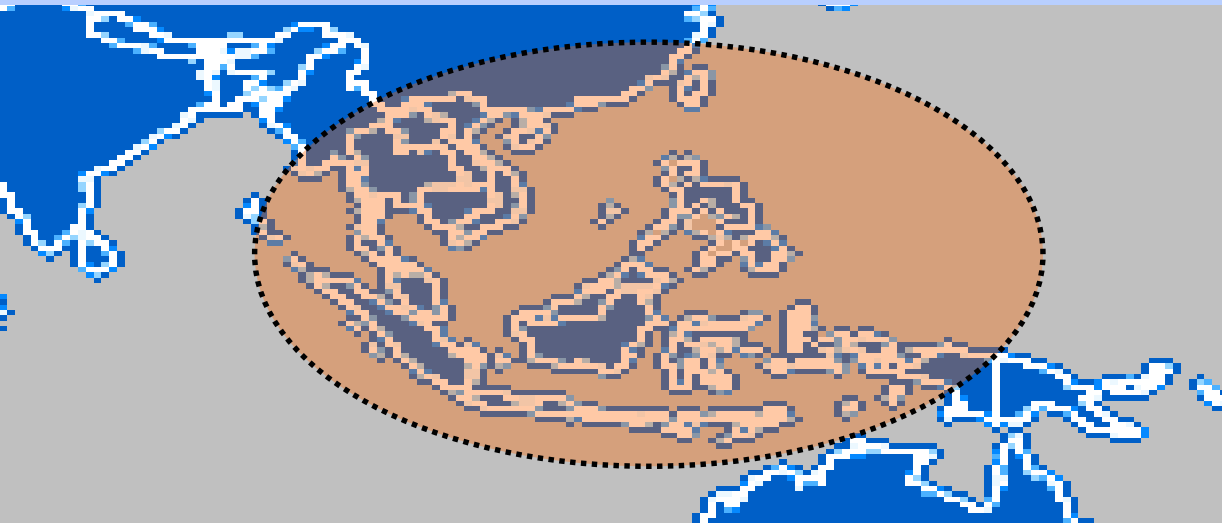


WEBINAR

Lean Manufacturing System dan Perkembangan Teknologi Terbaru



Ir. I Made Dana M. Tangkas, M. Si., IPU, ASEAN Eng.
Presiden Institut Otomotif Indonesia (IOI), Founder & CEO IBIMA
SEA/Director Indpdt/Member of BOD Mtng of PT Toyota Motor Indonesia
Chairman BKTII, Chairman Komite Tetap ILMAT KADIN



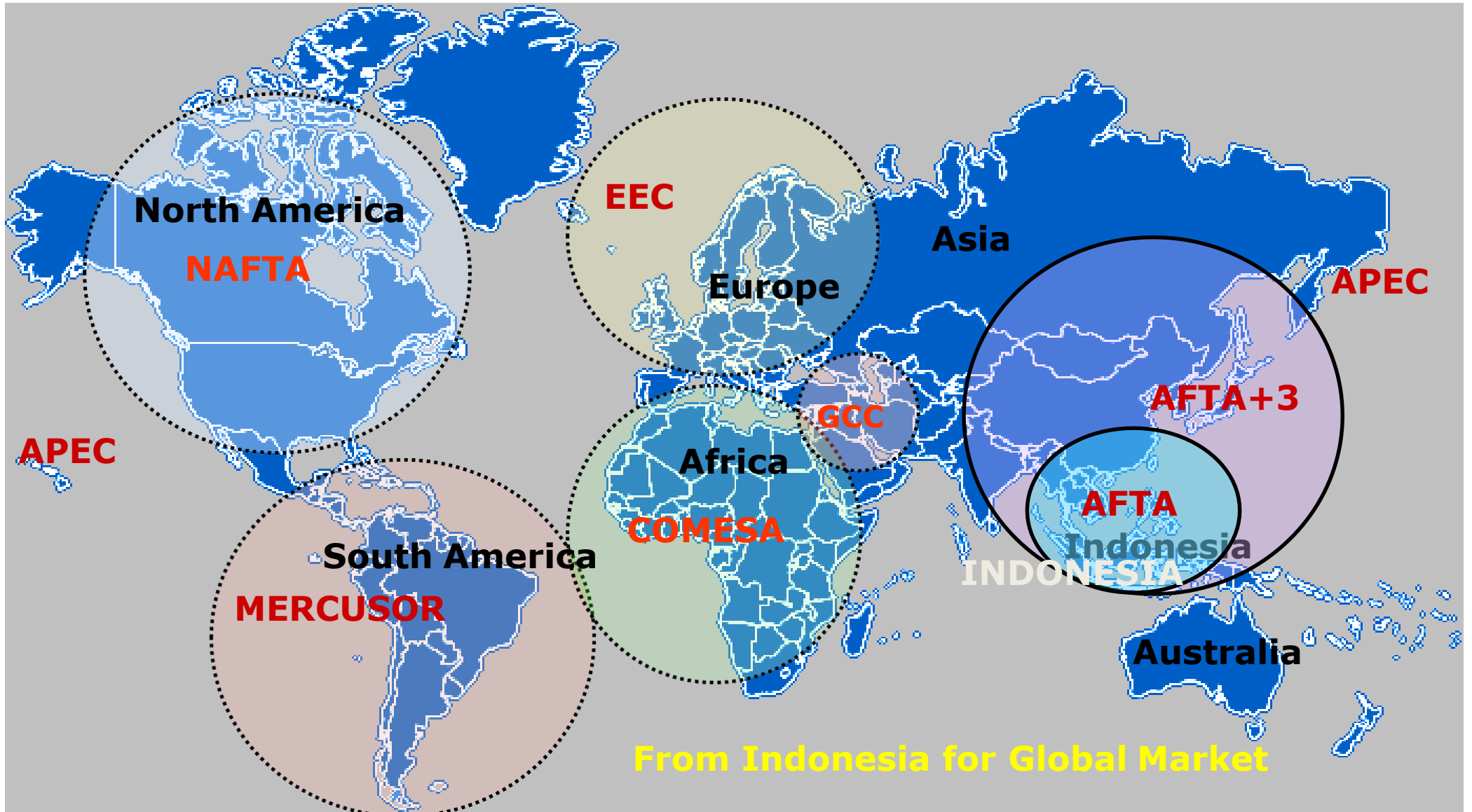
Universitas Medan Area
Selasa, 16 Juni 2020

Contents:

1. Kondisi Bisnis & Industri dan Perkembangan Teknologi Industri 4.0 Menuju New Normal.
2. Lean Manufacturing/Enterprise: Value, System & Leadership (Toyota Way, TPS, Leaders)
3. Tantangan & Peluang Industri 4.0

1. KONDISI BISNIS & INDUSTRI DAN INDUSTRI 4.0 MENUJU NEW NORMAL

WORLD MAP (Potentiality of Domestic & Global Market)



Data Sebaran

Sumber : <https://covid19.go.id/>

Global

Negara

216

Terkonfirmasi

6.287.771

Meninggal

379.941

Update Terakhir: 03-06-2020 | Sumber:

WHO

Indonesia

Positif

28.233

Sembuh

8.406

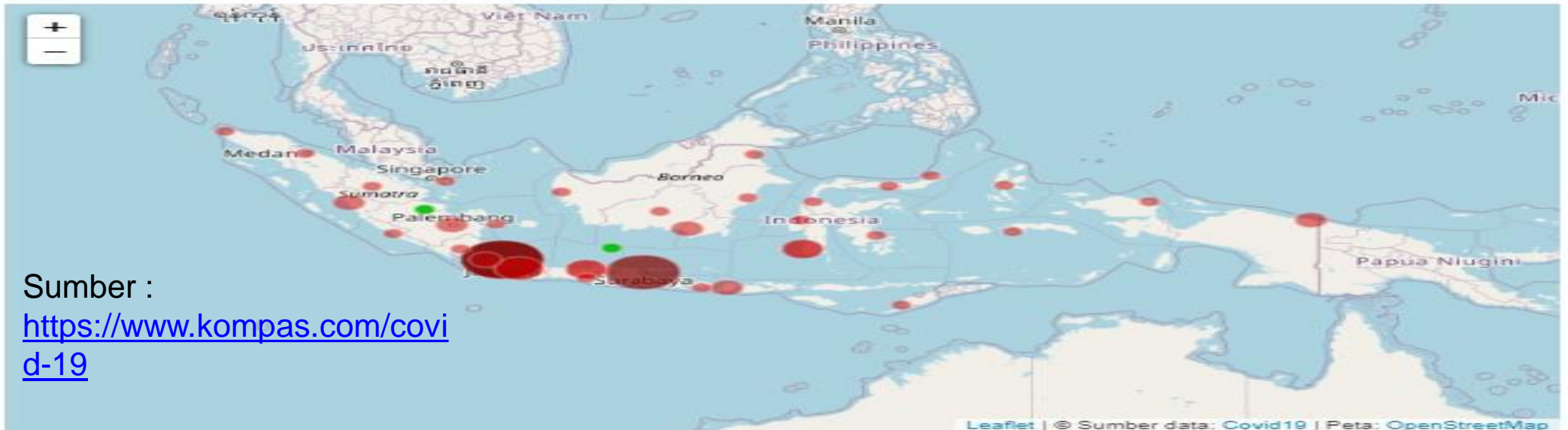
Meninggal

1.698

Update Terakhir: 03-06-2020

Situasi virus COVID-19 di Indonesia

Simak Tayangan Data Langsung



Sumber :

