Investing in Labor Market Information Systems

Why and how?
How many times have you heard these questions?

How many workers do we need in occupations X, Y, and Z?

What are the occupations and skills of the future?

How do we prepare future workers to be employed in these occupations?

How can we create incentives for employers to invest in certain skills?
How many times have you used these terms to answer these questions?

- Management information system
- Labor Market Observatory
- Job matching platform
- Online job vacancy
- Skill content of occupations
- Job vacancy survey
- Labor market projections
- Skills shortage lists
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Labor market Information Systems
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Skills shortage lists

But what is exactly an LMIS?
Our work in Indonesia addresses this and other LMIS-related questions

**GoI asked WB’s support to strengthen labor market information in the country**
- Building skilled workforce is at the top of country’s growth agenda
- Information failures are recognized to have significant negative impacts

**Support through ASAs and lending in the following areas:**
- Identification of a framework to assess Indonesian LMIS and benchmarking against Korean system
- Action Plans to enhance some of the key LMIS functions
- 4 data Pilots to strengthen labor market intelligence function
- Financing through lending project currently in the pipeline
What are the key takeaways?

Three key factors define LMISs and their level of development:

- Information used and produced
- Services provided
- Actors involved
Toward a World-Class Labor Market Information System (LMIS) for Indonesia

**Advanced LMIS**
- Functions (4): Labor market intelligence, Job matching, Career guidance, Government Information Portal
- Sources (4): Surveys, Administrative area, Big data, Interoperable systems
- Actors (6): Workers, Students, Government, Research community, Private sector, Employers

**Intermediate LMIS**
- Functions (2): Labor market intelligence, Job matching
- Sources (2): Surveys, Administrative data
- Actors (5): Workers, Students, Government, Research community, Employers

**Basic LMIS**
- Functions (1): Labor market intelligence
- Sources (2): Surveys, Administrative data
- Actors (2): Government, Research community

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**The Republic of Korea has the 5 key characteristics of an advanced LMIS:**
- Relevant
- Reliable
- Efficient
- Client-centric
- Comprehensive

**Indonesia's level of LMIS has these limitations:**
- Not many services are provided
- Few stakeholders are involved
- Quality and variety of data are limited

**The following problems therefore persist:**
- Suboptimal education decisions
- Inefficient job matches
- Short supply of skills for employers
- Low firm productivity

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[Logo: KWPF]
[Logo: World Bank Group]
The work developed for Indonesia provides a framework that can be applied in many settings.

www.worldbank.org/indonesia/labomarketinformation

- 6 Reports with main findings of Indonesia work
- Infographics to visualize main concepts and definitions
- Occupation and skills profiles
In the next slides we will focus on:

1. Concepts and definitions

2. Organizational framework around four key functions of the LMIS
   Focus on two of our assessments for Indonesia’s job matching and labor market intelligence functions

3. Challenges and opportunities
What is an LMIS? Definitions & Concepts
The **LMIS** can be defined as the set of institutional arrangements, procedures and mechanisms that are designed to coordinate the collection, processing, storage, retrieval, and dissemination of labor market information to address the needs of labor market actors.

The **LMIS actors** include students, workers, firms, education and training institutions, practitioners (in career guidance and job counseling), policymakers, the research community and other government and private organizations.
Centering the dialogue around the labor market information platform allows covering many topics and various needs and activities.

Advanced labor market information platforms deliver 4 core functions or digital services:

- Labor market Intelligence
- Job matching
- Career and skills guidance
- Government support

With feedback loops across inputs and outputs of each function.
More information can be found

Assesses the Indonesian LMIS as basic-to-intermediate by contrasting it with those of high-income countries. The report proposes a framework that defines an advanced LMIS and identifies four key functions the LMI platform should provide

www.worldbank.org/indonesia/labomarketinformation

Sorensen, Karen and Jean Michel Mas, 2016. A roadmap for the development of labor market information system – African Union/ FHI 3
2

LMIS platform
four key functions
2.1 Labor market intelligence service
Labor Market Intelligence is a central LMIS function, here defined as service-oriented information, based on underlying quantitative and qualitative labor market data.

