is disaggregated by country of birth or country of citizenship to allow for appropriate analysis. Such disaggregation is a fundamental component of effective LMISs and provides a key input to inclusive employment and skills policies.

The disaggregation of labour market information is most common – or is applied as a standard – in data sources that involve a survey of households or individuals, such as LFSs or population and housing censuses, but is less common in other data sources, such as establishment surveys, vacancy information or other forms of administrative data. However, even in cases where such data exist, sample sizes are often too small to allow for meaningful disaggregation (for example, LFSs) or the information is outdated (for example, population censuses). For such data, oversampling or more targeted sampling can help overcome small numbers of observations for different groups and contribute to more reliable findings.

In addition to LFSs, other sources of data, including other household surveys, are also important complementary sources of information on labour supply. A few countries implement surveys or polls of jobseekers or workers (for example, Brunei Darussalam's annual employee and employer survey, as well as ad hoc polls of jobseekers). Similarly, publicly managed job boards, such as the PhilJobNet and the PEIS in the Philippines or MYFutureJobs in Malaysia, are also able to leverage data of this nature, such as information on jobseekers and their respective profiles, to provide insights on the labour supply. These additional sources of data are helpful to complement data from LFSs and can allow for more in-depth or detailed looks at specific topics, such as skills-related topics. Other surveys at the household level (for example, household income and expenditure surveys such as the 2019 Household Socio-Economic Survey in Thailand), can be moderately informative by providing insights on certain segments of the population or for a subset of labour market indicators.

Education statistics mainly consist of administrative records collected by ministries or departments of education, along with TVET institutions or authorities. The primary sources of information that captures the qualifications or skills-related composition of the workforce is administrative in nature. This is typically overseen by ministries of education or TVET institutes, as outlined in table 7 above, and typically includes information on enrolment and completion, as well as, where relevant, information on the qualifications attained or fields of study. Administrative sources of data, such as data from registries and membership bodies, are important for complementing LFSs and other official statistics. One specific example is skills-related information on migrant workers, including those leaving a country and those entering, which can be gleaned from work permit data or visa information forms and used to assess the skill composition of inflows and outflows of labour migration. Administrative data of this nature, however, are typically by-products of data gathered for another purpose and are thus unlikely to conform with international standard definitions and concepts for labour market variables. Also, such information may not be processed or shared, often because its collectors and holders are

unaware of its value as a form of labour market information. There is value in making important linkages among different data sources, but this necessitates working collaboratively across ministries, highlighting the importance of coordination mechanisms.

School-to-work transition surveys – and more generally, education and training-related tracer studies – are largely absent in ASEAN Member States. Only a few ASEAN Member States have dedicated approaches to follow individuals after the completion of their education or training to gather information on labour market (and other) outcomes. For instance, Malaysia conducts a survey of graduates within six months of completing their studies. Similarly, in the Philippines the SETG is a tracer study conducted by the TESDA to assess the employability and labour market outcomes of TVET graduates. The SETG provides useful insights for evaluating the effectiveness of TVET programmes, informing policy decisions, and developing strategies to enhance the quality and relevance of technical and vocational education in the country. Tracer studies and school-to-work transition surveys of this nature can be informative for both the demand and the supply sides as they capture employment outcomes and their relationships with training and education.

4.1.2. Labour demand

Each ASEAN Member State makes efforts to gather intelligence on labour demand, although data collection is infrequent and limited in scope. In addition to what can be obtained from the LFS or economic censuses, an important source of demand-side information is establishment/enterprise or employer surveys. Currently, many of the enterprise surveys carried out in ASEAN Member States – in most instances by employer associations – are too broad in scope and are typically devoid of information relating to labour demand and skills. Ideally, such surveys should be conducted with a more regular frequency and in order to gather valuable information on labour demand and skills they should focus on either (a) a particular sector (such as manufacturing) and a wider set of occupations and skills, or (b) greater sectoral coverage and a narrow set of topics with respect to labour or skills (such as digital skills). In this context, the ILO's sectoral approach to rapid skills assessment can be a valuable tool. For instance, a rapid assessment of ICT skill demands in Indonesia was conducted in 2018 (Wirayasti, Gunawan and Muhamad 2020). Beyond enterprise-oriented surveys, there are numerous other methods that can be deployed to assess skills demand (for further details, see box 11), each with its strength and weakness. Thus, a combination of different methodologies is needed that must take into account the national context (for example, what already exists and institutional capacity).

Only very limited information on the current labour demand is captured by ASEAN Member States through vacancy surveys. While a number of efforts are under way in ASEAN Member States, only in a few cases is data collected frequently on the number and composition of vacancies.²³ For instance, Malaysia and Singapore report on vacancies quarterly. Thailand also collects information on vacancies at the provincial level, before aggregating them up to the national level. A few others, such as Brunei Darussalam, Indonesia, Malaysia, the Philippines and Singapore, report on job openings through their respective national public job boards, but these should be interpreted with some caution since they are not necessarily representative of the broad economy and job postings are not the same as job vacancies.

The web-scraping of job postings (including those contained within job boards) can help complement existing information on the demand for labour. Despite the various caveats, web-scraping is a relatively new technique that countries can leverage to close gaps on the demand for labour and skills, while complementing official surveys. The most sophisticated example in ASEAN countries concerns Singapore, which works with a variety of external partners to scrape job postings that are made available online. In the case of Singapore, this information is primarily used to capture the work requirements, including the skills requirements, of those jobs, rather than the volume and composition of those jobs per se (see section 4.2 below). Malaysia also leverages this approach to assess, among other things, the status of critical occupations and the skill composition of jobs. Brunei Darussalam, Indonesia and Thailand are also exploring possibilities for the web-scraping of job postings.

23 The reasons for this include the limited nascent infrastructure for implementing vacancy surveys, the lack of financial resources and the limitations and considerations related to the value of vacancy survey information.

Box 8. Main data sources for labour demand information

Labour demand information includes information on the occupational structure of establishments and industries, job vacancies (or job postings), skill and education requirements, wage and salary information and so on. Data that drives the overall inputs and statistical infrastructure of comprehensive systems of labour demand information is gathered through a variety of methods, notably:

- **LFS:** While this is often the main source of information for labour supply, it can also be used to assess labour demand, such as by looking at changes in occupational employment by industry (including historical trends and forecasts) and the share of occupational employment by industry that would need to be replaced due to ageing. Employment by occupation is also often used as a proxy for skills demand.
- **Economic censuses:** These are typically implemented based on registries of enterprises in a country. Economic censuses typically cannot explore the depth of information that is feasible with establishment/enterprise surveys, in particular with regard to labour and skills needs. There are also some challenges with regard to capturing information from informal enterprises or micro and small enterprises.
- **Establishment/enterprise survey:** Surveys of a representative sample of employers gather data on a variety of topics of interest to enterprises, including human resources issues, wage and salary information, and the number (and composition) of job vacancies. It is important to bear in mind that firms surveyed tend to be in the formal sector only and also tend to be only above a certain size, thereby excluding large segments of the labour market, including many micro and small enterprises.
- **Job postings and vacancy listings:** These are found on vacancy websites, corporate websites, recruitment agencies and public and private job boards, among others. This information is sometimes linked to official occupation and sector codes.

Source: See [ILO STAT](#) and Bennett et al. (2022).

Table 8. Main data sources, other than LFSs, for labour demand information, by ASEAN Member State

ASEAN Member State	Enterprise survey	Economic census	Job postings/vacancy surveys	Other key surveys or censuses
Brunei Darussalam	Annual census of employees and employers (annual, but limited skills demand data)	Economic census (every 5 years, occupation proxies for skills)	Job posting: Web-scraping (under development)	
Cambodia	Employer skill needs survey (2012, 2014, 2015 and 2017; but since discontinued); various information on skills	Economic census (every 5 years, top-level occupation only)	Job postings from online job portals published in labour market information bulletins	Socio-economic survey (annual, occupation and education proxies for skills)
Indonesia	Ad hoc, sector-specific surveys (manufacturing and hospitality sectors; monthly and quarterly, with skill needs information)	Economic census (every 10 years, detailed occupation level, formal and informal enterprises)	Labour market between (Siap Kerja, SkillHub, Karir Hub – some information on skill requirements of job vacancies captured)	

Lao People's Democratic Republic	Employer surveys (members of Chamber of Commerce)	Economic census (every 5 years, formal only, detailed occupation categories)	Job postings from private job posting websites provided to the Government for analysis on ad hoc basis	Labour demand surveys in special economic zones (monthly, basic skill needs)
Malaysia	Employer surveys (Malaysian Employers Federation members only, ad hoc, no skills information) Quarterly employment survey conducted of formal private sector establishments (jobs, filled jobs, vacancies and jobs created by economic activity and category of skill)	Economic census (every 5 years: category of skill)	Job postings: (a) web-scraping (My Job Profile) and (b) public job portal (MYFutureJobs)	
Myanmar	World Bank enterprise surveys (2014 and 2016 only; occupation proxies for skills)			Myanmar Micro, Small and Medium Enterprises Survey (employers and employees; ad hoc)
Philippines	Integrated survey on labour and employment (every 2 years, occupation-based proxies); employer's satisfaction survey (every 3 years, only employers of TVET graduates); occupational wages survey (every 2 years)	Census of Philippine business and industry (every 5 years)	PhilJobNet job, PEIS postings and private job vacancy sites (occupation and education proxies for skills)	Skills need anticipation: Workplace skills and satisfaction survey (ad hoc, future and emerging skill needs)
Singapore	Employer federation surveys (member only, annual, limited skills information)	Economic Survey of Singapore (annual)	Labour market survey (LMS) (quarterly, captures information on vacancies)	Occupational employment data set (enterprise-oriented administrative data on wages and employment)
Thailand	Demand for labour, provincial establishment survey (vacancies information collected, monthly)		Job postings information (under development)	Skill development survey (part of LFS, skill needs)
Viet Nam	Enterprise survey (annual, no information on skills); survey on small and medium-sized enterprises (limited skills information)	Economic census	Job postings information (under development); Ministry of Labour, Invalids and Social Affairs labour demand survey (information on recruitment needs)	Ministry of Labour, Invalids and Social Affairs survey on labour, salaries and labour demand (qualification and skill requirements for recruitment)

Note: This table does not include the LFS, although it is often used a source of demand-side information (see box 6), since the LFS characteristics in ASEAN member States are provided in table 7 above.

Source: Author's compilation.

4.2. Skills-related statistical infrastructure

A variety of definitions and frameworks for skills can be found in ASEAN Member States, including the deployment of different methods to provide insights on the demand (or supply) of skills. Most ASEAN Member States have built their occupational classifications based on either ISCO-88 or ISCO-08 and most of them leverage this system for collecting information throughout their various data instruments. While each country has made some modification to the ISCO classification in order to take into consideration country-specific realities, a number of countries, notably Malaysia and Singapore, have built on this international framework and developed more refined job classifications (table 9). Notably, even though some countries have national standard classifications of occupations, they still use ISCO in national surveys such as the LFS. More granular occupational information of this sort is more valuable to different users as they navigate detailed decisions related to training, upskilling and career transitions (whereas data on higher-level occupational categories such as managers are less useful for skills and training-related decisions).

In this context, the most widely available method for measuring the supply of and demand for skills as they relate to employment is by categorizing each occupation according to the level of education and the tasks typically required to perform that job. The approach can be harnessed by examining and analysing first the changes in employment, unemployment and so on at the occupational level and then the skills associated with these occupations. However, the existing statistical infrastructure in ASEAN Member States is rarely leveraged in this way. This is partly due to the lack of data that is made publicly available, which is needed to carry out such analysis. Also, even in the rare cases when data is collected and available, the breakdown of these data by region (at the subnational level) and by sector may not be possible (partly due to sample size concerns).

Table 9. Occupation classifications, by ASEAN Member State

ASEAN Member State	National occupational classification system	Number of unit groups	Concordance with ISCO
Brunei Darussalam	Brunei Darussalam Standard Occupational Classification (BDSOC)	413 unit groups (consistent with 4-digit ISCO-08)	Yes
Cambodia	None; based on ISCO-08	436 unit groups (consistent with 4-digit ISCO-08)	Yes
Indonesia	Indonesian Standard Classification of Occupations (KBJI), 2014	436 unit groups (consistent with 4-digit ISCO-08)	Yes
Lao People's Democratic Republic	Lao Standard Classification of Occupations (LSCO)	436 unit groups (consistent with 4-digit ISCO-08)	Yes
Malaysia	Malaysia Standard Classification of Occupations (MASCO)	436 unit groups (consistent with 4-digit ISCO-08)	Yes
Myanmar	Myanmar Standard Classification of Occupations; based on ISCO-88	284 unit groups (consistent with 4-digit ISCO-88)	Yes
Philippines	Philippine Standard Occupational Classification (PSOC), 2012	436 unit groups (consistent with 4-digit ISCO-08)	Yes
Singapore	Singapore Standard Occupational Classification (SSOC)	1,002 unit groups (5-digit)	Yes
Thailand	Thailand Standard Classification of Occupations; based on ISCO-88	284 unit groups (consistent with 4-digit ISCO-88)	Yes
Viet Nam	Viet Nam Standard Classification of Occupations (VSCO)	490 unit groups (4-digit; can be aligned with 4-digit ISCO-08)	Yes

Note: Even when national standard classifications of occupations are available, often countries will use ISCO in main data sources such as the LFS.

Source: Author's compilation.

Different approaches to assessing the supply of and demand for skills will need to be used in a complementary manner. Depending on the circumstances (for example, specific information needs and various resource constraints), different skills assessments, anticipation and matching methods, including those that rely on the proxy approach – that is, leveraging data on educational attainment and employment by occupation – may be needed. However, more refined insights on both the demand for and the supply of skills are needed to address the rapidly change nature of work. Indeed, despite higher educational attainment in ASEAN Member States, skills mismatches, underemployment and reports of skills shortages among employers persist, necessitating new ways to better understand the skill requirements of jobs. This is consistent with ASEAN Member States' efforts to improve supply-side skill data by developing and improving their respective national qualification frameworks (NQFs) and aligning them with the ASEAN Qualifications Reference Framework (AQRf). Specifically, the AQRf is an important reference tool as it promotes the use of learning outcomes (such as skills and competences) as opposed to inputs (such as training duration). It therefore covers all training sectors (formal, informal and non-formal learning), facilitates the recognition of prior learning and supports lifelong learning.

At least three countries, notably Malaysia, Singapore and Thailand, have developed enhanced definitions of skills. In the case of Malaysia, the skills ontology entails more than 1,000 skills that are grouped into two broad categories – soft and hard, as stated in My Job Profile released by the ILMIA, Department of Statistics. In Singapore, the skills groupings, while also restricted to two – technical skills and core skills – encompass more than 10,000 skills. The approaches of the two countries differ considerably in their application. In Malaysia, the top skills for any given occupation are determined by analysing a set of online job postings that is updated periodically. In Singapore by contrast, the skills associated with a given occupation are determined by a framework developed jointly with industry and other stakeholders. In this respect, the skills and their importance to any given occupation are static in nature (unless the framework is updated).²⁴ Like Malaysia, Singapore also analyses the top skills that appear in online job postings, but this is published independently of the occupation in question (and is also used to inform updates of Singapore's skills framework). Malaysia is currently piloting an approach similar in nature to that of Singapore for a select number of occupations. However, despite the relatively sophisticated approach of both Malaysia and Singapore in terms of skills, neither country currently connects the skills-related work with the foundational elements of their LMISs, such as the LFS, which could provide additional insights through the lens of occupations into the types of skills that are growing.

In Thailand, a key initiative for improving the understanding of the skills landscape and skill needs is the mapping of skills to occupations, as led by the King Mongkut's Institute of Technology (KMITL), whose skill mapping initiative aims to collect and illustrate occupational skills from both the demand and the supply perspectives, as well as to design skill-specific courses to respond to the demands of the labour market. It does this by skill mapping 14 occupational categories.

There is limited information available on skills at the level of individuals in ASEAN Member States. This relates, at least in part, to the absence of data on the supply side such as graduate surveys and trainee administrative data – although initiatives do exist, such as [The Philippine Talent Map Initiative](#). In some instances, such as in Malaysia, public employment services contain jobseeker profiles, whereby individuals are often required to self-assess their skills. The absence of widespread information on the skill levels of individuals is not surprising, given that (a) specific definitions and taxonomies of skills are not widely adopted by ASEAN Member States and (b) even where skills taxonomies exist, the number of skills to be tested can range in the thousands. Thus, measuring the skill proficiency of any of these skills at the individual level, even a small subset, is not feasible since such assessments or tests often do not exist and where they do exist are expensive to deploy at scale.

²⁴ This is true of skills taxonomies more broadly, not just those of Malaysia or Singapore.

4.3. Qualitative data and qualitative approaches to data collection

Qualitative data and approaches to fill data gaps and validate other sources of information could be strengthened in ASEAN Member States. Qualitative data sources are a critical component of any broader strategy to bolster labour market information and skills-related insights. Approaches of this nature, including semi-structured key informant interviews and focus groups, can help address gaps on labour and skills demand, especially when there are capacity constraints to develop new instruments. Qualitative approaches can also help to validate other sources of data. In this respect, these methods should be seen as part of the overall approach to strengthening each country's inputs and statistical infrastructure. Informal discussions among government entities and with social partners and other actors are commonplace in ASEAN Member States. Such discussions are important and can provide valuable connections within the LMIS. However, there is an opportunity to develop and implement more systematic and rigorous qualitative approaches to gathering data.²⁵ In particular, a mixed-method approach that combines quantitative and qualitative techniques can provide valuable insights on both the supply of and demand for labour and skills. For instance, proxy-based measures of skills demand and supply may be helpful for assessing skills mismatch at the national level, but qualitative data, such as data obtained through foresight exercises, may be more useful to inform reskilling needs and skills provision in the light of business diversification, trends and transformation.

