Investing in Labor Market Information Systems

Why and how?

WORLD BANK GROUP

Australian Government

KWPF
Korea–World Bank
Partnership Facility

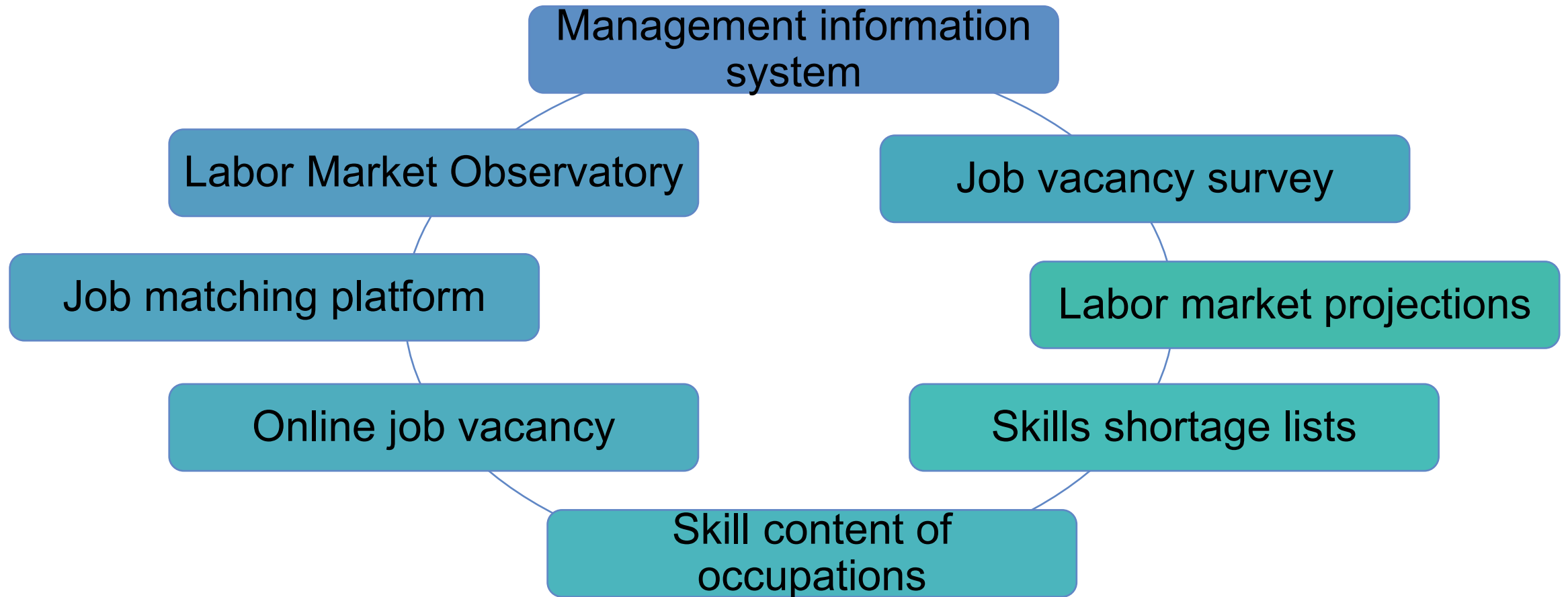# How many times have you heard these questions?

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 vacancy survey
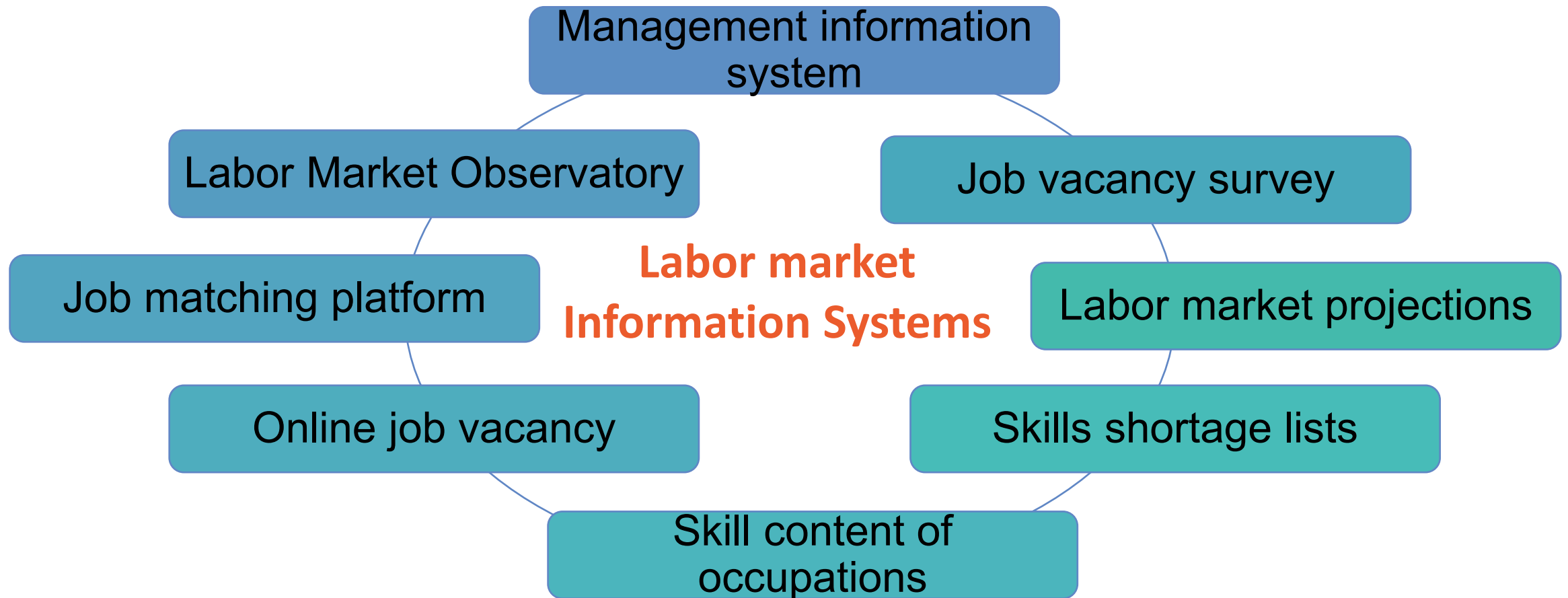
Job matching platform