<https://www.kompas.com/covid-19>

TERKONFIRMASI

28,233

+684 Kasus

DIRAWAT

18,129

64.212% dari terkonfirmasi

MENINGGAL

1,698

6.014% dari terkonfirmasi

SEMBUH

8,406

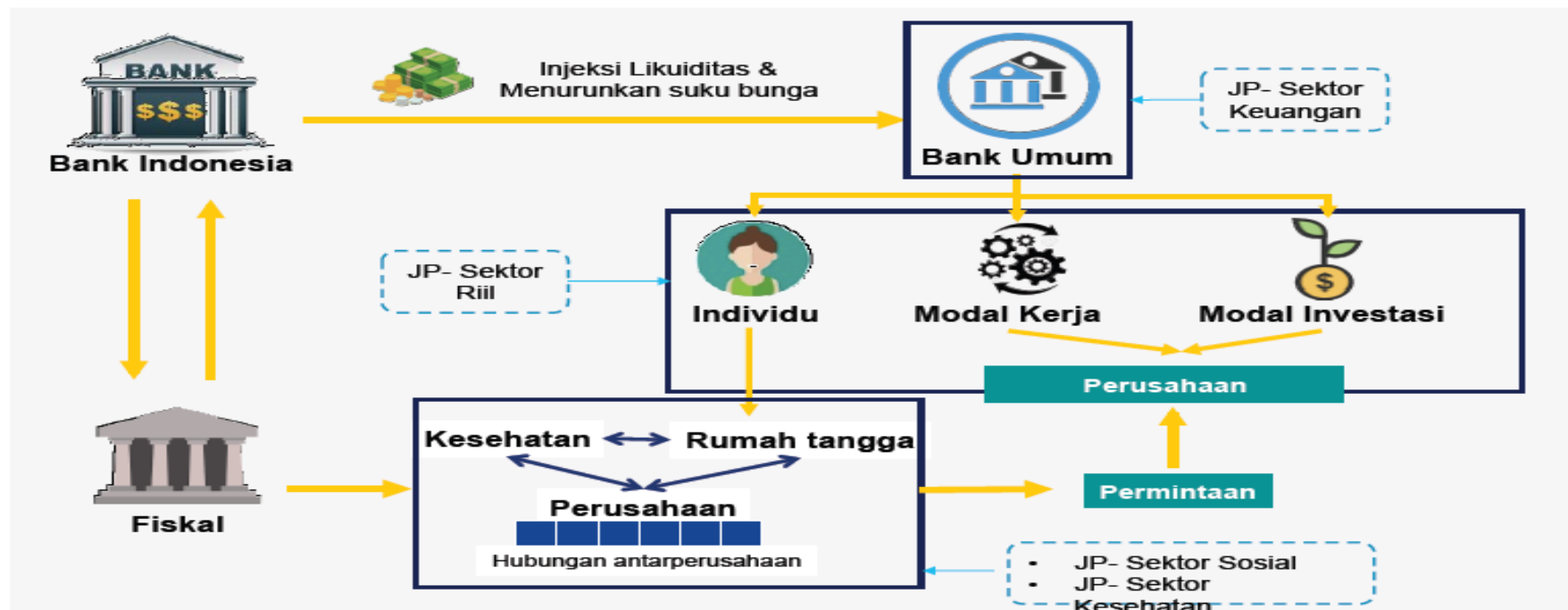
29.774% dari terkonfirmasi

Stimulus III : stimulus tambahan untuk mengurangi dampak covid-19

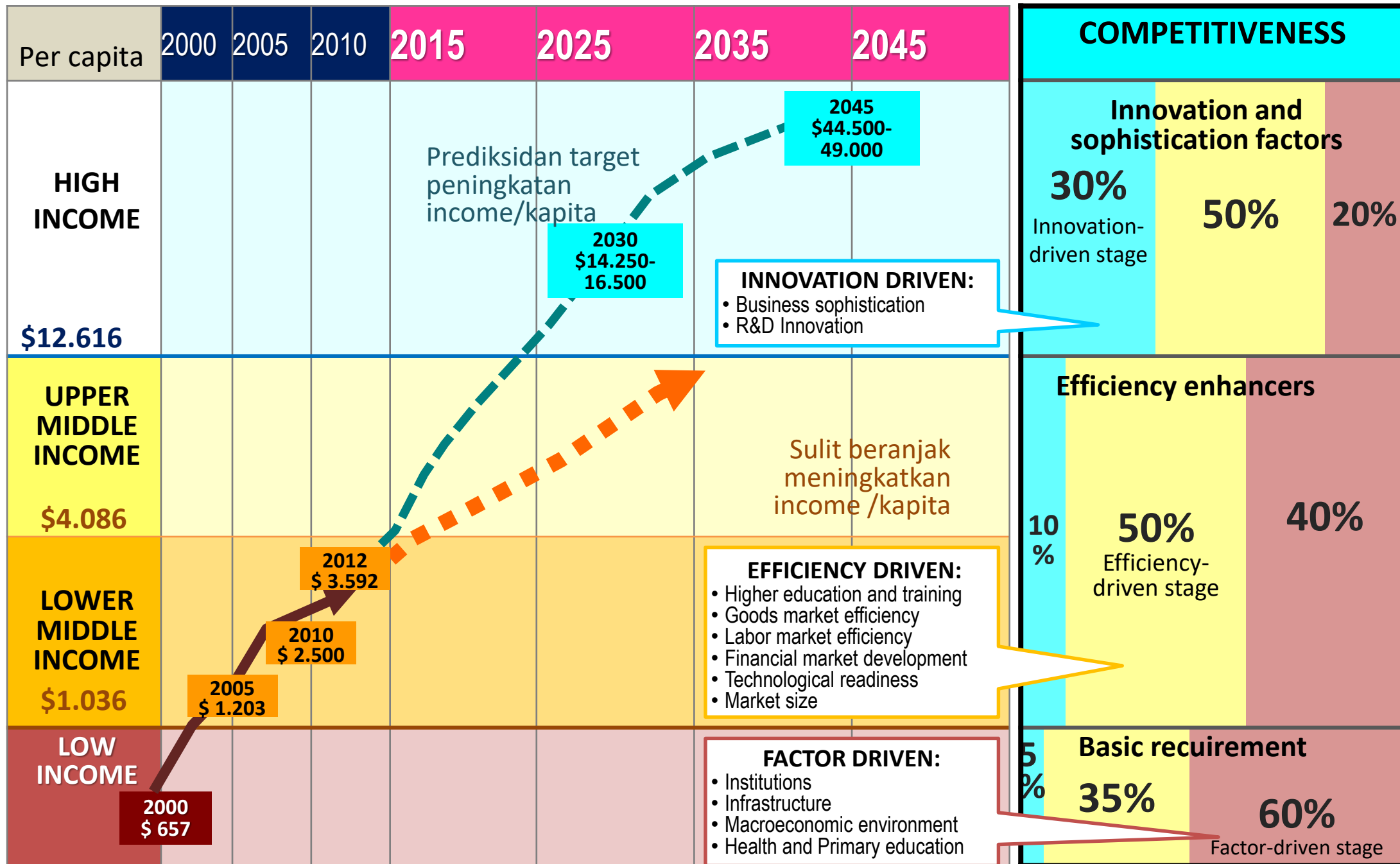
Total tambahan belanja & pembiayaan APBN 2020 : Rp 405,1 T



Kebijakan Jaringan Pengaman (*safety net*)



INOVASI UNTUK MENUJU INDUSTRI BERDIKARI & SEJAHTERA 2030



Trend Adaptasi terhadap Perubahan yang Terjadi Pasca Wabah Covid-19 di Sektor Industri



**Diversifikasi
Produk & Servis**



**Inovasi Teknologi
Produk, Servis & Proses**

TREND ADAPTASI



**Pemberdayaan
Local Resources
(SDA & SDM)**



**Productivity & Efficiency
(Managing Demand & Supply)**



**E-Commerce
(Online Business &
Semi Offline)**

Perubahan Perilaku setelah “New Normal”

- Dengan adanya Covid-19, maka akan berdampak terhadap **perilaku kehidupan** yang mengakibatkan **perubahan perilaku pasar** dan **perilaku industri** setelah “New Normal”

