Ministry of Industry

Indonesia's Fourth Industrial Revolution

Making Indonesia 4.0

2018

Agenda

1. Background

2. “Making Indonesia 4.0” Aspirations

3. Five Focus Sectors for “Making Indonesia 4.0”

4. 10 National Priorities for “Making Indonesia 4.0”

5. Economic Benefit and Job Creations

6. Next Steps

Background

Indonesia has successfully built economic virtuous cycle, bringing Indonesia to one of the global leading economies

Economic Cycle Improvement

Labor Total Earnings

The world # **4** working population and added **~30 Million workers** in 15yrs. Wages surged to **x2** in 10 yrs[1]

Consumer Spending

Household expenditure contributes **55%** of GDP which expanded by **x8** in 15yrs

Economic Virtuous Cycle

Investment

Gross capital formation increased by **x13** (from 22% to 34% of GDP) in 15 yrs

Corporate Activities

Market capitalization of Indonesia Stock Exchange became **USD 500 Bn**, increased to **x15** in 15yrs

Social Foundation

- Political Stability
- Education level
- Safety

Global GDP ranking[1] (Nominal)

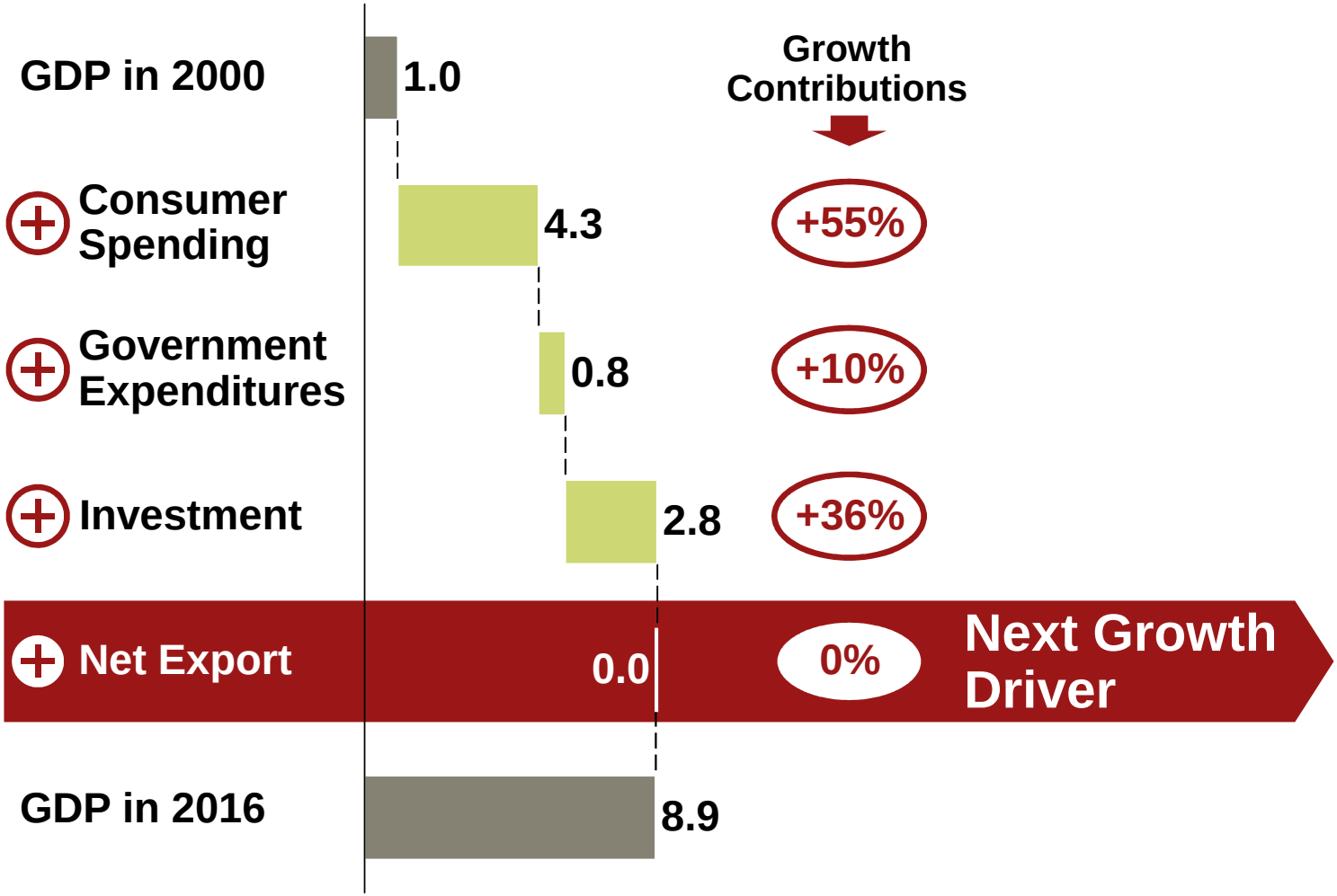
1	USA
2	China
3	Japan
4	Germany
:	
16	Indonesia in 2016
:	
27	Indonesia in 2000

1. Based on data from ILO, average Indonesian's earnings increased by 115% between the period 2004-2015
Source: World Bank, IMF, A.T. Kearney

Kementerian Perindustrian
REPUBLIK INDONESIA

Indonesia has an aspiration to be global top 10 economy by 2030; next growth engine must be net export

Factors contributing to Indonesia's GDP growth
(Index: 2000 = 1)



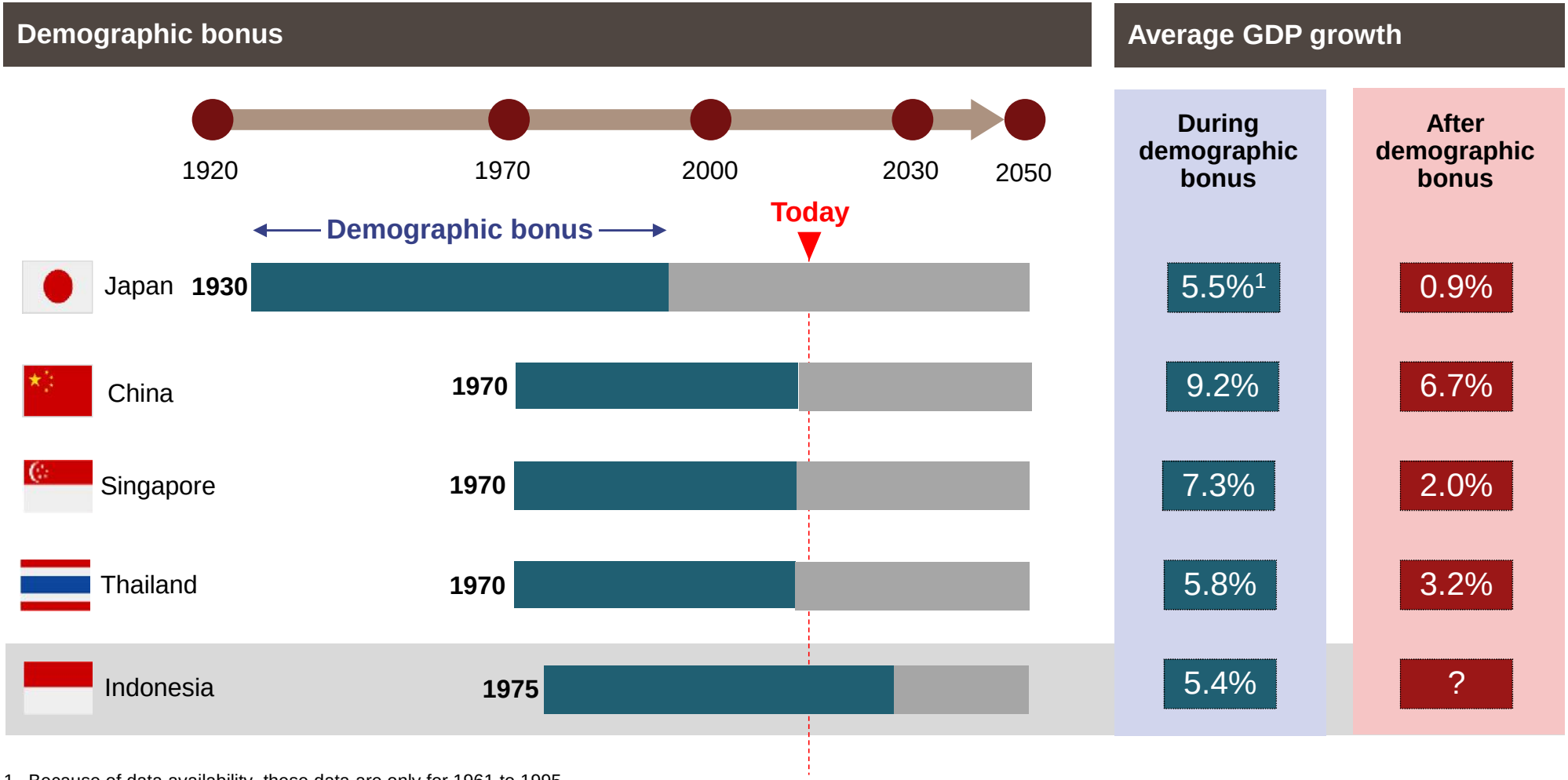
Global GDP ranking[1]
(Nominal)

1		USA
2		China
3		Japan
4		Germany
:		
10		Indonesia in 2030
:		
16		Indonesia in 2016

1. Based on nominal GDP value in USD

Source: World Bank, A.T. Kearney

The next 15 years will be a “golden age” for Indonesia as it will enjoy a demographic bonus peak



1. Because of data availability, these data are only for 1961 to 1995
2. Note: A demographic bonus period is when the ratio of working population to dependent population is increasing, which has a high correlation with a country’s economic growth. Average GDP growth for Indonesia is 1975 to 2016.

Source: World Bank, A.T. Kearney

Moving forward Indonesia needs to avoid the 'economy vicious cycle' trap

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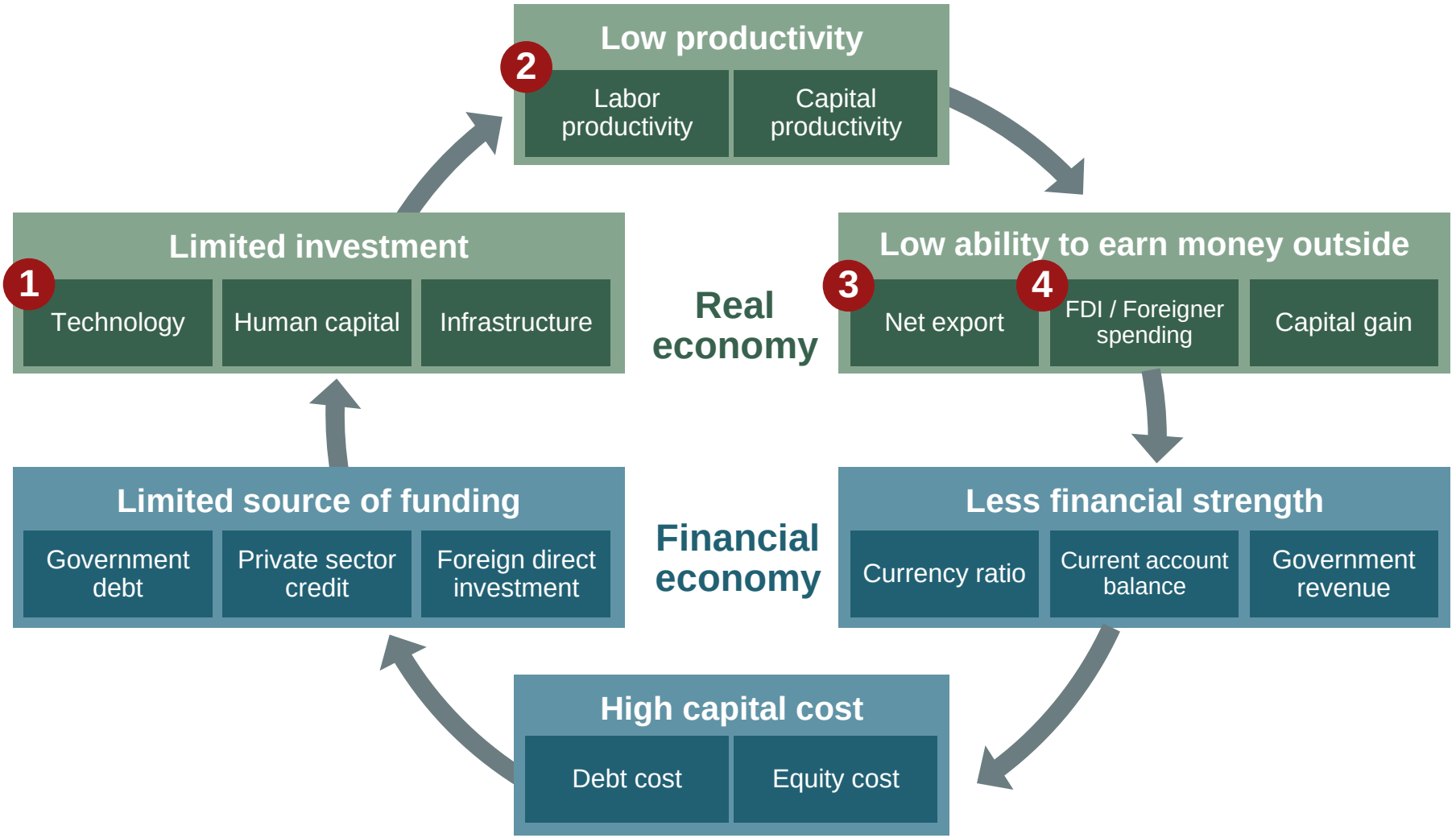
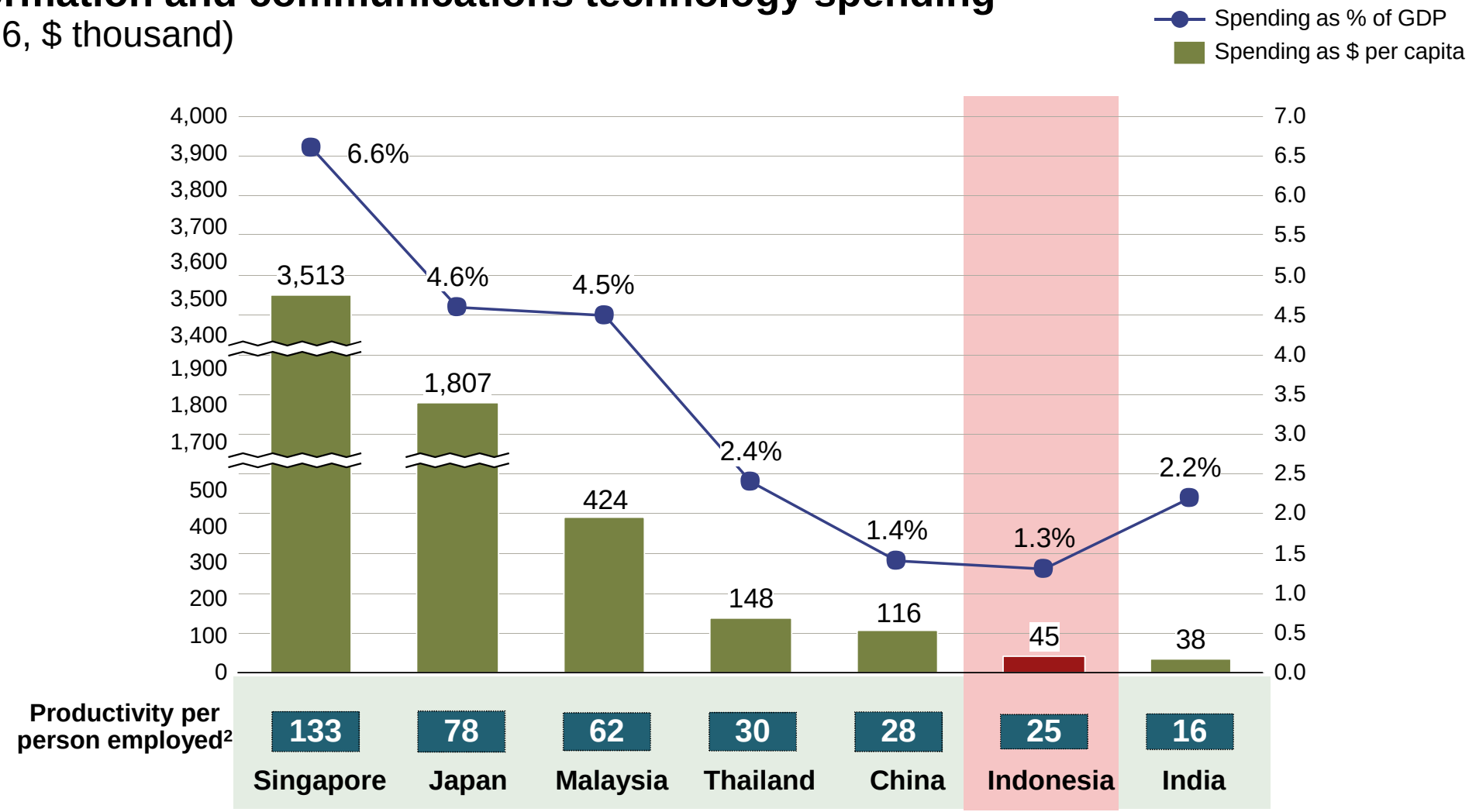