Labor market projections

Online job vacancy

Skills shortage lists

Skill content of occupations

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Skill content of occupations

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

The Republic of Korea has the 5 key characteristics of an advanced LMIS:

- Relevant
- Reliable
- Efficient
- Client-centric
- Comprehensive

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

Indonesia's level of LMIS has these limitations:

- Not many services are provided
- Few stakeholders are involved
- Quality and variety of data are limited

Functions (2) Labor market intelligence • Job matching

Sources (2) Surveys • Administrative data

Actors (5) Workers • Students • Government • Research community • Employers

Basic LMIS

**The following problems therefore persist:**

- Suboptimal education decisions
- Inefficient job matches
- Short supply of skills for employers
- Low firm productivity

Functions (1) Labor market intelligence

Sources (2) Surveys • Administrative data

Actors (2) Government • Research community

KWPF
KOREA-WORLD BANK PARTNERSHIP FACILITY

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The work developed for Indonesia provides a framework that can be applied in many settings
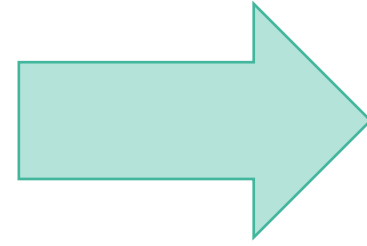
→ **Public good**

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:
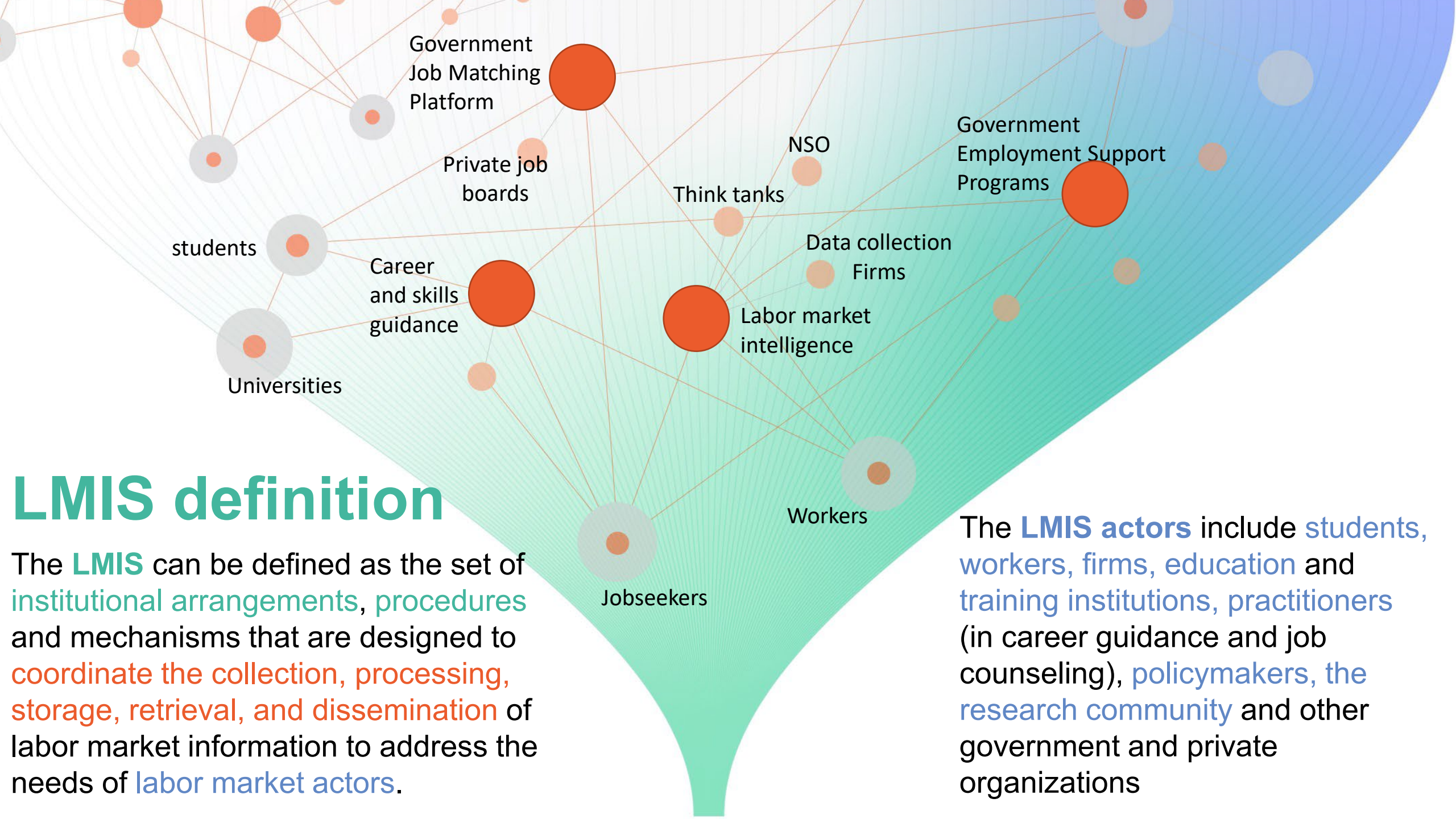
1. Concepts and definitions