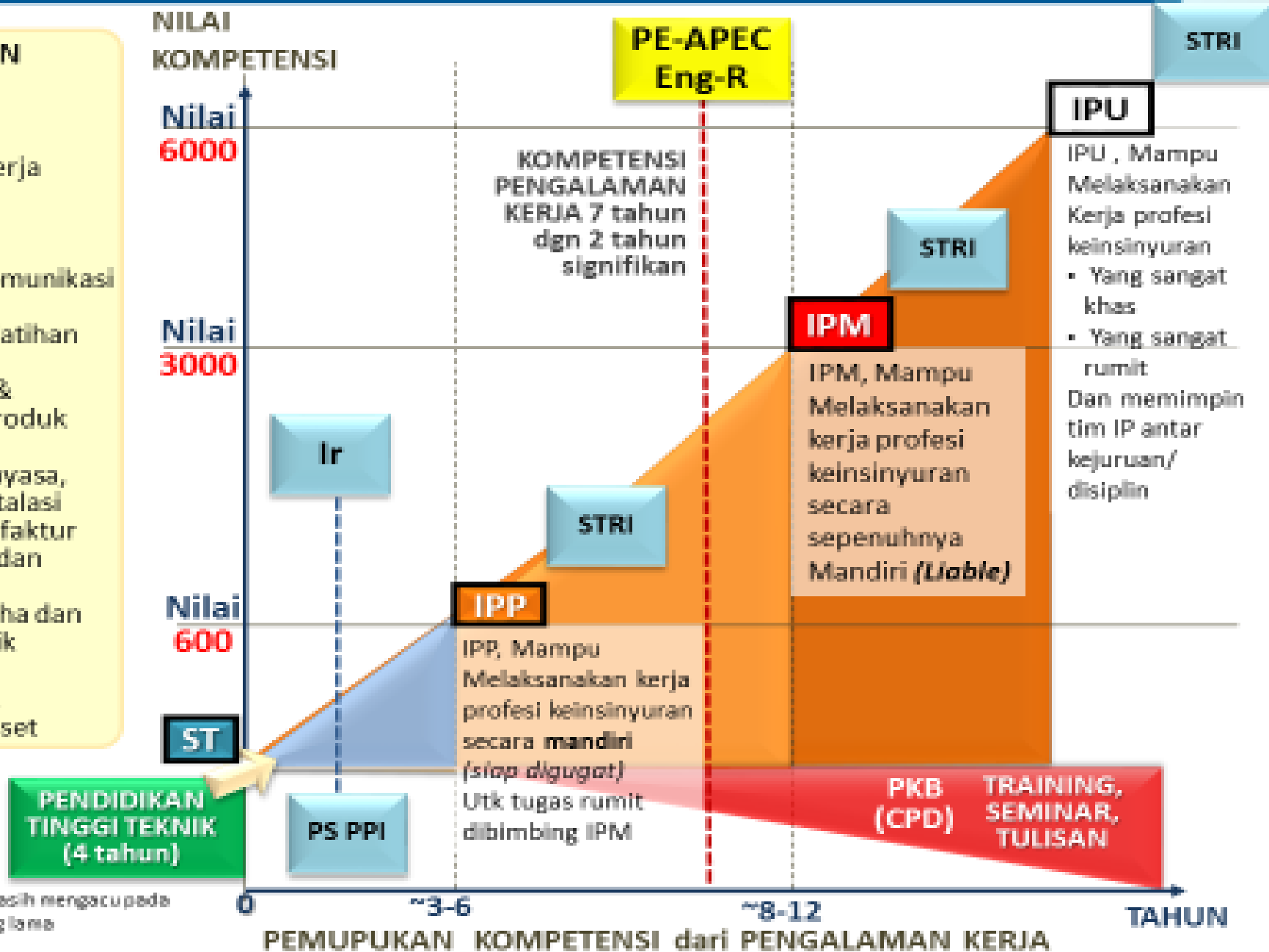


JENJANG KUALIFIKASI SERTIFIKASI INSINYUR PROFESIONAL - PII

BAKUAN PENILAIAN KOMPETENSI IP:

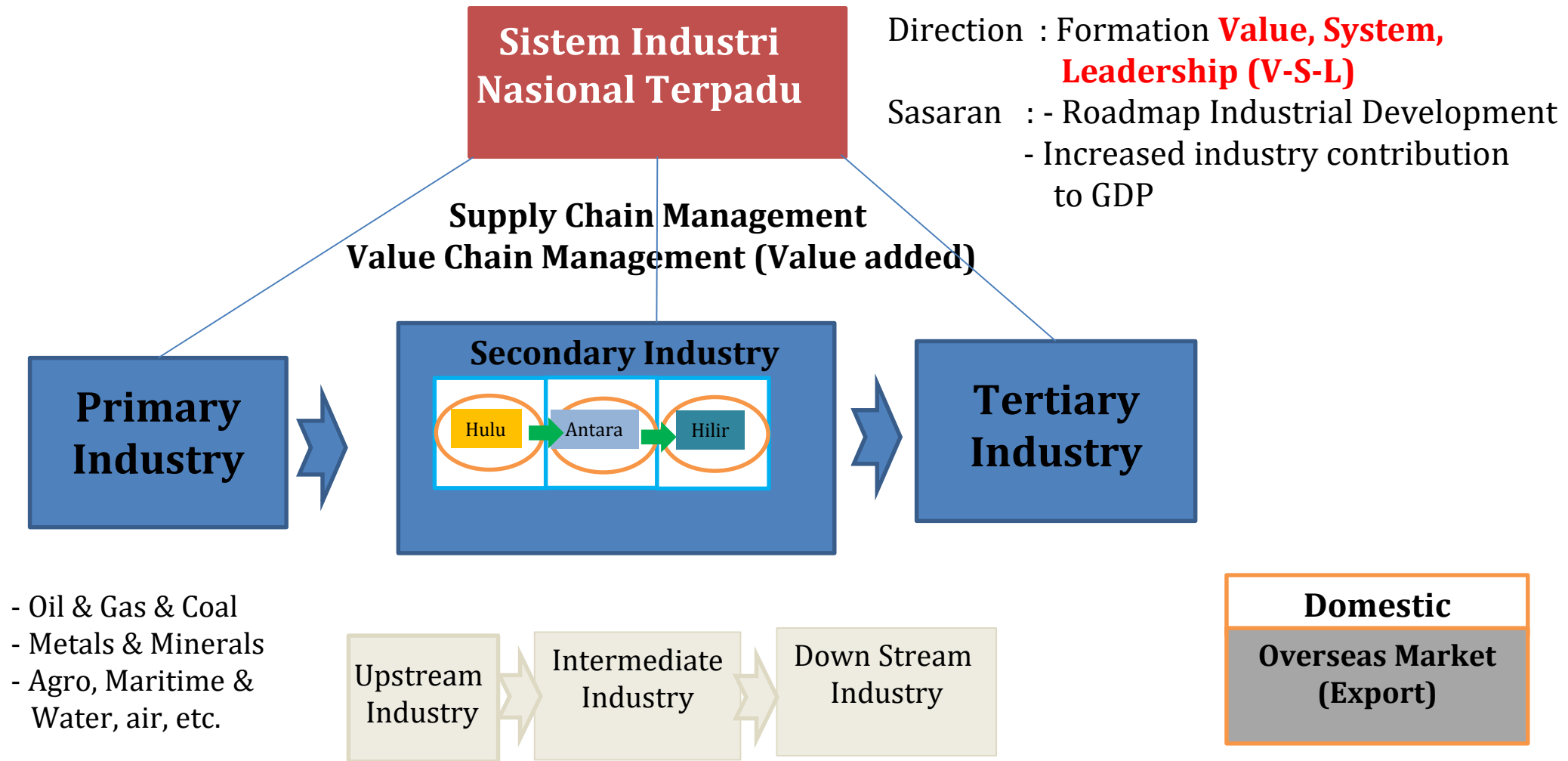
- W1: Kode Etik
- W2: Keterampilan Kerja Keinsinyuran
- W3: Perencanaan/ Perancangan
- W4: Pengelolaan/ Komunikasi

- P5: Pendidikan & Pelatihan
- P6: Penelitian, Pengembangan & Komersialisasi Produk Keteknikan
- P7: Konsultasi Rekayasa, Konstruksi & Instalasi
- P8: Produksi/ Manufaktur
- P9: Bahan Material dan Komponen
- P10: Manajemen Usaha dan Pemasaran Teknik
- P11: Manajemen Pembangunan & Pemeliharaan Asset



2. LEAN MANUFACTURING/ENTERPRISE: VALUE, SYSTEM & LEADERSHIP (TOYOTA WAY, TPS, LEADERS)

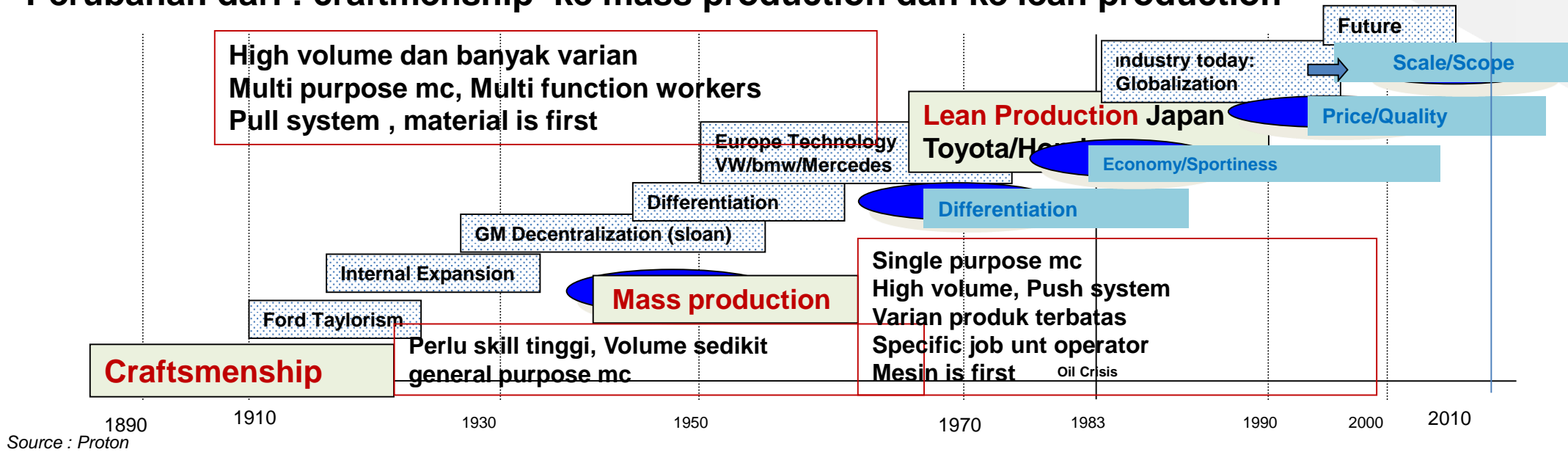
Integrated National Industrial Development System