4.4. Key insights and select ASEAN Member State practices

This section takes stock of the key challenges in each ASEAN Member State with regard to inputs and statistical infrastructure (table 10). It also highlights a number of promising practices that could be considered – if relevant – as examples for other countries or to build on in each national context. In this respect, these promising practices are not meant to be exhaustive but rather to highlight different examples in various countries (box 9).

Table 10. Summary of key insights and main challenges in ASEAN Member States related to inputs and statistical infrastructure

ASEAN Member State	Insights and challenges
Brunei Darussalam	<p>Summary: There is a range of different types of LFSs for collecting labour market information in the country, from official statistics such as the LFS and the annual census of enterprises to industry-level consultations on skills needs..</p> <p>Key challenges and focal areas: Despite the different types of labour market information available, there is no systematic data collection on skills. The LFS is the primary source of data that provides information on skills via proxies from occupation and education, and the economic census and annual census of enterprises ask about vacancies and needs, but there is no current systematic analysis of skills supply and demand dimensions.</p>
Cambodia	<p>Summary: There are a number of official statistics, and data is collected via the LFS and socio-economic survey. Both rely on education and occupation proxies, but the more frequent socio-economic survey also lacks the granularity to provide detailed information on skills supply. There is only limited available data on skills demand.</p> <p>Key challenges and focal areas: Given the gaps in information on skills demand, attempts should be made to restart the employer skill needs surveys by addressing the constraints and reasons for its cessation, which may include limited resources and may be addressed through partnerships or external support. Efforts to expand the processing of job posting data could also be enhanced through technical capacity-building and resource mobilization.</p>

²⁵ One such example would be to utilize the ILO's add-on module for self-perceived occupational qualifications and skills mismatches for LFSs; see ILO, "[Labour Force Survey \(LFS\) Resources: The Global Reference for Labour Force Survey Design](#)", "Add-On Modules on Special Work Topics".

Indonesia	<p>Summary: The LFS is the main source of information on labour and skills supply, and there is a shortage of labour market information on labour and skills demand, in part due to capacity constraints, including for processing administrative data. The BPS is also exploring big data, while the MOM through its labour market centre is developing and improving its job-matching platform.</p> <p>Key challenges and focal areas: There is a need to increase the collection of data on labour market information related to labour and skills demand, through dedicated employer/establishment surveys and to enhance the processing of administrative data on job postings, including online vacancy data (while keeping in mind representativeness and other limits). This may require developing technical capacity and obtaining adequate resources, potentially through external funding.</p>
Lao People's Democratic Republic	<p>Summary: There is a relative lack of labour market information in the country compared to its regional counterparts. In terms of skills demand, in particular, there is a lack of structured and systematic data collection on skill needs and skill gaps for the country.</p> <p>Key challenges and focal areas: A major impediment to skills analysis is the limitations of the underlying statistical infrastructure. For skills supply, this involves mainly the regularity of information collected in national surveys and censuses; in addition, for skills demand data sources there is a lack of representative nationwide data collection. As a result, the statistical infrastructure could be enhanced through more regular and representative data collection.</p>
Malaysia	<p>Summary: There is strong foundational labour market information in terms of the LFS, which provides some information on labour demand and supply. Other sources of demand data available include: (a) a quarterly employment survey; (b) a public job board and related postings (MYFutureJobs) and (c) the web-scraping of private sector job postings (done by the ILMIA). Some supply-side information is also available through MYFutureJobs. Enterprise surveys are primarily devoid of employment- and skills-related insights. Efforts are also under way to establish a single repository for TVET supply and demand data by leveraging big data capabilities.</p> <p>Key challenges: There is a need to consolidate their skill terminology into a common framework (currently, at least three different definitions are being employed), while building greater links to any skills framework for other official data, such as the LFS.</p>
Myanmar	<p>Summary: A significant improvement was the regular conduct of the LFS annually from 2018 to 2020, which contributed to the understanding of skills supply. Labour market information on skills demand is relatively more undeveloped, as there are only a handful of enterprise surveys, but improvements in the business registry in recent years bodes well for strengthening enterprise surveys in the coming years.</p> <p>Key challenges and focal areas: An important limitation is the lack of a recent LFS since 2020, which would reflect changes as a result of recent political upheaval and also the COVID-19 pandemic. There is also potential for expanding information processing from administrative sources, such as jobseeker information and job vacancies, but further resources and capacity-building are required. The World Bank has initiated phone surveys in an attempt to address the gap in official labour market information. In addition, financial assistance may be necessary for any forthcoming labour force surveys.</p>
Philippines	<p>Summary: There is a rich array of data sources in the Philippines, including LFSs, education and training statistics, tracer surveys, establishment-level surveys, jobseeker statistics and other administrative data, which collectively offer valuable insights into the dynamics of skills supply and demand.</p> <p>Key challenges and focal areas: Users have identified challenges in navigating different data sources due to the fragmentation of multiple government websites, which makes it difficult for users to identify and utilize primary data sources. Although data duplication is not a significant issue, there is a need for enhanced coordination and harmonization of data among government agencies and to make available more sector-specific granular data.</p>

Singapore	<p>Summary: There is a robust and well-rounded supply of labour market information, with key sources on both the demand and the supply sides. With respect to skills, the system is relatively advanced and elaborate, as it leverages real-time analytics such as web-scraping and machine learning and was largely developed in collaboration with employers, workers and educational institutions.</p> <p>Key challenges and focal areas: The current system is complex, which leads to questions about the significant efforts needed to maintain it and keep it up to date. In addition, the skills-related infrastructure could be further integrated into the broader labour market information infrastructure; that is, skills data could be more closely connected to the SSOC system and steps could be taken so that changes in employment and unemployment at the occupational level can inform changing skill patterns. This latter point, however, requires Singapore to improve access to granular employment data from the LFS.</p>
Thailand	<p>Summary: Thailand's statistical infrastructure is relatively developed, with signs of new initiatives that will likely serve to strengthen labour market information on skills, including initiatives related to the mapping of skills to occupations, including by KMITL. Also, the Ministry of Labour plans to establish a "job demand open platform", an integrative and comprehensive platform for tracking the pathway of the school-to-work transition. This would track graduates and their job changes and seek to identify skill gaps and help support the specific training curriculum suited to filling those gaps.</p> <p>Key challenges and focal areas: Thailand may consider further investment in the use of new forms of data and analytics such as big data and web-scraping for more advanced and high-frequency labour market information on skills. The ASEAN Pilot Project on Big Data is one example of an initiative supporting ASEAN Member States in this space.</p>
Viet Nam	<p>Summary: Labour supply information is collected in a regular and frequent manner and through the LFS, in line with international standard guidelines. Survey data related to employment and skills are collected but have not yet been consolidated into a unified system or common database, which limits the sharing and dissemination of survey results. There remains a lack of data on labour demand.</p> <p>Key challenges and focal areas: The Ministry of Labour, Invalids and Social Affairs is implementing a labour supply-demand recording system to collect employment status and update job transitions for individual workers. However, this system is facing challenges due to the inadequate information technology infrastructure for storing and processing large volumes of digital data.</p>

Source: Authors' compilation, based on national-level assessments.

Box 9. A selection of promising country practices: Inputs and statistical infrastructure

Labour demand: In Singapore, the Government is responsible for a number of employment-related surveys, including the LMS, which gathers labour-related data, notably on job vacancies. The survey is conducted quarterly and offers insights on the top occupations (at the 5-digit level) with vacancies (as a share of total vacancies in the broader occupation category). This information is available with some delay; for example, as of May 2023 data on the top vacancies by occupation dates to September 2022.

Skills-related infrastructure: Thailand's skills development survey is an example for the ASEAN region of an easy-to-apply tool for assessing skill needs that is linked with the LFS. The survey is implemented by the National Statistics Office and Ministry of Digital Economy and Society. The questions are incorporated into the LFS in the first quarter of the year and on an annual basis. The survey asks interviewees to identify if they would like to develop their skills, which can show trends over time in self-perceived skill needs. The information can also be disaggregated by different characteristics, such as age, sex, municipality, education level, status in employment and so on; significantly, it may also be disaggregated by industry and occupation, which helps to identify where certain jobs are perceived to be at risk or require workers to develop new skills. The survey also looks at the sources and characteristics of the training and skill development courses taken by individuals, as well as their reasons for not participating in training and skills development courses. The survey is an important gauge of the changing demand for skills, based on a self-perceived metric; when combined with the LFS, it allows for a wide range of characteristics to be assessed. Microdata is available upon request from the National Statistics Office.

4.5. Recommendations: Inputs and statistical infrastructure

A key pillar for comprehensive LMISs is a robust statistical infrastructure that provides comprehensive, timely, reliable and relevant information on both the demand and supply sides of labour. The basic statistical infrastructure of ASEAN Member States is well developed and established, especially in terms of LFSs. Yet, there are some significant gaps that need to be addressed and a number of areas for improvement in the current infrastructure.

Strategic recommendation 2: Enhance the foundational statistical infrastructure to close key gaps, including with respect to skills-related information

Characteristics of strong foundational statistical infrastructure

- ☐ LFSs are implemented regularly (monthly or quarterly) and processed in a timely manner, while adhering to international standards. Information from these surveys is then provided with key indicators that are tracked and highlighted. Sample size should take into consideration a variety of factors (such as cost and representativeness) and the extent to which reliable data can be generated at a granular level (for example, employment counts at the detailed occupation level and disaggregated by population group). Metadata is also provided for transparency and accurate interpretation. **[priority: high]**
- ☐ Full and complete microdata from various sources, such as administrative data and LFSs, is shared with different entities, including other government departments and research institutions, in order to allow analysis relevant to policymaking to be conducted. National statistics offices can ensure that data-sharing is aligned with correct protocols on anonymity and so on. **[priority: medium/high]**
- ☐ Vacancy information is collected regularly and processed in a timely manner, ideally as frequently as possible, with information on the metadata provided for transparency for accurate interpretation, including on sample size, sampling frames and other characteristics. **[priority: medium]**
- ☐ School-to-work transition surveys are conducted regularly that gather information on the employment and social outcomes of students and graduates, following participation in education and training skills programmes. Data gathered from these surveys is used to provide information and enhance the quality and relevance of technical and vocational education in the country. **[priority: medium]**
- ☐ Taxonomies are developed that are suitable for the national context and that are up to date, take into account new occupations and new skill categories, are regularly updated and informed by relevant experts, including industry experts and academia, and are managed by a lead authority. **[priority: medium]**

Specific focal areas for strengthening foundational statistical infrastructure

- **Invest in refining the national occupational classification systems:** Data and insights generated and shared at an aggregated occupational level have significant limitations in terms of their utility to shape employment policies and programmes, understand changing skill patterns or support career and training decisions. Some countries (such as Singapore) have more than 1,000 detailed occupational categories that improve relevance for end-users (there are more than 6,600 end-users in Malaysia). While each country's economic and labour market structure is unique, there are opportunities for collaborating on the development and refinement of more detailed occupation classifications.
- **Significant improvements in the infrastructure surrounding each country's LFSs are needed:** While each country conducts LFSs, there are a number of initiatives that should be explored in an effort to improve the foundational elements of comprehensive systems of labour market information in ASEAN Member States:

- o **Adhere to international standards:** Develop and release cross-walks or concordance tables (where none currently exist) between national occupational classifications and the ISCO. This would enable cross-country comparisons and facilitate collaboration and the sharing of best practices (while recognizing that there is some loss of information when moving from country-specific to international classifications).
- o **Enlarge sample size:** Assess the feasibility of improving the sample size of the respective LFSs to generate reliable national employment estimates at a granular occupational level, such as at a minimum at the 4-digit ISCO level. Ad hoc supplements to existing surveys could also be explored to gather data at an even more granular level.²⁶ This approach could also help to improve the availability of data on inclusion and of disaggregated data along various lines (age, gender, locality, ethnicity and so on).
- o **Improve frequency:** ASEAN Member States should strive at a minimum to conduct and release LFSs on a quarterly basis, which would help to ensure that insights into training decisions can be gleaned more regularly.
- o **Ensure data can be disaggregated along various lines:** Disaggregated data along various lines (age, gender, locality, ethnicity and so on) is key to analysis that informs inclusive and equitable policies.
- **Enrich the language of skills:** Only a few ASEAN Member States have developed frameworks for skills that depict what are understood to be the competencies required to adequately perform jobs. A number of established frameworks (notably one in Singapore and a partial one in Brunei Darussalam) and emerging practices (for example, in Malaysia and Thailand) offer lessons in this regard and offer considerable opportunities for sharing lessons learned.
- **Collaboration and coherence are key pillars of any national skills framework:** A move towards developing a refined language of skills as a central element of any given country's statistical infrastructure will require significant cooperation and input from a number of stakeholders, including the various ministries involved from human resources to higher education, as well as public and private training institutions, career development practitioners, employers' organizations and workers' organizations, among others. An inclusive approach to skills development – aided by the establishment of a national coordinating mechanism – is an important step towards ensuring a coherent approach. Effort of this nature will also go a long way towards better understanding information needs and developing tailor-made dissemination tools for the various end-users.
- **Ensure that any skills framework that is developed emphasizes usability over sophistication:** As some of the ASEAN Member State examples showcase, understanding skills is a complex endeavour and frameworks can range in complexity – from those that have only a few skills to thousands of skills. The development or refinement of a skills framework, however, should be developed with the end-user in mind. For example, what type of taxonomy of skills and specificity is needed to support the development of training programmes? What level of detail would facilitate the career decisions of individuals? Complex systems are difficult and expensive to develop and manage – and this may be justifiable if they support the overarching goals of improving employment outcomes. There are opportunities for sharing lessons among ASEAN Member States without having to work towards a common approach, which may not be either desirable or feasible.
- **Regularly capture information on vacancies as complementary source of insights on labour demand.** Carrying out regular (that is, quarterly) surveys on the number of vacancies will help to shed light on the demand for labour. Alternatively, more comprehensive vacancy questions could be included in establishment surveys. In countries in which there are sizeable shares of informal employment, such surveys will not always be fully representative. However, they can be targeted to certain sectors on a rotational basis. Particular emphasis should be placed on ensuring that the vacancy information is available at detailed occupational levels so that skills-related insights can be applied to better understand skills in demand.

26 See for instance, ILO special modules for LFSs available at <https://ilostat.ilo.org/resources/lfs-resources/>.

- **Promote stronger collaboration with employer and worker associations.** To complement the introduction of vacancy surveys, ASEAN Member States should consider working with employers' organizations and sectoral bodies to carry out semi-regular surveys (such as annual surveys) of key labour and skill needs. Given some of the limitations of such surveys – mostly in terms of the depth and breadth of labour and skills-related matters – these surveys should rather focus on a narrow set of issues in order to complement the gaps that prevail elsewhere in the wider labour market information ecosystem; for example, they could seek to determine what skills are most needed in certain occupations or sectors. These efforts should also entail collaboration with workers' associations in order to increase knowledge of labour and skills demand and supply. Such collaborations could be explored through bipartite and tripartite mechanisms.
- **Develop capacity to document graduates in post-secondary education and TVET:** Information on the supply of labour needs to be enhanced. Governments could develop reporting standards for education and training institutions, which would necessitate improving institutional capacity to gather and manage administrative data (for example, on the number of enrolments and graduations by programme, field of study and training type). This could be complemented by developing taxonomies that bridge areas of training and education to include occupations and skills. To the extent feasible, tracer studies that monitor and evaluate the labour market outcomes of students after graduation would be valuable.
- **Introduce a range of qualitative methods to complement statistical data, and cross-validate information from other sources.** Qualitative approaches should play a greater role in strengthening the statistical infrastructure and inputs of the LMISs in ASEAN Member States. In particular, well developed and rigorous qualitative approaches, including the use of semi-structured interviews with key informants and organizing focus groups, could help to enhance data on both the supply of and demand for labour and skills. These methods can be deployed in isolation or in combination with quantitative methods to enrich data collection, close gaps and validate other sources. Qualitative methods should be a central part of a comprehensive strategy to improve each ASEAN Member State's data inputs and statistical infrastructure.



5. Analytical capacity and outputs

Most ASEAN Member States produce analytical outputs at different levels of complexity. The ability to do so depends largely on the underlying inputs and statistical infrastructure; importantly, it also depends on the analytical capacity of the public and private institutions and other actors engaged in the labour market information space. Analytical outputs in this context refer to the analysis of labour market information, including LMIRs, labour market assessments, intelligence reports and industry/occupational profiles, which serve to help understand the labour market dynamics in a given country. The analysis of labour market information can be considered at different levels (see box 9), which starts with the tracking of indicators (basic or first-level analysis), then analysing relationships (intermediate or second-level analysis) and finally analysis that entails econometric modelling (advanced or third-level analysis). Countries with more complex and reliable underlying statistical infrastructure, as well as openness with regard to data-sharing, are more likely to have intermediate and advanced analytical outputs.