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
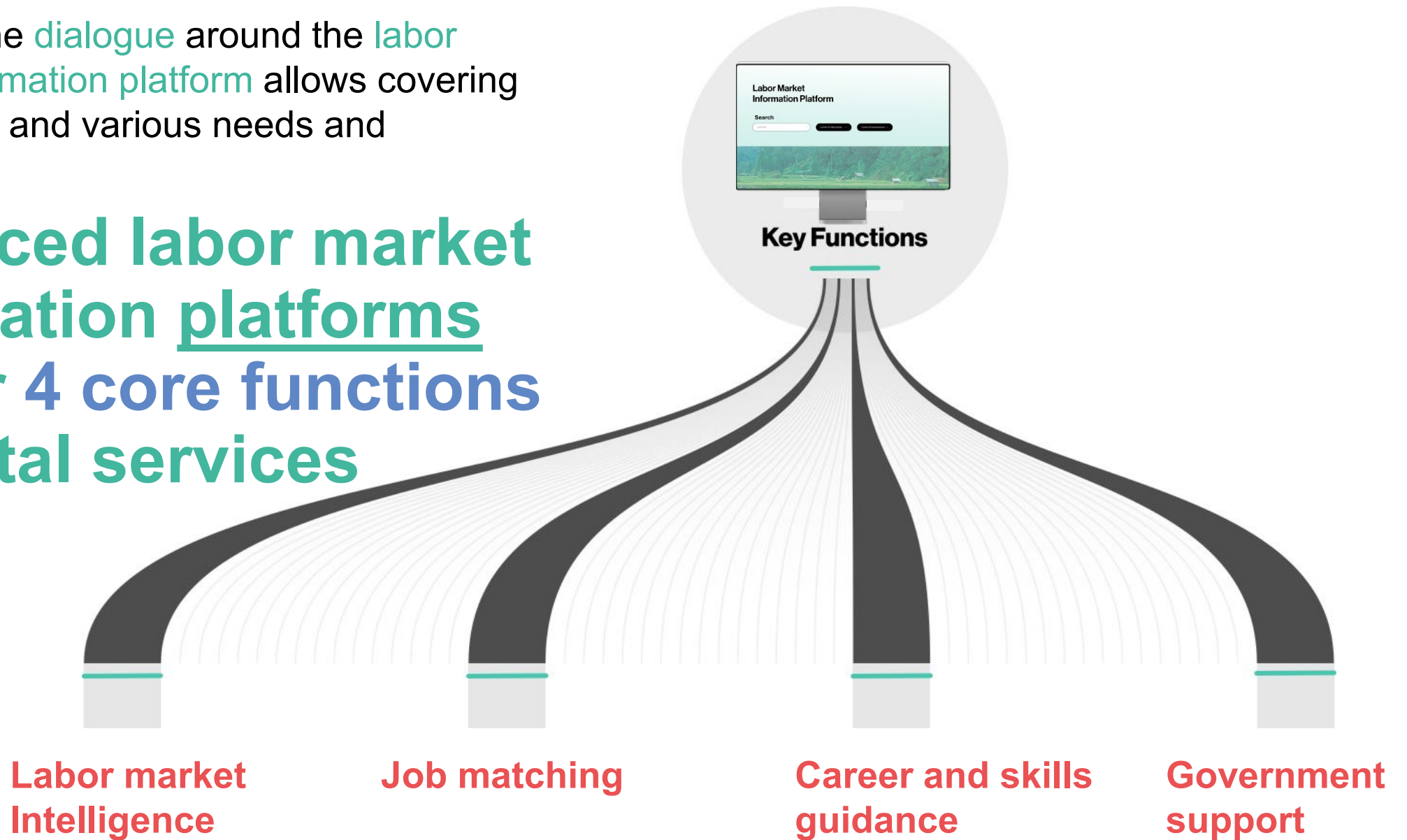
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What is an LMIS? Definitions & Concepts