Aplikasi dalam Pengembangan Industri Terpadu

Rules of the Game in Developing Industry *(Always Changing every time and keep lean concept in the journey)*

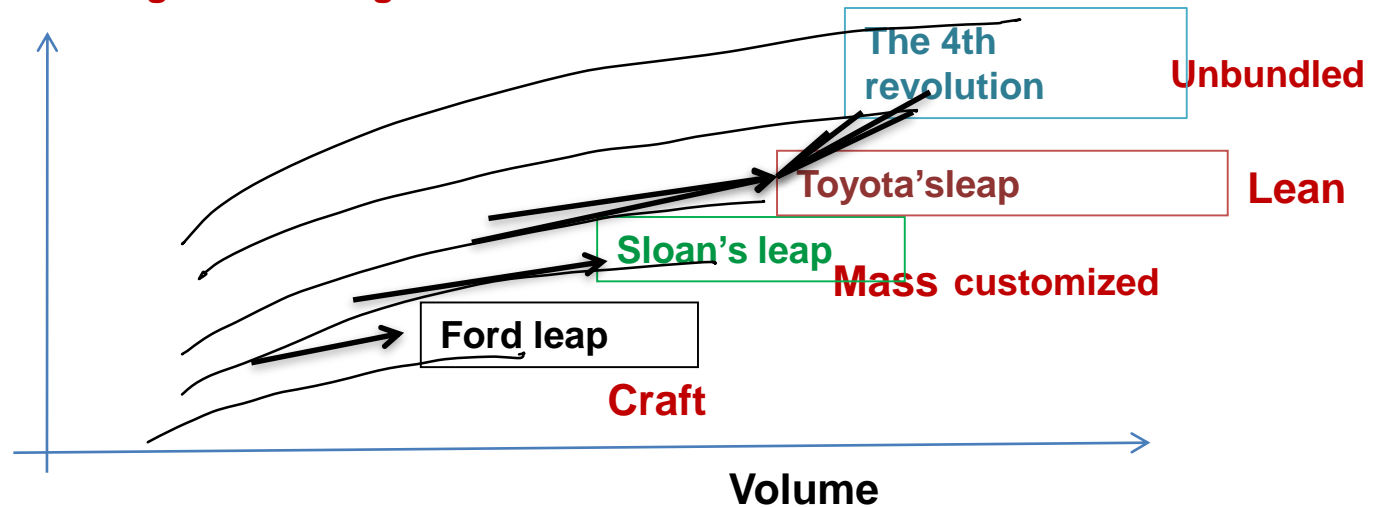
Perubahan dari : craftsmanship ke mass production dan ke lean production



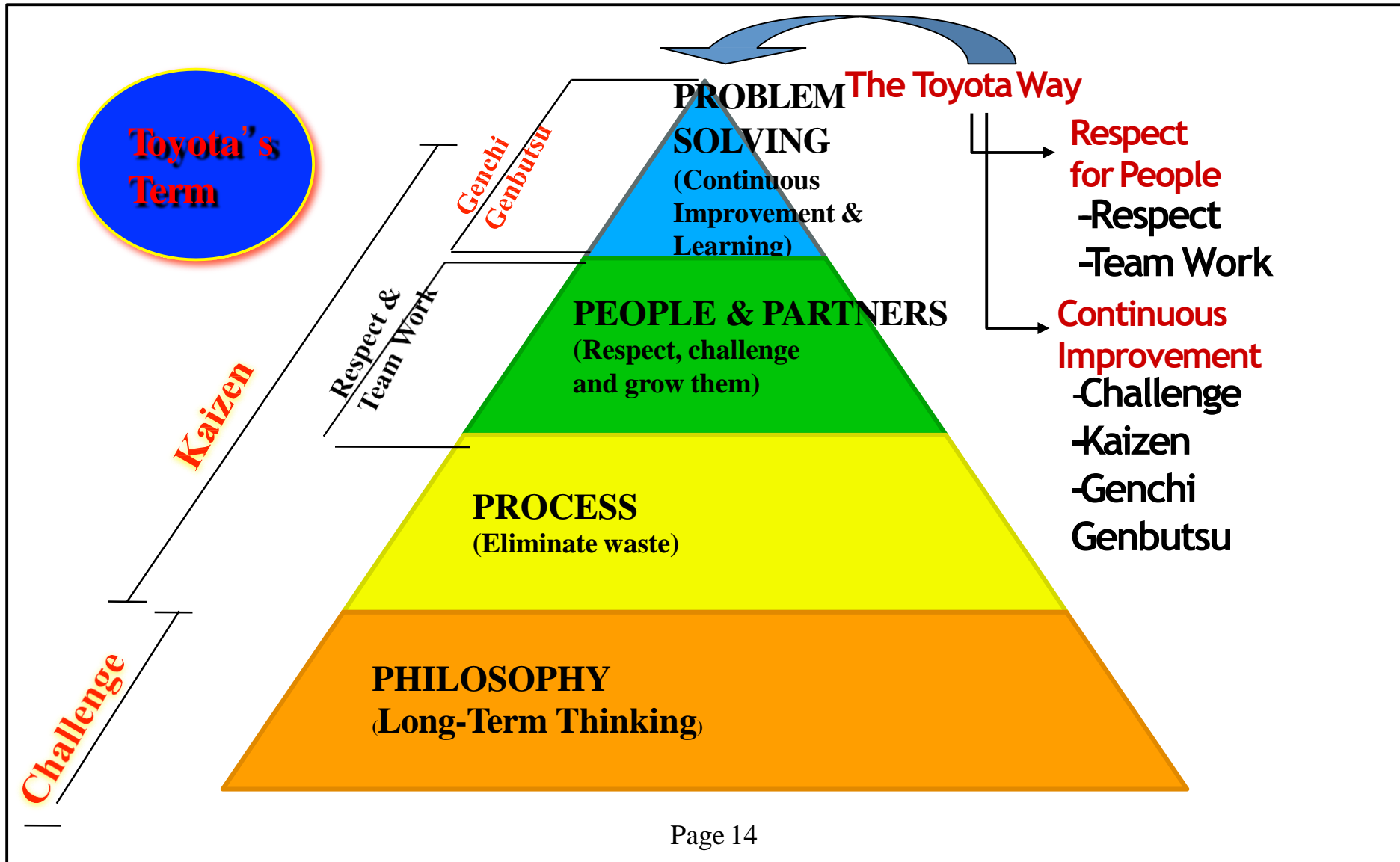
2 Options, Manufacturing Industry Facing IR 4.0