Box 10. Levels of labour market information and analysis systems

Labour market information and analysis systems can be categorized into three levels:

- **Basic (first-level labour market information and analysis): Tracking indicators:** Includes labour market information that is held in a repository at the national or international levels, as well as reports that monitor or track indicators, such as those related to policy evaluation or as part of regular labour market bulletins.
- **Intermediate (second-level labour market information and analysis):** Analysing relationships: A step up from tracking indicators, this level of analysis looks into relationships and attempts to make inferences. It can be based on both quantitative and qualitative information and includes LMIRs, labour market assessments and occupational profiles.
- **Advanced (third-level labour market information and analysis):** Econometric models: Another step up is to conduct forecasting and estimation modelling. These typically involve econometric models and are based on quantitative information. In the context of labour market information related to skills, they typically include skills anticipation and skills forecasting models.

Source: Pietschmann et al. (2016).

An important consideration in this context is what methods to adopt for skills anticipation (box 11). Indeed, investments in skills and related activities, such as education and training, take time and considerable planning. The decisions made today by policymakers, businesses, education and training institutions, among others, will have important implications on the future skills needs and supply of a given country. At the same, in the context of the changing nature of work, there is a level of uncertainty with respect to how skills requirements will unfold, making skills anticipation particularly challenging. Analytical approaches to skills anticipation and matching generally fall into the intermediate and advanced categories of analysis. However, the optimal method (or mix of methods) to be used in any situation depends on the context (for example, specific needs, resources and capacity constraints). For instance, a forecasting model may be helpful to inform strategic planning but less so for guiding the development or updating of skills standards or curricula. Accordingly, this section provides an overview of analytical outputs at these different levels in ASEAN Member States.

Box 11. Approaches to skills anticipation

Skills anticipation can refer to the anticipation of skill needs in the future, the forecasting of skills, the early identification of skill needs and the identification of new and emerging skills. There is no single way of conducting skills anticipation. Different entities, including the ILO and the Organisation for Economic Co-operation and Development (OECD), have provided guidance on skills anticipation that include different approaches, which may be combined and used in a complementary manner (ILO 2015; ILO 2017; ILO and OECD 2018; Řihova 2016). A guidance note by the ILO specifies the need to establish institutions for systematic social dialogue on skills needs and skills strategies through the following processes:

- identify relevant data, data sources and tools for data collection and analysis.
- translate data into indicators, trends and scenarios; and
- analyse results and prepare strategies together with social partners and other stakeholders.

Such processes can be achieved through various means, including both quantitative and qualitative approaches and mixed-methods approaches:

Surveys among employers or establishments: Such surveys can help identify skill needs or skill requirements that might not be captured through other means. They can include information on recruitments for the next 12 months or longer and can be a means of identifying new and emerging skills. The challenges of this form of data collection have been covered above.

Quantitative approaches: These usually refer to model-based forecasts that seek to project labour market prospects for jobseekers (in terms of the ease of finding a job) and for employers (in terms of potential recruitment problems). There are various requirements for this form of analysis, including reliable and robust time series or data that span multiple years, as well as the availability and accuracy of underlying macroeconomic forecasts and assumptions.

Qualitative approach: This requires relying on the qualitative insights and opinions of expert stakeholders through focus group discussions, expert and key informant interviews and foresight and scenario techniques, to name a few, in order to better understand future changes in skills demand and supply. Such approaches can be highly effective and informative for identifying emerging and new occupations and skills, and for the early identification of trends that are likely to impact skills demand in the future.

Tracer studies: These are surveys that follow the placement of students into or not into work and assess their fields of work, thereby providing important insights into mismatches.

Big data: This refers to the processing of large volumes of data, such as online job postings. This comes with a number of caveats, including those related to cost, as well as the limitations associated with analysing job postings.

Mixed methods: This approach combines different methods, such as undertaking a quantitative forecast exercise while leveraging expert opinions for additional insights and validation. Such exercises have been conducted in a number of countries with ILO support, specifically through the ILO's skills for trade and economic diversification approach, including in the ASEAN region, such as in Indonesia and Malaysia. In these instances, different methods are combined to provide better understanding of skills needs and challenges, through the active engagement of key stakeholders in the process.

Source: ILO (2015).

5.1. Basic analysis

The national statistics offices of all ASEAN Member States provide access to data and indicators that fall under their purview, at various levels of aggregation. The national statistics offices of all ASEAN Member States release aggregate-level information from their various surveys through their websites (often each survey has its own microsite). The information on these microsites is typically made available directly on the sites themselves by presenting key statistics (sometimes via the Tableau format or other interactive means, as is the case in Malaysia) or by enabling the user to download portable document format (PDF) reports (such as LFS reports) that vary in depth and coverage. For instance, where LFSs are annual (for example, in Brunei Darussalam) reports tend to be more in-depth, whereas when they are conducted more frequently (for example, in Singapore), reports tend to be shorter and highlight key metrics. In a few cases, there is the possibility to inquire about obtaining microdata.

Given the range of data generated in ASEAN Member States, navigating access to other sources of information can be challenging. As with other countries outside of ASEAN, not all labour market-related information that is collected and disseminated by other departments and agencies is made available via the national statistics office. For instance, other key sources of information, such as jobseeker and vacancy information, is typically made available on dedicated websites or other platforms, making it challenging to navigate and access the full breadth of each countries' labour market information. The [Myanmar Statistical Information System](#) (MMSIS) is one example of a platform that is managed by the Central Statistical Organization and provides a range of reports and indicators from different surveys and censuses. In addition, the PSA website brings together labour market information from various sources, including data on decent work indicators and the Sustainable Development Goals (SDGs).

A key feature of other forms of basic analysis include frequent and timely labour market bulletins or updates. These forms of analysis typically provide indicators of different metrics and can include recent updates of skills demand from vacancy surveys. A number of countries produce these updates (for examples, see table 11). Census and survey reports (such as LFSs) can also be considered forms of basic analysis. While these basic forms of analysis may lack the depth of information and insights of more advanced forms of analysis, they can provide important snapshots for monitoring and tracking aggregate indicators and trends. As timeliness, frequency and representativeness is important for inputs and statistical infrastructure, the same considerations – along with ensuring data quality and access – are necessary for the analytical outputs. Therefore, the more frequently and the more promptly these outputs are published, the more valuable they can be to users (for uses and dissemination, see section 7).

The ASEANStatsDataPortal is an encouraging first step towards establishing a repository of information for the region; however, national systems, notably with regard to the labour market, need further development. The [ASEANStatsDataPortal](#) was initiated in 2018 by the ASEAN Statistics Division ([ASEANstats](#)). Although it is still under development in beta form, it provides key indicators and dashboards for specific topics. There is a labour statistics component to the indicator list, which relies on information provided by ASEAN Member States using the ASEAN Statistical Indicators – Consolidated Template, under the direction of the ASEAN Community Statistical System Committee. As a result of the data submission processes and processing for the platform, the information provided is fragmented (in terms of indicators and country coverage) and not necessarily up to date. There is scope for improving national-level repositories that could connect and provide regular, automatic updates. Similarly, linkages to the [ILOSTAT data catalogues](#) would help to improve the breadth of labour market information available to a wider audience.

The most comprehensive and relevant portal on labour market indicators for the ASEAN region that is currently available remains the ILOSTAT data catalogue. The ILOSTAT data catalogues or repository is a global collection of databases managed and compiled by the ILO. It includes microdata provided through submissions with national-level focal points, official estimates shared by national focal points and other official statistics in the public domain. Different labour market variables are calculated from the microdata and official estimates, and modelled estimates from the ILO Trends Econometric Models are also included. While this is a global repository, it covers all the ASEAN Member States and information can be obtained by filtering for the ASEAN countries of interest. Moreover, the process can be extracted via a range of different methods, including different forms of manual extraction as well as automated extraction. There is therefore scope for extracting up-to-date information through automated methods and linking these to regional and national platforms.

Table 11. Examples of basic analysis of labour market information, by ASEAN Member State

Output	ASEAN Member State	Focal area for skills	Strengths	Weaknesses
Labour market information updates	Cambodia	Skills demand; occupational skills profiles	Regular updates (monthly bulletins and more detailed 6-monthly bulletins)	Limited insights into the skills content of specific occupations; occupation proxies applied only at top level (that is, high-, medium- or low-level skills)
Labour force situation in Indonesia	Indonesia	Skills supply and skills demand	Regular source of information (twice yearly)	Limited in terms of insights
Labour market trends reports	Philippines	Skills supply	Regular source of information, accompanying other regular publications from the DOLE	Mostly weighted towards labour supply rather than labour demand
Employment information system (Smart Job Centre Thailand)	Thailand	Skills supply and skills demand	Analysis of recent data from the job-matching platform	Untapped potential for web-scraping and unpacking of skills demand
Labour market information updates	Viet Nam	Skills supply and skills demand	Regular source of information; analysis of recent data from job postings	Limited in terms of insights and untapped potential for web-scraping

Source: Author's compilation.

5.2. Intermediate analysis

Many ASEAN Member States produce analysis of labour market information at the intermediate level.

Examples of intermediate forms of analysis include labour market and social trends reports (for example, in Viet Nam), labour market profiles (for example, in the Philippines) or analysis based on World Bank Enterprise Survey data (for example, in Myanmar). In Brunei Darussalam, intermediate-level analysis can include occupational foresights that are based on industry insights and experts providing information about occupational needs via the MISCs for key industries in the country. Such approaches can help to support the development of sectoral-based strategies; however, in the case of Brunei Darussalam, these are not currently made public. The COVID-19 pandemic also presented an opportunity for a number of countries to conduct thematic analyses of the impact of the pandemic on skills demand and supply. Such thematic studies were conducted in Cambodia, the Lao People's Democratic Republic and other ASEAN Member States.

The connections between the generators and analysers of labour market information are generally weak.

Close connections between entities collecting labour market information (for example, national statistics offices) and those analysing labour market information (for example, research organizations) facilitates the production of intermediate-level analysis. Collaboration of this nature, including with international organizations, can support policy development, while also helping to address any current internal capacity constraints in national agencies and ministries. However, throughout ASEAN Member States there is room to improve the connections between the data producers, such as the national statistics offices, and the main generators of analysis, such as ministries of labour or research institutions, in order to bolster the intermediate-level analysis of labour market information. For example, the National Employment Agency in Cambodia produced a series of studies based on the employer skill needs survey. These surveys were also implemented by the National Employment Agency, thereby allowing for timely and open access to the underlying data in order to conduct analysis.

Recently, the most common form of intermediate-level analyses relates to the analysis of public sector job boards.

Such data is analysed for a variety of purposes, including to identify top in-demand jobs, such as for Malaysia's MYFutureJobs platform or to develop occupational profiles (such as in Indonesia). In some instances, arrangements with private recruitment agencies have been made to improve the coverage of job postings. For instance, in the Lao People's Democratic Republic, the job vacancy company 108.jobs provided the information for a report on education and skill demand in the private sector in the Lao People's Democratic Republic. Meanwhile, a memorandum of understanding was established in Thailand between the Department of Employment, Ministry of Labour and eight private job-matching agencies to share information about job vacancies and jobseekers (such as the JobDB, JobTopGun and JobBKK platforms) to contribute to the analysis of demand- and supply-side data. However, this arrangement is in its early stages and analysis has not yet been finalized. Brunei Darussalam's Job centre at Brunei under the MPEC secretariat is also likely to produce analytical outputs in the medium term based on this type of data, in collaboration with the Department of Economic Planning and Statistics.

Table 12. Examples of intermediate analysis of labour market information, by ASEAN Member State

Output	ASEAN Member State	Focal area for skills	Strengths	Weaknesses
Manpower forecast by MPEC secretariat, Prime Minister's Office	Brunei Darussalam	Skills demand	Comprehensive assessments, including quantitative and qualitative information from industry groups	Not publicly available
Skills shortages and skills gaps in the Cambodian labour market: Evidence from employer skills needs survey (Bruni, Luch and Kuoch 2013)	Cambodia	Skills demand	Valuable insights into skills gaps and skills demand	Ad hoc assessments; skill levels were used in broad terms only
Indonesia's occupational tasks and skills	Indonesia	Skills demand and skills supply	One-off pilot in 2020	Pilot to collect detailed occupational data (51 occupations) on tasks and skills in Indonesia
Education and skill demand in the private sector in the Lao People's Democratic Republic	Lao People's Democratic Republic	Skills supply and skills demand	Assessment of job vacancies data providing unique insight into skills demand	One-off study, based on a single year; limited analysis (due to underlying data limitations)
Myanmar Future Jobs: Embracing Modernity (World Bank 2018)	Myanmar	Skills demand and skills supply	Based on the World Bank enterprise surveys	One-off study (based on 2016 data); it is becoming more out of date
Career information system	Philippines	Skills demand and skills supply	Includes in-demand and green jobs, as well as cost of education or training; hosts career information pamphlets; based on a range of data sources	Focus on higher-skilled jobs
Critical occupations lists	Indonesia, Malaysia, Viet Nam and Thailand	Top occupations in demand (or most difficult to fill)	High relevancy for policymakers and trainers	Data is not always representative and lacks coverage of skill needs
Labour and social trends	Viet Nam	Skills supply and skills demand	Implemented every year, based on different sources of national data (LFS, enterprise data)	Lack of information on skill needs; education, occupation as proxies for skills

Source: Author's compilation.

5.3. Advanced analysis

Advanced analysis can be broken down into short-to-medium-term analysis and long-term analysis, with different implications for their frequency and update. Short-to-medium-term analysis includes modelling that has implications for current or near-term horizon. These include Thailand's labour market warning system, which has the objectives of monitoring Thailand's labour market for potential crises, as well as anticipating future needs and changes. The information is regularly updated and information is published on the Ministry of Labour's website. Longer-term forecasting in ASEAN Member States, where available, tends to be done in partnership with academia, such as with Brunei Darussalam's long-term labour market projections. These long-term projections do not need to be updated with the regularity of current or short-term estimates, which can go out of date relatively quickly.

A few countries have begun to leverage new techniques such as web-scraping and machine learning to complement other more traditional sources of labour market information. A number of countries in the region, notably Malaysia and Singapore, are analysing – via machine learning and natural language-processing – online job postings to assess, among other things, the skills in demand (as is the case in Singapore) and the emerging job profiles (as is the case in Malaysia). Data of this nature – despite some caveats – can help to close gaps in labour market information in the country, notably information on the demand for skills (and labour).

The most comprehensive analyses combine a range of quantitative and qualitative information but are often for a single sector. The Lao People's Democratic Republic and Indonesia both have examples of comprehensive analyses done for specific sectors. In the Lao People's Democratic Republic, the Tourism and Hospitality Enterprise Survey of Employment and Skills in the Lao People's Democratic Republic can be considered as a series of reports, with the most recent report issued in 2021, focusing on the impact of the COVID-19 pandemic, and a previous survey conducted in 2018. The reports present analysis from surveys of enterprises sampled from the Lao Department of Tourism Promotion's central database. The report also provides "research findings and employment projections" for five-year periods, with the 2021 report covering the period 2021–2026 and the 2018 report covering the period 2018–2023, including both employment projections and future skills demand for the tourism and hospitality sector. In Indonesia, different studies have been commissioned by the Ministry of Manpower, including on the ICT sector and tourism sector, allowing for forecasts for the 2022–2025 period. In each of these cases, the assessments are advanced and comprehensive and enable an analysis of both supply and demand in order to understand skill needs and gaps. Such assessments, while they represent valuable complementary tools, are limited to specific sectors and replication to other areas of economic activity is often not feasible. Part of the challenge lies in the lack of in-house analytical capacity of stakeholders – and in some cases of ministries – to undertake and scale up studies of this nature. There is increased interest in ASEAN on establishing sectoral skills bodies (such as sector skills councils) as a means of better facilitating the industry's engagement in skills matters. Sector-based skills demand analysis is one of the key outputs that is expected of sector skills bodies (SSBs) and the SSB structure is expected to facilitate the promotion and replication of a sectoral approach to skills demand analysis.

Analysis is often one-off and undertaken by third parties, which undermines the ability to produce regular analyses with internal technical capacity and resources. A common feature and limitation of much of the analysis is that it is a one-off study. One example is a labour market forecasting study in Cambodia that was commissioned by the Ministry of Labour and Vocational Training from external consultants. Key informant interviews highlighted that this undermines the ability to produce follow-up or updated analyses. Similarly, while the ILO provided capacity-building to a multi-stakeholder team on the development and maintenance of the Philippines Employment Projections Model (PEPM) in 2013, it was discontinued after a few years.²⁷ More recently, the DOLE in the Philippines is working to create a forecasting model that can be conducted annually. The project is envisioned as a collaborative effort involving both inter-agency cooperation and private sector participation. However, they note the difficulty in obtaining job vacancy data, which were not included in the previously developed PEPM, thereby limiting its usability for shorter-term forecasts. Although some vacancy data can be collected online, most job vacancies are not posted on the internet. This issue highlights the need for improved data-collection methods that will allow the DOLE forecasting model to be more accurate and effective in guiding policy decisions related to the labour market.

²⁷ For the Philippines, the DOLE-BLE has indicated the development of employment and skills forecasting capacity as an institutional priority, under its overall mandate to produce labour market information.

