Labor Policy and Global Development

ANICETO ORBETA, JR.*

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*Draws heavily from referred to papers

Outline

- The Fourth Industrial Revolution (FIRe)
- Implications on the Labor Marker
- Labor Policy Developments in the Philippines
- An Assessment and Recommendations

References:

Dadios, et al. (2018) “Preparing for the Fourth Industrial Revolution: A Scoping Study” (http://serp-p.pids.gov.ph/publication/6152)

Albert, et al. (2018) “Harnessing Government’s Role for the Fourth Industrial Revolution”, (http://serp-p.pids.gov.ph/publication/6485)

Video: https://www.youtube.com/watch?v=LX8ucERD6RI

Paqueo, Orbeta, Lanzona and Dulay (2014) “Labor Policy Analysis for Jobs Expansion and Development“ (http://serp-p.pids.gov.ph/publication/5399)

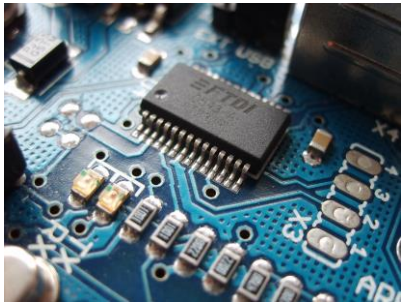
The Fourth Industrial Development (FIRe)

1. What is the Fourth Industrial Revolution (FIRe)?

First came steam and water power; then electricity and assembly lines; then computerization. Throughout history, we have improved industry by migrating from established production methods to utilizing cutting-edge technologies

1st Revolution
(1784)
Steam, water, mechanical production equipment

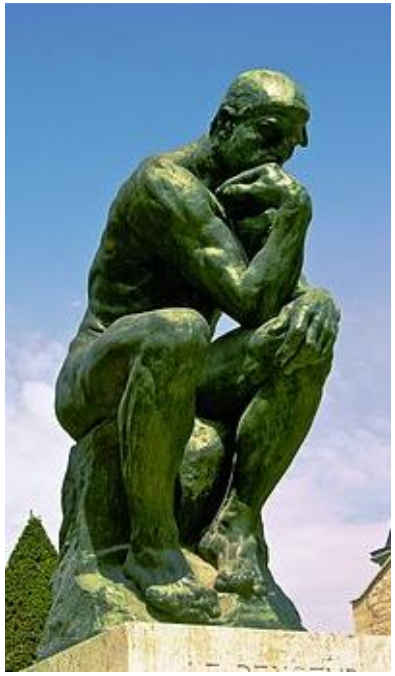
2nd Revolution
(1870)
Division of labor, electricity, mass production, assembly line



3th Revolution
(1969)
Electronics, computers, internet, automated production

4th Revolution
(???)
Cyber-physical systems

FIRe (cont'd)?



"*Characterized by a fusion of technologies that is blurring the lines between the physical, digital and biological spheres.*" – Schwab (2016)

1.1 Frontier Technologies in FIRe

Frontier technologies identified by select organizations

- No universally agreed definition of frontier technology

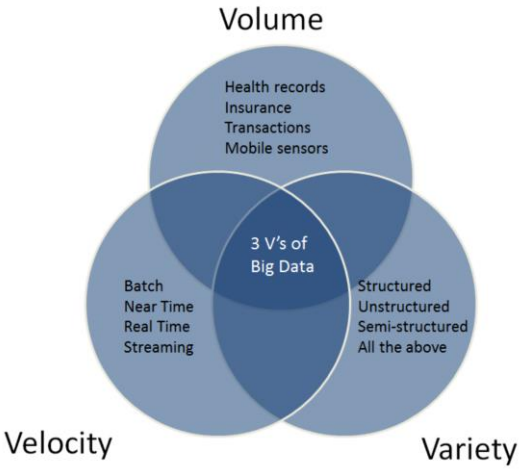
- It shows that the following technologies have been most commonly identified as frontier: 3D printing, the Internet of Things, AI, and robotics

(ESCAP, 2018)