4th A graceless degradation or a revolution

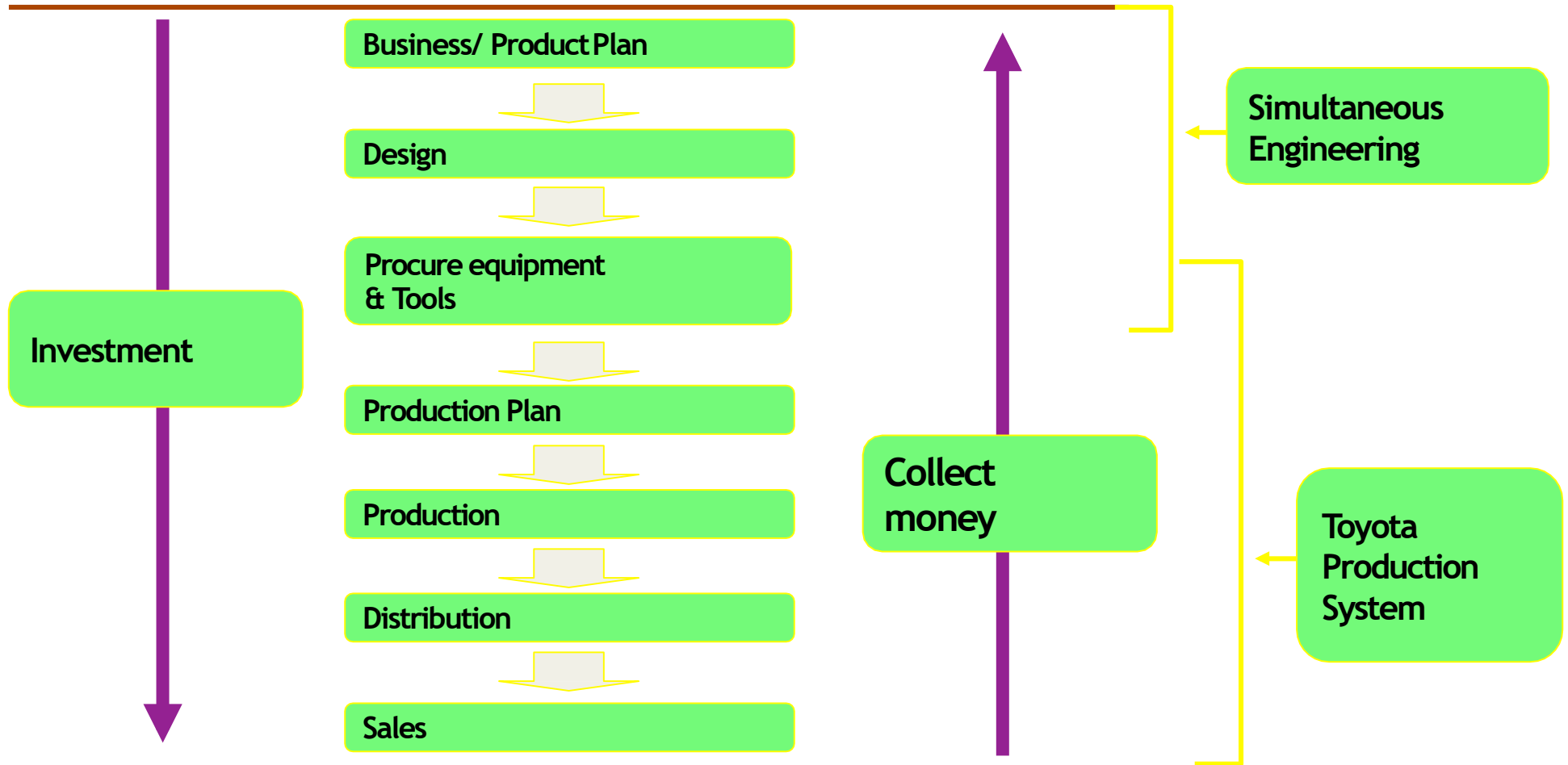
- A 4th revolution :**
- apa yang akan dibuat / diproduksi
 - apa yang di-maui oleh customers
 - apa brand / produk yang dipakai
 - apa dan bagaimana cara marketingnya



VALUES : The "4P" Model of Toyota Way



Business Activity (SYSTEM) : Lead Lime for a Company



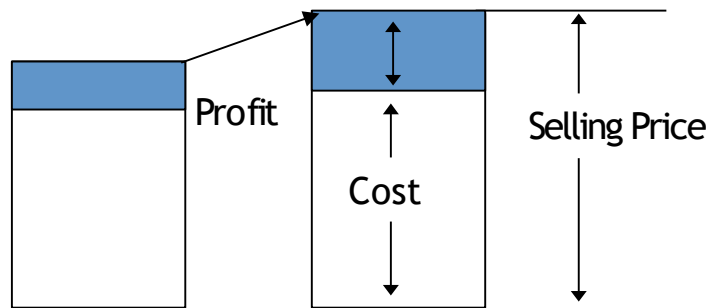
The key in our business is how to collect money quickly, to increase cash flow for the company.

Cost Reduction is Absolute Requirement for Increased Profit

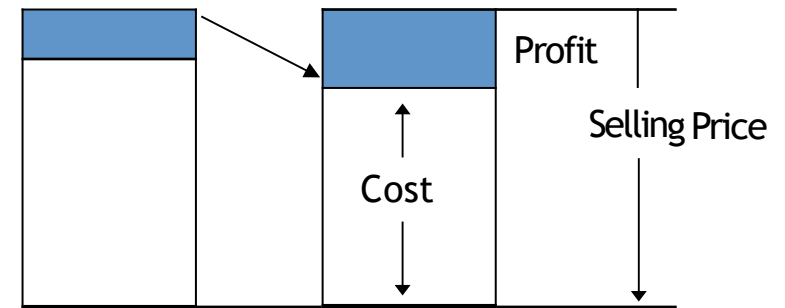
- (1) Selling price = Cost + Profit
 (2) Profit = Selling Price - Costs

Cost Reduction

(1) Cost + Profit



(2) Cost Reduction



Methods for increasing profit

{ Raise the selling price
 Reduce the costs

→ Demand > Supply
 → Demand < Supply

Customers determine the selling price

Productivity \neq Labor Productivity

Productivity

Labor Productivity
(with smaller man power)

Equipment Productivity
(with smaller equipment investment)

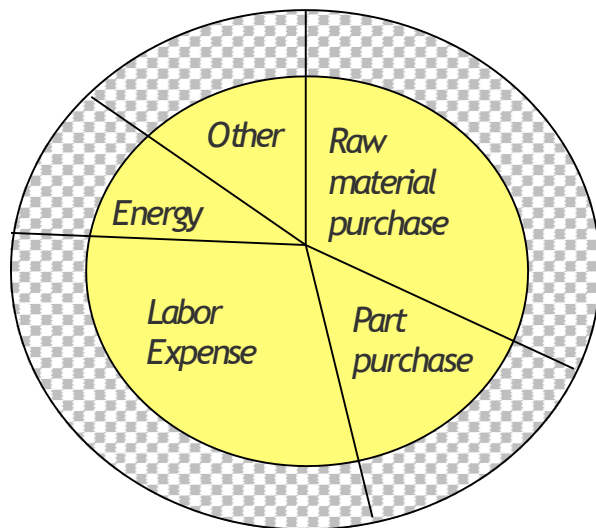
Material Productivity
(with less costly materials and higher yield ratio)


The quality of design plays a decisive role. Still the costs vary depending on the manufacturing method


Cost Dependent on Production Method

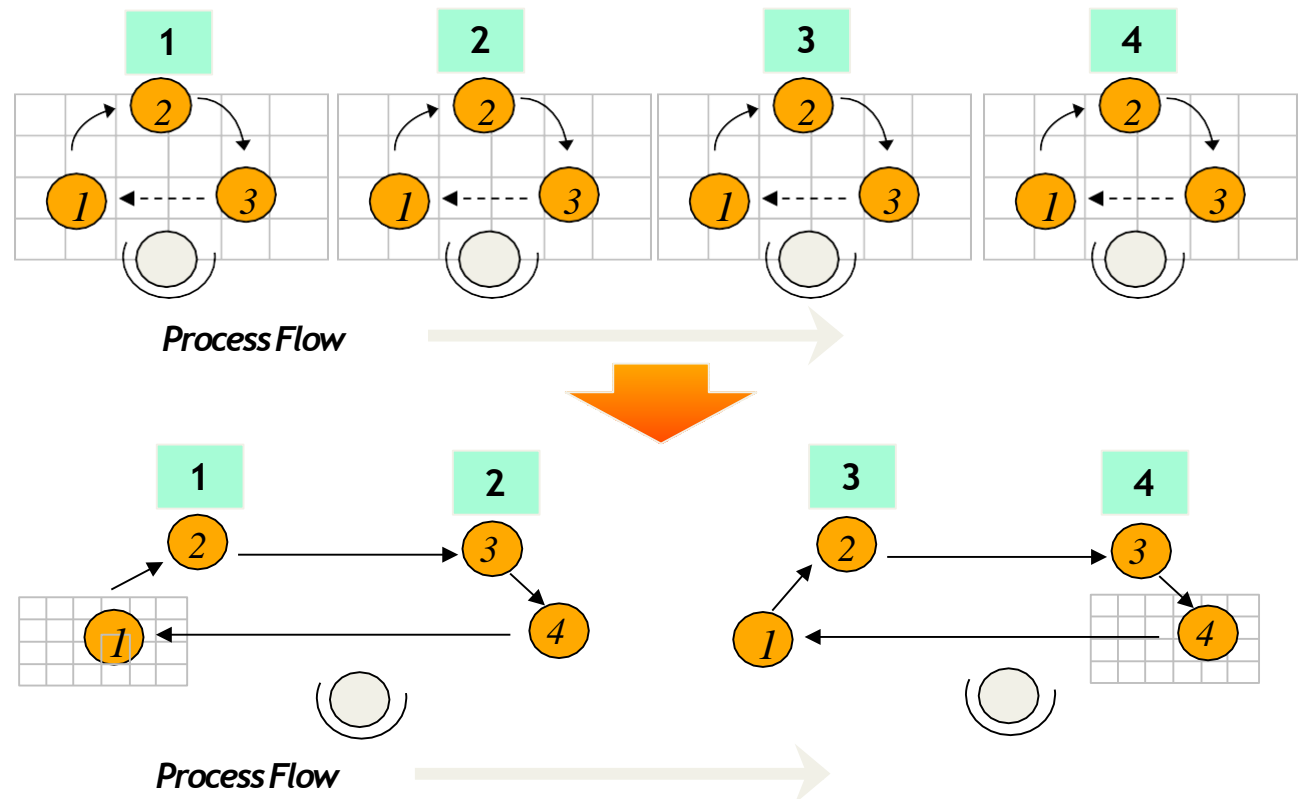
Cost change depending on the production flow/method, even with the same design, same equipment, and the same material