Table 13. Examples of advanced analysis of labour market information, by ASEAN Member State

Output	ASEAN Member State	Focal area for skills	Key strengths	Key weaknesses
Skills in demand via web-scraping and machine learning/natural language-processing	Malaysia and Singapore	Skills in demand	Cost-effective, efficient, real-time and excellent sources of the evolution of skills information	Proprietary/relies on private sector May omit skills required but not listed. Not necessarily representative of jobs in economy and differs from official vacancies
Brunei Darussalam labour market projections, 2020–2050	Brunei Darussalam	Skills supply and skills demand	Long-term forecasts of changing labour market composition	Academic paper with limited use for short-to-medium-term skill needs
Labour market forecasting, 2017–2027 (Bruni, Teng and So 2019)	Cambodia	Skills demand and skills supply	Presents labour demand and labour supply scenarios by educational attainment	One-off study
Tourism and hospitality enterprise survey of employment and skills	Lao People's Democratic Republic	Skills supply and skills demand	Comprehensive assessment, based on two-period longitudinal data	Specific sectors only; limited by lack of underlying time-series data
Labour demand in ICT industry 2022–2025	Indonesia	Skills demand	Projection based on ICT company survey data and other sources (including the LFS)	Aggregate information only, with lack of detailed information on ICT skill needs
PEPM: Employment targeting and scenarios	Philippines	Skills supply and skills demand	Projection-based analytical paper providing a methodology for forecasting for a range of different labour market variables	Challenges in maintaining and updating the model led to its discontinuation
Labour market warning system	Thailand	Skills demand	Comprehensive assessments using forecasts and forward-looking analysis	Skills demand only implicitly addressed through occupation proxies and inferences from wider suite of labour market indicators

Source: Author's compilation.

5.4. Key insights and select ASEAN Member State practices

This section takes stock of the key challenges in each ASEAN Member State as they relate to analytical capacity and outputs (table 14). It also highlights a number of promising practices that could be considered – as relevant – as examples for other countries to build on. In this respect, these promising practices are not meant to be exhaustive but rather to highlight different examples in various countries (box 12).

Table 14. Summary of key insights and main challenges in ASEAN Member States related to analytical outputs and capacity

ASEAN Member State	Insights and challenges
Brunei Darussalam	<p>Summary: The close collaboration of different stakeholders, particularly public–private collaboration and particularly under the MISCS, allows for the timely sharing of labour market information to inform employment policy and skills development policy (via the Ministry of Education and TVET institutions); however, this analysis is largely unpublished and conducted internally.</p> <p>Key challenges and focal areas: There is a lack of publicly available labour market analysis related to skills, particularly with regard to skills forecasting and skill needs assessments. This limits the ability for organizations outside the different entities, committees and working groups that are engaged in this field to be able to contribute to policy debate, analysis and research. Accordingly, there is a need to conduct more skills-specific analysis and make this publicly available.</p> <p>While some research is publicly available, particularly that done by the think tank Centre for Strategy and Policy Studies, this has a long-term horizon. There is a lack of short-to-medium-term forecasting in addition to that done internally, particularly through industry consultations (with education and also via the MPEC). While there is a shortage of time series of data, the available data could be combined with more qualitative insights to facilitate short-to-medium-term public analysis.</p>
Cambodia	<p>Summary: Some analytical outputs exist, but these are limited and were most relevant when based on the employer skill needs surveys, which were discontinued. Other ad hoc reports exist, including a labour market forecasting study commissioned by the Ministry of Labour and Vocational Training in 2019, but this is now relatively out of date.</p> <p>Key challenges and focal areas: Much of the analysis is commissioned and implemented by external parties, such as the consultants who implemented the labour forecasting for the Ministry of Labour and Vocational Training. Therefore, there may be a need to bolster technical capacity for this analysis internally, including at the Ministry of Labour and Vocational Training and the National Employment Agency, so that such analysis can be ongoing and provide more sustainable and regular outputs.</p>
Indonesia	<p>Summary: There is some labour market analysis of skills based on the LFS or administrative records, but this is not typically regular and systematic. The lack of systematic skills analysis partly reflects the limited underlying statistical infrastructure, which forces new skills analyses to conduct their own data collection as part of the assessment. Key informant interviews highlighted the lack of technical capacity as further reasons that limit the ability to conduct regular and frequent analysis.</p> <p>Key challenges and focal areas: There are two main challenges, the weak underlying statistical infrastructure for skills labour market information and the limited technical capacity. New initiatives, notably under the Presidential Regulation on Revitalization of Vocational Education and Training, will likely address the first point; however, there needs to be adequate investment in technical capacity-building in order to produce enhanced analytical outputs on skills.</p>

Lao People's Democratic Republic	<p>Summary: Analytical outputs on skills do exist in the Lao People's Democratic Republic, but they are limited. In the tourism and hospitality sector, for instance, a well-functioning sectoral administrative body hosts a registration database that allows longitudinal assessments on skill compositions and needs to be conducted. But this is a one-off example, with other assessments more limited in scope. Instead, skills development planning tends to rely on consultations with relevant stakeholders rather than published analytical outputs. While the tripartite nature of such consultations, hosted by the Skills Development Institute of the Ministry of Labour and Social Welfare, reflects positively on social dialogue in the country, it also highlights the reliance on manually collected information from such consultations, which are often obtained at meetings and workshops.</p> <p>Key challenges and focal areas: A major impediment for skills analysis is the limited underlying statistical infrastructure. In terms of skills supply, this involves mainly the lack of regularity of the information collected in national surveys and censuses, while in terms of skills demand data sources, there is a lack of representative nationwide data collection. There is therefore a need to improve the statistical infrastructure through more regular and representative data collection.</p>
Malaysia	<p>Summary: There is strong analytical capacity and outputs within various ministries. The ILMIA of the Department of Statistics, through the MYJobProfile platform, provides an online career information portal that provides detailed insights regarding occupations in Malaysia. Information related to the list of critical occupations, the jobs most in demand, TVET and science, technology, engineering and mathematics jobs, and the top jobs by industry can be accessed through the portal.</p> <p>Key challenges: Engaging and providing data access to research institutes and others to complement the analysis being undertaken within the various ministries. Also, as discussed above, greater connections between the skills infrastructure and the LFS data could bolster the analysis of employment patterns and skills in Malaysia.</p>
Myanmar	<p>Summary: Analytical outputs exist in Myanmar but are limited. A challenge is that given the recent changes in the country, including political changes and the COVID-19 pandemic impact, much of the focus of analytical outputs on the labour market have been on broader issues, such as changes in employment and understanding the impacts on the labour market, with little focus on labour market efficiency (such as skills mismatches), forecasting and skills assessments. Despite this, the NSSA collects information through 16 sectoral committees on competency standard development to help determine future demand for skilled labour in the coming years.</p> <p>Key challenges and focal areas: The most pressing current challenge is the lack of underlying inputs and statistical infrastructure in recent years, despite the progress over the last decade. This undermines the ability to analyse labour market information and produce analytical outputs.</p> <p>While there are analytical outputs that draw on labour market information, skills analysis is often a by-product and fleetingly mentioned. Instead, more comprehensive and skills-targeted analysis would contribute to strengthened employment and skills development policies in the country. More analysis on skills supply, skills demand and skills forecasting should be promoted, using available information. Technical assistance is also needed for the interpretation of data for skills development.</p>
Philippines	<p>Summary: Key analytical outputs in the Philippines include the DOLE jobs and labour market forecast and the TESDA labour market intelligence report (LMIR), which are vital for understanding the labour market and skills needs. A combination of primary and secondary data sources is used in the methodology of these reports to provide valuable insights into labour market dynamics and skill requirements. The Bureau of Labour and Employment and the TESDA also produce reports leveraging their administrative data, tracer studies, sector-specific surveys and expertise to generate relevant and timely labour market information. Advanced forecasting methodologies and the inclusion of additional data sources, such as online data-scraping or big data analysis, are not yet being utilized to produce forward-looking skills analyses in the Philippines.</p> <p>Key challenges and focal areas: The BLE and the TESDA face limitations in terms of the technical expertise and human resources needed to analyse complex labour market data and generate comprehensive reports, which may affect the depth and scope of their labour market information outputs, especially in the regional offices.</p>

Singapore	<p>Summary: The situation of the country is quite strong in terms of outputs with respect to skills and related insights. Most notable is the skills framework and its connection with industry transformation maps. In particular, a skills framework was developed for 34 broad industry groups. Each industry group is then divided in broader occupational groups which then contain detailed job roles.</p> <p>In addition, annual reports on the skills demand for the future economy are produced with the latest data broadly structured around four key drivers (green economy, care economy, digital economy and industry 4.0). The reports offer insights into skills from the previous year along two dimensions; (a) fastest growing and (b) transferability. There are also quarterly reports that examine particular issues; for instance, in January 2023 a report outlined in greater detail the green skills required for the engineering workforce.</p> <p>Key challenges and focal areas: Limited information or reports are produced on changes in employment at the occupational level – either by public or private entities. This is partly a function of limited access to data and there is potential for greater connections between skills and employment trends.</p>
Thailand	<p>Summary: The broad range of relevant actors and stakeholders engaged in the area of labour market information and skills corresponds to a wide selection of research and analysis, including a labour market warning system that keeps abreast of changes taking place in the labour market and regularly publishes forecasts. The use of labour market information in skills development is a good practice example for the region, with an integrated system that responds to both short-term industry needs and longer-term strategic direction.</p> <p>Key challenges and focal areas: KMITL skills mapping is a welcome attempt to start mapping skills to occupations in the country. This is not the only institution looking at mapping skills to occupations in this manner. It is therefore recommended to establish a mechanism to coordinate efforts in this regard, and also to allow for the maintenance and management of such a taxonomy, which needs to be updated on a regular basis to take into account the changing requirements of occupations, new technologies and new occupations.</p>
Viet Nam	<p>Summary: A range of publications exist that analyse labour market information, such as the quarterly press release on labour employment, a labour market update bulletin and labour social trends reports.</p> <p>Key challenges and focal areas: Much of the analysis produced can be considered basic or intermediate, with only limited advanced analysis. However, it is essential to ensure that efforts to develop new methodologies are aligned with the actual needs of policymakers and end-users.</p>

Source: Authors' compilation, based on national-level assessments.

Box 12. A selection of country practices: Analytical capacity and outputs

Basic level: The MMSIS platform in Myanmar is a repository of different statistical materials, including survey reports and census data, which also provides metadata. The MMSIS was developed by the Central Statistical Organization and supported by the Korea International Cooperation Agency (KOICA) via a project on capacity-building through IT-based statistical data management in Myanmar, which sought to digitalize, strengthen, and modernize the statistics management system. This is a welcome development and helps navigate the statistics landscape in Myanmar. It is fundamentally a repository, with only basic analysis that is largely shaped around short-cut viewings of key data, but it is regularly updated and allows for the tracking of national employment indicators.

Intermediate level: The labour market warning system is an example of a detailed analytical process with the objective of monitoring Thailand's labour market for potential crises, as well as anticipating future needs and changes. It is led by the Ministry of Labour, the Thailand Development Research Institute and the Fiscal Policy Research Institute Foundation. One of its key features is to identify and monitor the possibilities of labour crises in the next 12 months in the areas of employment, unemployment and laying off of employees. The system uses a labour forecast system to anticipate the changes in employment, unemployment, laid-off workers and international movement of employees, which can take into consideration a range of changes in economic conditions as well as socio-political considerations. Information is published on its website, including reports on the current labour market situation, and uses visuals such as infographics and charts to help interpret key trends and findings.

Advanced level: In 2021, Singapore produced its first skills demand for the future economy report. The report provides in-depth analysis, using machine learning, to shed light on transferable skills. The 2022 edition, taking a similar analytical approach, provides insights on high growth skills, that is, ones that are more likely to see shortages now and in the near term.

5.5. Recommendations: Analytical outputs

The basic statistical infrastructure in ASEAN Member States is well developed, especially in terms of occupational data that come primarily from LFSs. However, analytical outputs leveraging this data, notably those of an advanced nature such as trend analysis at detailed occupational levels or employment forecasts, are largely non-existent. In addition, in most instances the advanced analytical capacity and outputs that currently exist are devoid of skills-related insights. And while efforts are needed to improve the inputs and statistical infrastructure as outlined in section 4 above, the current data remains largely underutilized as an analytical tool. This will need to change in order to improve the effectiveness and value of ASEAN Member States' LMISs and to ensure that, among other things, training and education systems and career guidance are aligned with the changing and emerging needs of jobs. Each ASEAN Member State should take steps to undertake and encourage more intermediate and advanced analysis to improve analytical capacity and outputs. This means starting by leveraging the currently available data in this space, while continuing to enhance the underlying inputs and statistical infrastructure related to labour market information and skills as laid out in strategic recommendation 2.

Strategic recommendation 3: Ensure that occupations and skills are a central component of advanced labour market information and analysis

Characteristics of well-integrated occupation and skills components in intermediate and advanced labour market information outputs

- ☐ Develop capacity to analyse different dimensions of changing employment patterns at the detailed occupational level, including producing regular forecast estimates. **[priority: high]**
- ☐ Provide breakdowns of skills information in summary reports, including LFSs and vacancies reports, specifying the definitions used (for example, proxies based on occupation or education). **[priority: high]**

Specific focal areas for ensuring skills are a central component of labour market information and analysis

- **Leverage existing proxy approaches to skills more fully.** All ASEAN Member States have the possibility to leverage education as a proxy for skills, but few do. While this approach has a number of caveats and limitations, notably with regard to the changing nature of work, it is a practical and efficient means to understand the changing composition of jobs, especially when combined with occupational forecasts. Part of the challenge among ASEAN Member States appears to be the lack of publicly available data at sufficiently detailed occupational levels (see above).
- **Generate proper linkages between the skills framework and the statistical infrastructure:** In the few cases in which skills taxonomies exist, efforts to link them to foundational data sources such as LFSs is limited. As discussed above, this is true even where skills are proxied by educational attainment. More concerted efforts are needed to link existing and future skill taxonomies (and proxies) to occupational level data from LFSs or vacancy surveys. This will help to shed light on, for example, the skills associated with rapidly growing occupations or difficult-to-fill-vacancies – key insights into the development of employment and skills-related policies and programmes.
- **Leverage other countries' skills frameworks for analysis.** Where national skill-level frameworks do not exist, there is the possibility to leverage the taxonomies of other countries, including in the region (for example, Singapore). However, given that Singapore has a unique occupational system that differs from other ASEAN Member States, a cross-walk or concordance between its system and that of the other ASEAN Member States would be required. This is a translation matrix that allows for data and measurements from one system to be imported or leveraged into another. It is a complex process that inevitably leads to some data loss and there are questions about how relevant the skills taxonomy of other countries is to the Member State. Nevertheless, this can still be a valuable exercise compared to the efforts and resources required to develop and maintain a country-specific taxonomy. There are obvious areas of potential collaboration among the ASEAN Member States.
- **Use skills anticipation and matching methods as suitable to the context, and strengthen sectoral approaches:** Enhance sectoral approaches to better understand skills demand at the sectoral and occupational level. Support the establishment and strengthening of sector skills bodies and their role in the generation of analytical outputs, Ensure the participation of TVET/skills providers in developing and implementing the approaches, to facilitate the translation of findings into policy-relevant information.
- **Leverage web-scraping as a complementary approach:** New and alternative approaches such as machine learning – despite some limitations – can provide insights on the work requirements of jobs in near real time, considerable specificity (in terms of skills and geographies), and can be analysed at a fraction of the cost of traditional survey methods. This is especially relevant in the context of informing curricula development, for which the pace at which skill requirements of jobs is increasing. New and innovative techniques can also help to inform the development and maintenance of skills frameworks and complement gaps in data on vacancies (while recognizing that vacancies and job postings are two distinct concepts). This is an area where cooperation among ASEAN Member States would be most impactful in terms of leading to sizeable efficiency gains – even where there are differences in how skills are then categorized. The ASEAN Pilot Project on Big Data has been exploring this area and contributed to the expansion of this topic in Indonesia, Malaysia and Brunei Darussalam, while interviewees in many other ASEAN Member States have also expressed interest.



6. Uses and dissemination

The focus of this report is to examine labour market information in the ASEAN Member States in relation to employment and skills policies. This includes but is not restricted to employment and labour market policy, education and TVET policy, as well as public employment services (PESs). However, labour market information and skills-related insights has a much wider application and relevance, with users that range from jobseekers, employers and the general public to career counsellors, researchers, students and others.

In that context, this section provides an overview of the uses and dissemination of labour market analytical outputs, with a particular focus on uses by policymakers, while acknowledging the wider range of users of labour market and skills information and the need to recognize the varying needs in terms of the content and form of different types of dissemination. Information for this section was based largely on key informant interviews and also draws significantly from a series of reports on human resources in the ASEAN Member States (ASEAN Secretariat 2022).

6.1. The diversity of information needs: Content and form

For policymakers alone, there are a range of information needs that have different requirements and criteria for content and form. As shown in figure 4, different policies and programme objectives have varying users and needs for labour market information and analysis. First, different policymakers will have different degrees of technical capacity, with requirements that can range from underlying microdata (to conduct analysis themselves) to prepared analytical reports with key findings and priority areas highlighted. In addition to this, there are requirements and characteristics of labour market information and analysis associated with the different objectives. For instance, assessing short-term skills needs may rely more on industry insights, whereas long-term strategic planning might need more comprehensive quantitative information and analysis.