OECD	World Bank	World Economic Forum	McKinsey Global Institute	Institute of Development Studies	MIT Technology Review 2018
Internet of Things	Fifth-generation (5G) mobile phones	Artificial intelligence	Mobile internet	3D printing	3D Metal Printing
Big data analytics	Artificial intelligence	Robotics	Automation of knowledge work	Collaborative economy tools	Artificial Embryos
Artificial intelligence	Robotics	Internet of Things	Internet of Things	Alternative internet delivery	Sensing City
Neuro technologies	Autonomous vehicles	Autonomous vehicles	Cloud technology	Internet of Things	Artificial intelligence for Everybody
Nano/micro satellites	Internet of Things	3D printing	Advanced robotics	Unmanned aerial vehicles/drones	Dueling Neural Networks
Nanomaterials	3D printing	Nanotechnology	Autonomous and near-autonomous vehicles	Airships	Babel-Fish Earbuds
3D printing (additive manufacturing)		Biotechnology	Next-generation genomics	Solar desalination	Zero-Carbon Natural Gas
Advanced energy storage technologies		Materials science	Energy storage	Atmospheric water condensers	Perfect Online Privacy
Synthetic biology		Energy storage	3D printing	Household-scale batteries	Genetic fortune-telling
Blockchain		Quantum computing	Advanced materials	Smog-reducing technologies	Materials' Quantum Leap
			Advanced oil and gas exploration		
			Renewable energy		

1.2 Example: Big Data

- While big data has no definition, it has **3Vs** (Gartner, 2001) **:**



Information is power !

- Awash in a flood of data !!! : *"drowning in numbers"*
  - 25 years ago, the first SMS was sent. We now send 23 billion text messages worldwide every day — or 16 million every minute. We type 156 million emails, 452,000 tweets and 3.5 million queries into Google every 60 seconds.
  - **From** the **beginning of** recorded **time until 2003, we created 5 billion gigabytes** (exabytes) of data. **By 2012**, about 2.5 exabytes of data were created per day, or 5 exabytes created **every 2 days**.
  - **In 2016,** around 16.1 zettabytes of data has been produced — 1 zettabyte = 1021 bytes, enough to fill 320 billion 16GB iPhones (which would circle the earth more than 400 times). **5 exabytes** were then being created **every 10 minutes**. By 2025, 163 zettabytes would be produced.

DATA: "the new oil"
a driver of growth and change

Potential and Perceived Impacts of (FIRe) on Production and Distribution Systems

2.1. Impact: Opportunities and Risks

Timeframe to impact industries, business models

Impact felt already

- Rising geopolitical volatility
- Mobile internet and cloud technology
- Advances in computing power and Big Data
- Crowdsourcing, the sharing economy and peer-to-peer platforms
- Rise of the middle class in emerging markets
- Young demographics in emerging markets
- Rapid urbanization
- Changing work environments and flexible working arrangements
- Climate change, natural resource constraints and the transition to a greener economy

2015–2017

- New energy supplies and technologies
- The Internet of Things
- Advanced manufacturing and 3D printing
- Longevity and ageing societies
- New consumer concerns about ethical and privacy issues
- Women's rising aspirations and economic power

2018–2020

- Advanced robotics and autonomous transport
- Artificial intelligence and machine learning
- Advanced materials, biotechnology and genomics

WEF (2016)



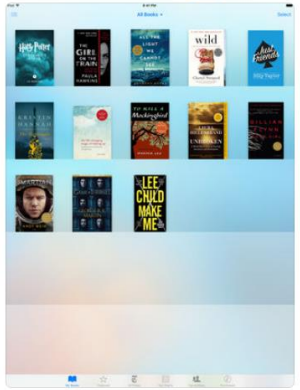

2.1. Impact: Opportunities and Risks

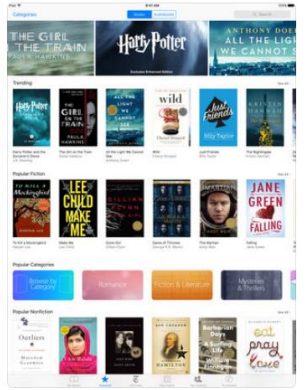
- From E-commerce to Digital Trade

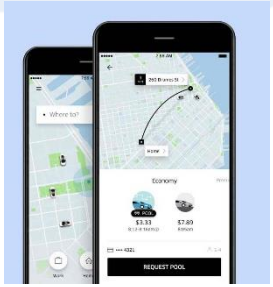
Figure 1. Dimensions of digital trade[1]

Nature ('how')	Product ('what')	Actors ('who')
Digitally ordered	Goods	Business
Platform enabled	Services	Consumer
Digitally delivered	Information	Government