Component of COST

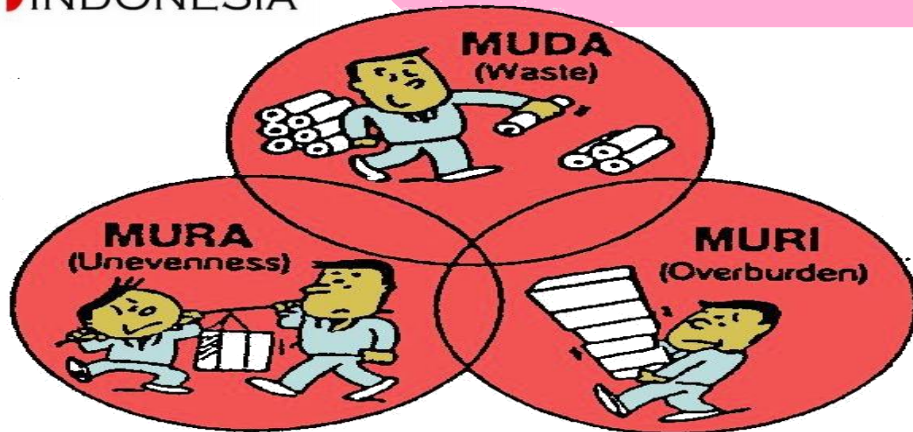


 Cost in Common between companies

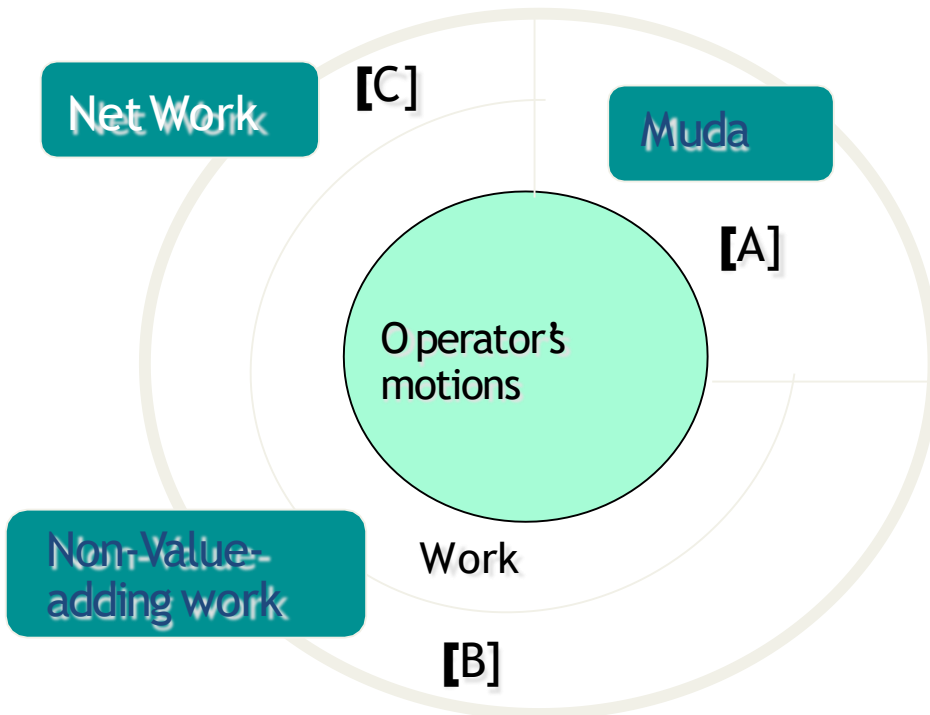
 Cost caused by difference in production method



Work Concept (eg. Operator's Motion)