Figure 4: Examples of different uses and relevance of labour market information and analysis for programmes and policies

Intended use	Example of policy relevance	Examples of information needs
Anticipating future skill needs	Employment policy	Analysis and insights into new forms of work, occupations and skills
Long-term strategic planning	National development planning	Forecasting and anticipation analysis
Short-term skill needs	TVET strategy and policy	Recent qualitative insights
Monitoring and evaluation of policies and programmes	National development planning	Regular, up-to-date and reliable information at granular level
Labour market mismatches	Labour migration and employment policy	Comprehensive analysis of mismatches
Monitoring and evaluation of education and TVET programmes	TVET and education policy	Regular and representative data on enrolment, assessment, certification and employment rates

Source: Author's depiction.

Labour market and skills-related information is central to a number of core decisions that support ASEAN stakeholders. There are a wide range of stakeholders engaged in the labour market information and analysis space, beyond policymakers; yet, policymakers (among others, where possible) play a particularly central role in bringing together these various actors and ensuring that the LMIS functions according to the needs of users. For the ASEAN community as a whole, the various stakeholders in one ASEAN Member State may perform relevant contributions and functions that carry value to other ASEAN Member States. Quality information is central to helping individuals choose a career path, decide on training and find employment that is better matched to their skills and preferences. To grow their business and improve productivity, employers also rely on information and insights when making hiring and training decisions. Finding and developing the right talent is core to their efforts to prosper. Educators, training and learning providers, career development practitioners and policymakers leverage data of this nature to enhance the design of their employment and skills policy, programmes and advice.

Importantly, the decisions that various stakeholders face are complex. Not only must different sets of information be managed but also the manner in which this information is shared must be tailored – to the extent possible – to the use case. For instance, it is unlikely that individuals looking to make a career change will be looking for the same type of information that an employer is looking for when making a hiring decision. Moreover, the manner in which different users consume information will vary considerably according to context, experience and decision at hand. For instance, someone anticipating a career shift is unlikely to find the same utility in information presented in a PDF as would a policymaker who is considering how best to design a new programme. Accordingly, the use and uptake of labour market and skills-related information is best supported by a better understanding of the choices being faced and how best to present that information to inform those choices.

6.2. Connecting labour market information to policy and programme decisions

The existence of different labour market information and analysis that is aligned with the different needs of policy and programme decisions does not mean that it is necessarily used. To be used, there need to be mechanisms in place to facilitate collaboration and linkages among different entities, particularly between the producers of labour market information and analysis – including national statistics offices and departments of statistics in different ministries, as well as employers' organizations such as chambers of commerce and academic institutions and thinktanks – with a broad spectrum of users. Such mechanisms can be institutionalized with or without formal processes, or can be on an ad hoc basis, or simply involve accessing and using publicly available information. The lack of these arrangements means that information and analysis may exist but is not used to its full potential; in addition, analysis can be duplicated or policy and programme decisions made without using available quantitative analysis.

The connections between the statistical infrastructure and the TVET system often lack institutionalized mechanisms and processes. A number of countries have in place coordination mechanisms and efforts to share labour market information and insights directly with TVET institutions. However, the vast majority of the key informant interviews in the ASEAN Member States highlighted that the information on training needs from the education and training sector was acquired primarily through consultations with policymakers and employers. While qualitative data of this nature should be encouraged, especially as a means to validate and supplement other insights, the fact that this was one of the primary mechanisms indicates (a) the need to improve the relevancy of the data produced and how it is shared, and (b) the importance of strengthening coordination mechanisms. In fact, while generating and packing relevant information is necessary, it is equally imperative that efforts to ensure that the information generated meets the actual, expressed needs of those who will use it (that is, in a format that is accessible and helpful, that uses adequate agreed upon concepts and terminology, that is sufficiently detailed and, where possible, that provides insights that are actionable and relevant for policymaking). For instance, additional questions were included in employer and target group survey questionnaires used as part of a sectoral approach to assessing upskilling and reskilling needs in Viet Nam in order to facilitate the interpretation of survey findings into policy and programme relevant information by the National Institute for Vocational Training (NIVT).²⁸

²⁸ The rapid assessment activity is jointly implemented by the NIVT and the Viet Nam Chamber of Commerce and Industry, with the support of the ILO and GIZ/RECOTVET, as a national-level activity linked to the LMIS-SKILLS project.

Adjusting to a changing world of work is central to recent projects and initiatives working with skills development. The German-supported Regional Cooperation for the Development of Technical and Vocational Education and Training ([RECOTVET](#)) project is focused on “developing TVET in ASEAN member states to meet the requirements of a changing world of work”. This project seeks to help the region adjust to changes in the world of work, particularly as a result of technological change, a situation which was exacerbated due to the COVID-19 pandemic, and to better link TVET strategies with the needs of the labour market, in particular to help young people better access the labour market with in-demand and appropriate skills. The project entails a number of focal areas and initiatives, including new competencies to meet the demands of digitalization in TVET, as well as labour market information. At the same time, the [ILO/China Partnership Programme on Strengthening Skills Development in Cambodia, the Lao People’s Democratic Republic and Myanmar through South-South and Triangular Cooperation \(SSTC\)](#) is a five-year programme focused on linking vocational training to labour market needs as well as anticipating green jobs, among other activities. The project is intended to address a number of issues in the region, including those stemming from changes in the world of work, including globalization and rapid technological progress, and the subsequent challenges for matching labour supply with changing demand.

6.3. Information to support a wide range of intermediaries and potential end-users

Other actors play a central role in the functioning of an effective LMIS. This includes labour market intermediaries,²⁹ enterprises, individuals and other actors that use information to make key decisions such as strategic investments (enterprises), education and training choices (individuals) or provide career advice (intermediaries). In this way, these actors will leverage information in a way that will enable them to take advantage of the policies and programmes discussed above. Indeed, without the active participation of these intermediaries and individuals, the LMIS is of limited utility.

Sharing information often takes a “one size fits all” approach. As discussed above, each of these various consumers of labour market information not only require different types of information (such as wages by occupation versus the skill requirements of a job) but also require such information to be presented in different formats (for example, infographics versus websites) in order to facilitate various decision-making points. Aligning information content and dissemination with a broad range of different intermediaries and end-users is not an easy task. In ASEAN Member States, there is little diversity in how information is shared (table 15). Most ASEAN countries share information to stakeholders via PDF reports and microsites, with the latter sometimes including a basic dashboard or tool. In this way, the information tends to be generated for everyone, rather than for anyone in particular, which can limit its relevance given the broad range of user needs.

Part of the challenge lies in the fact that the statistical infrastructure for most countries remains underused. As described above, broadly speaking the basic statistical infrastructure is relatively robust in ASEAN Member States; for example, all countries have LFSs. However, due in part to small sample sizes and in part to limited analytical capacity and mandates, the data and insights that are made available remain at aggregated levels, thereby limiting the potential to develop more user-centric outcomes to better support various decisions.

Trends towards data repositories need to consider how best to ensure information is delivered and shared in a way that takes into consideration the diverse needs of the labour market information actors. In some ASEAN Member States and even within the ASEC, there are efforts to create data portals or hubs that facilitate greater access to labour market information and, in the few instances where it exists, skill-related data. However, these tools remain for the most part in the early stages of development. As data-sharing of this nature evolves, it will be important to consider the complexity and costs of maintaining such portals – and perhaps more importantly, how to provide access to these repositories without the development and promotion of adjacent user-centric tools to enable the data to be accessed, presented and shared in relevant, user-friendly ways for those making employment and skills-related decisions.

²⁹ In this context intermediaries are referred to as individuals and organizations that leverage labour market and skills information to provide guidance to others, including individuals and businesses. These can include workplace planning boards, employment and career centres, career development counsellors and community-based organizations.

Table 15: Labour market information outputs and their dissemination, relevance and uptake

	Primary sources	Output description	Primary dissemination methods
Brunei Darussalam	Annual employee and employer census	Employment-related insights	PDF Consultations
	LFS	High-level aggregate indicators	PDF Microsite
Cambodia	LFS	High-level indicators/ad hoc frequency	PDF
	Sector skills councils	Needs of employers in key sectors	Consultations
Indonesia	LFS	Employment growth and forecasts	Microsite/ dashboard tool and geographic information systems
Lao People's Democratic Republic	LFS	High-level indicators	PDF
Malaysia	LFS	High-level aggregate indicators	Series of portals/microsites dedicated to various topics
	MyJobProfile	Tasks and job profiles according to broad skill categories	Website
	MYFutureJobs	Top skills and number of job openings with that skill	Tableau dashboard tool
Philippines	LFS	Aggregate indicators	Reports (web and PDF)
	Jobs and labour market forecast	List of in-demand occupations and hard-to-fill skills	PDF report
	LMIRs	Series of reports on key employment, sectors and skills issues	PDF reports
Singapore	LFS	Economy-wide unemployment rates	HTML-based statistics/tables
	Skills frameworks	Skills associated with various occupations	PDF with some hyperlinks to training
	Web-scraping	Top annual skills in demand and level of transferability from online job postings	Excel file, organized by categories of key drivers (green, care, digital and industry 4.0)
	LMS	Top 10 job vacancies for each broad occupation category	Excel file
Thailand	LFS/ establishment surveys	Key occupations in demand	PDF
	Labour market warning system	Anticipated changes in employment over the coming year	Online platform with PDF
Viet Nam	LFS	High-level indicators	Reports (web and PDF)

Source: Author's compilation.

6.4. Key insights and select ASEAN Member State practices

This section takes stock of the key challenges in each ASEAN Member State with respect to data uses and dissemination (table 16). It also highlights a number of promising practices that could be considered – if relevant – as examples for other countries or to build upon in the country in question. In this respect, these promising practices are not meant to be exhaustive but rather to highlight different examples in various countries (box 13).

Table 16. Summary of key insights and main challenges per ASEAN Member State related to uses and dissemination

ASEAN Member State	Insights and challenges
Brunei Darussalam	<p>Summary: Different actors conduct their own in-house analysis of labour market information to inform employment, education and TVET policy and strategy, with limited sharing between different institutions and the public. Despite this, some foresights and qualitative forms of labour market information have been institutionalized, in particular through cooperation between TVET institutions and industry bodies, but are not shared more widely.</p> <p>Key challenges and focal areas: The use of analysis is relatively institutionalized, such as between TVET institutions and industry, as well as via the MISCs, but there is a need for wider dissemination of labour market information and analysis to more stakeholders, including the public.</p>
Cambodia	<p>Summary: In recent years, there has been a lack of analysis, which has subsequently contributed to a reliance on sometimes outdated outputs. For linking TVET institutions with labour market information from the private sector for demand-driven curriculum development, the sector skills councils are the main facilitators but are limited to only a few industries.</p> <p>Key challenges and focal areas: Expanding the sector skills councils to more industries would likely contribute to improved use and dissemination of analytical outputs. Resource and capacity constraints related to analytical outputs are likely also to impact use and dissemination, with potential improvements in analysis contributing to more targeted audiences.</p>
Indonesia	<p>Summary: The Ministries of Manpower, Education and National Development Planning use labour market information and analysis for policies related to their mandates, including policy goals, targets and programmes in strategic planning. For example, the Ministry of Manpower uses this for projections and developing training programmes, while the Ministry of National Development uses it for national strategies, for mid-term national development planning (together with the Ministry of Manpower) and for monitoring progress towards achieving the SDGs and human resource development targets. For the Ministry of Manpower, strategic planning documents are uploaded on its website, as well as projections publications.</p> <p>Key challenges and focal areas: Underlying data and analysis on labour demand and skills demand is limited and often not available when strategic planning is in process, resulting in the use of previous and sometimes outdated projections and analysis.</p>
Lao People's Democratic Republic	<p>Summary: Most labour market information used in policymaking, strategy development and curriculum design relies on qualitative consultations between different stakeholders. While such consultations are tripartite, which is encouraging and a reflection of the value of social dialogue, there is a lack of systematic and quantitative data collection and analysis supporting evidence-based policymaking.</p> <p>Key challenges and focal areas: A challenge that was highlighted during key informant interviews is the limited engagement between the private sector and TVET institutions, which compromises the ability of skills development policies to respond to labour market needs, in particular to address current and future skill needs. Institutionalizing such engagement would improve the use and dissemination of labour market information and analysis.</p>

Malaysia	<p>Summary: Considerable efforts have been made to make data available through a series of dashboards/ data portals that were developed with different end-users in mind. This has contributed to a wider and more targeted outreach in terms of dissemination.</p> <p>Key challenges: There is an opportunity to consolidate the various existing data portals (a current pilot is under way), but this can be expensive and challenging (the Department of Statistics has eight different portals, each focused on a slightly different data source).³⁰ At the same time, greater efforts are needed to develop a skills framework and related dissemination tools that meet the needs of end-users.</p>
Myanmar	<p>Summary: The NSSA uses labour market information collected through the 16 sectoral committees on competency standard development to determine priority occupations for the development of competency and training standards.</p> <p>Key challenges and focal areas: There is a need for enhancing technical capacity to interpret data into labour market information and analysis that is relevant for skills development.</p>
Philippines	<p>Summary: While the use of labour market information for policymaking and strategy in the Philippines is common, it has not yet been fully institutionalized. Examples include the jobs and labour market forecast of the DOLE, which gathers inputs from various stakeholders to create policy recommendations that align with the Philippine Development Plan. The TESDA's area-based and demand-driven TVET initiative is another example, whereby labour market information is used to design and implement training programmes that cater to the specific needs of industries in different regions. Labour market information is also used in the country's national employment policy process, that is the Philippines Labour and Employment Plan process, although the depth of analysis and linkages to the policy framework remain limited.</p> <p>Key challenges and focal areas: There is growing recognition of the importance of shaping policies and strategies that address labour market challenges and skills mismatches in the country. However, in order to foster the practice of relying on labour market information and analytical outputs, there is a need to establish formal mechanisms that ensure the consistent and systematic use of labour market information in decision-making processes at all levels of government.</p>
Singapore	<p>Summary: The communications channels through which the SSG disseminates skills-related information are numerous, including APIs, infographics, excel files and PDF files. The activities of most actors in Singapore, which range from government ministries to employers, workers and training institutions, are oriented (albeit to varying degrees) towards skills. This discourse has permeated throughout the system and has helped promote the use and take of skills-related information.</p> <p>Key challenges and focal areas: There is a need to further exploit other elements of labour market information, such as employment levels and vacancies, to enrich the overall delivery of relevant data to a vast array of stakeholders. There is also a risk that the skills framework developed may be overly complex and targeted towards primarily institutional users. Moving forward, it will be important to evaluate and monitor the feedback from key end-users such as career development practitioners and individuals navigating the career and training system.</p>
Thailand	<p>Summary: Discussions on skills development strategies, policies and curriculum development take place at the provincial level and is fed upwards into national strategies. While this approach helps ensure that skills development is responsive to market needs, the processes may also present some challenges in terms of delays in implementation. Such delays are mostly relevant for rapidly changing skill needs, such as those related to new technologies.</p> <p>Key challenges and focal areas: One challenge for Thailand is the many analytical outputs available and the broad range of providers and users of these outputs. While there are often institutionalized uses of labour market information and analysis, efforts to engage and validate more sources of information, including by key government entities, could contribute to the triangulation of findings and wider uptake and outreach.</p>

30 Portals include the MyCensus 2020 Portal (facilitating digital census data collection); the StatsDW Portal (an enterprise data warehouse); the StatsBDA portal (big data analytics); the StatsGeoportal (geospatial information); the ILSM portal (Malaysia Statistical Training Institute); the ILMIA Portal (ILMIA); and the MyLMID Portal (Malaysia labour market interactive data).

Viet Nam	<p>Summary: The dissemination of information or publication of labour market information and analysis are primarily carried out by government agencies and for use by these agencies. This includes information on recruitment trends, specific job positions, skill requirements, salaries and other relevant information for jobseekers and employees. The ongoing development of an updated information system on labour supply and demand, led by the Ministry of Labour, Invalids and Social Affairs and the Department of Employment and integrated with the national population data system, is considered a crucial solution for effectively leveraging labour market information at both the micro and macro policymaking levels.</p> <p>Key challenges and focal areas: Current labour market information and analysis may lack sufficient detail to meet microlevel needs, such as assisting vocational education institutions in adjusting training programmes or helping businesses identify and connect with potential employees. The utilization of data for advanced analysis is also quite limited due to the lack of labour market information on labour demand and projections by industries and occupations, as well as the shortage of human resources/experts on labour market information. In addition, there are gaps with regard to the use of labour market information as evidence to support the employment policy and legislative processes.</p>
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Source: Author's compilation.

Box 13. A selection of country practices: Uses and dissemination

Diversity of information needs: The MYFutureJobs portal is the Malaysian national employment portal for jobseekers and employers and is presented under the Employment Insurance System. In terms of labour market information, it provides first of all a list of top job postings on the portal, by occupation (albeit with some time lag; for instance, as of mid-May the top job vacancies (seemingly at the 6-digit level) date to March 2023). Vacancies are also cross-posted according to industry and searchable in broader occupational groups (1-digit). Weekly reports are produced on the patterns and composition of job vacancies, but the only skill-related information produced is related to qualifications.

Within the MYFutureJobs portal, a separate microsite/tab for “Employment Tools” provides a series of different tools, including (a) job explorations (refitted list of all the vacancies); (b) job growth (trends on vacancies that are outdated, that is from July 2022); (c) Popular Skills (a database that enables the user to select skills that will then showcase all occupations from the MYFutureJobs portal that require the selected skill most often); and (iv) Advanced Skills (a list of complex skills).