LMIS definition

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

Government Job Matching Platform

Private job boards

NSO

Government Employment Support Programs

Think tanks

students

Data collection Firms

Career and skills guidance

Labor market intelligence

Universities

Workers

Jobseekers

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 Information Platform

Search

Key Functions

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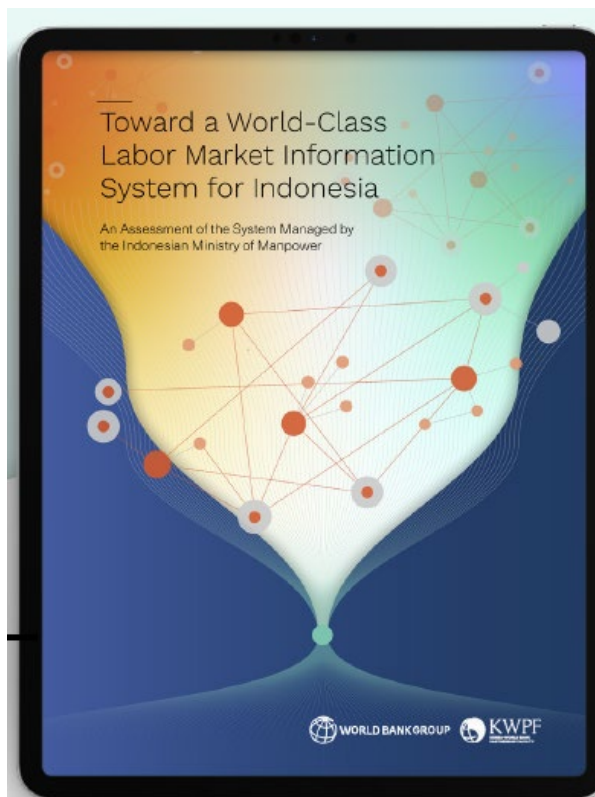
Assesses the Indonesian LMIS as basic-to-intermediate by contrasting it with those of high-income countries. The report proposes a framework that defines an advanced LMIS and identifies four key functions the LMI platform should provide
www.worldbank.org/indonesia/labomarketinformation

ILO. 2015. Toward a more effective labor market system in India. ILO Asia-Pacific Working Paper Series.

Mangozho, Nicholas. 2003. Current practices in labor market information systems development in human resources development planning in developed, developing and transition economies. Skills Working Paper No.13. ILO.

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

Comprehensive

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;

Relevant

attracting, collecting, and coordinating a critical mass of trustworthy and updated data;

Reliable

with frequent updates, strong quality control systems, and adequate technical infrastructure

Efficient

with technology solutions to facilitate the use of online services

Client-oriented

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

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.

Indicators shown **population groups** and **geography**

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

Indicators shown **location**, **occupation**, **industry**

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.

by **occupation**, ideally by **job title** and **location**

In our report, you will find best practice examples for

Macro-level information

Meso-level information

Micro-level information

Australian Labor Market Information Portal

U.S. Occupational Outlook Handbook

MySkillsMyFuture

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

Labor market intelligence targeted to the HR manager
Note: Fields in grey are not reliable at this stage

1. Formal education level

What firms look for in a Graphic Designer
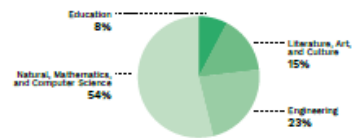
What employed Graphic Designers look like

- Diploma IV/University or higher 35%
- General high school 23%
- Vocational high school 15%
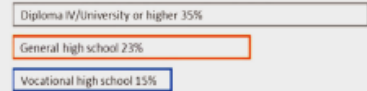
Field of study

Most common fields of study for Diplomas and higher:

Art (48%). Specific majors include Design (i.e., Interior Design, Product Design, Visual Communication Design, Graphic Design, etc.)

Source: Sakernas. Note: Sakernas estimates should be taken as indicative since the level of disaggregation (4-digit KBJI) is too high to estimate reliable statistics.

Source: Indotask

2. Skills requirements

These are the top 15 skills manufacturing firms in Jakarta look for in a Graphic Designer

Skill Ranking	Skill	% of job postings mentioning skill
1	Graphic Design	67
2	Creativity	59
3	Adobe Photoshop	52
4	Adobe Illustrator	47
5	Multimedia	27
6	Adobe Indesign	27
7	Editing	20

Note: This card is for illustrative purposes and most data fields are not reliable at this stage or estimates are dependent on the survey sampling frame. See occupational card for reliability of each field.

1 What occupations and job titles can I aspire to? (based on my education and field of study)

The following are 5 occupations that usually require a bachelor's degree in computer science

KBJI	Occupation Title	Examples of job titles	2. What do workers in these occupations do?	3. Occupational Prospect Score	4. is it in shortage and strategic? is it hard to fill?	Mean Wage for a B.A., IDR
Data sources		OV data	KBJI Handbook and Indotask	OEVS data	COL 2018 OEVS data	OEVS data
2512	Software Developer	Programming Analyst; Software Designer; Software Developer; Software Technician	Responsibilities include conducting research, analyzing, and evaluating requirements for existing applications or new software and operating systems, and designing, developing, testing, and maintaining software solutions to meet requirements.	Bright	Not in 2018 COL but a similar occupation was Firms find this occupation difficult to hire for because of lack of applicants with appropriate skills	10,000,000
			Workers in this group conduct		In COL 2018	

Decision tree of the HR manager

Communication of the labor market information should be thought based on the needs of each user type

What should I look for in a graphic designer? What requirements similar firms look for so that workers correctly perform the job?