Source: López González and Jouanjean (2017); OECD (2017)

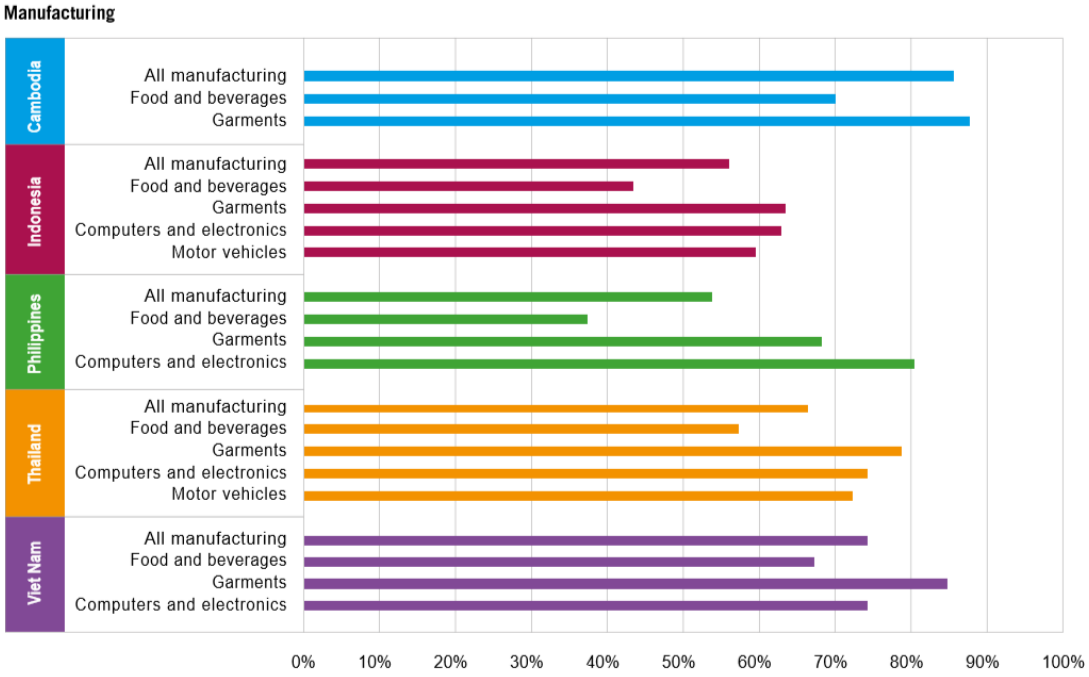






2.1. Impact: Opportunities and Risks (cont'd)

Figure 3. Share of wage and salaried employment in key **manufacturing** subsectors at high risk of automation (per cent).

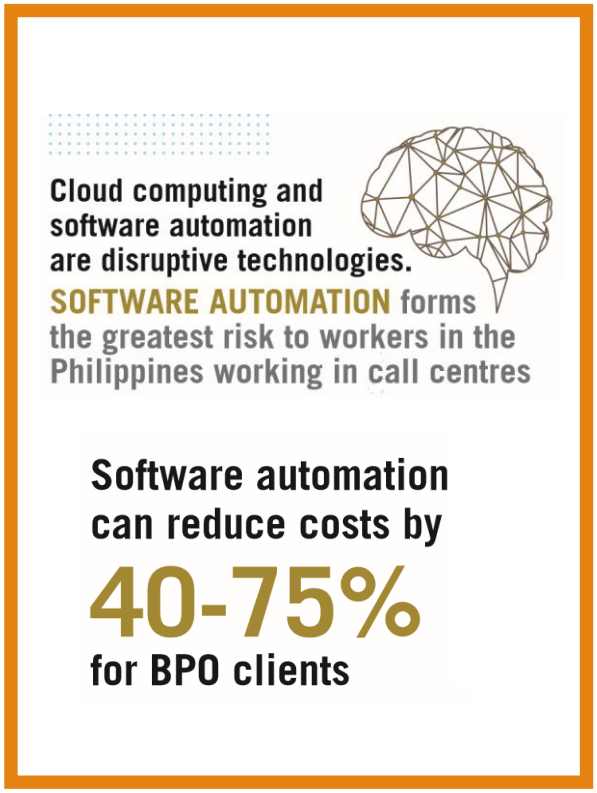


ILO (2016)

