PREPARING INDONESIA’S WORKFORCE FOR INDUSTRY 4.0

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Invention of steam engine, train, steam power ships, replace horse power with machine

**Industry 1.0**

18th Century

Invention of electric machine and its devices which increase the production of goods

**Industry 2.0**

19th Century

Use of IT and Electronics (innovation) generated automation system

**Industry 3.0**

20th Century

Use of Big Data and wireless technology

**Industry 4.0**

If it is seen by the period of the process, the change of **Industry Revolution is getting shorter from time to time**
DIGITAL REVOLUTION has changed the point of views in life. DIGITAL TECHNOLOGY MIGHT solve any problems, but also could be the problem.

DIGITAL REVOLUTION was started from the development of electronic computer, especially innovation of MICROPROCESSOR, which allow to be planted in any technology.
DIGITALIZATION OF THE INDUSTRY

Threats:
- In general, digitalization era will eliminate about 1 – 1.5 billions jobs for 2015-2025, due to replacement of human position with automation machine (Gerd Leonhard, Futurist);
- It is estimated that in the future, 65% of elementary students in the world will work on type of jobs that haven’t existed yet today (U.S. Department of Labor report).

Chances:
- Digitalization era is potential to provide net improvement of workforce up to 2.1 millions new jobs in the year 2025
- Potentially decrease of carbon emission approximately 26 billions metric ton from three industry sectors: electronic (15.8 billions), logistic (9.9 billions) dan automotive (540 billions) for the year 201 to 2025 (World Economic Forum).
CHANGE OF THE ENVIRONMENT WORK

ROLE OF STATE, BUSINESSES AND WORKERS HAS SHIFTED

DEMAND DRIVEN IS MORE DOMINANT

ARTIFICIAL INTELLIGENCE, SUPERCOMPUTING, DIGITAL INDUSTRY, CYBERSECURITY, GENE MANIPULATION
New Platform of Current BUSINESS MODEL in the World

Currently some business model and jobs in Indonesia has already affected by digitalization, such as:

- Conventional Store has started to be replaced by business model of marketplace.
- Taxi or traditional ‘ojek’ have been replaced by online based transportation.

UTILIZATION OF internet and digital world as vehicle for interaction and transaction TO MEET HUMAN NEEDS

- e-Government
- e-Education
- Smart Manufacturing
- Smart City
- Smart Appliances
INDONESIA LABOR MARKET SITUATION AND CHALLENGE IN 2019

**Labor Force**
136,18 Million (69,32%)

**Employment**
129,36 Million (94,99%)

- Formal: 60,44 Million (46,80%)
- Non Formal: 68,92 Million (53,20%)

**Unemployment**
6,82 Million (5.01%)

- University: 6,24
- Diploma: 6,89
- Vocational School: 8,63
- Senior High: 6,78
- Junior High: 5,04
- Elementary: 2,65

Source: BPS, February 2019

**CHALLENGE**

- **Formal**
  - Junior High: 58%

- **Non Formal**
  - 57%

- **Unemployment**
  - 5,01%

- **New Workforce**
  - 2,24 mil

- **Job Mismatch**
  - 63%

- **Impacted by Digitalization**
  - 56 mil
Production Companies would produce twice more than before.

The employee might not work in the industry/company, but move to the office near its residence or even to its own house.
Transformation of Indonesia’s Labour Market

SCHEME

OLD

INDUSTRY

NEW

Future Jobs Map (FM)

OLD

JOBS

NEW

Manpower Planning (MP)

OLD

SKILLS

NEW

Industry Transformation Strategy (ITS)
Transformation of Indonesia’s Labour Market

- Technology Shifting
- Change in Skill Demand
- Change in Industrial System
- Change in Job Position
- Improve Productivity
- Start Here
- Occupation

Image descriptions:
- A person working on a computer with a technology-themed background.
- A person in a fashion technology setting.
- A person in an industrial setting, possibly working on a machine.
- A person in a manufacturing or engineering setting.
Effects industry 4.0 to Indonesian HR

POTENTIAL disruption of labour market that must have HIGH COMPETENCE, even might increase social tensions