Note: The real economy is the part of the economy that produces goods and services. The financial economy is focused on buying and selling on the financial markets.
Source: A.T. Kearney

Kementerian Perindustrian
REPUBLIK INDONESIA

1 Indonesia spends less on technology than its global peers

Information and communications technology spending[1]
(2016, $ thousand)

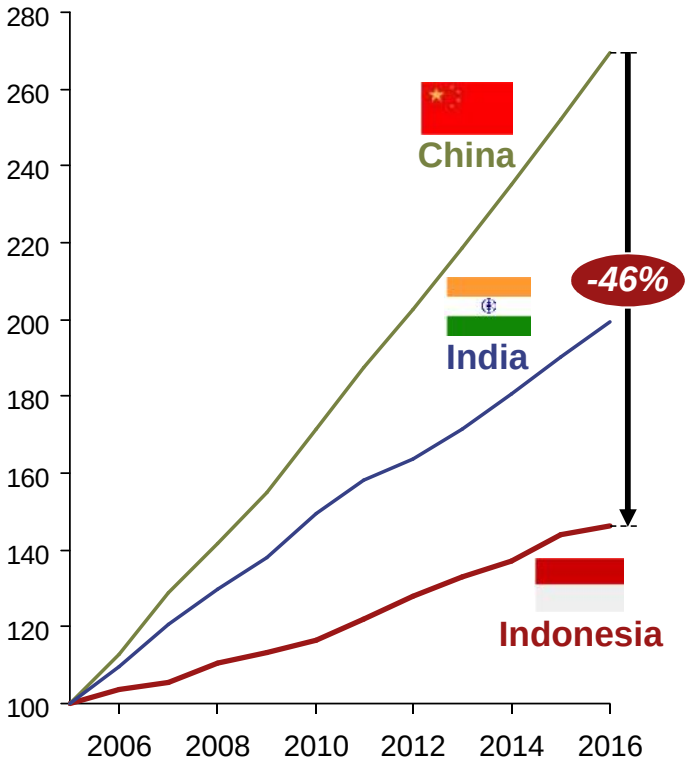


1. Gartner "Forecast: Enterprise IT Spending by Vertical Industry Market, Worldwide, 2012-2018, 4Q14 Update".
2. The Conference Board "Output, Labor and Labor Productivity, 1950-2017"
Sources: Gartner, The Conference Board, A.T. Kearney

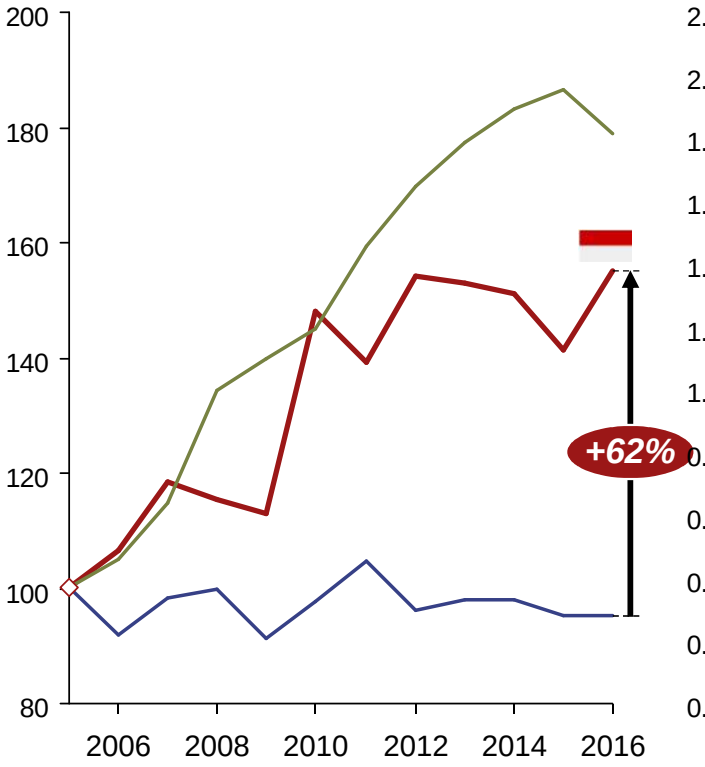
2 Labor productivity per cost is flattening, weakening Indonesia's position in the global competition

Comparative Growth in Labor Cost and Productivity[1]

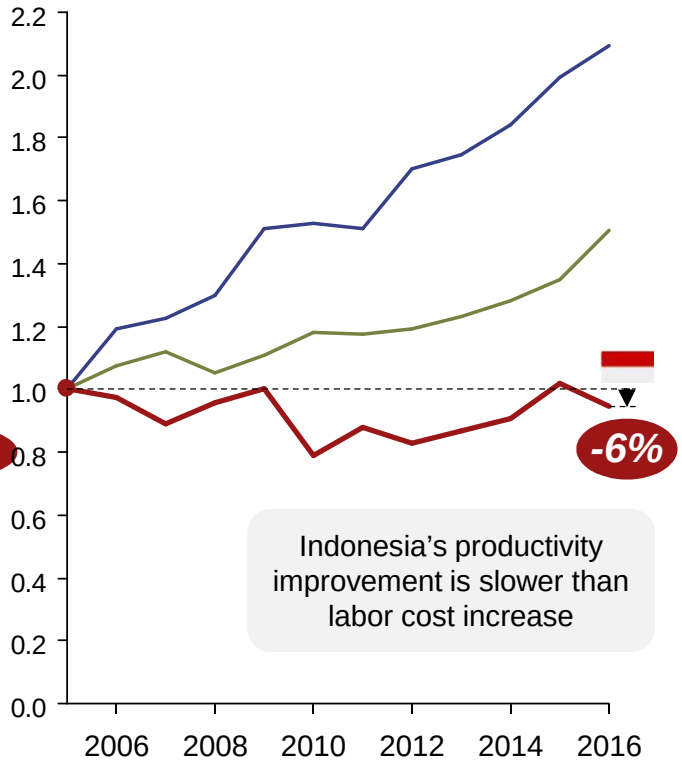
Labor Productivity Comparison



Labor Cost Comparison



Productivity/Cost Comparison

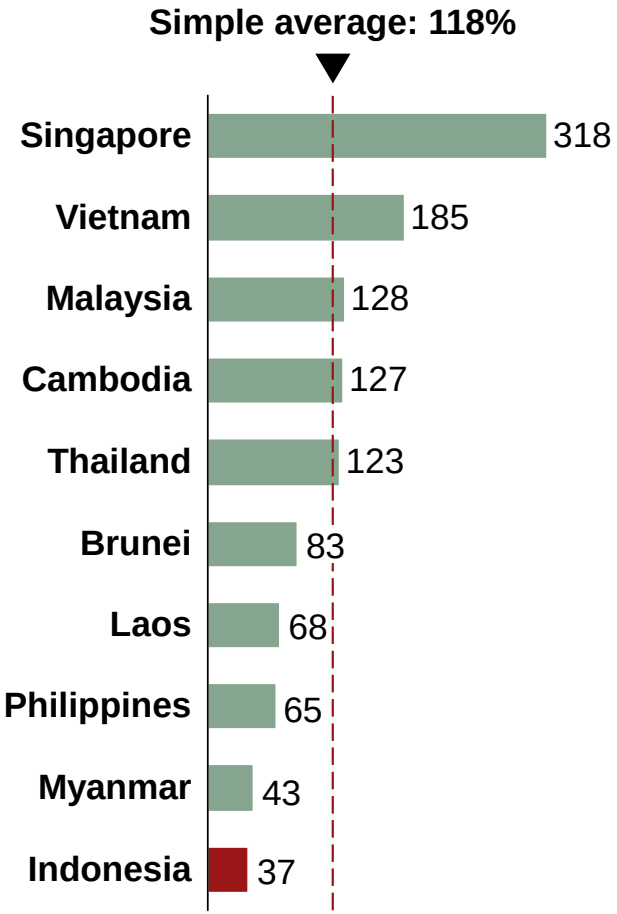


1. Unit labor cost and productivity rebased to 2005
Source: Total Economy Database "Output, Labor and Labor Productivity, 1950-2017", Economist Intelligence Unit

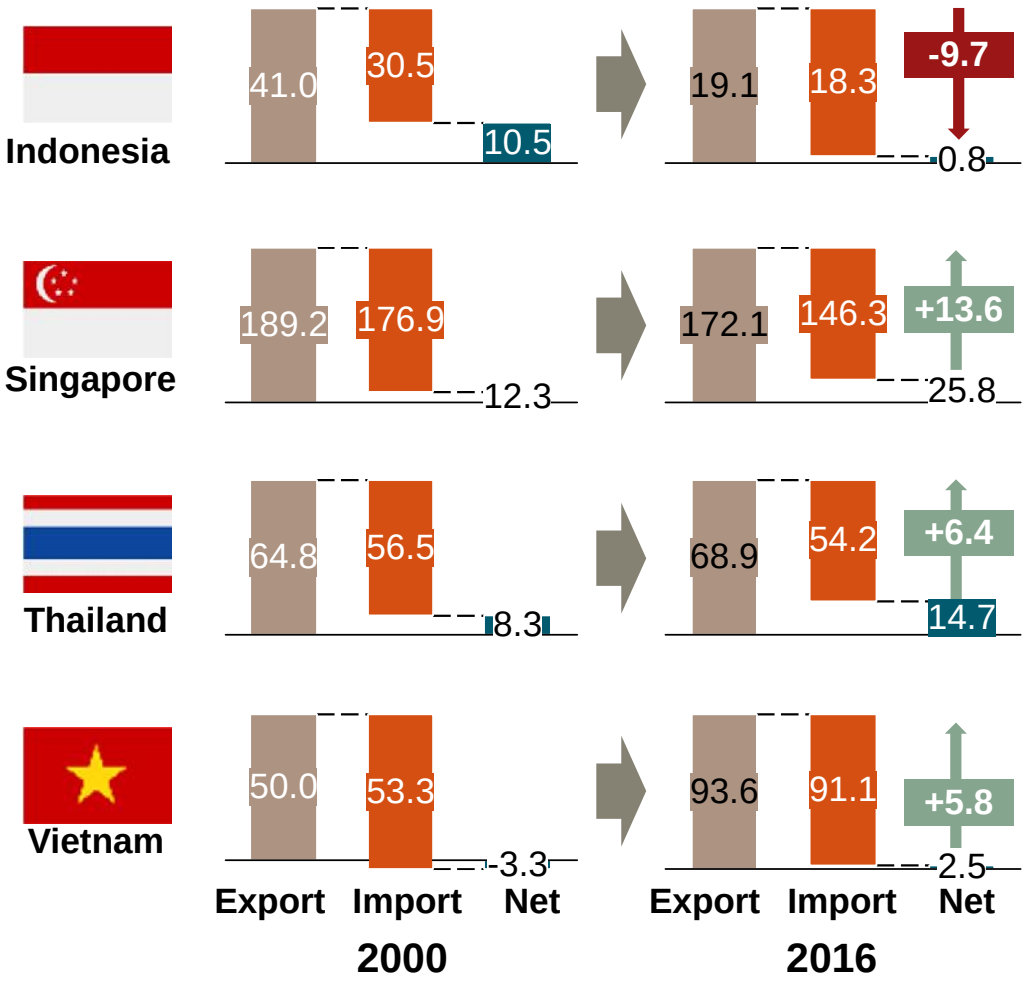
Kementerian Perindustrian
REPUBLIK INDONESIA

3 Indonesia is showing the lowest trade flow in ASEAN while shrinking net export

ASEAN countries' trade size
(2016; % of GDP)