Acc to ILO, in the Philippines:

- nearly half (49%) of wage workers (males: 44%, females : 52%) face a high probability of getting affected by automation
- those working as fishery laborers (580,000), waiters (574,000), carpenters (525,000) and office cleaners (463,000) face a high potential of automation
- around 89 per cent of salaried workers in BPO sector fall into the high risk category of automation

The Fourth Industrial Revolution will trigger selective reshoring, nearshoring and other structural changes to global value chains (WEF 2018, ILO 2016)



Implications of FIRe on the Labor Market

Nature of work is changing

WB 2019 World Development Report

Through digital transformation firms can grow rapidly (challenges traditional production patterns)

The digital platform enable firms to reach more people faster

Technology is changing the skills employers seek (complex problem-solving, teamwork, and adaptability)

How people work and the terms on which they work is changing (short-term work, online platforms)

Implications on the Labor Market

Conceptually technology:

1. Substitute for labor
2. Complement labor
3. Create jobs

Net effect depends on which effect is strongest

Implications on the Labor Market

Empirical trends:

- Substitute routine or codifiable jobs
- Complement non-routine jobs
  - Dynamic classification: because of machine learning, what is not codifiable today maybe codifiable tomorrow
- Create entirely new jobs; redefine existing ones

10 Jobs AI will replace

https://blog.hubspot.com/marketing/jobs-artificial-intelligence-will-replace

1) Telemarketers (99%)

2) Bookkeeping clerks (98%)

3) Compensation and Benefits Managers (96%)

4) Receptionists (96%)

5) Couriers (94%)

6)Retail Salespeople (92%)

7) Proofreaders (84%)

8) Computer Support Specialists (65%)

9) Market Research Analysts (61%)

10) Advertising Salespeople (54%)

4 Top Career Fields Technology has Changed

https://workplacediversity.com/articles/How-Technology-Has-Changed-4-Top-Career-Fields-Within-the-Last-Two-Decades

Supply Chain Management

Medicine and Health Care

Law and Court

Marketing

10 Jobs Created by Tech That Didn't Exist 10 Years Ago (2017)

https://blog.nasstar.com/10-jobs-created-by-tech-that-didnt-exist-10-years-ago/

1. Uber Driver
2. Social Media Managers
3. Airbnb Host
4. Cloud Service Specialist
5. YouTube Content Creators
6. App Developers
7. Driverless Car Engineer
8. Drone Operator
9. Millennial Generational Expert
10. Use Experience Designer

What are the desired labor market characteristics?

- Flexible, adaptive and agile
- Workers that are trainable, creative and adaptable to rapid changes
- Part-time and self-employment are integral components
- Movement from one work engagement to the next with minimum costs

Labor Policy Developments in the Philippines

Moves against labor market flexibility

- Increasing pressure against temporary employment contracts
- Increasing pressure for higher minimum wages unrelated to productivity

Education and training system that needs improvement (NI)

Basic education that on average struggles to achieve mastery in core competencies

Low passing rates in professional board examinations (around 40%)

Enterprise-based training, a critical component, very insignificant (3% of total graduates)

Training Certificates that are not valued by employers

Lack of clear program for life-long learning

We don’t know much what works to encourage flexibility in the workplace

Neither are we exerting enough effort to learn

Not experimenting and learning enough on what and what does not work to foster flexibility in the workplace

Very little information on digital platform workers

Rigorous empirical validation of conventional and unconventional Active Labor Market Programs (ALMPs)

Assessment and Recommendations

Assessment

The move towards labor inflexibility is a move in the wrong direction

Tracking for specific skills early is too short-term oriented

Training is overly dependent on training-institutions rather than the needs of industry

Lack of emphasis on life-long learning

Social protection system is too job-attached rather than follows the worker

Recommendations

No unnecessary restrictive labor market regulations that hinders flexibility and agility to rapidly adapt to changing production and delivery systems

Educate for trainability – emphasize the importance of strong basic competencies with job-specific skills learned in the shop floor

Resolve the issues surrounding the low take-up of enterprise-based training

Build systems for life-long learning where workers can move between training/learning and working seamlessly

Smart social protection that recognizes various nature of work, ease movement from one work engagement to the next, and deal with widening inequality

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TWITTER: twitter.com/PIDS_PH

EMAIL: aorbeta@mail.pids.gov.ph