With respect to the Popular Skills section, an extensive list of skills is provided. When an employer adds a new job posting, they need to select competencies for the job based on that taxonomy. On the Popular Skills microsite, it is possible to choose a skill and then to see the breakdown of the number of vacancies by occupation that contain that skill (it does not seem possible to sort according to the number of times that a skill appears in vacancies). The Advanced Skills microsite is similar to Popular Skills but showcases “complex skills that are associated with high-wage, high-skilled jobs usually filled by expatriates”.

Among other things, the MYFutureJobs portal also purports to use AI technology and algorithms to provide job matches between individuals and employers. This is based on matching the skills listed by the employer when they post a job and the skills and competencies of jobseekers (also self-reported in a similar manner to employers for those individuals that register on the site).

6.5. Recommendations: Uses and dissemination

Labour market and skills-related information is central to the decision-making process of a variety of stakeholders, including individuals making career and training decisions, employers making investments and hiring decisions, and policymakers, educators and trainers designing new policies, programmes and courses. However, different users consume information in different ways.

Strategic recommendation 4: Ensure that labour market information is used to inform evidence-based policies and programmes and to meet the various needs of users

Characteristics of systems for evidence-based employment and skills policies

- Institutionalized collaboration, sharing and dissemination of information between key stakeholders, including between those that analyse labour market information and those that use this information in policymaking. For instance, between industry leaders and education and TVET providers, as well as sharing of microdata with national researchers, academics and international organizations such as the ILO. Analysis that is conducted in isolation or without institutionalized collaboration can fail to reflect user needs or be overlooked and not used to the full potential. **[priority: high]**
- Open and relevant sharing of data and analysis for different types of users. Information should be gathered by the providers of labour market analysis on the needs and requirements of users, including policymakers, in order to ensure that analysis shared is relevant and useful for policymaking. Such needs vary by the user and can include considerations on microdata and metadata, as well as the mediums of analysis. Openness of analysis (for example, insights from industry experts) can help raise accountability as well as awareness for other institutions. **[priority: high]**

Focal areas for ensuring labour market information is used to inform evidence-based policies and programmes

Efforts are needed in ASEAN Member States to diversify the way in which information is disseminated in order to maximize its impact.

- **Improve access to detailed microdata to expand the potential of current labour market information:** Throughout ASEAN Member States, there is very limited information at the detailed level (for example, employment levels at 4-digit occupation codes) that is made publicly available or even accessible through requests. Information, including the sharing of microdata, needs to be made more available for public use, including by national researchers, academics and international organizations. The bulk of information made available in the region is highly aggregated. While there are privacy and sampling concerns that merit consideration (see strategic recommendation 2 above on increasing sample size), the openness and access to current data is restrictive in many ASEAN Member States. Lack of access and data openness (restricted access to more local and granular data) is having adverse impacts on the value and use of labour market information of ASEAN Member States, since it:
 - o limits the ability to connect skills with occupations (see above);
 - o constrains other actors within the ecosystem to conduct complementary and independent research and analysis; and
 - o dampens the ability to produce detailed employment, and in turn, skill forecasts.

- **Diversify the dissemination of labour market information:** The dissemination of labour market information is not a “one size fits all” approach. Some efforts are under way to create data portals and platforms to enable access to wider data sets through APIs and so on. However, data access can be overly complex. It is important to bear in mind that while well-designed technologies have the power to bring together disparate pieces of information in a coherent manner, user needs should drive the technology employed and not the other way around. In this way, careful consideration should be given to the end-users of the data (for example, an individual versus a trainer versus an employer) and the information should be packaged in a way that addresses those needs. Here, the establishment of a coordinating entity that engages the various actors with the employment and skills development ecosystem can go a long way towards understanding user needs.
- **Consider developing a central data hub that facilitates access to a variety of end-users:** Central data repositories can bring together disparate data from different sources and organize the information in a way that facilitates access for various use cases. However, to ensure that the data is used by the full range of stakeholders and end-users, different tools, such as applications, websites and dashboards, need to be developed in parallel that access the common data while allowing for the information to be tailored and presented in a way that meets the unique needs of the target audiences (for example, policymakers or educators or individuals). This means working closely to understand the labour market information needs of different stakeholders. Data repositories of this nature that enable tools to draw information from them, such as through APIs, are complex endeavours and could be piloted in one or more countries. Here, there are valuable lessons that could be harnessed and shared among ASEAN Member States.
- **Develop mechanisms to monitor and evaluate different tools:** For each of the different data products that are made available, measures are needed to define and monitor the appropriate metrics that define success. Based on the lessons learned, ASEAN Member States have the opportunity to improve how information is shared in order to maximize its use and uptake.
- **Better connect training systems to the generation of skills-related insights.** The ongoing efforts of each Member State to improve their respective NQFs and align them with the AQRF is an important step forward. And while ASEAN Member States have relatively developed education and training systems, those systems are in many instances disconnected from the generation of labour market information and skills-related insights. As a result, there is an opportunity to explore how TVET systems can evolve, not only to better meet skills demand through analysing and interpreting labour market information and translating it into policies and actions but also to contribute to the generation of such information. For instance, ASEAN Member States can:
 - o take stock of data needs for education and TVET programmes (this would also entail working closely with employers and sectoral bodies) and develop outputs that serve those needs. This is consistent with the overall efforts needed to better understand the labour market information needs of various stakeholders. The engagement of education and TVET providers in the design of analytical outputs can improve the usefulness of these outputs for their purposes (for example, planning and budget allocation in training programmes, curriculum development and so on);
 - o encourage partnerships and institutionalize data-sharing mechanisms between education and TVET authorities and the labour market information ecosystem; and
 - o assess how to embed skills accreditation into the delivery of TVET programmes (for example, through the use of microcredentials that showcase proficiency in certain skills).



7. Conclusions and cross-cutting considerations

This report is the culmination of a series of ten national-level assessments of the respective LMISs of ASEAN Member States, particularly as they relate to skills, with the aim of identifying challenges, gaps and lessons learned. Not all ASEAN Member States face the same challenges or have the same focal areas. Accordingly, as noted in the executive summary, each ASEAN Member State can draw on these recommendations to the extent that they are relevant to their contexts and foundational conditions. In doing so, however, a number of cross-cutting strategic considerations should be borne in mind. First, it is important to ensure that the goals and needs of the labour market and the skills-related information system are established through participatory processes that can also be monitored. Second, it is important to ensure that any strategy to improve Member States' respective systems should earmark resources in order to build the necessary internal capacity to ensure the sustainability of efforts. Third, it is important for ASEAN Member States to work collaboratively with each other to share lessons learned and develop partnerships, which could lead to significant savings, address capacity constraints and improve the efficient allocation of limited resources.

Strategic recommendation 5: Establish participatory processes for strengthening the governance, generation and use of labour market information, and for monitoring progress

Regardless of the stage of development of any country's labour market information and skills ecosystem, it is important to understand what policy, career, training or programme questions need to be answered. This includes defining the end-users and their needs (see strategic recommendation 4 above) and the role that various actors play within the system, ranging from those responsible for strategic oversight to those that generate labour market information and translate information into action. A central element of this priority area of ASEAN Member States should be to strengthen overall coordination and cooperation, while also clearly articulating the roles and responsibilities of the various actors and ensuring that there are adequate resources and capacity-building to bolster the sustainability of labour market information (see strategic recommendation 6 below). Ideally, such a process should be participatory in nature (that is, based on interministerial cooperation and coordination, with the participation of employers and workers, as well as TVET institutions and other entities, as required). Finally, there is a need to clearly define the intended goals of the different labour market information and analysis components; to put in place systems for monitoring and evaluating progress towards those ends; and to ensure that these systems are evolving alongside user needs and preferences. This would demonstrate a commitment to continuous improvement and accountability.

Strategic recommendation 6: Build upon and intensify efforts to strengthen internal capacity to manage – and undertake different functions associated with – an effective and responsive LMIS

Over the past few decades, ASEAN Member States have made important strides in improving the availability and quality of labour market and skills-related information. Nevertheless, gaps remain and improvements are called for in all Member States to respond effectively to the evolving world of work. Much of the progress made has been due to efforts to improve institutional capacity in various ministries and agencies. At the same time, a number of important donor-funded projects have helped to spur innovation – albeit in some cases at the expense of internal capacity-building, which has given rise to gaps in sustaining progress. With that in mind, the following should be considered:

- **Identify key areas of capacity constraints.** Based on their respective priorities and action plans, each ASEAN Member State should undertake analysis in order to assess at the outset what areas call for attention in terms of sustainability and should ensure that capacity constraints are addressed.

- **Build internal capacity and allocate resources accordingly.** In developing each ASEAN Member State's respective action plan, there is often a tendency to focus expenditures that lead to concrete outputs (for example, investments in a new quarterly vacancy survey). However, the usefulness of such outputs – as valuable as they are – will diminish considerably if adequate resources are not dedicated to developing the capacity to carry out, maintain and leverage these new resources.
- **Integrate capacity-building into donor-funded projects and external partnerships.** Inevitably, external partnerships and donor-funded projects will continue to play a supporting role in providing assistance to Member States. However, partnerships should be explored that help to expand analytical outputs based on Member State priorities and capacity-building, and sustainability considerations should from the outset be integrated directly, with earmarked resources, into donor-funded projects.

Strategic recommendation 7: Optimize the use of ASEAN collaboration forums and explore new partnerships and joint initiatives for knowledge-sharing on labour market information

- **Share lessons learned from and progress in implementing national-level initiatives through relevant bodies and forums, including the ASEAN TVET Council and the SEA-VET.net platform:** Each of the national-level studies showcases a variety of innovative approaches taking place in the labour market information ecosystem. A number of ASEAN bodies and platforms – such as the ASEAN TVET Council and the SEA-VET.net platform – provide important avenues for the sharing of best practices and lessons learned; along with SLOM-WG, the SOM-ED and the ACCMSME, among others. This can serve to spur cross-country cooperation in several areas in which there are important efficiency gains to be realized (for example, testing new innovative techniques to glean skill insights from job postings).
- **Establish and develop a network of actors and practitioners in ASEAN Member States for knowledge-sharing on the improved use of labour market information in skills and employment policies.** There is a vast range of actors involved in the generation, use and dissemination of labour market information in ASEAN Member States – including government departments and agencies, the private sector, workers' organizations, and public and private research and academic institutions – which emphasizes the potential for realizing gains from enhanced networking and partnerships. ASEAN Member States should explore the potential of developing a cross-border community of actors engaged in this space, which could enable them to build synergies, leverage and scale up state-of-the-art initiatives in the labour market information and skills development space. An interesting example in this regard is the European Network for Regional Labour Market Monitoring (EN-RLMM), which includes members from various relevant actors in Europe, including academia, regional labour market observatories, PESs and others.

Looking forward, as the future of work and its implications continue to unfold, it will be critical for ASEAN Member States to build upon recent momentum and progress towards inclusive growth and improved well-being. These gains have been driven in part by a dedication and commitment to evidence-based policy and programme development.

In the context of the world of work and ongoing labour market and social transformations, efforts to enhance LMISs will be crucial to informing the design of employment and skills-related policies and programmes and further advancements in economic competitiveness and prosperity among ASEAN Member States.

References

- ASEC (ASEAN Secretariat). 2022. “Regional Report of ASEAN-ROK Technical and Vocational Education and Training Mobility (TEAM) Programme – Component 1: ‘Enhancing the Competitiveness of Human Resources through Responsive TVET Curriculum Supported by Involvement of Industries and Labor Market Information’ Integrating the Case Studies of 10 AMS”. ASEAN.
- Battu, H., and K.A. Bender. 2020. “Educational Mismatch in Developing Countries: A Review of the Existing Evidence”. In *The Economics of Education*, edited by Steve Bradley and Colin Green, 269–89. Elsevier. <https://doi.org/10.1016/B978-0-12-815391-8.00020-3>
- Bennett, Fidel, et al. 2022. *Using Online Vacancy and Job Applicants’ Data to Study Skills Dynamics*. ILO Working Paper 75.
- Bruni, Michele, Likanan Luch and Somean Kuoch. 2013. *Skills Shortages and Skills Gaps in the Cambodian Labour Market: Evidence from Employer Skills Needs Survey*. ILO Asia-Pacific Working Paper Series . https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/publication/wcms_231862.pdf
- Bruni, Michele, Delux Teng and Dane So. 2019. *Labour Market Forecasting, 2017–2027: Final Report – Forecasting Labour Supply and Labour Demand in Terms of Flow by Educational Level*. Cambodia, Ministry of Labour and Vocational Training Technical and Vocational Education and Training <https://www.tvetmis.gov.kh/live/sites/default/files/2022-03/Labour%20Market%20Forecasting%202017-2027.pdf>
- European Training Foundation, European Centre for the Development of Vocational Training and International Labour Office. 2016. *Using Labour Market Information: Guide to Anticipating and Matching Skills and Jobs, Volume 1*. <https://data.europa.eu/doi/10.2816/524509>
- ILO. 2015. “Anticipating and Matching Skills and Jobs”. Guidance note. ILO. https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/publication/wcms_534307.pdf
- . 2017. *Skill Needs Anticipation: Systems and Approaches. Analysis of Stakeholder Survey on Skill Needs Assessment and Anticipation*. ILO.
- jakarta/documents/publication/wcms_766461.pdf
- . 2021. *Global Framework on Core Skills for Life and Work in the 21st Century*.
- . n.d.a. “Labour Market Information Systems (LMIS)”. <https://ilostat.ilo.org/resources/labour-market-information-systems/>
- . n.d.b. “International Standard Classification of Occupations (ISCO)”. <https://ilostat.ilo.org/resources/concepts-and-definitions/classification-occupation/>
- ILO and OECD. 2018. “Approaches to Anticipating Skills for the Future of Work”. Report prepared by the ILO and OECD for the G20 Employment Working Group. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---inst/documents/publication/wcms_646143.pdf
- KRIVET (Korea Research Institute for Vocational Education and Training). 2020. “Analysis of Labour Market Information System (LMIS) and Labour Market Demands for 10 AMSs: Analytical Framework II”.
- Pietschmann, Ina, et al. 2016. *Key Labor Market Indicators: Analysis with Household Survey Data. Streamlined Analysis with ADePT Software*. World Bank and ILO. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_519717.pdf

Řihova, Hana. 2016. *Using Labour Market Information: Guide to Anticipating and Matching Skills and Jobs, Volume 1*. Compendium on Anticipation and Matching of Skills. ETF, Cedefop and ILO. https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/publication/wcms_534314.pdf

UNESCO. 2012. *International Standard Classification of Education: ISCED 2011*.

Wiryasti, Cornelia Hirania, Janti Gunawan and Tauvik Muhamad. 2020. *Rapid Assessment of Information and Communications Skills Demand in Indonesia*. ILO. <https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo->



Appendix I: Conceptual framework

A: Governance, institutional arrangements, coordination mechanisms

- **A1: Legislation for labour market information for skills:** What legislation exists for data collection, dissemination and use in national or sectoral skills or human resource strategies or for the monitoring and evaluation of employment and skills policies?
- **A2: Stakeholder mapping:** Who are the main stakeholders? What are the roles and responsibilities of each actor?
- **A3: Coordination mechanisms:** Are there any coordination mechanisms, including at the national, sectoral and regional/local levels? Is there any supporting legislation, such as data-sharing agreements? Are there any social dialogue mechanisms for coordinating around skills development, such as sectoral skills councils or bodies?
- **A4: Good practices:** What are good practices that can be replicated in other countries, for instance to facilitate coordination and data-sharing or harmonization, such as the establishment of a labour market information committee or skills observatory, at the sectoral, regional or local levels?

B: Inputs and statistical infrastructure

- **B1: Skills supply information-mapping:** What are the main sources of skills supply information in the country, such as LFSs, statistics on education and training, school-to-work transition surveys or jobseeker statistics?
- **B2: Skills supply information relevance:** What is the coverage, disaggregation, relevance and timeliness of this skills supply information?
- **B3: Skills demand information-mapping:** What are the main sources of skills demand information in the country, such as LFSs, establishment surveys, vacancy surveys, training participation reports and future skill needs estimates?
- **B4: Skills demand information relevance:** What is the coverage, disaggregation, relevance and timeliness of this skills demand information?

C: Analytical capacity and outputs

- **C1: Mapping of existing outputs:** What are the existing outputs of labour market information for skills anticipation and matching?
- **C2: Basic approaches:** What labour market information is available at the national and international levels (for example, on the websites of governments or international organizations and in the ILOSTAT database)? What indicators are monitored or used in policy evaluation (first-level labour market information and analysis);
- **C3: Intermediate approaches:** What products/outputs exist to analyse the relationships between variables (second-level labour market information and analysis) and make use of quantitative as well as qualitative approaches, in particular products with direct relevance to skills policy (for example, labour market assessments, LMIRs and industry/occupational profiles)?

- **C4: Advanced approaches:** Are there any advanced approaches used to model or anticipate occupational or skills demand, such as macroeconomic or econometric models and projections (third-level labour market information and analysis)?
- **C3: Key actors:** Who are the main actors and institutional structures involved in the development and use of the analytical tools and products (linking with actors and institutional mechanisms and uses and functions)?

D. Uses, functions and dissemination

- **D1: Output use mapping:** How are the system's outputs used and what challenges do they help address? By who/which actors and decision-makers are they used?
- **D2: Levels of use:** Are these outputs primarily descriptive and are they used at the level of policymakers in strategic planning and in policy monitoring and evaluation? Or are any outputs service-oriented, used by PESs, career guidance services or private actors as well (including employers and jobseekers)?
- **D3: TVET and education users:** Are TVET and education and training providers among the users of the outputs? What specific outputs are most useful to them and how?
- **D4: Specific group targeting:** Are there any tools, interfaces or dissemination processes that target specific groups or end-users?
- **D5: Feedback mechanisms:** Are there any feedback mechanisms regarding the relevance and usefulness of labour market information outputs to various users?