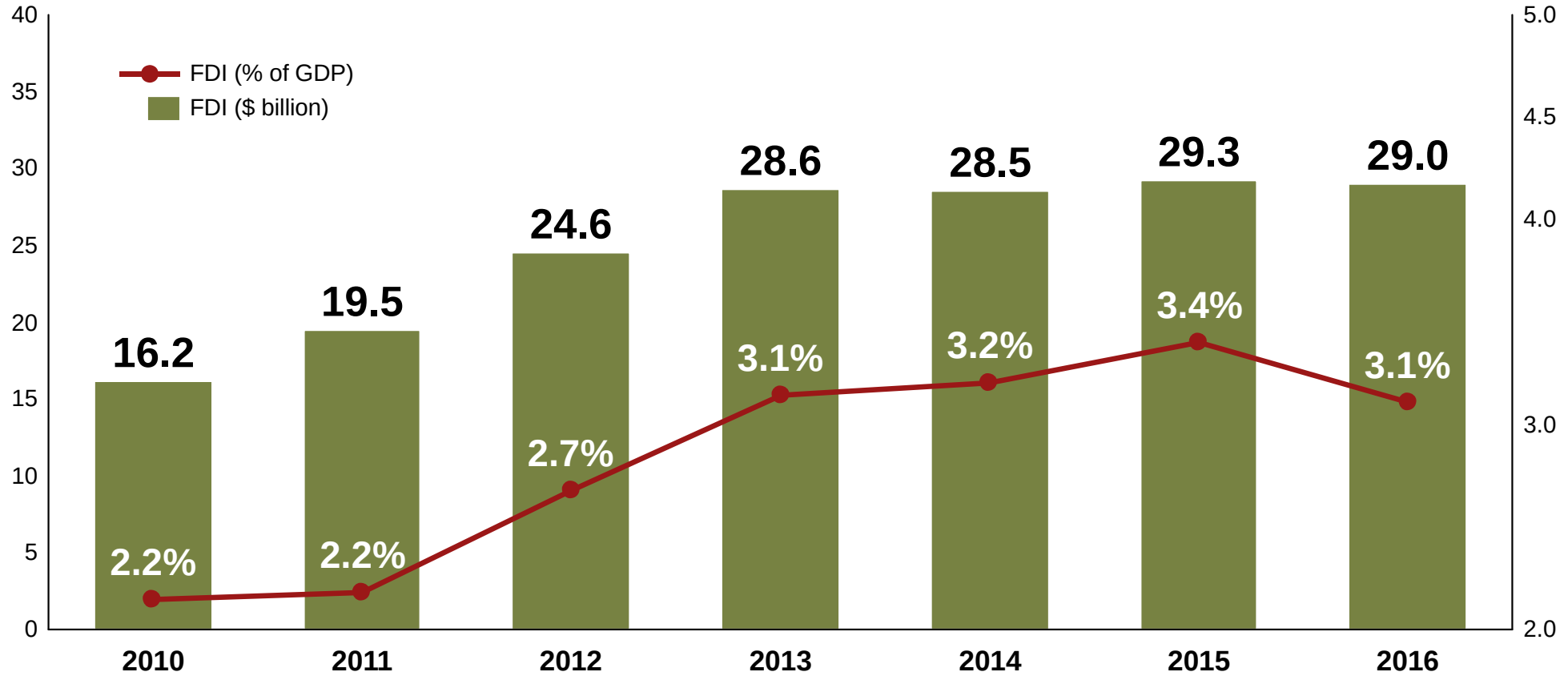
Export and import trends
(% of GDP)



Note: ASEAN is the Association of Southeast Asian Nations.
Sources: World Bank, A.T. Kearney

4 Foreign investments into Indonesia show stagnation

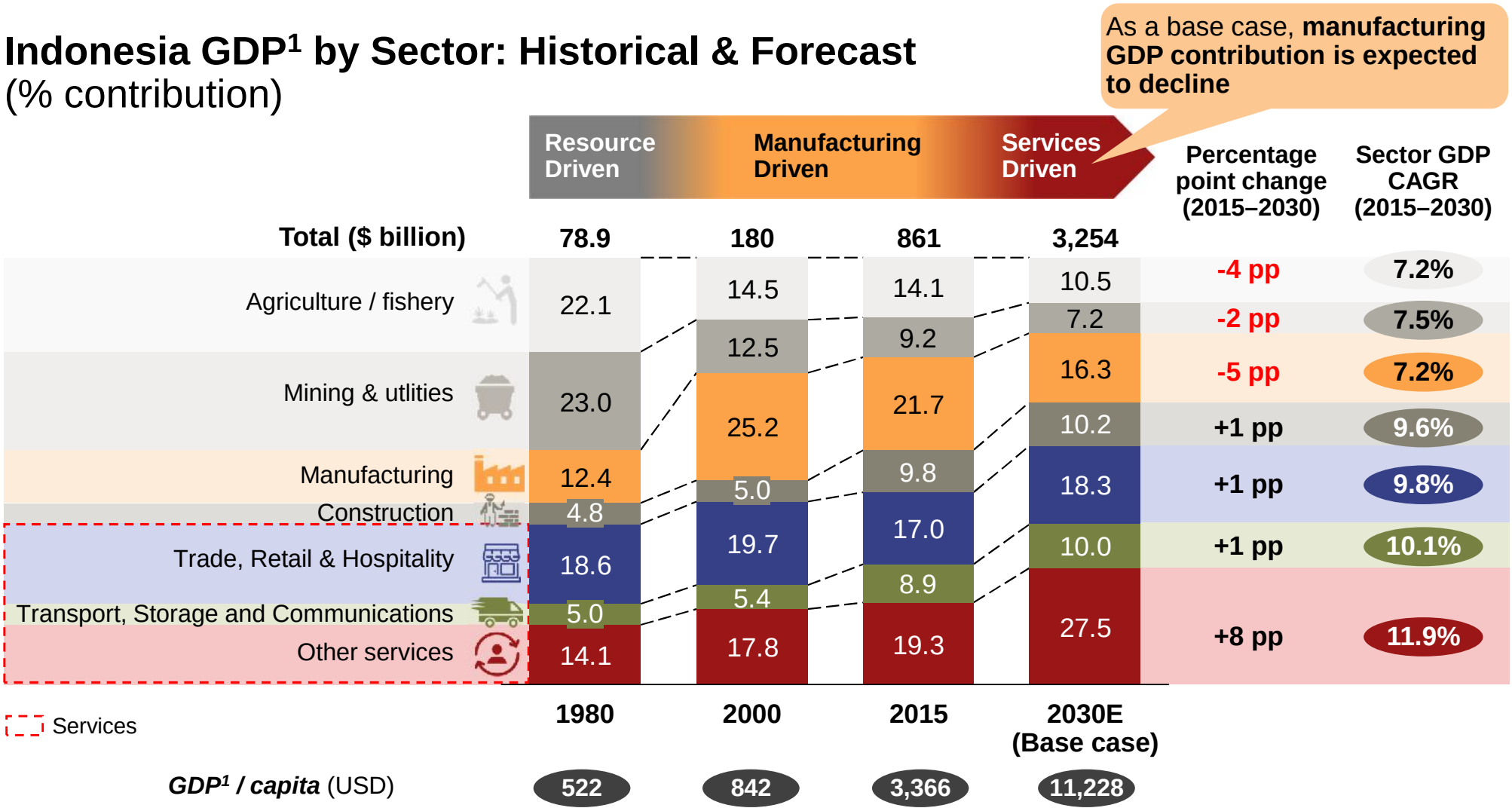
Indonesia FDI



Note: FDI is foreign direct investment.
Sources: Indonesia Investment Coordinating Board, World Bank, A.T. Kearney

Indonesia's economy is expected to shift towards services while manufacturing sector is relatively weakening

Indonesia GDP[1] by Sector: Historical & Forecast
(% contribution)



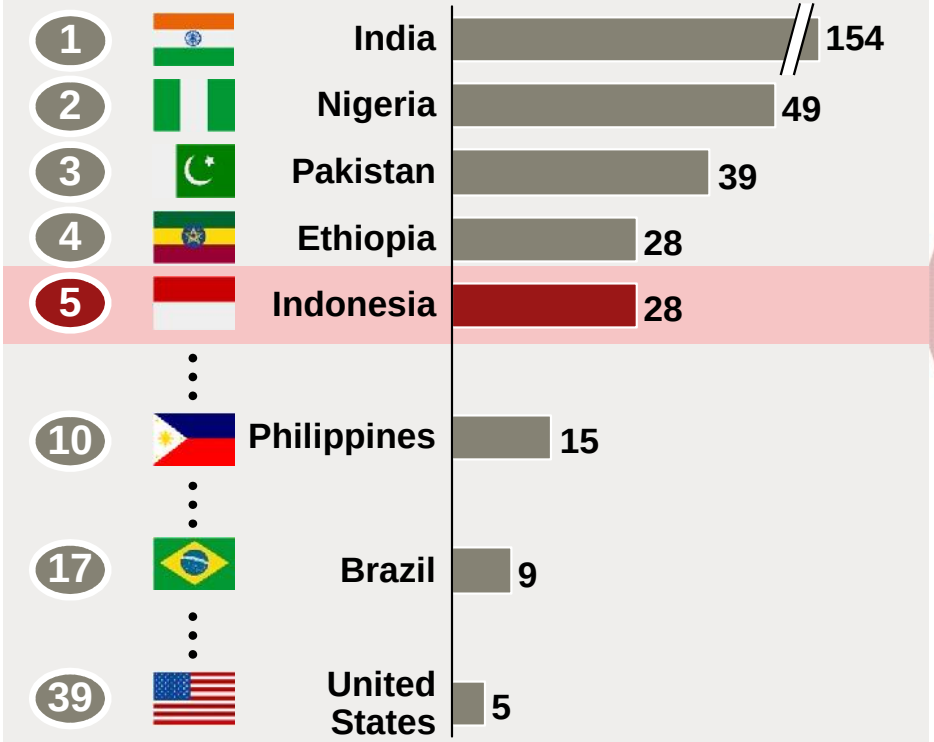
1. Nominal GDP

Sources: World Bank, Reserve Bank of Australia, United Nations, Economist Intelligence Unit, Indonesia's Central Bureau of Statistics, A.T. Kearney

Indonesia needs to create more jobs; Reviving manufacturing sector is imperative for Indonesia

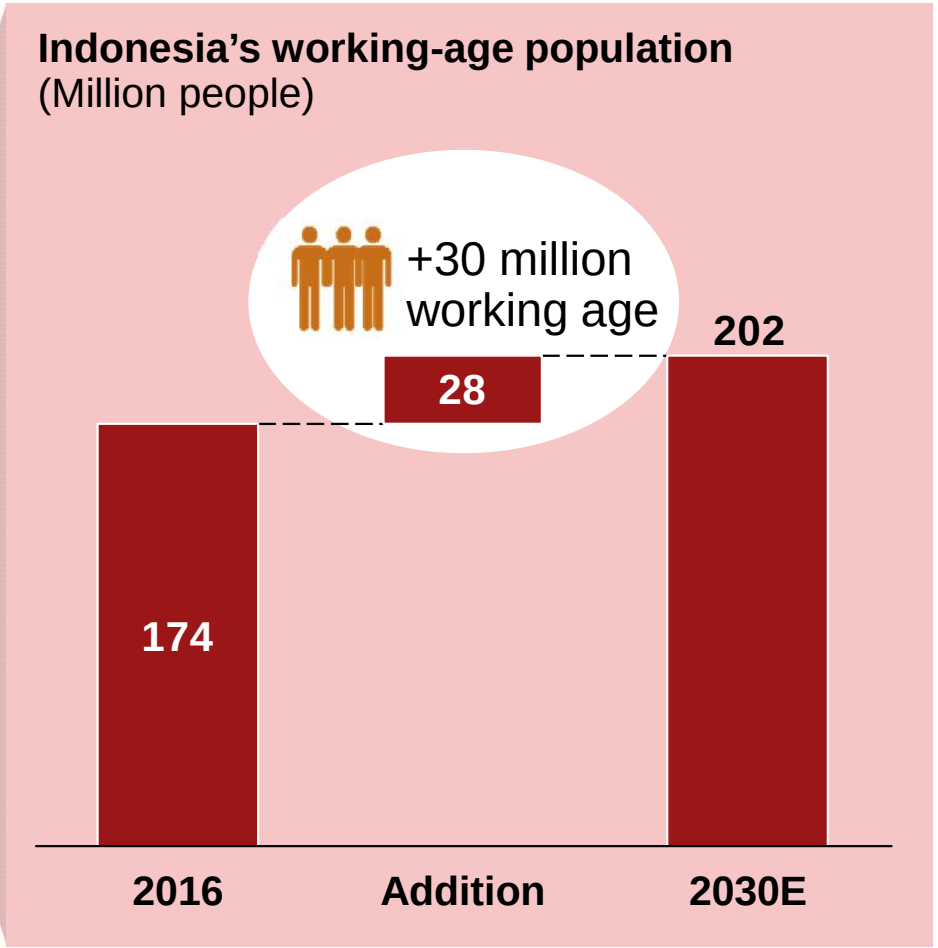
Being the top 5 country with the highest working-age population increase by 2030…

Working-age population increase
(2016-2030; Million people)



… Indonesia needs to revive manufacturing sector to absorb growing labor supply

Indonesia's working-age population
(Million people)



Source: World Bank, Badan Pusat Statistik, A.T. Kearney

Industry 4.0 initiative is the global trend in the manufacturing industry

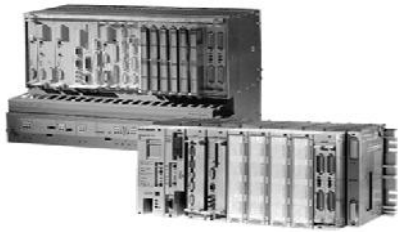
End of 18th century

First mechanical loom - 1784

Beginning of 20th century

First production line, slaughter- houses in Cincinnati - 1870

Beginning of the seventies



First programmable logic controller (PLC) Modicon 084 - 1969

Today

Ubiquitous connectivity of people, machines and real time data

Industry 4.0
Cyber-physical systems

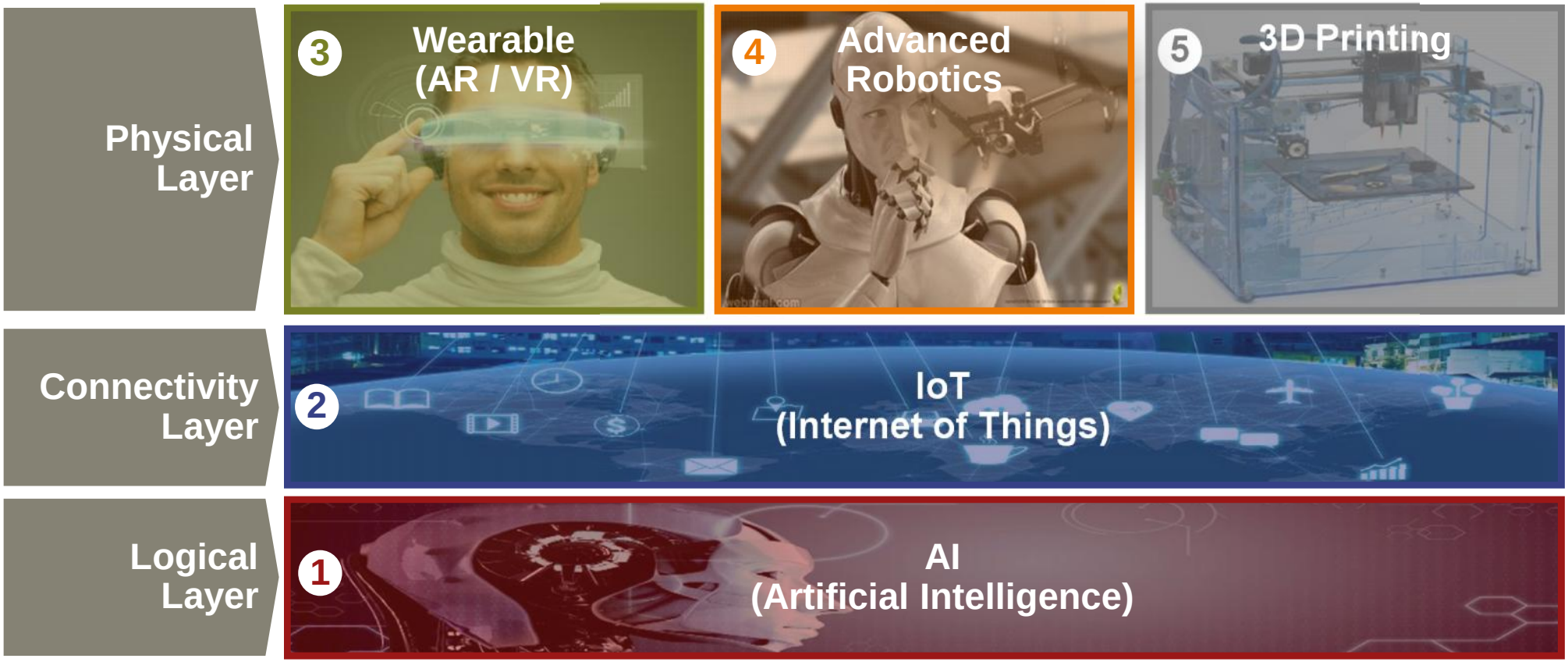
Industry 3.0
Use of electronics and IT to further automate the production