① Education
② Skills
③ Experience
④ Training

↓

How difficult is it to hire a graphic designer?

⑤ Is the occupation available in my area?
⑥ Is the occupation in shortage and strategic?
⑦ Do firms find the occupation hard to fill?
⑧ How long does a vacancy take to fill?

↓

What are my options?

Search until hiring a worker who meets desired requirements

⑨ How much is the wage for this occupation? Should I offer a hire wage?
⑩ How do firms seek workers in this occupation?
⑪ What should the job description include?

Upskill current or new worker

⑫ Do I already employ a worker with similar requirements?
⑬ How long does it take to train someone?
⑭ Do firms in my sector train?

More information can be found

2.2

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

2. Data Validation

- Work-net monitoring system is strict so only 60 percent of job vacancies submitted are posted after review.

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

More information can be found

Toward a World-Class Labor Market Information System for Indonesia

An Assessment of the System Managed by the Indonesian Ministry of Manpower

WORLD BANK GROUP   KWPF

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
www.worldbank.org/indonesia/labomarketinformation

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

Singapore has packages tailored for all ages

Primary, Secondary, Junior College students	ITE and Polytechnic students	Students from the publicly-funded universities	Adults
• ECG curriculum • education planning and career exploration programs and activities, • Interactive tools help students discover their strengths and interests	• ECG Counsellors in MOE schools provide individual counselling or group guidance in education and career choices • counsellors communicate and engage with parents and industry partners	• ECG-related activities and lessons conducted in the classroom, • Out-of-classroom activities such as industry immersion programs, learning journeys and career talks.	• access career advisory services through PES counselors • Some have access to virtual services, while others to F2F, so they received support tailored to the needs

2.4

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

SkillsFuture Work-Study Programmes

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

View More >

SkillsFuture Work-Study Programmes	Education and Career Guidance	Enhanced Internships	SkillsFuture Work-Study Post-Graduate Programmes
SkillsFuture Series	MySkillsFuture	SkillsFuture Work-Study Certificate	SkillsFuture Work-Study Post-Diploma
Skills Framework	SkillsFuture Work-Study Degree	TechSkills Accelerator(TeSA)	

Source: https://www.skillsfuture.gov.sg/ProgrammesForYou

A program for every need, every client

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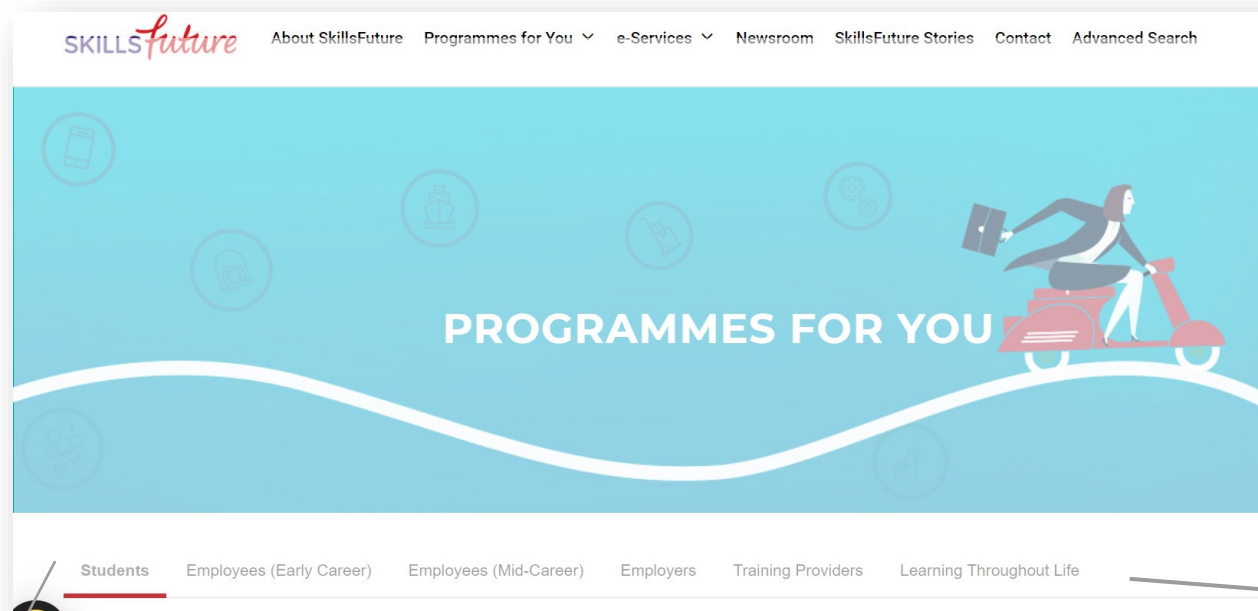
Singapore offers programs for all potential clients, with easy access by target group