E. Recent and upcoming initiatives and projects related to labour market information for skills policy

- **E1: Mapping of projects and initiatives:** What are recently completed projects and initiatives, or initiatives that are under way or in the pipeline relating to strengthening the collection, processing, use or dissemination of labour market information from the perspective of improving skills and employment policies, or regarding implementing a national skills or human resource development strategy?
- **E2: Synergies and common areas:** What are the priority areas of these projects and initiatives, and do they overlap or complement one another? What gap areas have the initiatives tried to address?
- **E3: Stakeholder involvement:** What national organizations and what international or bilateral partners/donors are involved? What level of involvement is there from the private sector?

Appendix II:

National snapshots

Table 17. Brunei Darussalam: Overview of labour market information related to skills

Governance	
Key actors: Government	Key actors: Social partners and others
Ministry of Home Affairs Department of Labour	Institute of Brunei Technical Education
Department of Statistics	Centre for Strategic and Policy Studies
Ministry of Finance and Economy Department of Economic Planning & Statistics	Brunei Darussalam National Accreditation Council (BDNAC)
MPEC secretariat, Prime Minister's Office	
Coordination mechanisms	
MPEC – Manpower Industry Steering Committees (MPEC MISCs)	
Inputs and statistical infrastructure	
□ = Source of data on demand for skills ■ = Source of data on supply of skills X = No skills data	
LFS	Census
□■ LFS Coverage: National Frequency: Annual Skills definition: Occupation and education proxies	□■ Annual employee and employer census Coverage: National Frequency: Annual Skills definition: Occupation proxies ■ Population and housing census Coverage: National Frequency: Every 10 years Skills definition: Occupation and education proxies □ Annual census of enterprises Coverage: National Frequency: Annual Skills definition: No skills definition □ Economic census Coverage: National Frequency: Every 5 years Skills definition: Occupation-based

Administrative and real-time sources		Other surveys	
<div>■ Education statistics</div> <div>Coverage: National</div> <div>Frequency: Annual</div> <div>Skills definition: Education proxies</div> <div>□ Job vacancy data</div> <div>Coverage: Public sector only at present</div> <div>Frequency: Ad hoc – under development</div> <div>Skills definition: No systematic categorization of skills</div>		<div>■ Surveys and polls for jobseekers</div> <div>Coverage: National</div> <div>Frequency: Ad hoc</div> <div>Skills definition: Various, depending on focal area of poll or survey</div> <div>□ Survey for employers</div> <div>Coverage: Priority sectors</div> <div>Frequency: Ad hoc</div> <div>□ Polls for employers</div> <div>Coverage: Priority sectors</div> <div>Frequency: Ad hoc</div>	
National occupational classification system			
Brunei Darussalam Standard Occupation Classification (BDSOC); based on ICSO			
Number of unit groups: 413 (broadly consistent with 4-digit ISCO-08)			
Concordance with ISCO: Yes			
Definitions and applications of skills			
Skills definition		Application(s) of skills definitions	
Occupation and education proxies		Limited/none	
Analytical outputs and capacity			
▲ = Quantitative ▼ = Qualitative			
Basic	Intermediate	Advanced	
	▼ Foresights by Manpower Planning and Employment Council (MPEC)/ MISC Working Groups	▲ Labour market projections, 2020–2050 ▲ Scenario development for Job Futures Brunei Darussalam 2040 ▲ Impact of society 5.0 and industrial revolution 4.0 on employment and future jobs	
Primary uses and dissemination			
Dissemination tools			
<div>• Different actors tend to conduct their own in-house analysis of labour market information to inform employment, education and TVET policy and strategy with limited dissemination of analytical outputs.</div> <div>• The BDNAC is responsible for national occupational skills standards. Its skills subcommittees contribute to the development of taxonomies that map skills content to different occupations (for different focal sectors).</div>			
Selected initiatives: Recent, ongoing or forthcoming			
Initiative #1		Initiative #2	
Revision and enhancement of labour market data sources: Towards setting up the labour market information system in Brunei Darussalam		ASEAN Pilot Project on Big Data	

Table 18. Cambodia: Overview of labour market information related to skills

Governance	
Key actors: Government	Key actors: Social partners and others
Ministry of Labour and Vocational Training National Employment Agency	Cambodia Federation of Employers and Business Associations
Ministry of Planning National Institute of Statistics	National Trade Union Confederation
Ministry of Education, Youth and Sport	Council for the Development of Cambodia
Ministry of Tourism	
Coordination mechanisms	
Statistics Advisory Council Statistics Coordination Council National Training Board Sector skills councils	
Inputs and statistical infrastructure	
□ = Source of data on demand for skills ■ = Source of data on supply of skills X = No skills data	
LFS	Census
□ ■ LFS Coverage: National, households Frequency: Every 5 years Skills definition: Occupation and education proxies	■ General population census Coverage: National, individuals Frequency: Every 10 years Skills definition: Occupation and education proxies □ Economic census Coverage: National Frequency: Every 5 years Skills definition: Occupation-based
Administrative and real-time sources	Other surveys
■ Jobseeker information Coverage: National Frequency: Monthly Skills definition: Education proxies ■ Education management information system Coverage: National, individual Frequency: Annual Skills definition: Education proxies □ Cambodia Investment Council data Coverage: New investments Frequency: Ad hoc Skills definition: No skills definition	■ Socio-economic survey Coverage: National, households Frequency: Annual Skills definition: Occupation and education proxies ■ TVETMIS Coverage: National Skills definition: Education proxies only □ Employer skill needs surveys Coverage: Sample, 10 sectors Frequency: Ad hoc Skills definition: Employers' own definitions □ CAMFEBA Employer satisfaction survey Coverage: Sample, 100 companies Frequency: Ad hoc Skills definition: Occupation-based
National occupational classification system	
No national occupational classification system; based on ISCO	
Number of unit groups: 436 (consistent with 4-digit ISCO-08)	
Concordance with ISCO: Yes	

Definitions and applications of skills		
Skills definition	Application(s) of skills definitions	
Occupation and education proxies	Limited/none	
Analytical outputs and capacity		
▲ = Quantitative ▼ = Qualitative		
Basic	Intermediate	Advanced
▲ Labour market information updates ▲ Job outlook	▲ Skills shortages and skills gaps in the labour market: Evidence from employer skills needs survey	▲ Labour market forecasting, 2017–2027 ▲ Rapid assessment of emerging needs for workers and skills in times of the COVID-19 crisis
Primary uses and dissemination		
Dissemination tools	User-needs assessments	
<ul style="list-style-type: none">Information is typically made publicly available via reports	<ul style="list-style-type: none">The Ministry of Labour and Vocational Training is the main intended audience for analysis produced by National Employment Agency.Labour market information related to skills is collected by the CAMFEBA in order to meet the needs of its own mandate and contribute to wider policymaking.Sector skills councils are the main facilitators for linking labour market information to TVET curricula, but are limited to only a few industries.	
Selected initiatives: Recent, ongoing or forthcoming		
Initiative #1	Initiative #2	
ILO/China Partnership Programme on Strengthening Skills Development in Cambodia, Lao People’s Democratic Republic and Myanmar through South-South and Triangular Cooperation (SSTC)	Skills for competitiveness, ADB and CAMFEBA, seeking to better link the private sector with TVET institutions (2019–2025)	

Table 19. Indonesia: Overview of labour market information related to skills

Governance	
Key actors: Government	Key actors: Social partners and others
Ministry of Manpower The Labour Market Centre Directorate General of Vocational Training and Productivity Development Ministry of National Development Planning BPS Statistics Indonesia Ministry of Education, Research, Cultural and Technology	Indonesia Chamber of Commerce and Industry (KADIN) Employers' Association of Indonesia (APINDO)
Coordination mechanisms	
Coordinating Ministry for Human Resource and Culture	
Inputs and statistical infrastructure	
□ = Source of data on demand for skills ■ = Source of data on supply of skills X = No skills data	
LFS	Census
□■ LFS Coverage: National, households Frequency: Twice a year, in February and August Skills definition: Occupation and education and other information related to training	■ Population census Coverage: National, individuals Frequency: Every 10 years Skills definition: Education and occupation □■ Economic census Coverage: National, formal and informal establishments Frequency: Every 10 years Skills definition: Labour and skill demand proxies
Administrative and real-time sources	Other surveys
■ Education statistics Coverage: National-level Frequency: Annual Skills definition: Education Indicators and Data (from socio-economic survey and administrative data of the Ministry of Education, Culture, Research and Technology (MoECRT)) ■ One data manpower Coverage: National Frequency: Monthly ■ One main data education Coverage: National Frequency: Monthly □ Labour market centre data Coverage: Open to all people who want to work and enterprises that offer jobs Frequency: Monthly Skills definition: NQF ■ Data from pre-employment card programme Coverage: National Frequency: Monthly Skills definition: NQF	■ Socio-economic survey Coverage: National, households Frequency: Twice a year in March and September Skills definition: Occupation and education ■ Business Survey Coverage: National, businesses Frequency: Annual Skills definition: Labour and skill demand proxies □ Hotel, restaurant establishment survey Coverage: National, sector-specific Frequency: Annual and monthly Skills definition: General skills info, not detailed □ Manufacturing establishment survey Coverage: National, sector-specific Frequency: Annual, quarterly for large and medium-sized establishments Skills definition: General skills information, not detailed

National occupational classification system		
Indonesian Standard Classification of Occupations (KBJI), 2014		
Number of potential detailed occupations: 436 (consistent with 4-digit ISCO-08)		
Concordance with ISCO: Yes		
Definitions and applications of skills		
Skills definition	Application(s) of skills definitions	
Occupation and education proxies	Limited	
Analytical outputs and capacity		
▲ = Quantitative ▼ = Qualitative		
Basic	Intermediate	Advanced
▼ Labour situation (press release) ▼ Labour force situation (publication)	▼ Vocational education profile ▼ Critical occupations list	▲ ▼ Labour demand by industry and skills 2021–2024 ▲ ▼ Labour demand in ICT industry 2022–2025 ▲ ▼ Labour demand in tourism industry 2022–2025 ▲ ▼ Labour demand for vocational education and training
Primary uses and dissemination		
Dissemination tools	User-needs assessments	
<ul style="list-style-type: none">• Press release conference and uploading of news release by BPS for LFS• Publication and reports uploaded on respective government websites	BPS conducts user/data needs surveys regularly (published) and counts the hits and downloads of data and publications (for internal use)	
Selected initiatives: Recent, ongoing or forthcoming		
Initiative #1	Initiative #2	Initiative #3
LISTRAF skills project	Vocational training pilot project and training (NQF levels 4 to 6)	KADIN capacity development

Table 20. Lao People's Democratic Republic: Overview of labour market information related to skills

Governance		
Key actors: Government		Key actors: Social partners and others
Ministry of Labour and Social Welfare Department of Employment Skills Development Institute		Lao National Chamber of Commerce and Industry
Ministry of Education and Sport Department of Technical and Vocational Training		Lao Federation of Trade Unions
Lao Statistics Bureau (LSB)		
Special Economic Zone Promotion and Management Office		
Coordination mechanisms		
National labour steering committees		
Inputs and statistical infrastructure		
□ = Source of data on demand for skills ■ = Source of data on supply of skills X = No skills data		
LFS	Census	
□■ LFS	■ Population and housing census	
Coverage: National	Coverage: National	
Frequency: Every 5 years	Frequency: Every 10 years	
Skills definition: Occupation and education proxies	■ Economic census	
	Coverage: National	
Administrative and real-time sources	Other surveys	
■ Education statistics	■ Expenditure and consumption survey	
Coverage: National	Coverage: National	
Frequency: Annual	Frequency: Every 5 years	
□ Job vacancy data	Skills definition: Occupation and education proxies	
	□ Tourism and hospitality enterprise survey	
	□ Employer surveys	
	□ Labour demand surveys in special economic zones	
National occupational classification system		
Lao Standard Classification of Occupation (LSCO)		
Number of unit groups: 436 (consistent with 4-digit ISCO-08)		
Concordance with ISCO: Yes		
Definitions and applications of skills		
Skills definition	Application(s) of skills definitions	
Occupation and education proxies	Limited	
Analytical outputs and capacity		
▲ = Quantitative ▼ = Qualitative		
Basic	Intermediate	Advanced
▲ Labour market information updates	▲ Education and skill demand in the private sector	▲ Labour market forecast report
	▲ Employer skills needs survey	▲ ▼ Tourism and hospitality enterprise survey of employment and skills

Primary uses and dissemination	
Dissemination tools	User-needs assessments
Labour market information is relatively underdeveloped compared to other ASEAN Member States. Part of the challenge is in the limited underlying statistical infrastructure and the subsequent limitations for comprehensive and rigorous forward-looking skills analysis.	A challenge that was highlighted during key informant interviews is the limited engagement between the private sector and TVET institutions, which compromises the ability of skills development policies to respond to labour market needs, particularly to address current and future skill needs.
Selected initiatives: Recent, ongoing or forthcoming	
Initiative #1	Initiative #2
ILO/China Partnership Programme on Strengthening Skills Development in Cambodia, the Lao People's Democratic Republic and Myanmar through South–South and Triangular Cooperation (SSTC) (2020–2025)	Strengthening capacity to develop the employment service system (2017–2019)
Initiative #3	Initiative #4
Improving vocational education (2019–2023)	Regional Cooperation for the Development of Technical and Vocational Education and Training (RECOTVET) III (2020–2024)

Table 21. Malaysia: Overview of labour market information related to skills related to skills

Governance	
Key actors: Government	Key actors: Social partners and others
<p>Ministry of Economy Department of Statistics Malaysia (Malaysian Bureau of Labour Statistics - Institute of Labour Market Information and Analysis (ILMIA))</p> <p>Ministry of Human Resources Department of Skills Development (Centre for Instructor and Advanced Skill Training National Dual Training System) Skills Development Fund Corporation Social Security Organization Talent Corp</p> <p>Ministry of Higher Education Department of Polytechnic and Community College Education Public Universities Universiti Teknikal Malaysia Melaka</p> <p>Ministry of Education Vocational colleges Tech and vocational schools</p>	<p>Malaysian Employers Federation</p> <p>Small and Medium Enterprises Association of Malaysia (SAMENTA)</p> <p>Malaysian Trade Unions Congress</p>
Coordination mechanisms	
No official coordination mechanisms in place	
Inputs and statistical infrastructure	
□ = Source of data on demand for skills ■ = Source of data on supply of skills X = No skills data	
LFS	Census
<p>□■ LFS</p> <p>Coverage: National</p> <p>Frequency: Monthly</p>	<p>■ Population and housing census</p> <p>Coverage: Individuals/households</p> <p>Frequency: Every 10 years</p> <p>Skills definition: Limited/no information on employment/skills</p> <p>X Economic census</p> <p>Coverage: Enterprises</p> <p>Frequency: Every 5 years</p> <p>Skills definition: Limited/no information on skills</p>
Administrative and real-time sources	Other surveys
<p>□■ MYFutureJobs data on postings and registered jobseekers</p> <p>Coverage: Individuals and firms registered with public employment service</p> <p>Frequency: Real-time, but with a lag</p> <p>Skills definition: Job postings/jobseeker profiles are broadly consistent with the European Skills/Competences, Qualifications and Occupations (ESCO)</p> <p>□ ILMIA</p> <p>Frequency: Real-time, but with a lag</p> <p>Skills definition: Skills from job postings classified as hard (947 skills) versus soft (130 skills); jobs also categorized as skilled, semi-skilled and low-skilled</p>	<p>□ Quarterly employment survey</p> <p>Coverage : National</p> <p>Frequency : Quarterly</p> <p>□ Employers' federation surveys</p> <p>Coverage: Members</p> <p>Frequency: Ad hoc</p> <p>Mostly re: compensation and emerging policy issues – limited/no information on employment/skills</p>
National occupational classification system	
<p>Malaysia Standard Classification of Occupations (MASCO)</p> <p>Number of unit groups: 436 (aligned with 4-digit ISCO-08)</p> <p>Concordance with ISCO: Yes</p>	

Definitions and applications of skills		
Skills definition		Application(s) of skills definitions
ILMIA has created two broad categories for skills, including (a) hard (947 skills) and (b) soft (130 skills); MyFutureJobs leverages ESCO classification of skills for job postings and jobseeker profiles (with adjustment for national context).		Skills information from the ILMIA is used to create a job profile for each 4-digit MASCO that includes information on the skill requirements of jobs, as well as other information such as salary and number of job postings. Skills insights from jobs posted at FutureJobs is shared with TVET institutes to inform the content of training.
Analytical outputs and capacity		
▲ = Quantitative ▼ = Qualitative		
Basic	Intermediate	Advanced
▲ Malaysian Bureau of Labour Statistics microsite provides access to different dashboard according to labour demand and labour supply. ▲ A series of aggregate economic-related statistics are made available via a number of data portals/ microsite. The Department of Statistics has eight different portals, each focused on a slightly different data source.	▼ ▲ Substantive publication that reviews in details the main findings of the LFS. ▼ Infographics that accompany a wide range of data releases on topics such as online job postings (ILMIA), salaries and wages, and productivity.	▲ Job market insights report is produced quarterly and provides an overview, based on an analysis of online job postings, of labour demand (industry, region and so on). ▲ List of critical occupations (vacancy is unfilled for six months or more).
Primary uses and dissemination		
Dissemination tools		User-needs assessments
• Series of data portals and dashboards (for example, Tableau format) • Reports and infographics (PDF) • Microsites (HTML)		Challenges navigating the various different data access points and dissemination tools.
Selected initiatives: Recent, ongoing or forthcoming		
Initiative #1	Initiative #2	
A skills framework based on an Australian model is being piloted over the period 2021–2025, using the following broad categories (a) basic skills, (b) specific skills and (c) technology skills. Each category will have more detailed skills along with importance ratings, including 3 sectors and 68 occupations (based on the critical occupations list).	Development of labour market information analytics platform (2022–2025). The platform will test how best to collect and harmonize data obtained from traditional and new emerging data sources.	