Industry 2.0
Introduction of mass production based on the division of labor

Industry 1.0
Introduction of mechanical production facilities using water and steam power

Five technologies will be the key technologies for Industry 4.0

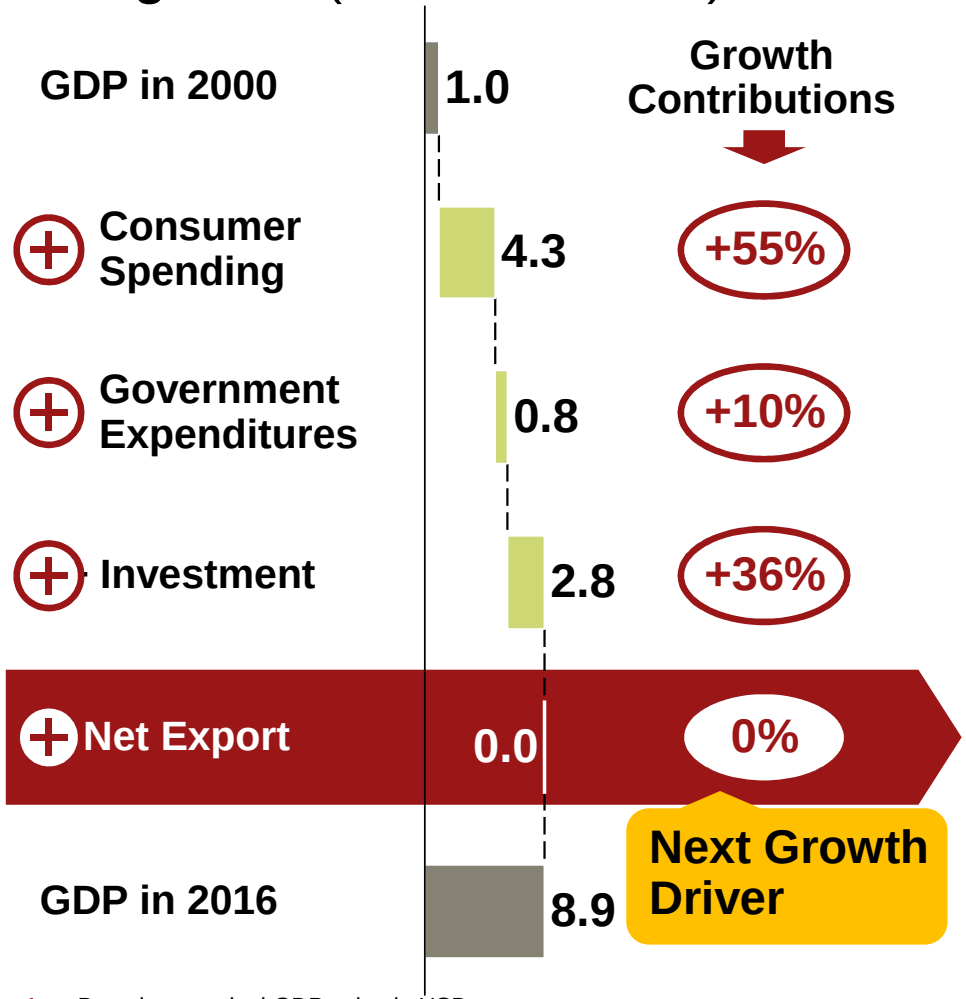
5 Key Technologies of 4IR



Note: Detailed explanation of the technologies can be found in the baselining workshop document
Source: A.T. Kearney

Industry 4.0 can be a game changer for Indonesia's economic growth

Factors contributing to Indonesia's GDP growth (Index: 2000 = 1)



1. Based on nominal GDP value in USD

Source: World Bank, A.T. Kearney

Impact of Industry 4.0

"Making Indonesia 4.0" Aspirations

Industry 4.0 can revive the Indonesian manufacturing sector; Indonesia should launch “Making Indonesia 4.0” initiative

Making Indonesia 4.0 Aspirations

Making Indonesia 4.0

Global Top 10 Economy by 2030

10% Net Export contribution to GDP	**Regain net export position** (the same level as 2000)
2x current[1] productivity-to-cost	**Enhance output while managing cost** (Similar improvement speed to India)
2% of R&D spending share to GDP	**Build local innovation capabilities** (Similar level to China[2])

1. Based on 2016
2. Indonesia’s R&D spending per GDP is currently around 0.1-0.3%

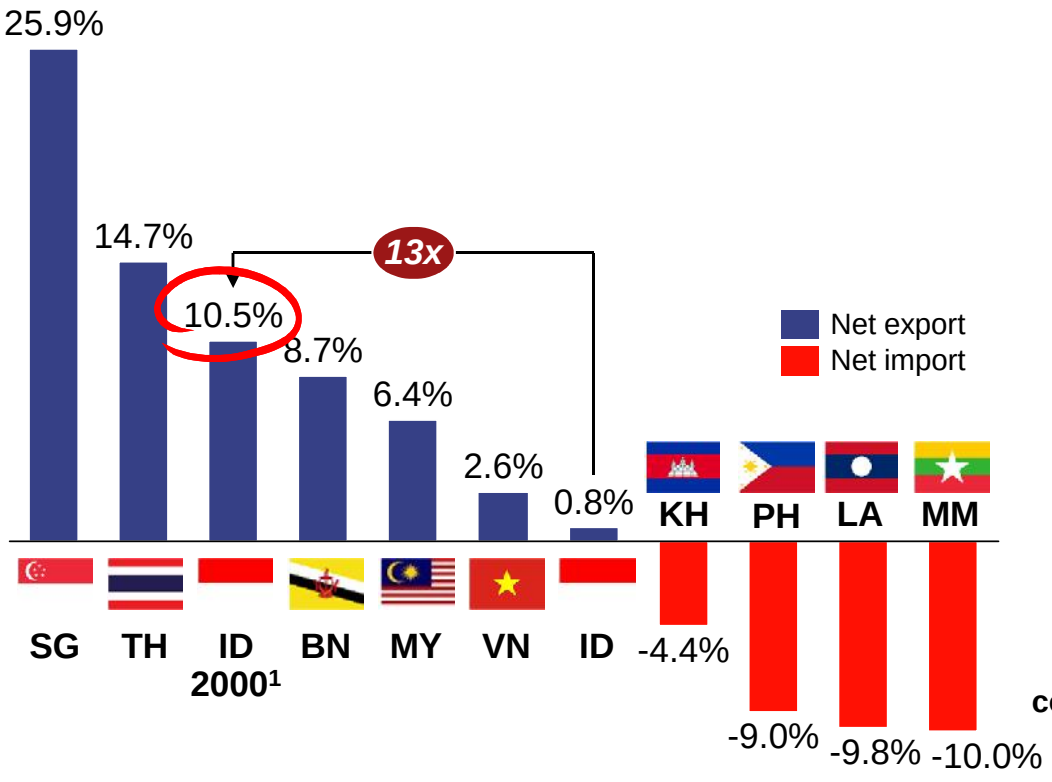
Source: World Bank, A.T. Kearney

10% Net Export: "Making Indonesia 4.0" will help Indonesia enhance its competitiveness in export market

Aspiration in net exports

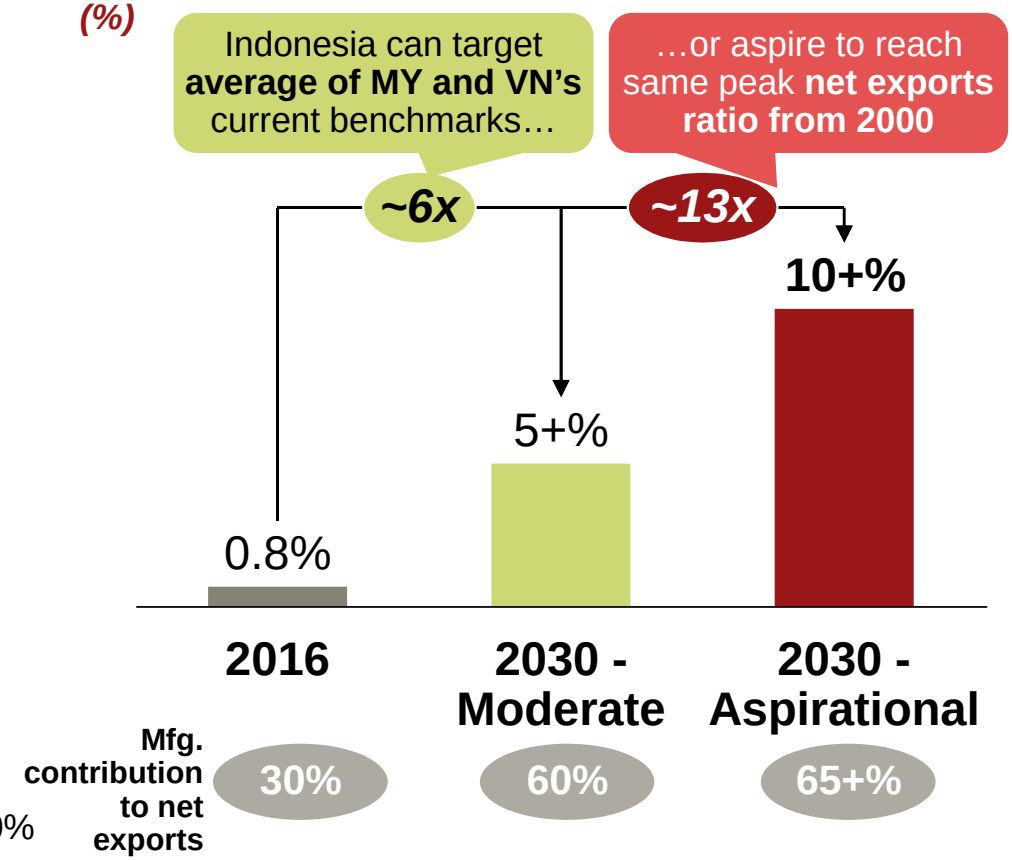
Net exports benchmarking – ASEAN (2016)

Net exports share to GDP (%)



Net exports to GDP target for Indonesia (2016 & 2030; %)

Net exports share to GDP (%)



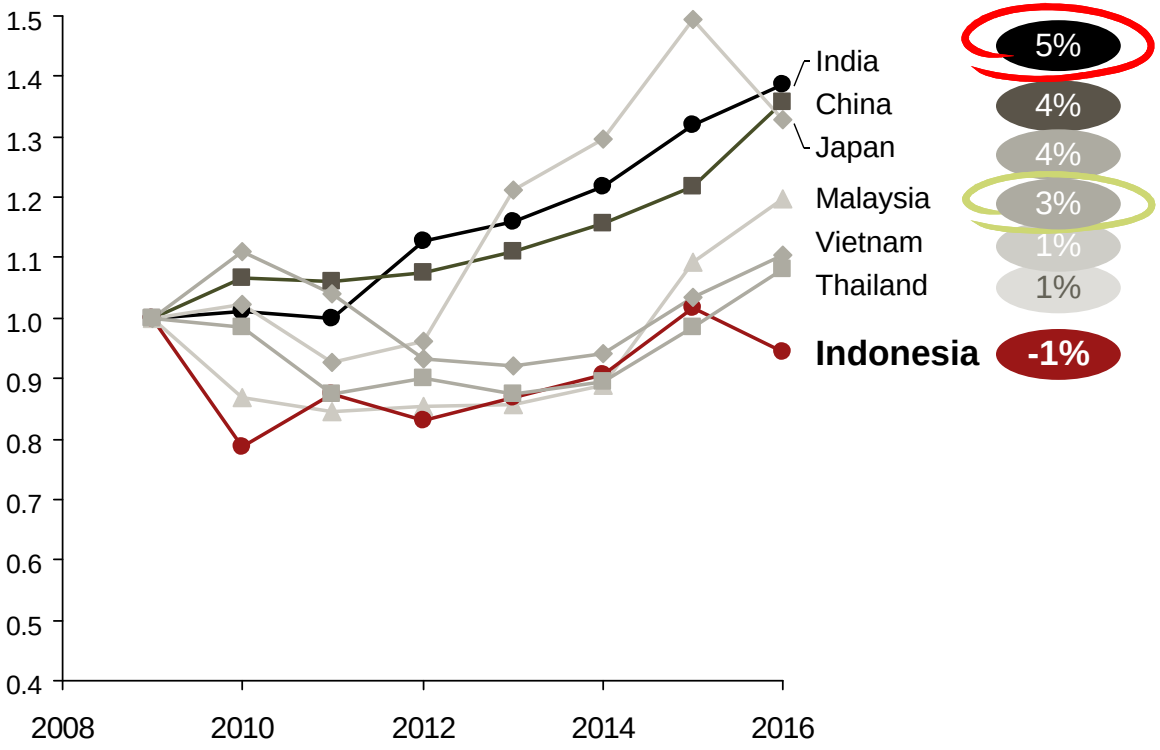
1. Indonesia in year 2000
Source: EIU, IMF, WITS, World Bank, A.T. Kearney

2x productivity-to-cost: Implementing 4IR technologies will help improve Indonesia's productivity level

Aspiration in productivity

Productivity benchmarking – Select Asian countries (2016)

Labor productivity/ cost (Index; 2009=100)