POTENTIAL increase of income and life quality improvement of the community

GOVERNMENT SHOULD BE PRESENT
Respond wisely EVERY POTENTIAL AND FOCUS TO THE STRENGTH. UTILIZATION OF TECHNOLOGY in shaping the social, economy, and culture environment which leads to the IMPROVEMENT OF COMMUNITY WELFARE

Producing cheap, efficient, productive, competitive prices, lower transportation and communication costs, logistics and supply chains are more effective, trade costs will be reduced, and it will even make it easier to open new markets and encourage economic growth.
DIRECTION OF EMPLOYMENT POLICY
FOR FUTURE WORK

Creation of a conducive employment ecosystem
Convenient for entrepreneurs / investors
Comfortable for the workforce

Protection of labor
Un-employment benefit
Skills Development Fund

Flexibility, massive job creation and quality
Strategy for Transformation Labour Market

52,6 MILLION OF LABOR POTENTIAL REPLACED AS A RESULT OF AUTOMATION

MANPOWER TRANSFORMATION STRATEGY

NEW SKILLS to support AUTOMATION through Training: Re-Skilling & Up-Skilling

INTERNERSHIP

Improve soft-skills

Increased PRODUCTIVITY
EMPOWERING OF THE WORKFORCE SUPPLY CHAINS

FUTURE WORK

artificial intelligence, supercomputing, robotic, neuro-technology, 3D D cybersecurity, gene manipulation.

Complex Problem Solving
The ability to solve problems that are unfamiliar and yet the solution is known in the real world.

Social Skill
The ability to coordinate, negotiate, persuasion, mentoring, sensitivity in providing assistance to emotional intelligence

Process Skill
The ability consists of: active listening, logical thinking, and monitoring self and the others

System Skill
Ability to be able to make judgments and decisions with cost-benefit considerations as well as the ability to knowing how a the system is created and run

Cognitive Abilities
Skills consisting of, among others Cognitive Flexibility, Creativity, Logical Reasoning, Problem Sensitivity, Mathematical Reasoning, and Visualization.

Technical Skills

Curriculum Re-design Digital based

UNIVERSITY

POLYTECHNIC

GOVERNMENT AND PRIVATE VTC

VOCATIONAL TRAINING/EDUCATION

TC INDUSTRY

VOCATIONAL HIGH SCHOOL
WHAT SHOULD BE DONE BY A VTC’s

1. Identify & develop new competencies and skills necessary to effectively lead in a digital age

2. Find more innovative ways to attract, inspire and develop talent with the multi-disciplinary skills set

3. Develop skills set responded to evolving business models and market demands

4. Develop capability to deliver the organization strategy
TVET Institution
Respond the Future Employment

**EMPLOYMENT STRATEGY**

Re-design the curriculum with human digital approach

Collaboration between industry, training institution, Kadin/Apindo, Association, to identify competency needs in the future

INVESTMENT on digital skills development and RECOGNITION OF COMPETENCE

Ability to acquire new skills and competency is VERY IMPORTANT
**Triple Skilling in Vocational Training**

**Target**: Worker

**Objective**: Skill upgrading, skill updating, multi-skilling, career improvement

**Outcome**: worker productivity and meaning competitiveness improvement

**Data**:
- Workforce: 129 mill
  - Part-timer: 38,7 mill (40,08%)
  - 78 mill (57,29%) low educated workforce <SMP

**Target**: Jobseeker, fresh graduate

**Objective**: skill adjustment / matching

**Outcome**: decreasing unemployment rate

**Data**:
- Unemployment rate: 6,82 mill (5,01%)
- Natural TPT: 3-4%
- 2,24 mill newcomers / year
- 2,45mill youth unemployment aged 20-24 y/o

**Target**: Laid off worker

**Objective**: to provide new skill to enable worker to find new job or to be entrepreneur

**Outcome**: to prevent unemployment

**Data**:
- Involuntary Laid-off Workers: 348 thousand people/year
Focus on leading vocational and national priorities

Rejuvenation of training facilities and facilities

Towards Professional VTC, creating Indonesian Professionals

➢ Development of cooperation between domestic and foreign training institutions
➢ Development of BLK partnerships with industry (co-manage) for corporate culture purposes
Thank You