Hence, labor market intelligence is not just “data” or “analysis,” but data and analysis produced and disseminated to help different users make informed decisions.
Building blocks of an advanced LMI-Hub

1. Collecting labor market data (hard and soft)
2. Carrying out labor marker analysis
3. Producing information services

Input → Process → Output

- Technology Solutions
- Collaborative Partnerships
- Institutional Arrangements
Outputs should be communicated using the following overarching guiding principles:

<table>
<thead>
<tr>
<th>Comprehensive</th>
<th>Relevant</th>
<th>Reliable</th>
<th>Efficient</th>
<th>Client-oriented</th>
</tr>
</thead>
<tbody>
<tr>
<td>serving a broad range of stakeholders with a diverse set of labor market intelligence to guide decision-making and connecting with other parts of the LMIS;</td>
<td>attracting, collecting, and coordinating a critical mass of trustworthy and updated data;</td>
<td>with frequent updates, strong quality control systems, and adequate technical infrastructure</td>
<td>with technology solutions to facilitate the use of online services</td>
<td>providing users with comprehensive yet targeted and relevant information and other services, delivered in a user-friendly manner ready to be consumed by clients at different levels of knowledge and digital literacy</td>
</tr>
</tbody>
</table>
The type of labor market intelligence can be grouped based on the type of analysis needed.

**Macro-level information**
- what’s happening in the labor market
  - Demographics, output, investment, productivity, enterprise landscape
  - Employment, unemployment, inactivity, informality rates, wages, by e.g. gender, age, education level, sector of work, contractual arrangements (wage, self-employed etc.), low earnings rate.

**Meso-level information**
- What's the labor demand, in terms of occupations.
  - Vacancies
  - Employment dynamics
  - Wage dynamics
  - Churning rate
  - Occupations and skills in high demand ("promising", "critical", "bright" occupations)
  - Occupations outlooks, short-term and long-term forecasts

**Micro-level information**
- the DNA of jobs
  - Current employment situation
  - Average wage
  - Average hours of work
  - Short-medium-long-term employment outlook.
  - Typical training, qualifications and work experience needed
  - Skills needed
  - Job duties/tasks involved, and Tools and technology used.

Indicators shown by occupation, ideally by job title and location.

Indicators shown population groups and geography.

Indicators shown location, occupation, industry.
In our report, you will find best practice examples for

**Macro-level information**

**Meso-level information**

**Micro-level information**

In Indonesia, we developed 4 pilots to strengthen this function:

1. Critical Occupation List
   Employers’ opinions on skills shortage. Mix-method quantitative and qualitative

2. Occupational Employment and vacancy Outlook
   Firm survey that collects detailed information on occupational demand, by 4-digit occupation classification

3. Indotask
   Skills and tasks information by occupation, following O*NET

4. Online vacancy data
   Big data: collected job postings from more than 100 job boards and firm websites, used BG skills taxonomy for analysis

Main contributions of these efforts were:

- Collect more data
- Expand analysis
- Transform analysis into services
- Connect to LMIS
Based on the information from these 4 pilots, we demonstrated how to create targeted material.
Communication of the labor market information should be thought based on the needs of each user type.
More information can be found at www.worldbank.org/indonesia/labormarketinformation
Job matching
Why offering online job matching?

1. Low skilled workers might be excluded from private job boards
2. Connects with PES MIS more effectively
3. Generates the data needed to produce labor market intelligence

NOTE: A well-designed government-managed job matching service is complementary—and can even enhance—private intermediation services.
10 key factors to behind an effective job matching tool

1. Data collection
2. Data validation
3. Accessibility and user experience
4. Target service delivery
5. Strategic marketing
6. Interoperability with systems
7. Strong HR
8. Technical infrastructure
9. Data management
10. Security

We used each of these factors to carry out a gap analysis between the Indonesian Ayokitakerja and the Korean Work-net.

The result was an action plan of what was needed to implement
• Work-net monitoring system is strict so only 60 percent of job vacancies submitted are posted after review.

• 4-step verification process
  o Local PES offices, and by verification in the Call Center of KEIS
  o Algorithm to check reliability and vet out “illegal” jobs
  o Coherence with other systems helps remove inactive (filled) jobs

EXAMPLE:

2. Data Validation
More information can be found at www.worldbank.org/indonesia/labomarketinformation.

Carries out a gap analysis between the Indonesian AyoKitaKerja and the Korean Work-Net to determine the needs and developing a roadmap and action plan.
2.3 Career guidance
Education and Career Guidance (ECG) of Singapore is a holistic and experiential effort aimed at equipping students as well as adults with the necessary knowledge, skills and values to make informed education and career decisions.

Through ECG, people are encouraged to learn more about their own interests, abilities and passions. By exploring the learning or education pathways and career opportunities available across different industries, you can take positive steps towards realizing aspirations, as well as embrace learning throughout life.