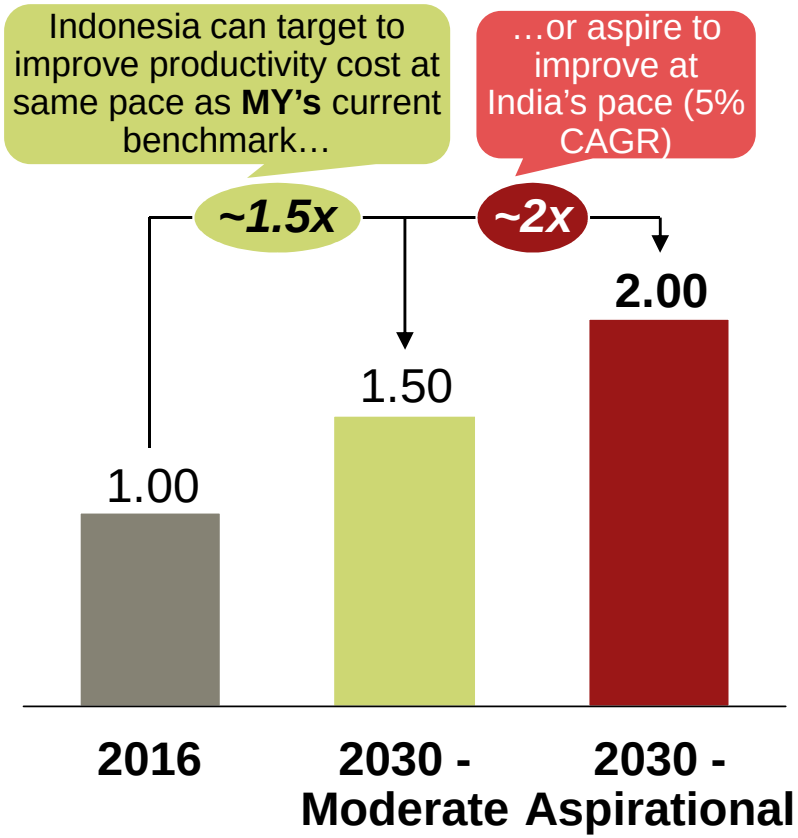


CAGR '09-'16

India	5%
China	4%
Japan	4%
Malaysia	3%
Vietnam	1%
Thailand	1%
Indonesia	**-1%**

Productivity target for Indonesia (2016 & 2030)

Labor productivity/ cost (Index; 2016=100)



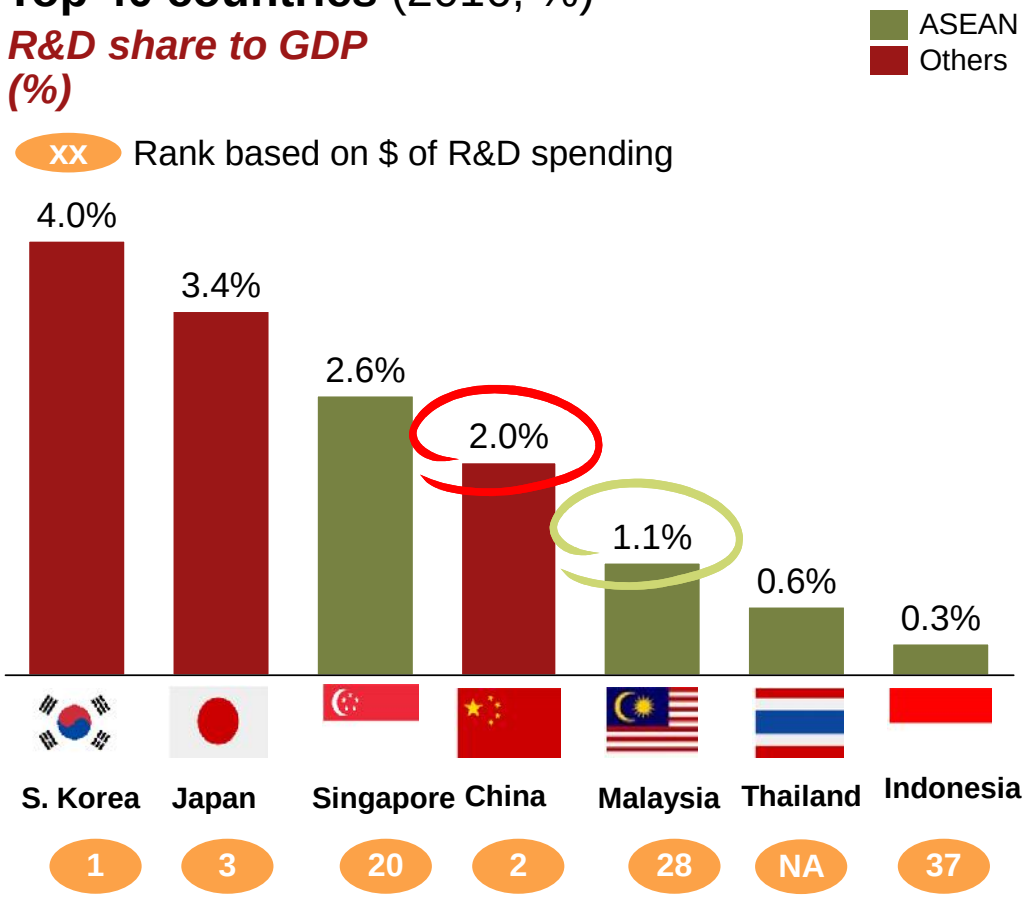
Cost on USD basis for global comparison
1. G20 countries excluding Saudi Arabia
Source: EIU, IMF, World Bank, UNESCO, A.T. Kearney

2% of R&D spending: The economic growth will be stimulated by more innovation

Aspiration in R&D

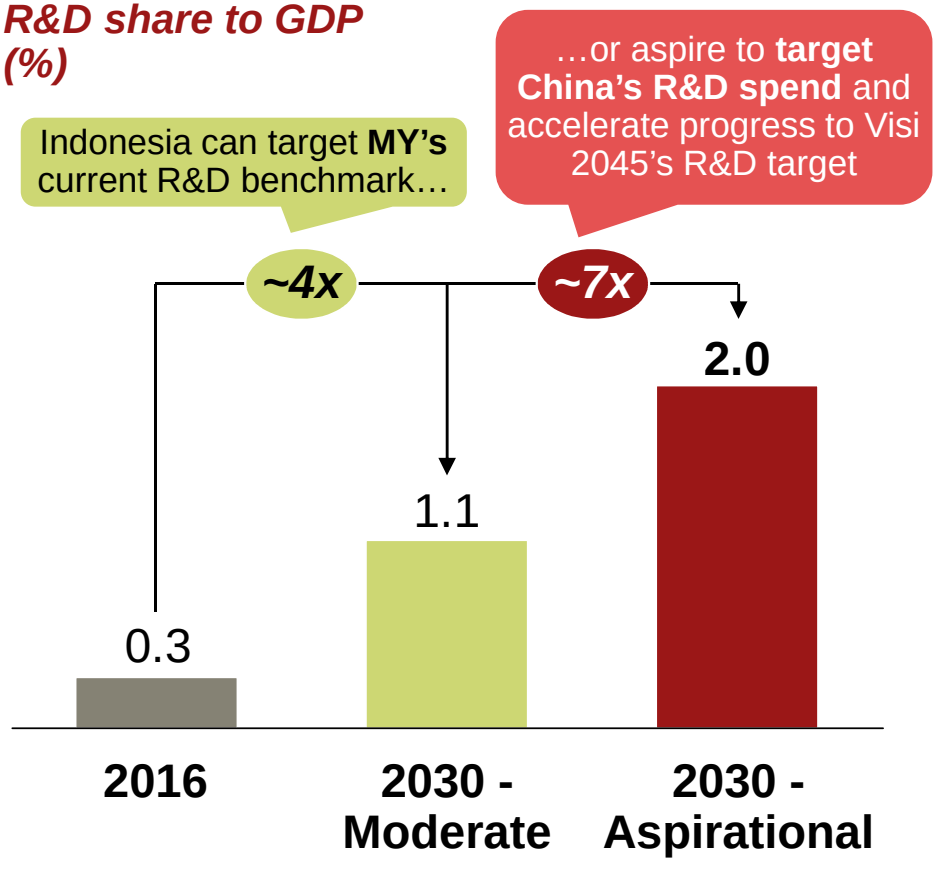
R&D spending benchmarking – World Top 40 countries (2016, %)

R&D share to GDP (%)



R&D spending target for Indonesia (2016 & 2030, %)

R&D share to GDP (%)

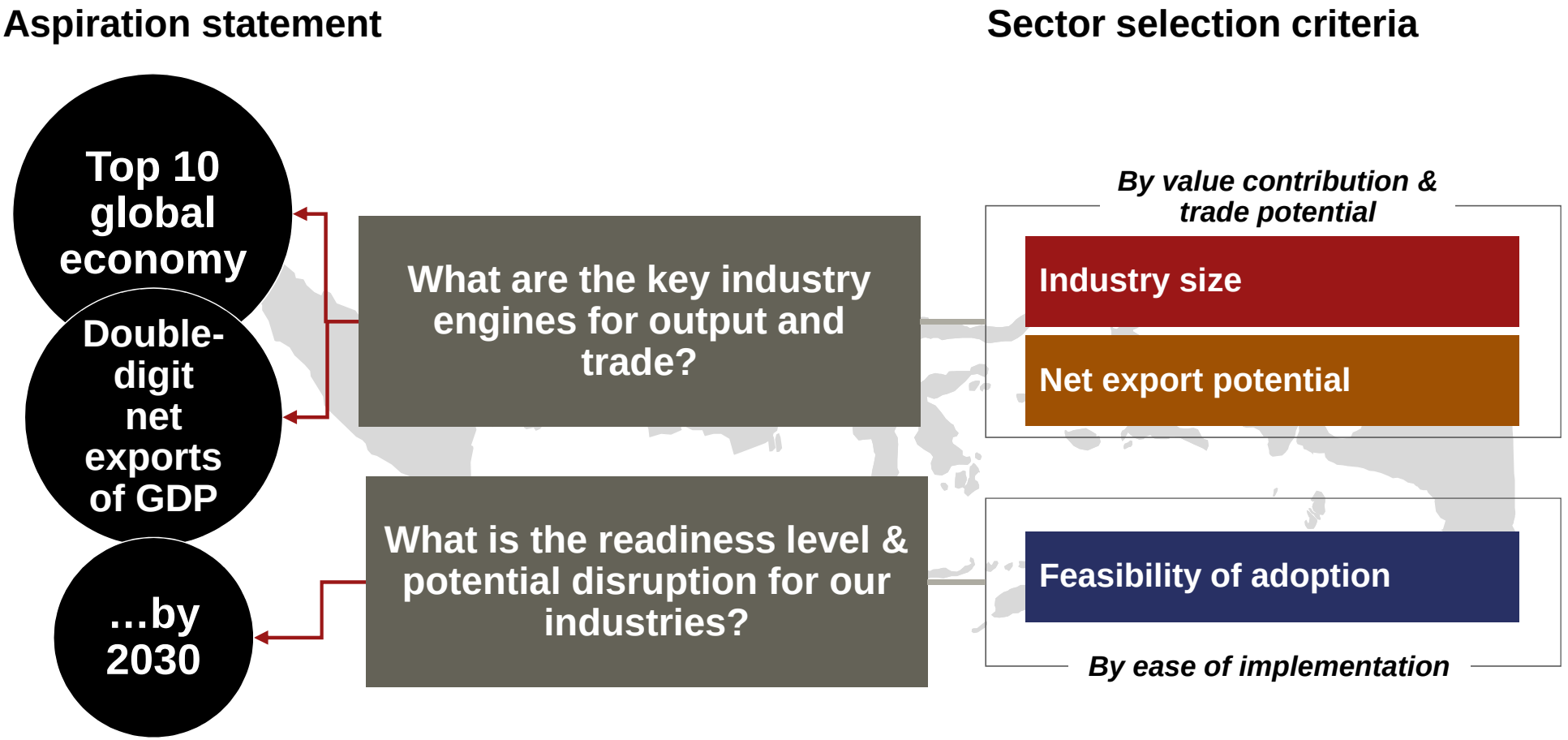


Source: Industrial Research Institute, R&D Magazine, EIU, A.T. Kearney

Five Focus Sectors for “Making Indonesia 4.0”

In line with Indonesia's aspiration, sector prioritization focuses on growth driven by net export

Implications of Indonesian economy / industry environment for 4IR



1. Gross Capital Formation
Source: The World Bank; A.T. Kearney

We evaluated 16 industries against 10 key criteria covering impact and attractiveness, as well as feasibility of 4IR success

Prioritization approach

xx *Overall criteria weight*

Industries in scope (n = 16)

- Basic Metal
- Pharmaceutical and Traditional Medicines
- Electronics, Optics & Elect. Appliances
- Tobacco Processing
- Chemical
- Coal, Oil & Gas Refinery
- Metal Goods
- Rubber & Plastic Goods
- Transport Equipment – Auto
- Wood & Furniture
- Industrial Machinery & Equipment
- Paper-Related Products
- Food & Beverage
- Textile, Apparel & Leather Goods
- Jewelry & Valuable Goods
- Non-Metal Goods

Sector Scorecard

Impact & Attractiveness (50%)

Current (25%)

1. **GDP Contribution** — 12.5%
2. **GDP Output Multiplier**[1] (sector leverage to drive economy growth) — 12.5%
3. **Trade Size**[2] — 12.5%

Net Exp. Potential (25%)

4. **Domestic Market Growth Rate** — 8.3%
5. **Indonesia Export Growth Rate** — 8.3%
6. **Input Multiplier Effect**[3] (sector criticality for other production) — 8.3%

Feasibility (50%)