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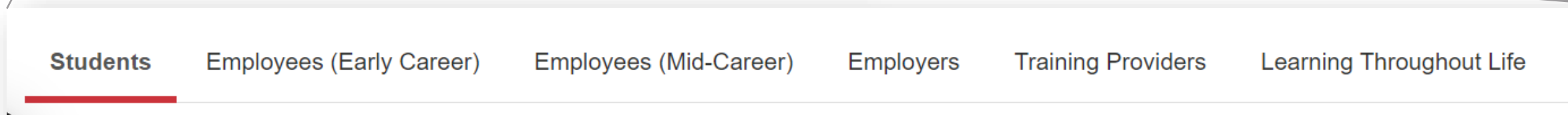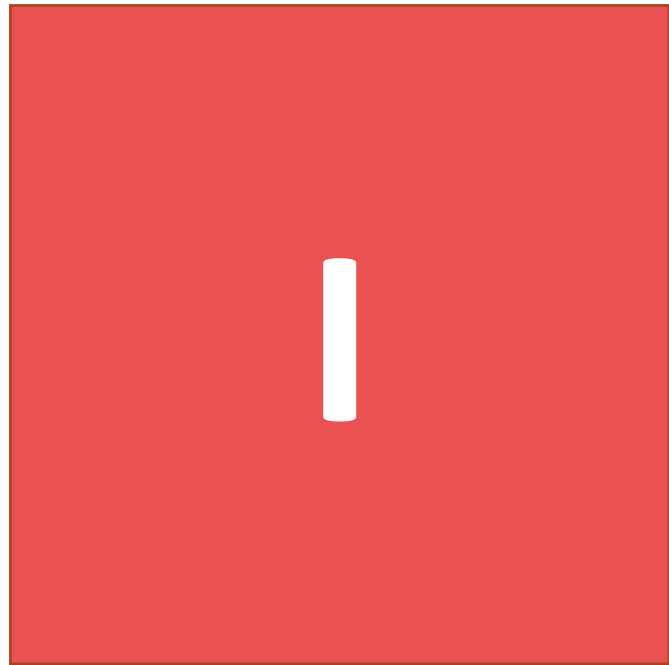
Integration

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

Career Guidance
MOEC

Job Matching
MOM

Government support
MOEC
MOM
MOF (LPDP)
CMEA

LM analytics
LMO (MOM and MOEC)

VISION & PLAN

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

DEVELOPMENT PHASE – INFORMATION SHARING

INTEGRATION PHASE

Creates Catalogue of schools and programs (advanced version of maps)