Source: https://www.skillsfuture.gov.sg/ecg
## Singapore has packages tailored for all ages

<table>
<thead>
<tr>
<th>Primary, Secondary, Junior College students</th>
<th>ITE and Polytechnic students</th>
<th>Students from the publicly-funded universities</th>
<th>Adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>• ECG curriculum</td>
<td>• ECG Counsellors in MOE schools provide individual counselling or group guidance in education and career choices</td>
<td>• ECG-related activities and lessons conducted in the classroom, Out-of-classroom activities such as industry immersion programs, learning journeys and career talks.</td>
<td>• access career advisory services through PES counselors</td>
</tr>
<tr>
<td>• education planning and career exploration programs and activities, Interactive tools help students discover their strengths and interests</td>
<td>• counsellors communicate and engage with parents and industry partners</td>
<td></td>
<td>• Some have access to virtual services, while others to F2F, so they received support tailored to the needs</td>
</tr>
</tbody>
</table>
Government support
Access to programs could be facilitated through a “one-online-stop-shop” independently of “who” offers the program.

At the same time, advanced countries offer a wide variety of programs tailored to the needs of the different potential clients.

Source: https://www.skillsfuture.gov.sg/ProgrammesForYou
A program for every need, every client

Work-study programs offer valuable opportunities for individuals to deepen their skills in their chosen fields as they enter the workforce.

Singapore offers programs for all potential clients, with easy access by target group.
The functions are connected, with backward and forward feedback loops...

...this adds complexity to planning and implementing activities.

The WB framework helps to address these challenges.
DEVELOPMENT PHASE – INFORMATION SHARING

- Develops maps and platform that allows search by different conditionalities
- Students register in platform

- Develops online templates for job matching (CVs and Jobseekers)
- Starts developing and localizing skills taxonomy
- Pilots Job Matching w/ AI
- Prepares marketing campaign

- Finishes skills taxonomy 1.0
- Produces database of skills and occupations
- Develops API for self-assessment of skills gaps
- Job matching search function based on schools performance available to employers

- Programs are linked to skills in shortage
- Kartu Pra Kerja is adjusted
- COL, occupation cards are updated to skills taxonomy
- Labor market trends updated

- GOV monitoring influences design of ALMPs
- LMO monitoring

INTEGRATION PHASE

- Tracer studies data created
- Skills gaps connects with skills catalogue by school
- Government programs are linked to vacancies
- Gov monitoring programs outcomes online
- Labor market trends introduced

VISION & PLAN

- Creates Catalogue of schools and programs (advanced version of maps)
- Develops maps and platform that allows search by different conditionalities

- Creates Catalogue of programs
- Kartu Pra Kerja is linked
- Programs are linked to skills in shortage
- Kartu Pra Kerja is adjusted

- Government programs are linked to profiles of jobseekers
- Government programs are linked to vacancies

AGREEMENT OF COMMON VISION (including Bappenas, CMEA, CMHDC)

- Produces tools like COL
- Online occupations cards are developed
- Labor market trends available online, including maps, etc.

- GOV monitoring
- LMO (MOM and MOEC)
- Gov monitoring programs outcomes online
- Labor market trends updated

- Tracer studies data created
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Government support

- MOEC
- MOM
- MOF (LPDP)
- CMEA

LM analytics

- LMO (MOM and MOEC)
The online platform connects with management information systems supporting the delivery of services, i.e. PES, training institutions and others, also with backward and forward feedback loops.
The online platform has to be connected to the PES case management system, to automate tasks of job counselors and feed leverage synergies.
Challenges and Opportunities
Before embarking in these efforts, remember that:

• Establishing institutional arrangements with key public and private stakeholders is key

• Adequate human resources are essentials  
  • Korean system includes more than 170 professionals with specialized degrees and further supported by academics, professionals in other government agencies, and outsourced services

• Building advanced LMISs requires sustainable and adequate funding

• Technological solutions are a means and not an end

• Advanced LMISs cannot be built overnight, despite government pressure  
  • Step-to-step approach needed and comprehensive diagnostic is a pre-condition
Working with the WB in this area can be of great help to governments because...

Via both ASAs and lending, we bring an organizational framework that may help:

- develop a vision,
- prepare action plans based on international best practices,
- sequentially implement activities to advance LMIS in a sustainable manner,
- identify and leverage links among various parts of the system
- prioritize discussions on institutional arrangements and resources needed
Thank you

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[Logos of World Bank Group, Australian Government, and KWPF]

And of all the colleagues who participated in the production of the reports