Table 22. Myanmar: Overview of labour market information related to skills

Governance		
Key actors: Government		Key actors: Social partners and others
Ministry of Labour		Union of Myanmar Federation of Chambers of Commerce and Industry (UMFCCI)
Ministry of Planning and Finance Central Statistical Organization		Confederation of Trade Unions in Myanmar (CTUM)
National Skills Standards Authority (NSSA)		
Labour exchange offices public employment service		
Coordination mechanisms		
Central Body on Employment and Skills Development		
Inputs and statistical infrastructure		
□ = Source of data on demand for skills ■ = Source of data on supply of skills X = No skills data		
LFS	Census	
□■ LFS	X Population and housing census	
Coverage: National	Coverage: National	
Frequency: Ad hoc, last undertaken 2020	Frequency: Every 10 years	
Skills definition: Occupation proxies	Skills definition: Limited/no information on employment/skills	
	X Intercensal survey	
	Coverage: National	
	Frequency: Every 10 years	
	Skills definition: Limited/no information on employment/skills	
Administrative and real-time sources	Other surveys	
	□ Myanmar Micro, Small and Medium Enterprise Survey	
	Frequency: ad hoc, last undertaken in 2019	
	Skills definition: Occupation proxy	
National occupational classification system		
Myanmar Standard Classification of Occupation; based on ISCO-88. National data sources use ISCO.		
Number of unit groups: 284 (consistent with 4-digit ISCO-88)		
Concordance with ISCO: Yes		
Definitions and applications of skills		
Skills definition	Application(s) of skills definitions	
Occupation and education proxies.	Limited/none.	
Analytical outputs and capacity		
▲ = Quantitative ▼ = Qualitative		
Basic	Intermediate	Advanced
▲ Myanmar Statistical Information System (MMSIS)	▲ Future Jobs: Embracing modernity	▲ ▼ Myanmar rapid assessments by the ILO
Selected initiatives: Recent, ongoing or forthcoming		
Initiative #1	Initiative #2	
ILO/China Partnership Programme on Strengthening Skills Development in Cambodia, Lao People’s Democratic Republic and Myanmar through South–South and Triangular Cooperation (SSTC) (2020–2025)	Project of capacity-building through ICT-based statistical data management in Myanmar, supported by Korea International Cooperation Agency (KOICA)	

Table 23. Philippines: Overview of labour market information related to skills

Governance	
Key actors: Government	Key actors: Social partners and others
Department of Labor and Employment (DOLE) Bureau of Local Employment (BLE) Department of the Interior and local government Public Employment Service Offices (PESOs) Department of Education (DepEd) Commission on Higher Education (CHED) Philippine Statistics Authority (PSA) Technical Education and Skills Development Authority (TESDA)	Private employment agencies Philippine Chamber of Commerce and Industry Employers Confederation of the Philippines Semiconductor and Electronics Industries in the Philippines Foundation Information Technology and Business Process Association of the Philippines
Coordination mechanisms	
Interagency Committee on Labour and Productivity Statistics and TESDA collaboration with industry boards Bureau of Local Employment coordinates to develop employment policies and programmes based on timely and accurate labour market information Ad hoc collaborations and technical working groups (for example, Career Guidance Advocacy Programme Working Group)	
Inputs and statistical infrastructure	
<input type="checkbox"/> = Source of data on demand for skills <input checked="" type="checkbox"/> = Source of data on supply of skills X = No skills data	
LFS	Census
<input type="checkbox"/> <input checked="" type="checkbox"/> LFS Coverage: National Frequency: Monthly Skills definition: Highest educational attainment (qualification) level	<input checked="" type="checkbox"/> Census of population and housing Coverage: National Frequency: Every 10 years Skills definition: Occupation and education proxies X Census of Philippine business and industry Coverage: National Frequency: Every 5 years
Administrative and real-time sources	Other surveys
<input type="checkbox"/> <input checked="" type="checkbox"/> PhilJobNet Coverage: Jobseekers, employers Frequency: Real-time <input type="checkbox"/> <input checked="" type="checkbox"/> PESO Employment information system Coverage: Jobseekers, employers Frequency: Real-time <input checked="" type="checkbox"/> Data on enrolment, graduation Coverage: Students Frequency: Annual	<input checked="" type="checkbox"/> Survey on the Employment of TVET Graduates Coverage: TVET graduates Frequency: Annual Skills definition: Qualifications or training programme proxies <input type="checkbox"/> Labour turnover survey Coverage: Quarterly Frequency: Formal establishments located in national capital region <input type="checkbox"/> Integrated survey on labour and employment Coverage: National Frequency: Every 2 years <input type="checkbox"/> Skills need anticipation: Workplace skills and satisfaction survey Coverage: Companies from groups/associations in the sector Frequency: Ad hoc <input type="checkbox"/> Employer's satisfaction survey Coverage: Employers of TVET graduates Frequency: Every 3 years

National occupational classification system		
Philippine Standard Occupation Classification (PSOC)		
Number of unit groups: 436 (aligned with 4-digit ISCO-08)		
Concordance with ISCO: Yes		
Definitions and applications of skills		
Skills definition	Application(s) of skills definitions	
LFS: Proxy using highest level of educational (qualification) attainment	Limited/none	
Analytical outputs and capacity		
▲ = Quantitative ▼ = Qualitative		
Basic	Intermediate	Advanced
▲ Indicators from the LFS	▲ Jobs and labour market forecast ▲ ▼ LMIRs ▲ ▼ Labour market profile ▼ Career information/pamphlets	▲ Skills for prosperity project (pilot stage) Estimates of current and future demands for skilled labour
Primary uses and dissemination		
Dissemination tools	User-needs assessments	
<ul style="list-style-type: none">• DOLE uses labour market information to craft policies that address employment issues, worker displacement and so on. It leverages its administrative data to monitor employment trends and support decision-making.• TESDA uses labour market information to enhance the quality and relevance of TVET by aligning skills development with labour market needs and promoting competency-based curricula and assessments.	<ul style="list-style-type: none">• Job-matching platforms such as the PhilJobNet platform connect jobseekers with employers.• Career guidance and counselling help jobseekers make informed decisions about career paths and understand the skills needed for various occupations.	
Selected initiatives: Recent, ongoing or forthcoming		
Initiative #1	Initiative #2	Initiative #3
A skills for prosperity programme strives to enhance the quality and relevance of TVET by aligning skills development with labour market needs.	A Future that Works project builds coalitions among industry leaders and form sector skills councils.	Improvements are pursued in the area of labour and employment statistics by developing new methodologies, improving data collection and enhancing measurement.

Table 24. Singapore: Overview of labour market information related to skills

Governance	
Key actors: Government	Key actors: Social partners and others
Ministry of Trade and Industry Department of Statistics Ministry of Manpower Policy and Planning Division Manpower Research and Statistics Department Singapore Labour Foundation Workforce Singapore Career Development Councils Ministry of Education SkillsFuture Singapore (SSG) Continuing education and training centres	National Trades Union Congress (Job-Skills Integrators Employment and Employability Institute) Singapore Business Federation Singapore National Employers Federation
Coordination mechanisms	
No official coordination mechanisms are in place, although the SSG acts as a de facto centralizing entity.	
Inputs and statistical infrastructure	
□ = Source of data on demand for skills ■ = Source of data on supply of skills X = No skills data	
LFS	Census
□■ LFS Coverage: National Frequency: Monthly	■ Census of population Coverage: National Frequency: Every 10 years
Administrative and real-time sources	Other surveys
□■ Occupational employment data set based on payroll information	□ LMS Frequency: Quarterly Volume of vacancies by occupation □ Employer federation surveys Frequency: Annual
National occupational classification system	
Singapore Standard Occupational Classification (SSOC) Number of unit groups: 436 (aligned with 4-digit ISCO-08) Concordance with ISCO: Yes	
Definitions and applications of skills	
Skills definition	Application(s) of skills definitions
Two categories of skills: (a) technical skills and competencies, of which there are more than 10,000; and (b) critical core skills, of which there 16 grouped into 3 broad clusters	Each occupation has a skills profile based on the framework. This includes levels of competency for each critical core skill (CCS) that varies based on the occupation. Data on most frequent/in-demand skills is generated annually, along with focused insights on skills related to emerging issues (for example, green and care economies).

Analytical outputs and capacity		
▲ = Quantitative ▼ = Qualitative		
Basic	Intermediate	Advanced
<p>▲ High-level aggregate indicators and historical time series (unemployment rate, employment, vacancy and income) available on the on the Manpower Research and Statistics Department website (other economic indicators are found on the Department of Statistics website)</p>	<p>▼ Reports providing overviews of the various data releases, such as the LFS</p> <p>▼ Infographics highlighted key trends and patterns in labour market</p> <p>▲ ▼ Quarterly reports that examine particular issues (for instance, in January 2023 a report outlined in greater detail the green skills required for the engineering workforce)</p>	<p>▲ Statistical framework for associating skills with an occupation. The process leverages real-time analytics such as web-scraping and machine learning (and was largely developed in collaboration with employers, workers and educational institutions). Top skills in demand are analysed and published annually.</p> <p>▲ ▼ Annual reports (Skills Demand for the Future Economy report) on the skills in demand are produced by the SSG. Two editions have been produced, notably in 2022 and 2021. These reports, broadly structured around four key drivers (green economy, care economy, digital economy and industry 4.0) offer insights into skills from the previous year along two dimensions: (a) fastest growing and (b) transferability.</p>
Primary uses and dissemination		
Dissemination tools		User-needs assessments
<ul style="list-style-type: none"> List of top skills in demand (Excel file) Digital access to skills-related frameworks (API) 		The statistical framework for associating skills with an occupation was developed in collaboration with employers, workers and educational institutions.
Selected initiatives: Recent, ongoing or forthcoming		
Initiative #1	Initiative #2	Initiative #3
Developing the competency with the SSG to undertake web-scraping of job postings rather than relying on third-party providers	Using machine learning to read curriculum information to provide insights into skills developed within the training and education system	Assessing the feasibility of an individual skills-based passport

Table 25. Thailand: Overview of labour market information related to skills

Governance	
Key actors: Government	Key actors: Social partners and others
Ministry of Labour Department of Skills Development Department of Employment Labour Economics Division Labour Market Information Administration Division Ministry of Higher Education, Science, Research and Innovation National Labour Research Centre National Statistics Office National Economic and Social Development Council Thailand Research Development Institute Puey Ungphakorn Institute for Economic Research Office of Vocational Education Commission Thai Professional Qualifications Institute	Employers' Confederation of Thailand Federation of Thai Industries Thai Chamber of Commerce Labour Relations Bureau Human Capacity-Building Institute
Coordination mechanisms	
National Board of Vocational Training Coordination Provincial Board of National Vocational Training National Labour Development Advisory Council Public–Private Committee for Vocational Education Industry Competency Board Eastern Economic Corridor Human Development Centre	
Inputs and statistical infrastructure	
□ = Source of data on demand for skills ■ = Source of data on supply of skills X = No skills data	
LFS	Census
□ ■ LFS Coverage: National Frequency: Monthly Skills definitions: Occupation (4-digit ISCO-88) or education (2-digit ISCED-11) proxies).	■ Population and housing census Coverage: National Frequency: 10 years Skills definition: Occupation and educational proxies
Administrative and real-time sources	Other surveys
■ Enrolment and graduation statistics Coverage: National Frequency: Monthly Skills definition: Proxy based on education level, or assessment based on fields of study ■ Vocational education graduation statistics Coverage: National Skills definition: Proxy based on qualification level, or assessment based on fields of study ■ Thai workers overseas Coverage: Registered overseas workers Frequency: Monthly Skills definition: Proxy based on occupation (of job abroad) or education level	■ School-to-work transition survey Coverage: Sample Frequency: Ad hoc Skills definition: Proxy based on qualification level, or assessment based on fields of study ■ Informal employment survey Coverage: National Frequency: Annual Skills definition: Proxy based on occupation or education level.

National occupational classification system		
Thailand Standard Classification of Occupations. Based on ISCO-88. National statistics often use ISCO-08.		
Number of unit groups: 284 (consistent with 4-digit ISCO-88); or 436 (when applying 4-digit ISCO-08)		
Consistent with ISCO: yes		
Definitions and applications of skills		
Skills definition	Application(s) of skills definitions	
Occupation and education proxies	Limited/none	
Analytical outputs and capacity		
▲ = Quantitative ▼ = Qualitative		
Basic	Intermediate	Advanced
▲ Employment information system (Smart Job Centre Thailand)	▲ E-Workforce Ecosystem Platform ▲ National Statistics Office forecasts	▲ Labour Market Warning System
Primary uses and dissemination		
<ul style="list-style-type: none">• There is a relatively large amount of labour market information available in Thailand for analysing the skills supply and skills demand of the country.• There is close public–private as well as tripartite collaboration on skills development strategies, policies and curriculum development, which results in demand-driven skills development, utilizing relatively up-to-date labour market information from different private sector representatives, including the Chamber of Commerce and the Federation of Thai Industries.• Skills development needs and strategies are developed from the bottom-up, starting at the provincial level and aggregated at the national level. Each year, meetings are held at the provincial level to discuss skills development needs and strategy in each province. These meetings provide forums for assessing skills demand and the mobilization of skills development approaches for each province.• For TVET strategy, policy and curriculum, the Department of Skills Development has a tripartite committee to consider the curriculum and to set standards. The committee entails close public–private collaboration, including representatives of the Chamber of Commerce, Federation of Thai Industries and academia.		
Selected initiatives: Recent, ongoing or forthcoming		
Initiative #1	Initiative #2	
Skill mapping by King Mongkut’s Institute of Technology (KMITL)	Job demand open platform of the Ministry of Labour seeks to track graduate transitions into the labour market and related skills components.	

Table 26. Viet Nam: Overview of labour market information related to skills

Governance	
Key actors: Government	Key actors: Social partners and others
Ministry of Planning and Investment General Statistics Office (GSO) Ministry of Labour, Invalids and Social Affairs - Department of Employment - Directorate of Vocational Education and Training - Institute of Labour Science and Social Affairs (ILSSA) - Centre of Information on Labour and Social Affairs Ministry of Education and Training Centre for Training Support and Manpower Supply Office of the National Council for Education and Human Resource Development	Sector skills councils Viet Nam General Confederation of Labour Viet Nam Chamber of Commerce and Industry
Coordination mechanisms	
No coordination mechanisms identified, although the GSO is the coordinating agency on labour market information and statistics.	
Inputs and statistical infrastructure	
□ = Source of data on demand for skills ■ = Source of data on supply of skills X = No skills data	
LFS	Census
□■ LFS Coverage: National Frequency: Collected monthly, released quarterly and annually	■ Household living standards survey Coverage: National Frequency: Every 2 years) Skills definition: Limited/no information on employment/skills ■ Population and housing census Coverage: National Frequency: Every 10 years Skills definition: Limited/no information on employment/skills ■ Intercensal population and housing census Coverage: National Frequency: Every 10 years Skills definition: Limited/no information on skills
Administrative and real-time sources	Other surveys
□■ Job search and recruitment website Coverage: Jobseekers and employers ■ Enrolment and graduation statistics Coverage: National Frequency: Annual Skills definition: Proxy based on education level, or assessment based on fields of study	□■ Survey to collect information on the socio-economic status of 53 ethnic minorities Coverage: National Frequency: Every 5 years
National occupational classification system	

Vietnam Standard Classification of Occupations (VSCO)		
Number of unit groups: 490 (can be aligned with 436 at 4-digit ISCO-08)		
Concordance with ISCO: Yes		
Definitions and applications of skills		
Skills definition	Application(s) of skills definitions	
Occupation and education proxies	Limited/one	
Analytical outputs and capacity		
▲ = Quantitative ▼ = Qualitative		
Basic	Intermediate	Advanced
▲ Labour market information updates	▲ Labour and social trends report ▲ Demand for skills in the new technology era	▲ Labour market forecast report ▲ Report on developing vocational skills to enhance mobility of young Vietnamese workers
Primary uses and dissemination		
<ul style="list-style-type: none">GSO websiteQuarterly GSO press conference to announce information on the situation of labour employmentILSSA bulletin on labour market updates		
Selected initiatives: Recent, ongoing or forthcoming		
There is a lack of initiatives explicitly related to labour market information and focused on assessing and forecasting skills needs. However, one noteworthy example is a report entitled “Forecasting Skills for the Logistics Workforce in Viet Nam”, which was prepared by the Logistics Industry Reference Council. It is the first skills forecast developed based on the industry’s needs, with direct participation from logistics businesses. It identifies sectors and occupations that face a shortage of skilled workers and outlines the essential skills of logistics companies.		





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