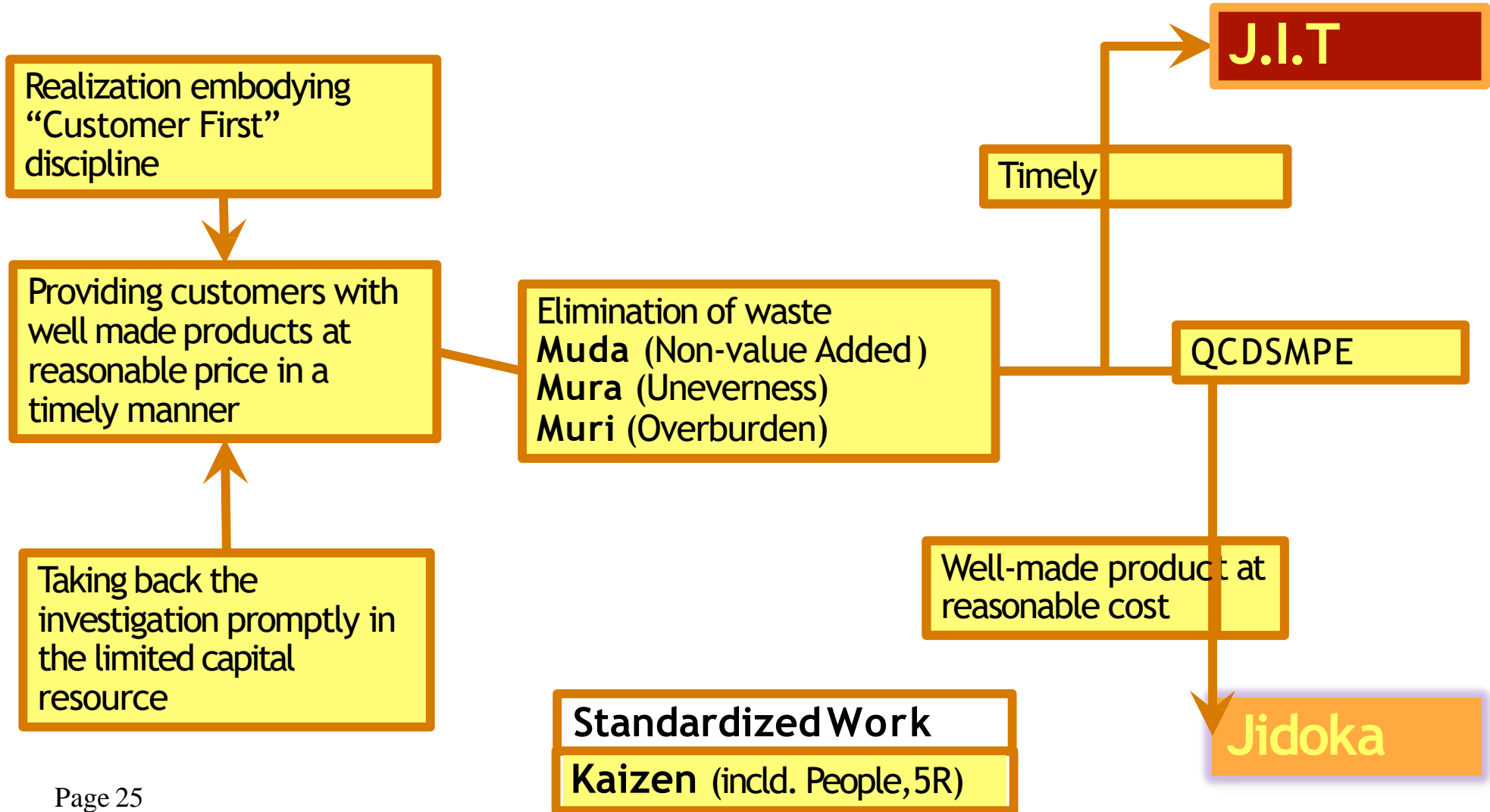


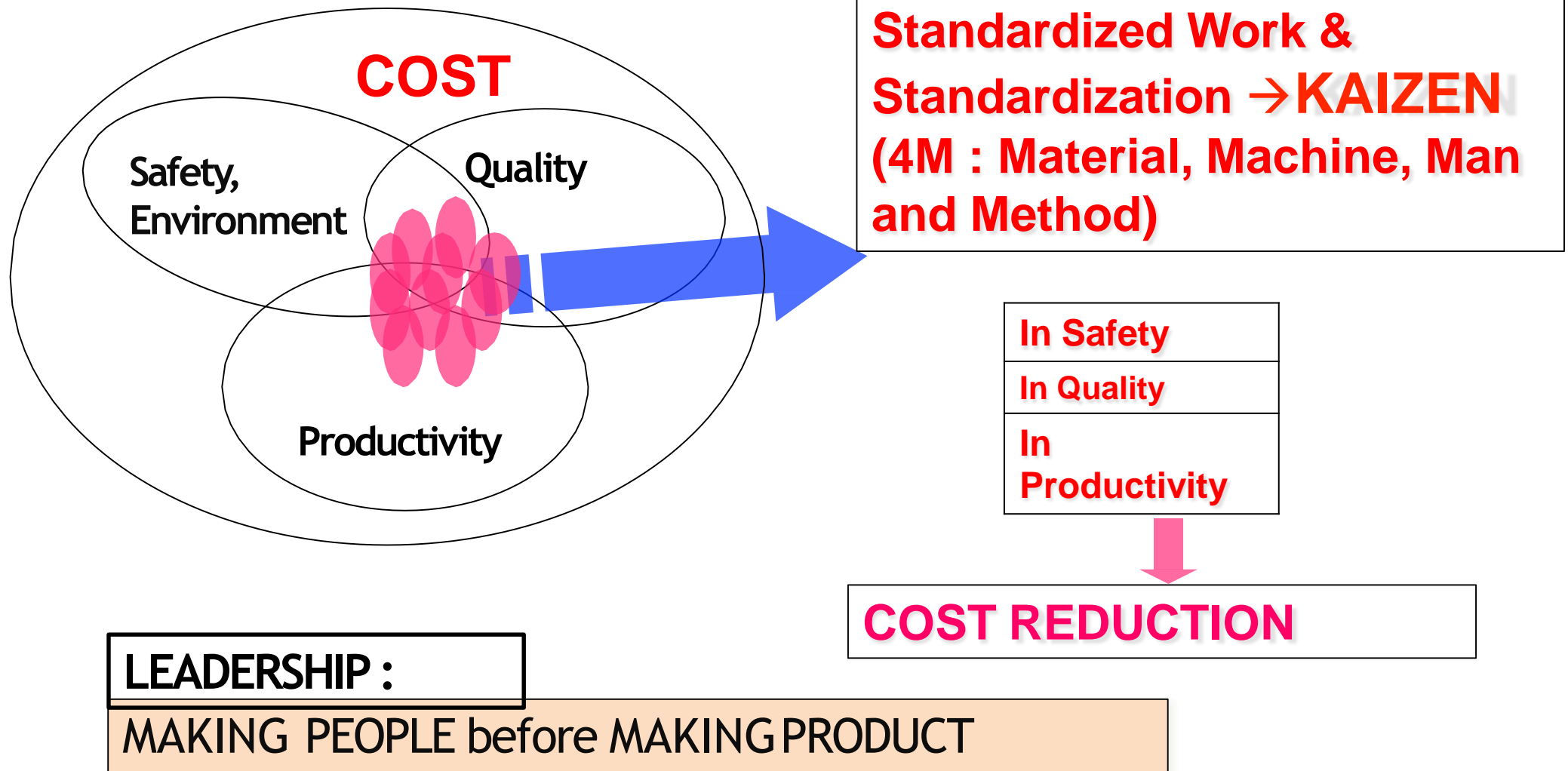
MUDA : WASTE, UNNECESSARY WORK
MURA : UNEVENNESS, UNSTABLE, FLUCTUATIVE THINGS
MURI : OVERBURDEN, OVERLOAD, OVERWORK CONDITION



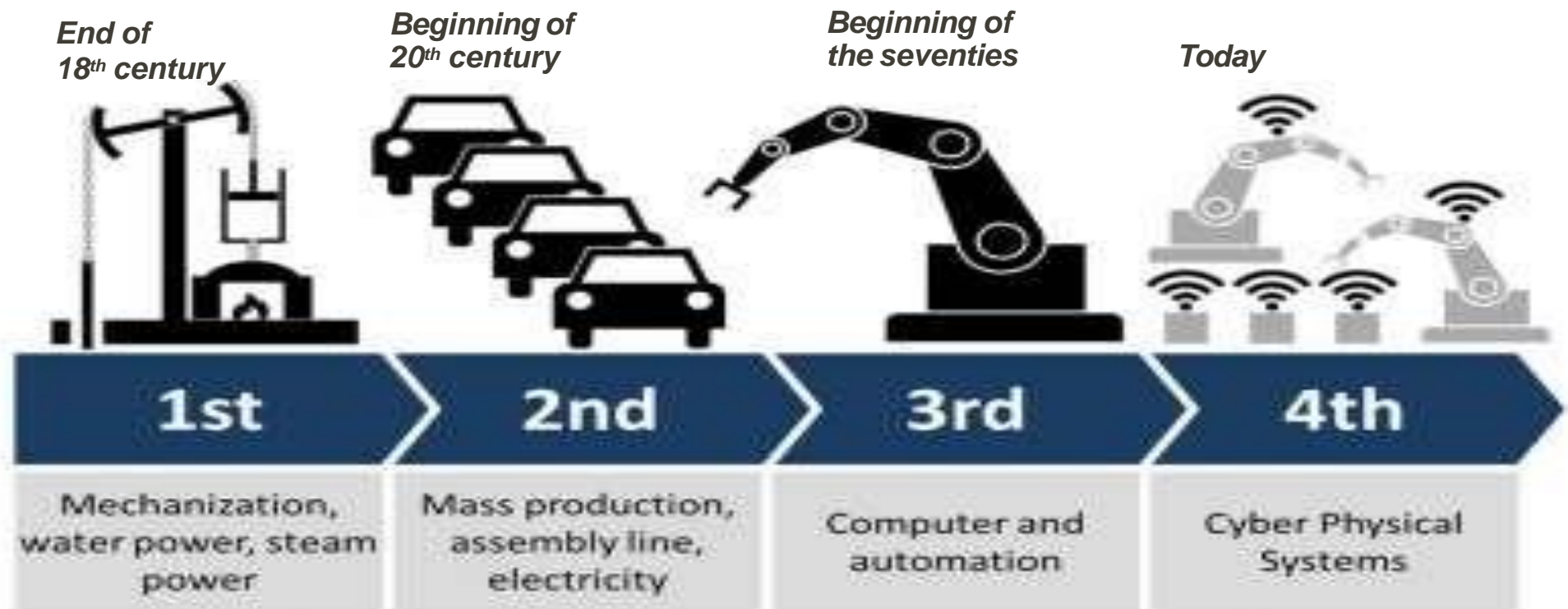
- A. **MUDA** : Motion no necessary for production work
- B. **Non-Value- Adding Work** : Motion that are necessary but do not add any value to the product at the present work stage.
- C. **Net Work** : Motion that add values to the product

Summary of TOYOTA Production System





3. Tantangan & Peluang Industri 4.0



<http://www.futuretimeline.net/forum/topic/15650-why-everyone-must-get-ready-for-4th-industrial-revolution/>

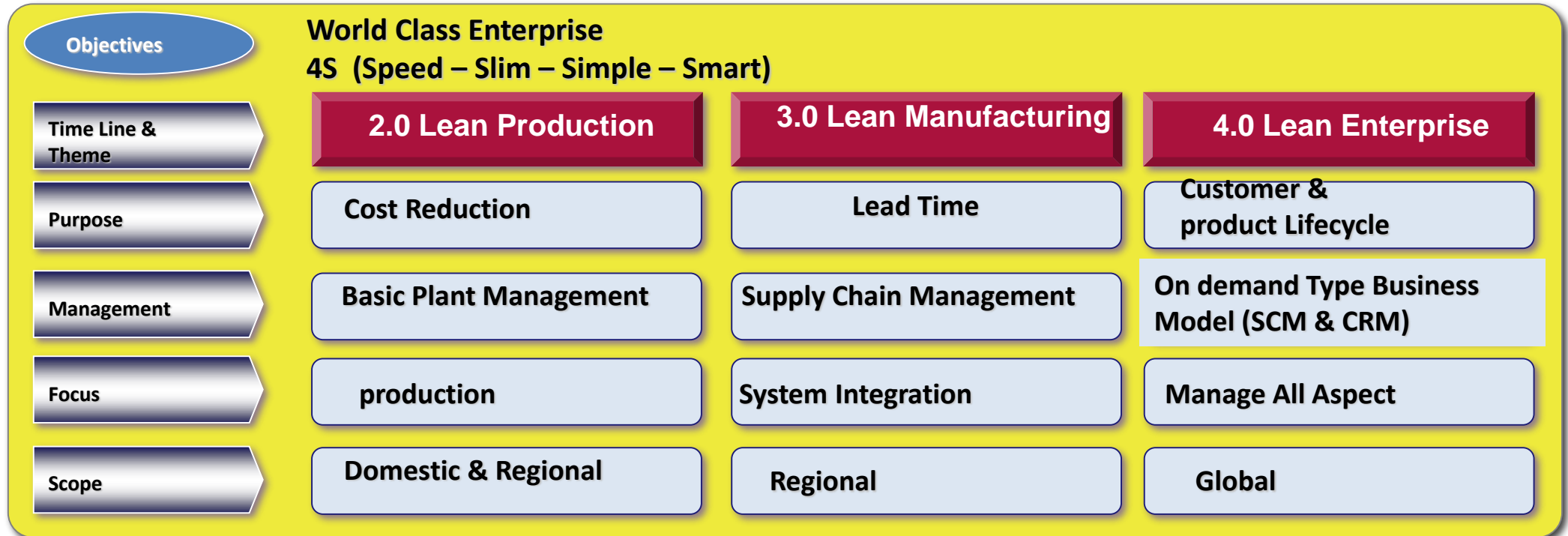
6 Keys for IR4.0 & New Normal (Progressive & Druptive) :

1. Democratization (3D printing, Drone, etc)
2. Digitalization (Wearable (AR/VR), Holography, IoT connectivity)
3. Disintermediation (Advanced Robotic, Big/large data lakes, etc)
4. Demonetization (Platformization, Life as Services)
5. Decentralization (Internet of Value: Blockchain & DLT, from Manopoles/oligarchies to nades, etc)
6. Dematerialization (Fintech, ePayment, currency notes to bits & bytes)

From Lean Production (IR2.0) to Lean Manufacturing (IR3.0) and then to Lean Enterprise (IR4.0)

(One global operation – change corporate culture – change to new business model – collaboration)