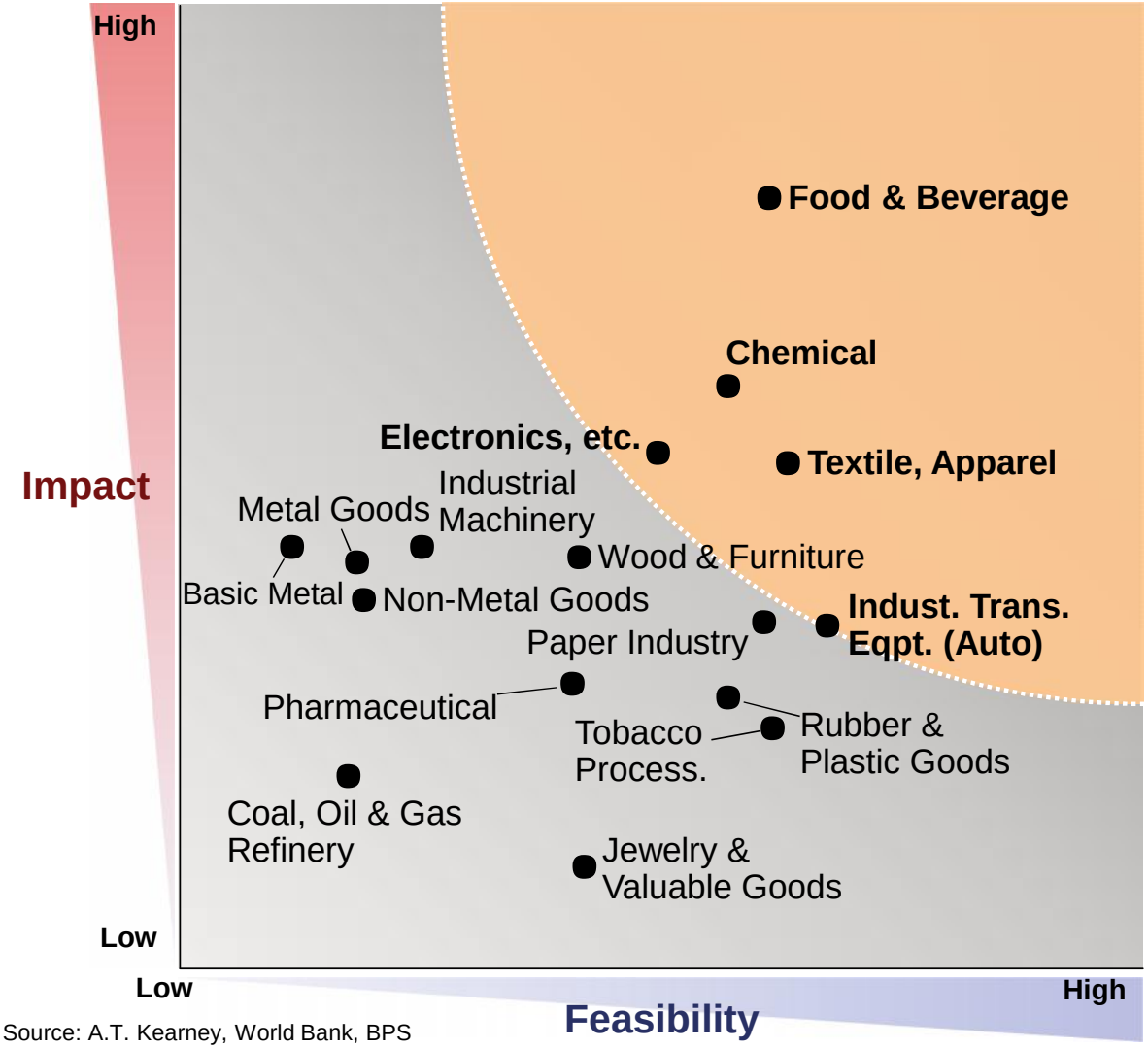
7. **Required Investment** [Sectorial Capex to Sales] — 12.5%
8. **Control point** [# of large companies by value in sector] — 12.5%
9. **Penetration speed** [Large companies share of employees] — 12.5%
10. **Structural advantage** [e.g. logistics, utility reliance; upstream friction] — 12.5%

1. Output multiplier covers the impact of an increase in final demand in one sector, on resulting output from other sectors (e.g. Ratio shows additional value in other sectors, resulting from incremental USD in specific demand sector)
2. Gross Export + Gross Import
3. Input multiplier considers criticality of sector for other sectors – e.g. Basic Metals input heavily to Metal Goods, Auto, Electronics

Source: A.T. Kearney

5 sectors were selected for “Making Indonesia 4.0”

Sector Prioritization Matrix



Top 5 Sectors

- **Food & Beverage**
- **Textile & Apparel** — ~60% mfg. GDP
- **Automotive** — ~65% mfg. exports
- **Electronics** — ~60% mfg. workers
- **Chemical**

Source: A.T. Kearney, World Bank, BPS

Path to Food & Beverage 4.0 needs to involve revamping of upstream sector and enhancement of manufacturing sector

Opportunities

- **Largest domestic market in the region**
  - 30% of ASEAN total
- **Abundant agricultural resources**
  - Global #5 in total agriculture production volume[1]
- **Consumer shift to modern packaged food**
- **Existence of globally competitive players**
  - e.g. Indofood, Mayora

Challenges

- **Highly fragmented industry**
  - 80% of labor force in SMEs
- **Limited technology adoption in SME segment**
- **Poor productivity in Upstream (agriculture)**
- **Underdeveloped cold-chain infrastructure**
- **Rising food safety issues**

Path to Food & Beverages 4.0

1. **Improve upstream agri-sector productivities by technologies** e.g. yield mgmt. (IoT/ Big Data)
2. **Empower SME segment by funding and technology support** e.g. technology bank, eCommerce
3. **Improve supply chain efficiencies** e.g. build better cold chain network
4. **Enhance modern packaged food productions by product innovations** e.g. incentivize R&D
5. **Scale up the industry by leveraging domestic large demand** (build economies of scale)
6. **Accelerate export and be the regional #1 F&B production powerhouse**

1. 2014
Source: A.T. Kearney

Textile should regain global competitiveness by enhancing upstream capabilities and focus on functional clothing

Opportunities

- **Highest consumption growth in ASEAN**
  - Projected at 9% ’16-’25 CAGR
- **Growing opportunities in functional clothing**
  e.g. sports wears, functional underwear
- **Largest domestic market in the region**

Challenges

- **Limited access to raw inputs and high reliance on imports**
- **Increasing labor cost and higher energy costs among the region**
  - Electricity cost is $10cent/kwh in Indonesia vs. $7cent/kwh in Vietnam and $6cent/kwh Bangladesh
  - Labor wage is expected to rise at +9.5% p.a. until 2020
- **Fragmented domestic players with many SMEs**

Path to Textile 4.0

1. **Improve upstream capabilities locally** i.e. low-cost and high-quality chemical fibers / fabrics
2. **Enhance productivity by adopting technologies** e.g. sensor-based waste control system, digital proto typing
3. **Build functional clothing design and production capabilities**
4. **Establish textile industrial clusters and promote vertical integration** i.e. better industry zoning
5. **Scale up and leverage economies of scale to be competitive in the global market**

Source: A.T. Kearney

Automotive should build regional auto export hub by enhancing local ecosystem and preparing for EV era

Opportunities

- **Shift from 2W to 4W transportation**
- **2nd largest ASEAN production capacity**
- **Largest domestic market in the region**
- **Industry shift to EV**

Challenges

- **Heavy reliance on imports for raw materials and key components**
  - 90% steel and 50% plastics imported
  - Local manufacturers largely in low-value add components
- **High labor cost and low productivity**
  - Labor cost outpacing sales: 21% in Cikarang-Karawang vs. 1-3 % in Bangkok from 2012 to 2017
  - Labor productivity: $25.6k per person vs. $30.6k in Thailand in ’16)
- **Higher logistics costs and dwell time**

Path to Automotive 4.0

1. **Enhance raw material and key component productions** i.e. steels, plastics, electronics components
2. **Improve productivity by adopting technology and building infrastructures** e.g. industry zones
3. **Align with global OEMs to boost export for specific vehicle types** i.e. MPVs, SUVs
4. **Cultivate EV production capabilities starting with e-motor cycle** e.g. small size battery production
5. **Build EV industry ecosystem** e.g. battery production for cars, EV assembly, charging station

Source: A.T. Kearney

Electronics sector needs to transform from low-tech assembly to high-tech high-value component manufacturing

Opportunities

- **Largest domestic market in the region**
- **Electronics products are key inputs for multiple sectors under the 4IR era**

Challenges

- **Heavy reliance on imports for key components** e.g. electronics components, semiconductor, advanced ceramics
- **Low design/ development capability**
  - Limited number of engineers and R&D investments
- **Increasing labor cost**
- **High logistics and utility costs**
- **Lack of domestic champion**; fragmented and inefficient domestic players
- **Imbalanced tariff structure**; high duty for components while no tariff for finished goods from other ASEAN countries

Path to Electronics 4.0

1. **Attract top global manufacturers** i.e. target top 100 manufactures and offer more attractive incentives
2. **Build advanced manufacturing capabilities beyond assembly** i.e. smartphone comp., batteries for EV
3. **Nurture skilled labor force** e.g. vocational school upgrade, foreign talent mobility program
4. **Enhance innovation capabilities locally** e.g. build national R&D center, incentivize R&D in private sector
5. **Cultivate domestic champions** e.g. export support via trade agreement, technology transfer from global players

Source: A.T. Kearney

Chemical sector should be transformed from import dependent to bio specialty chemical production hub

Opportunities

- **Abundant agricultural resources**
  - Global #5 in total agriculture production volume
- **Largest domestic market in the region**

Challenges

- **Limited domestic production capacity even for basic chemicals** e.g. ~50% of ethylene and polyethylene are still being imported
- **High dependence on raw material imports** i.e. >90% of naphtha is imported, limited domestic natural gas usage for petrochemicals
- **Suboptimal industrial zoning for chemical plants** i.e. domestic energy supply vs. chemical plant
- **Limited engineering and R&D capabilities**; the industry is still under the basic chemical stage

Path to Chemicals 4.0

1. **Enhance domestic petrochemical capacity and reduce reliance on imports**
2. **Optimize industrial zones to leverage domestic natural gas and oil resources**
3. **Improve productivity by adopting 4IR technologies** e.g. Asset mgmt., Resource mgmt.
4. **Accelerate R&D activities to establish next-generation biofuel and bioplastic capabilities**
5. **Build an export position by leveraging economies of scale**

Source: A.T. Kearney

10 National Priorities for “Making Indonesia 4.0”

Indonesia can leverage several drivers of competitiveness to build robust industry sectors

Indonesia's Drivers of Competitiveness

Source: A.T. Kearney

All industry sectors in Indonesia are facing 10 common issues

10 Key Challenges Across the Industries (1/2)

1 Underdeveloped Up-midstream Industry

- **Raw materials and critical parts are highly import dependent** e.g.
  - >50% of petrochemicals, 74% of basic metals
  - All the critical parts for electronics and automotive

2 Underleveraged Geographical Potential

- **Absence of comprehensive industry zoning plan** e.g. oil gas vs. petrochemicals
- **Underdeveloped and underutilized economic zones** e.g. Batam, Karawang, Bekasi and Central Java

3 Inevitable Global Sustainability Trends

- **Sustainability trends are no longer only for developed economies**
  - Exports need to meet requirements e.g. EUROx
  - Shift to business opportunities e.g. solar, biomaterials

4 Left-Behind SMEs

- **62% of workers in Indonesia are working at small or micro enterprises** with low productivities

5 Must-Have Digital Infrastructure

- **Digital platforms are still underdeveloped**
  - Mobile: currently adopting 4G (not ready for 5G)
  - Fiber: average speed is <10Mbps (not 1Gbps)
  - Cloud: limited cloud infrastructures

Source: IHS Markit, BPS, Desk Research, A.T. Kearney

All industry sectors in Indonesia are facing 10 common issues

10 Key Challenges Across the Industries (2/2)

Limitation of Domestic Funding and Technologies	**6**	• **Recently, FDI inflow to Indonesia is flattening** (0% growth during ’13-’16) although Indonesia is suffering from limited source of funding and access to new technologies
Abundant but under trained people	**7**	• Indonesia has **4th largest working population** in the world, however, **very limited trained talents**; e.g. government education spending is only $114 per capita
Absence of Innovation Centers	**8**	• **Very limited R&D spending** as a country; only 0.1-0.3 % of GDP • **No strong government led R&D/innovation centers** as well as private sector’s
Inertia to stay in status quo	**9**	• Currently **no comprehensive incentives** for 4th Industrial Revolution technology adoption e.g. tax exemptions, subsidies, funding support etc.
Regulation & Policy Roadblocks	**10**	• **Overcomplicated regulations and policies,** handled by multiple organizations; e.g. upstream by MOE, midstream by MOI and trade by MOT, central government vs. local government





Source: BKPM, Desk Research, A.T. Kearney

Indonesia has set 10 National Priorities for "Making Indonesia 4.0"

10 National Priorities

1 Reform Material Flow

- Enhance **domestic upstream material production**; e.g. 50% of petrochemical is imported

2 Redesign Industrial Zones

- Build **a single nationwide industry zoning roadmap**; resolve zoning inconsistency challenges

3 Embrace sustainability

- Grab **opportunities under global sustainability trend**; e.g. EV, biofuel, renewables

4 Empower SMEs

- Empower **3.7 million SMEs[1] by technologies;** e.g. build SME e-commerce, technology bank

5 Build Nationwide Digital Infrastructure

- Advance **network and digital platform;** e.g. 4G to 5G, Fiber speed 1Gbps, Data center and Cloud

6 Attract Foreign Investments

- Engage **top global manufacturers** with attractive offer and accelerate **technology transfer**

7 Upgrade Human Capital

- Redesign **education curriculum** under 4IR era
- Create professional **talent mobility program**

8 Establish Innovation Ecosystem

- Enhance **R&D centers** by government, private sector and universities

9 Incentivize Technology Investment

- Introduce **tax exemption/subsidies** for technology adoption and **support funding**

10 Reoptimize Regulations & Policies

- Build more **coherent policies/regulations** by **cross-ministry collaborations**

1. Including micro enterprises

Source: Ministry of Industry, A.T. Kearney

10 Key National Priorities for "Making Indonesia 4.0" (1/5)

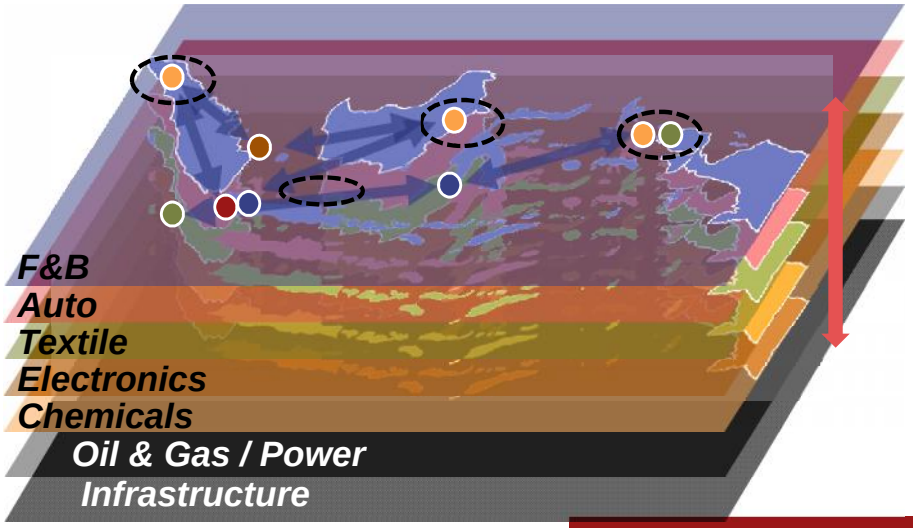
1 Reform material flow

- Indonesia still relies on **import** for raw material and high-value components
- Enhance **domestic supply** for **basic materials**
- Build capabilities for **high value component** manufacturing

Industrial Raw Materials – Petrochemical, Basic Metals

High-value components (electronics components etc.)