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

Uses skills taxonomy to create catalogue of skills by school/program occupation

Tracer studies data created

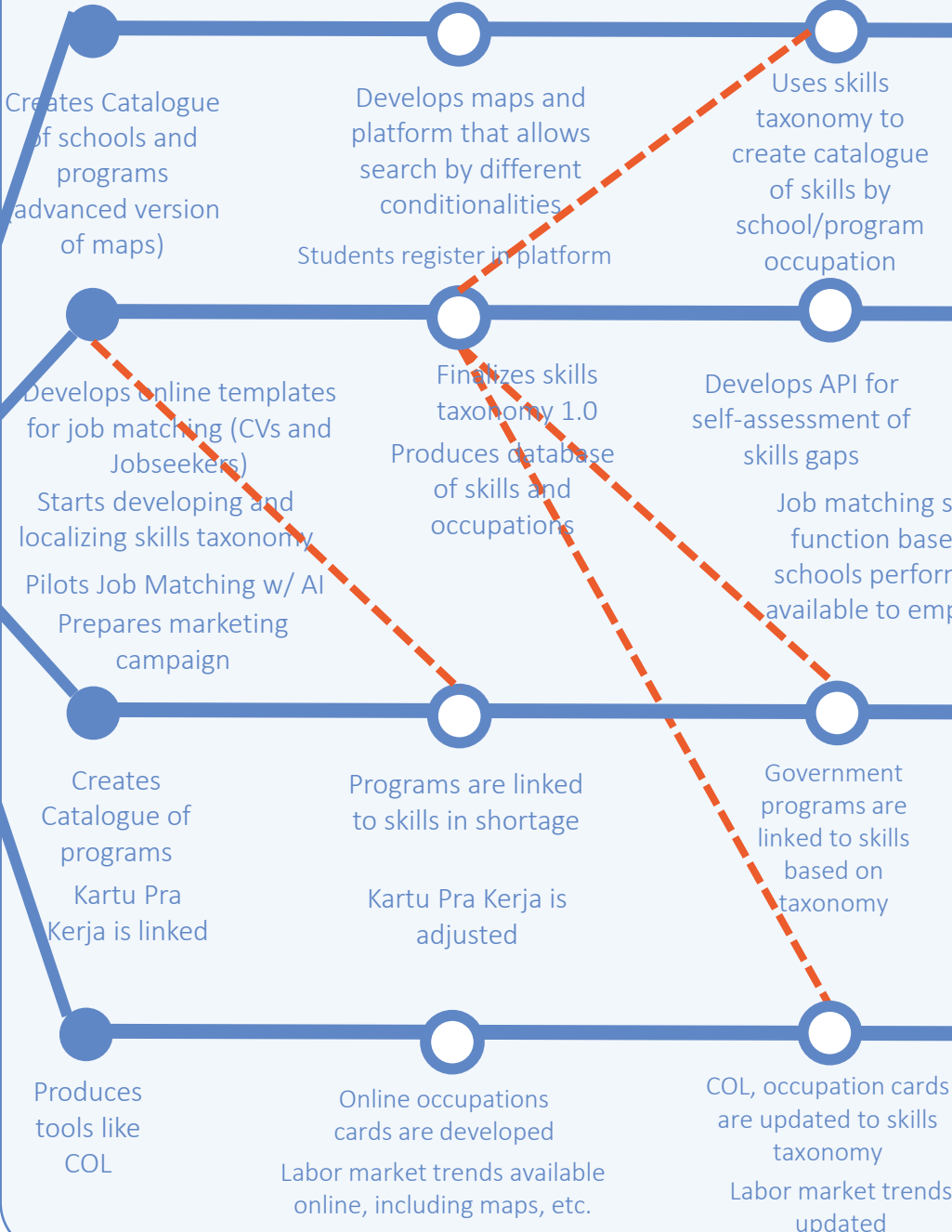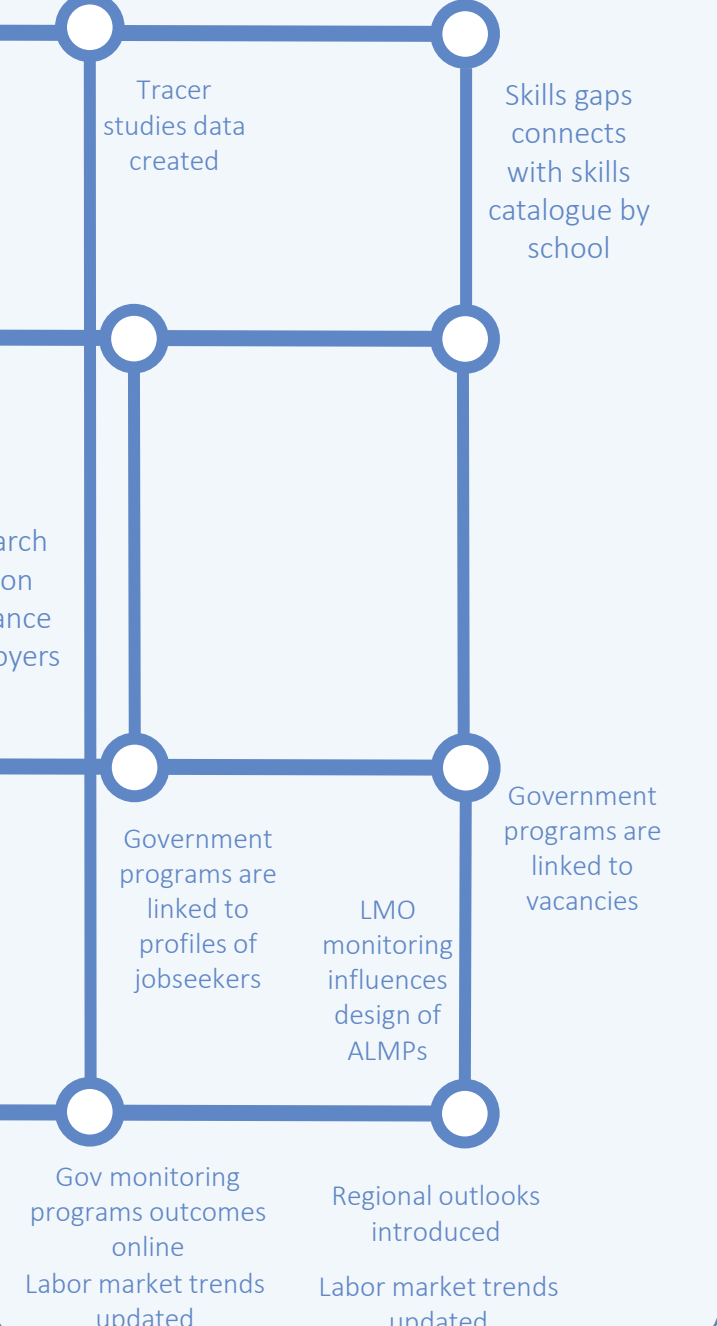Skills gaps connects with skills catalogue by school

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

Finalizes 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

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 skills based on taxonomy

Government programs are linked to profiles of jobseekers

Government programs are linked to vacancies

LMO monitoring influences design of ALMPs

Produces tools like COL

Online occupations cards are developed
Labor market trends available online, including maps, etc.