Innovation Strategy



Tipping points : Future digital and hyper connected world ... Will have occurred by 2025 !!!

world economic forum identified in september 2015 : 21 tipping points ; 800 executives and experts from the information and communications; Technology sector participated

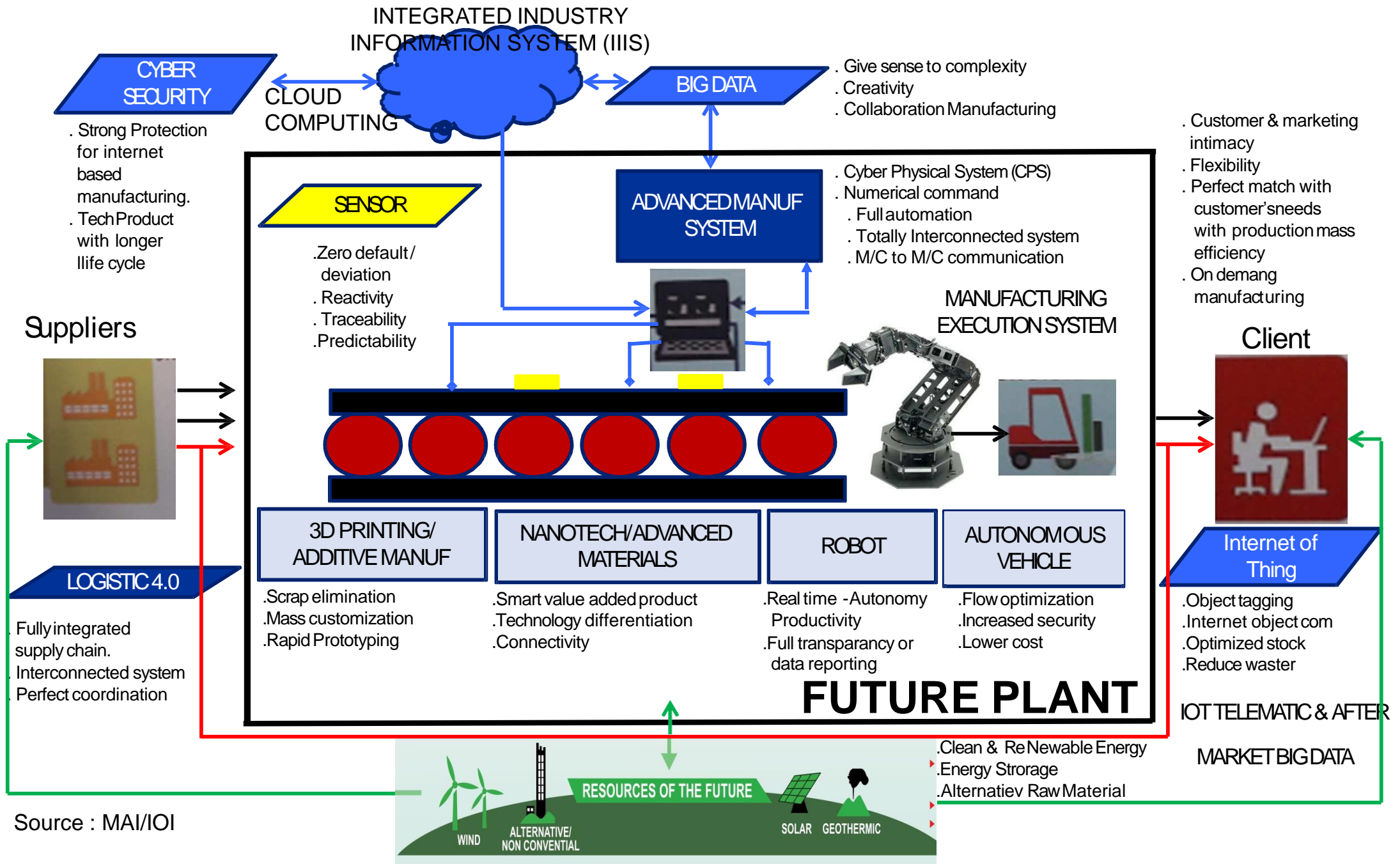
Drivers : megatrends & new normal

➤ **Physical** : autonomous vehicles , 3D printing , advance robotic , new materials

➤ **Digital** : internet of things (IOT) , RFID , block chain , bitcoin , digital platforms , Artificial Intelligence (AI) , big data

➤ **Biological** : syntetic biology , health care

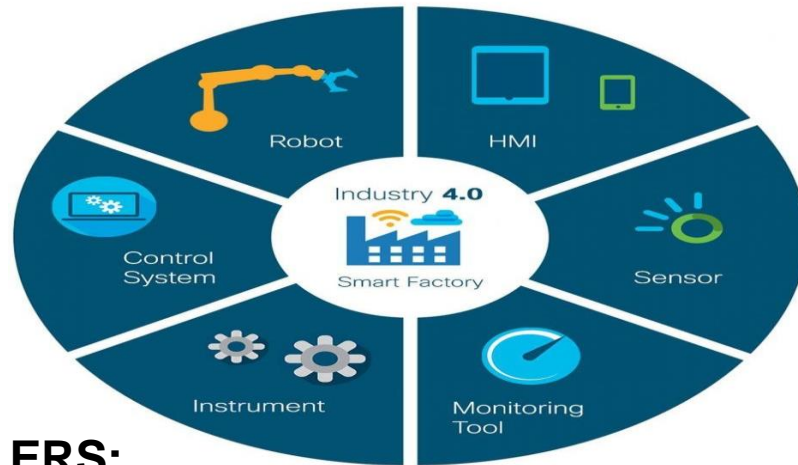
SCHEME OF FUTURE IMPLEMENTATION OF INDUSTRY 4.0



Management (Corporate) Actions for Shifting to IR 4.0

Toward IR 4.0 to improve “Productivity”, “Supply Chain Productivity” and “Trace Ability” to win the competition both domestic and export

Concept of IR 4.0



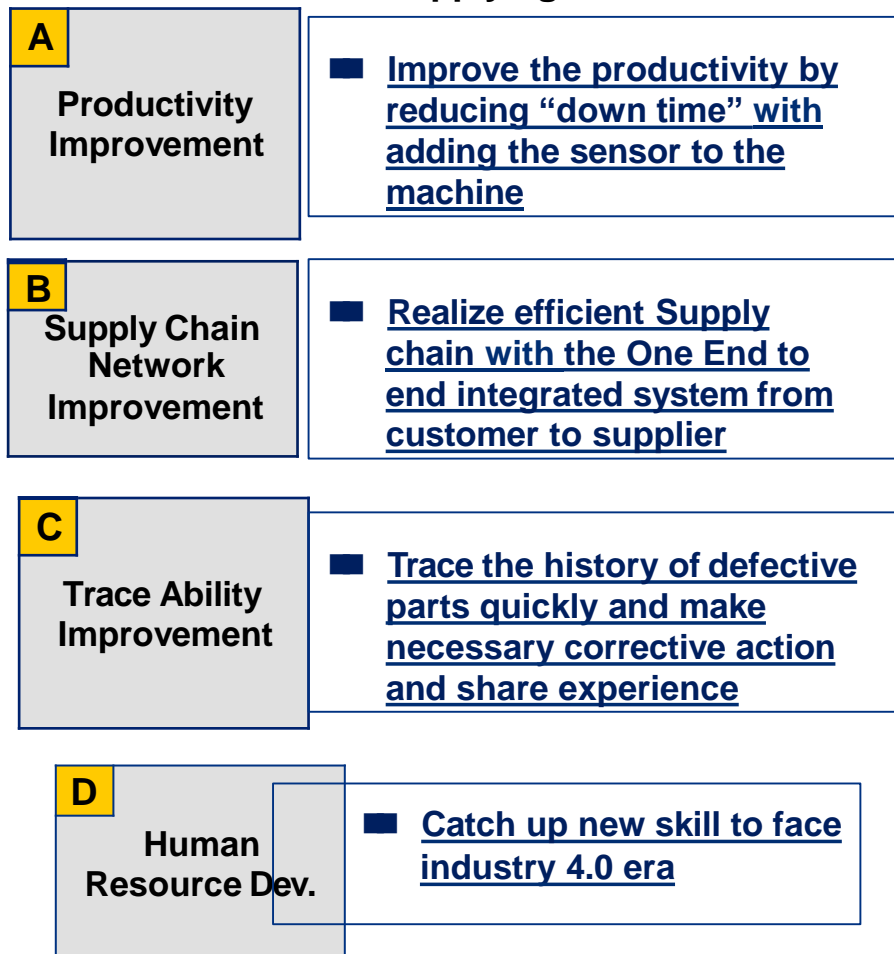
ENABLERS:

- Computing power, storage capacities, data analytics, networking ability,
- Internet security & trust for collabtn

DEVELOPMENT:

- Collaborative manufacturing, shared manufacturing, strategic production network, project based manufacturing systems, e-logistics, e-commerce
- Compatibility, interoperability, traceability, standardization, multi-skilled trusted worker

Initiative for Applying IR 4.0



Human Resources Development (Man Power) Toward IR4.0

Human resource is the most important asset for Industry, human resource need to catch up the **New Skill** of IR 4.0 in addition with the mastering existing skill.

Necessary Skill for Human Resource by each Step