Source: A.T. Kearney



2 Redesign Industrial zones

- There is a large potential for **improvement in nationwide industrial zoning**
- Start new zoning from the priority sector, and build **connectivity** between industrial zones

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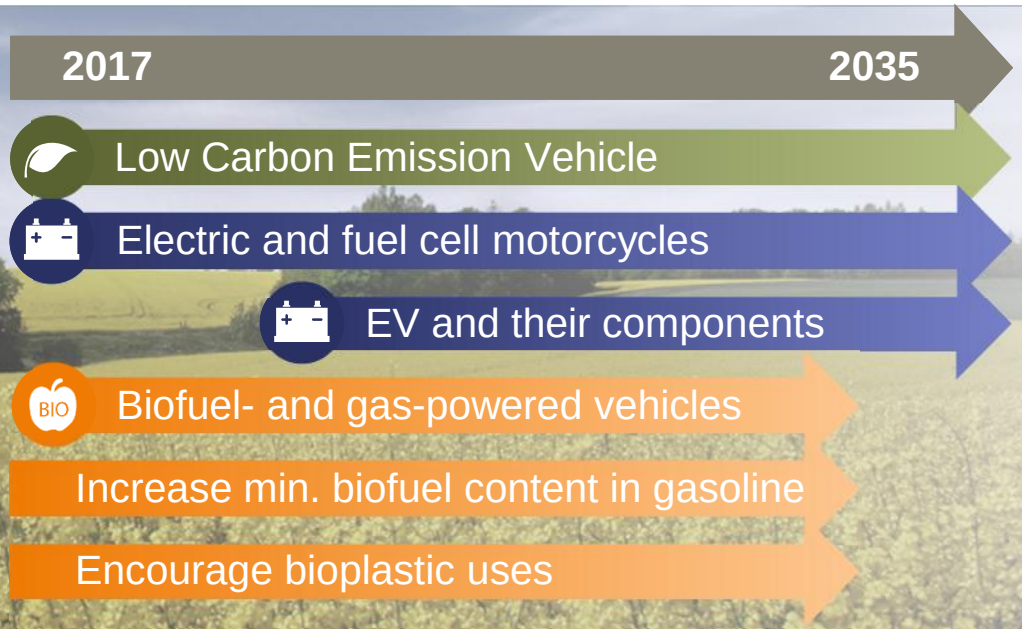
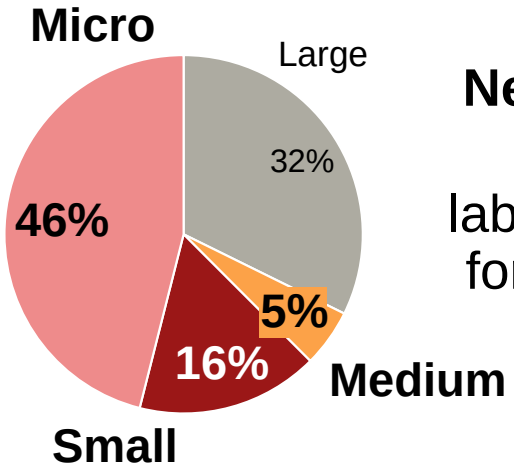
10 Key National Priorities for "Making Indonesia 4.0" (2/5)

3 Accommodate Sustainability Plan

- There is **sustainability challenge** through the improvement in Euro emission standard and recent palm oil ban
- Identify **green growth opportunities** and promote **conducive environment** for green investment



4 Empower SMEs



Nearly 70% of Indonesian labor force works for **micro, small and medium enterprises** in 2015

Build **nationwide e-commerce platform**, build **technology banks**, develop **local small business foundations**

Source: A.T. Kearney

10 Key National Priorities for "Making Indonesia 4.0" (3/5)

5 Build nationwide digital infrastructure

Indonesia lacks **key digital infrastructure** to implement "Making Indonesia 4.0"

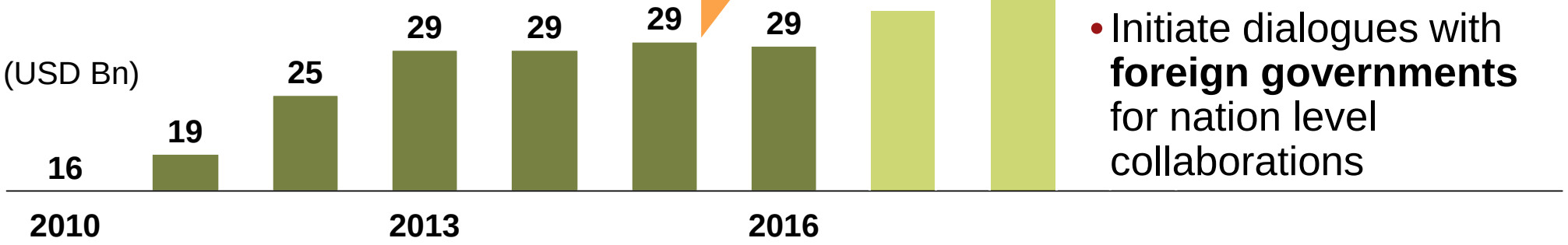
- Accelerate national development in **broadband speed and digital capabilities**
- Harmonize **digital standards**, in line with global norms

6 Attract Foreign Investments

- Engage in **global top manufacturers** and offer more **attractive incentives**
- Initiate dialogues with **foreign governments** for nation level collaborations

FDI inflow to Indonesia has **flattened out…**

Enhance FDI



Source: A.T. Kearney

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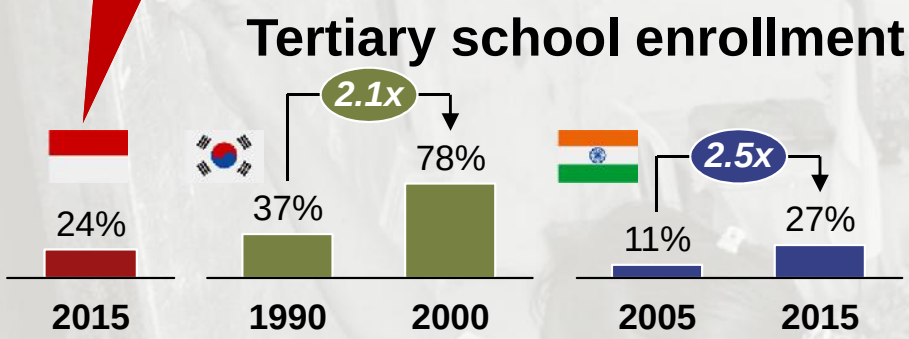
10 Key National Priorities for "Making Indonesia 4.0" (4/5)

Indonesia is facing **talent development challenges**

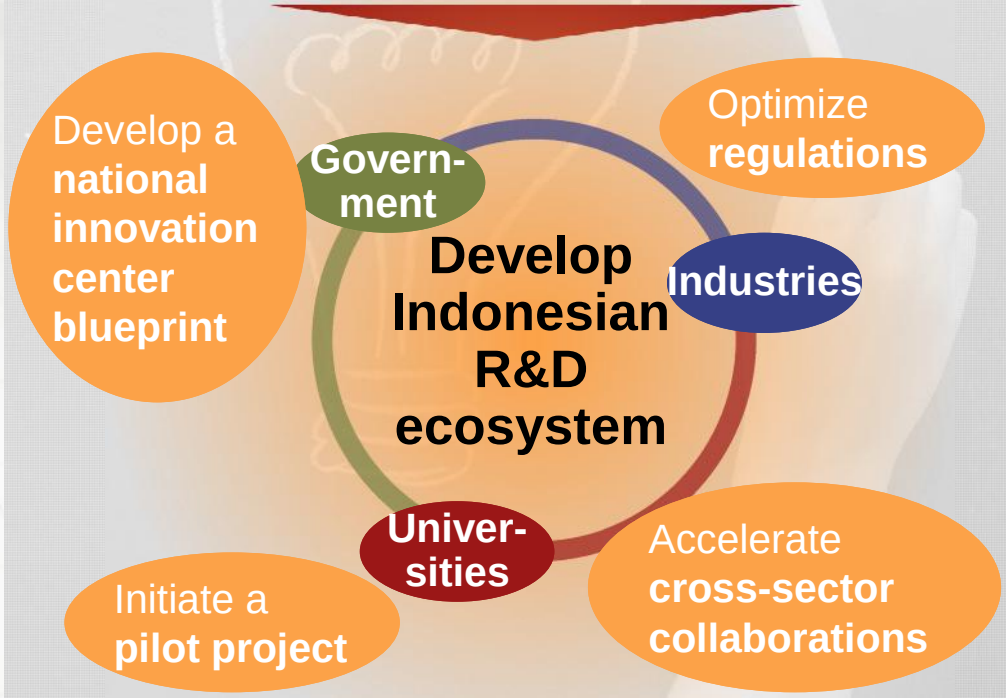


7 Upgrade human capital

- Reform education curriculums by adopting **STEAM** (Science, Technology, Engineering, Art and Math) **education**
- Upgrade **vocational schools**
- Leverage **foreign talents**

8 Establish innovation ecosystem

Indonesia **lacks** strong gov./private **R&D/innovation centers**



Source: A.T. Kearney

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10 Key National Priorities for "Making Indonesia 4.0" (5/5)

9 Incentivize innovation

Countries are **aggressively incentivizing technology adoption**

- €400Mn **funding** for in cyber-physical systems, IoT, and other 4IR tech research
- Government **subsidies** for select industries, esp. robotics and New Energy Vehicles
- Government commitment of **SGD 3.2 Bn** over 2016-2020

Indonesia will need to commit to **incentives across industries**

Tax incentives

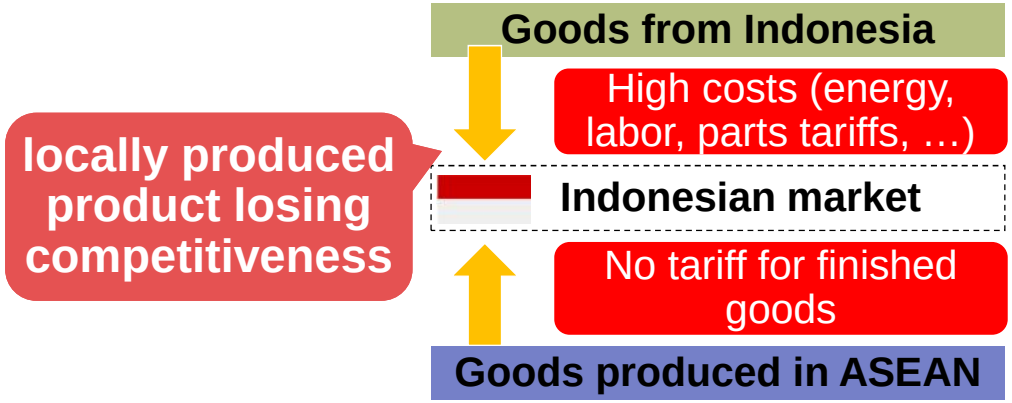
- Tax holiday
- (Import) Tax reduction

Subsidies

- Govt. assistance
- Grants

Funding support

- Guarantees
- Capital injection



Indonesia needs to simplify policies by **coordinating across ministries**

Need tighter coordination

10 Reoptimize Industry Regulations & Policies

Source: A.T. Kearney

Economic Benefit and Job Creations

"Making Indonesia 4.0" can create massive uplift in overall GDP, manufacturing contribution & employment opportunity

Estimated Benefits[1] of "Making Indonesia 4.0" Implementation

GDP Growth

+1-2% p.a.
incremental GDP growth from baseline in 2018-2030

- Improve real GDP growth from ~5%[2] to 6~7% YoY between 2018-2030

Job Creation

~10 Million[3]
additional employment opportunity from baseline by 2030

- Increase new employment from +20 mn to >30 mn additional jobs by 2030

Manufacturing GDP Contribution

>20% of manufacturing GDP contribution by 2030

- Boost manufacturing contribution to GDP from ~16%[2] to >20% by 2030

1. Benefits are estimated based on the incremental difference between the aspirational case and the base case in A.T. Kearney economic models
2. In the base case, real GDP growth is estimated at ~5% YoY between 2018-2030, additional jobs created is estimated at ~22 million by 2030 and manufacturing contribution is estimated at ~16% of total Indonesian GDP in 2030
3. Industry 4.0 implementation can absorb 30~50% of the 30 million additional working age population by 2030; The rest of the workforce are already absorbed in the base case scenario

Source: World Bank, Badan Pusat Statistik, Ministry of Industry, A.T. Kearney

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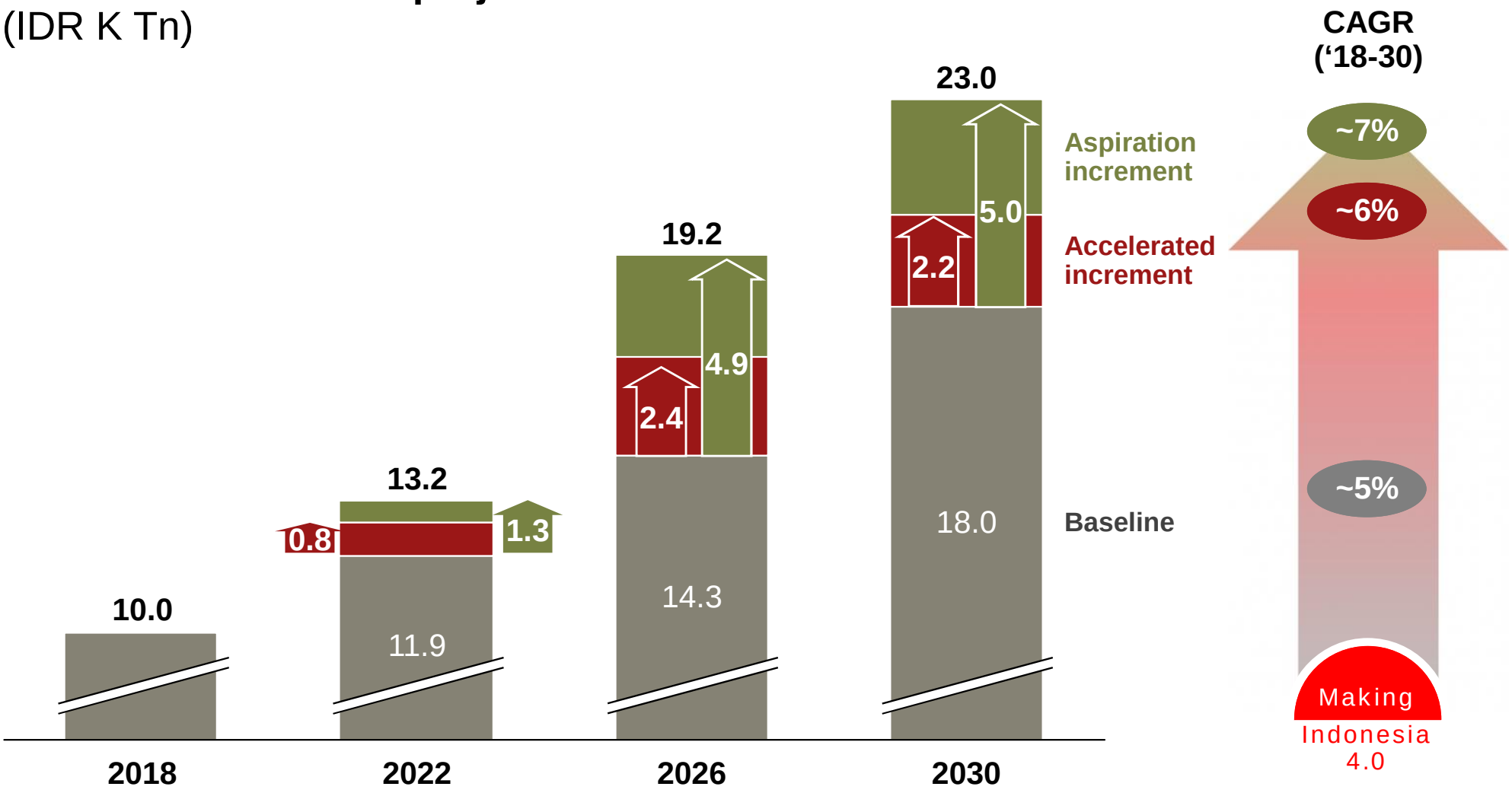
GDP Growth: Indonesia can incrementally increase annual real GDP growth by 1-2% in period of 2018-2030