COL, occupation cards are updated to skills taxonomy
Labor market trends updated

Gov monitoring programs outcomes online
Labor market trends updated

Regional outlooks introduced
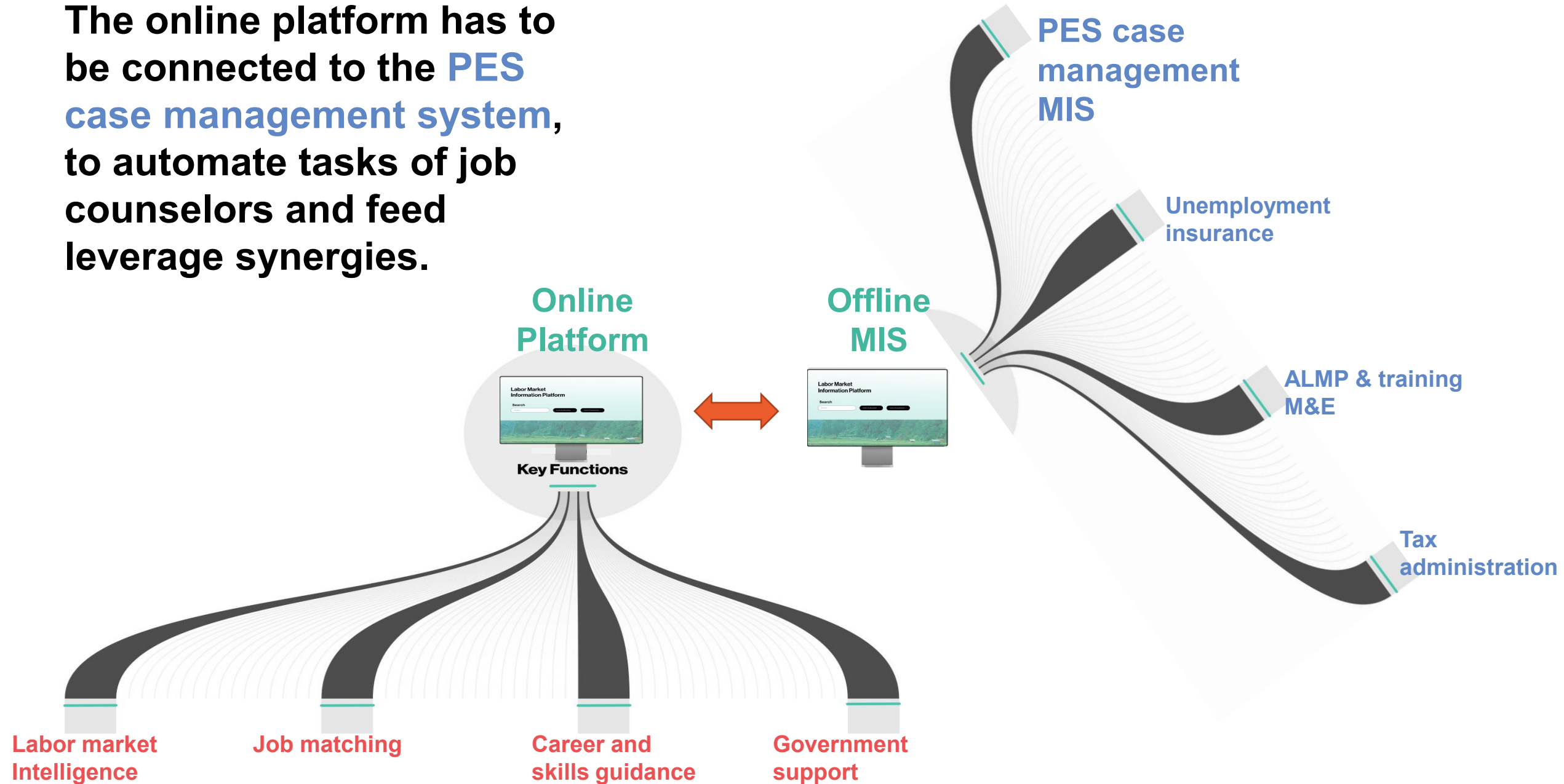Labor market trends updated

Integrated LMIS platform developed (coordinated by Project Steering Committee)

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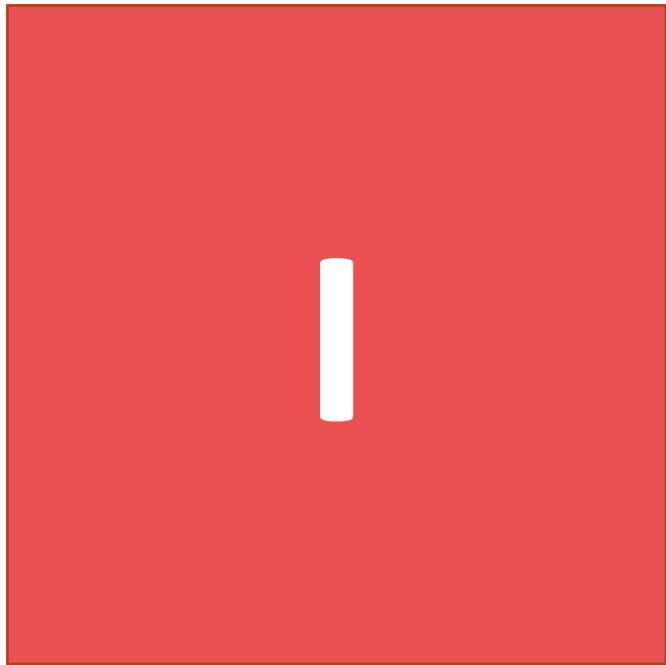
Integration

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.

Online Platform

Labor Market Information Platform
Search

Key Functions

Offline MIS

Labor Market Information Platform
Search

PES case management MIS

Unemployment insurance

ALMP & training M&E

Tax administration

Labor market Intelligence

Job matching

Career and skills guidance

Government support

3

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...

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

Jakarta, January 2020
Dissemination event of *Toward a World-Class Labor Market Information System in Indonesia*

We thank the financial support of

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