Indonesia's real GDP projection in 2018-2030[1]

(IDR K Tn)



1. Real GDP uses 2010 as a base year and assumes inflation of 4-6%
Source: BPS, Ministry of Industry, A.T. Kearney

Job Creation: "Making Indonesia 4.0" can create additional 7-19 million additional jobs by 2030

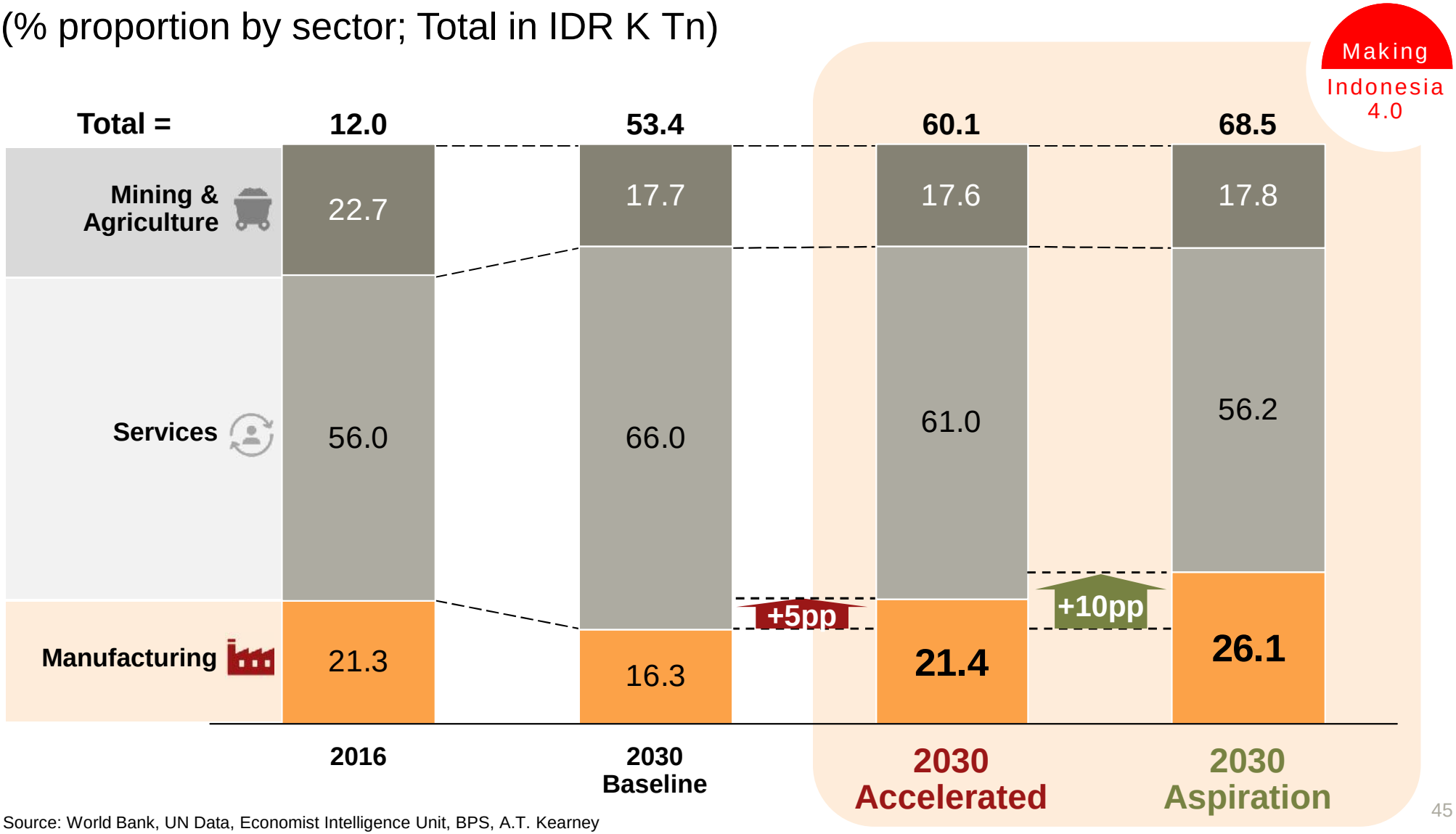
Indonesia's labor force estimation
(Million workers)

1. Due to output multiplier effect, net export increase in manufacturing sectors leads to GDP increase in non-manufacturing sectors, resulting in the creation of new job opportunities in non-manufacturing sectors
Source: BPS, Ministry of Industry, A.T. Kearney

Manufacturing GDP Contribution: Manufacturing sector's GDP contribution can increase by 5~10 percentage point

Indonesia GDP sector contribution forecast

(% proportion by sector; Total in IDR K Tn)

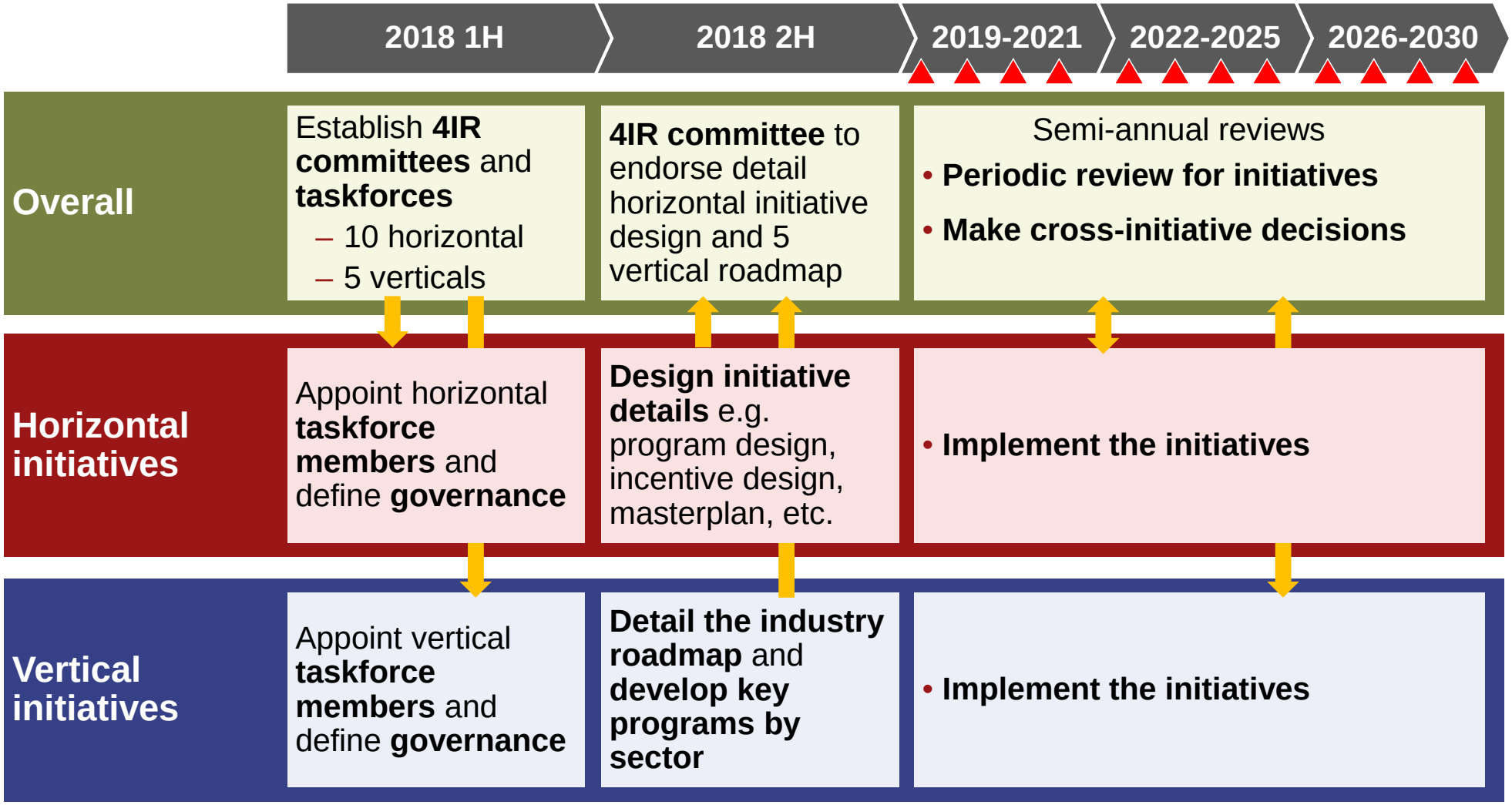


Source: World Bank, UN Data, Economist Intelligence Unit, BPS, A.T. Kearney

Next Steps

2018 will be a critical year for “Making Indonesia 4.0” implementation

“Making Indonesia 4.0” implementation roadmap



Source: A.T. Kearney

“Making Indonesia 4.0” policy needs to be properly coordinated with several stakeholders and policies

“Making Indonesia 4.0” implementation governance

1. Illustrative. Not exhaustive and not representative of final stakeholder cohort.
Source: A.T. Kearney

“Making Indonesia 4.0” will trigger immediate actions with long term aspirations by focus sector

Focus Sectors Aspiration

1	 Food & Beverages	Founding an ASEAN F&B powerhouse
2	 Textile & Apparel	Becoming a leading “functional” clothing producer
3	 Automotive	Establishing export leadership in ICE and EV
4	 Chemicals	Developing leading biochemical manufacturers
5	 Electronics	Nurturing highly capable domestic champions

Immediate Actions (Quick Wins)

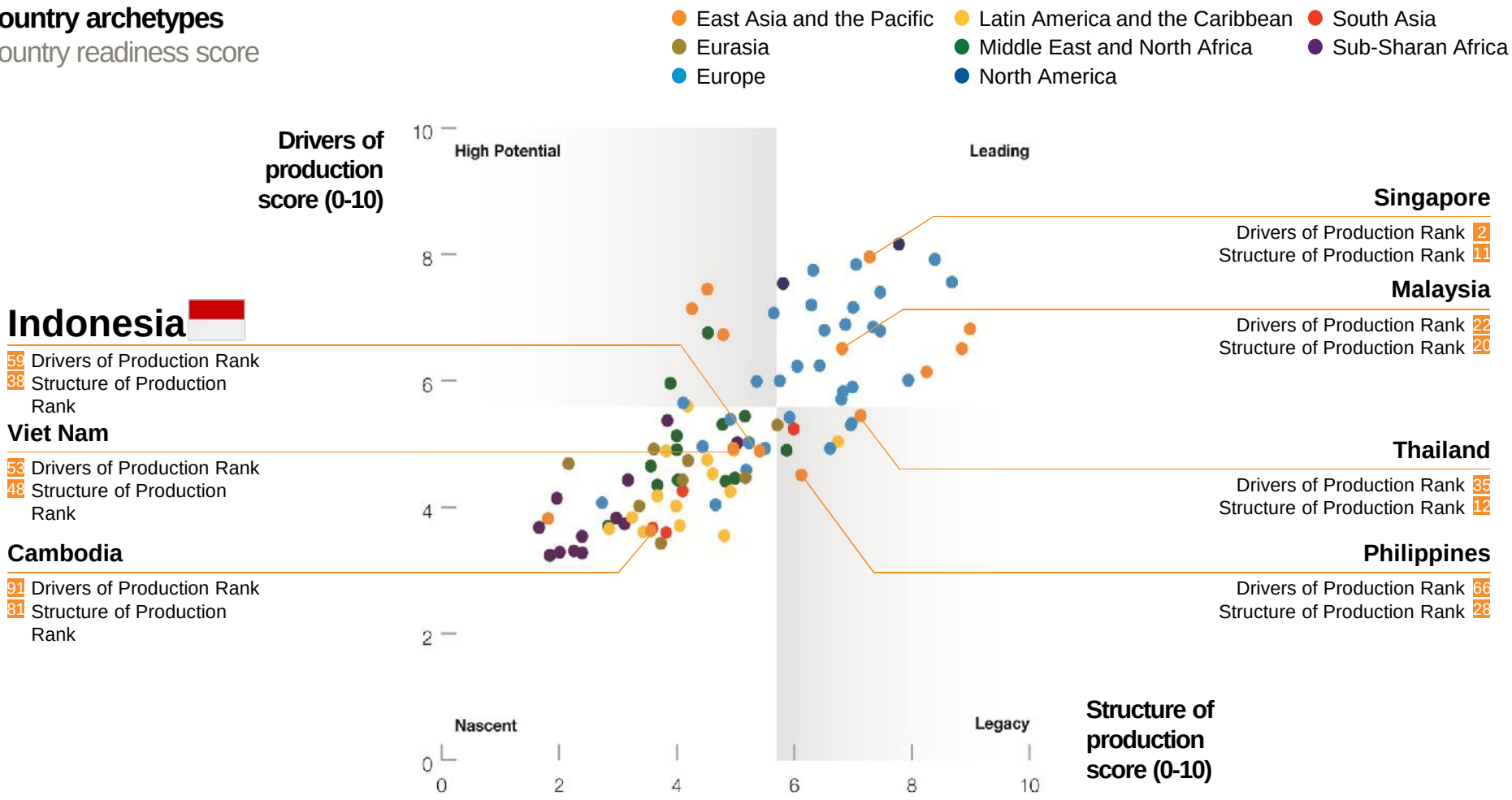
Tech Incentives	**R&D and CAPEX tax exemption** for tech investment
Investor Roadshow	**Targeted roadshow**; focusing on specific product/geography to attract large OEMs
Vocational School	**Up-skilling & Re-skilling** for all sectors (select 1-2 first as pilot)
SME Supports	**SME eCommerce & Technology Bank**

Source: A.T. Kearney

APPENDIX

Indonesia has to improve its 4IR readiness

Country readiness



Note: Drivers of production shows potential to adopt the 4IR - consist of Demand factor, Technology & Innovation, Institutional Framework, Global Trade & Investment, Human Capital, Sustainable Resources; while Structure of production shows the existing factors on the ability for 4IR – consists of scale and complexity of production
Source: A.T. Kearney, World Economic Forum

MoI should leverage the Law 3/2014 to establish National Industrial Committee (KINAS) to bring this as national agenda

National Industrial Committee (KINAS)

Existing regulation

Proposed regulations

Law 3/2014

- Article 112 **enables MoI to propose to the president** on the formation of KINAS
- KINAS's main objective is to facilitate **nation-wide, interagency, cross stakeholders** alignment in accelerating national industrial development agenda

Presidential Decree (Perpres) on National Industrial Committee

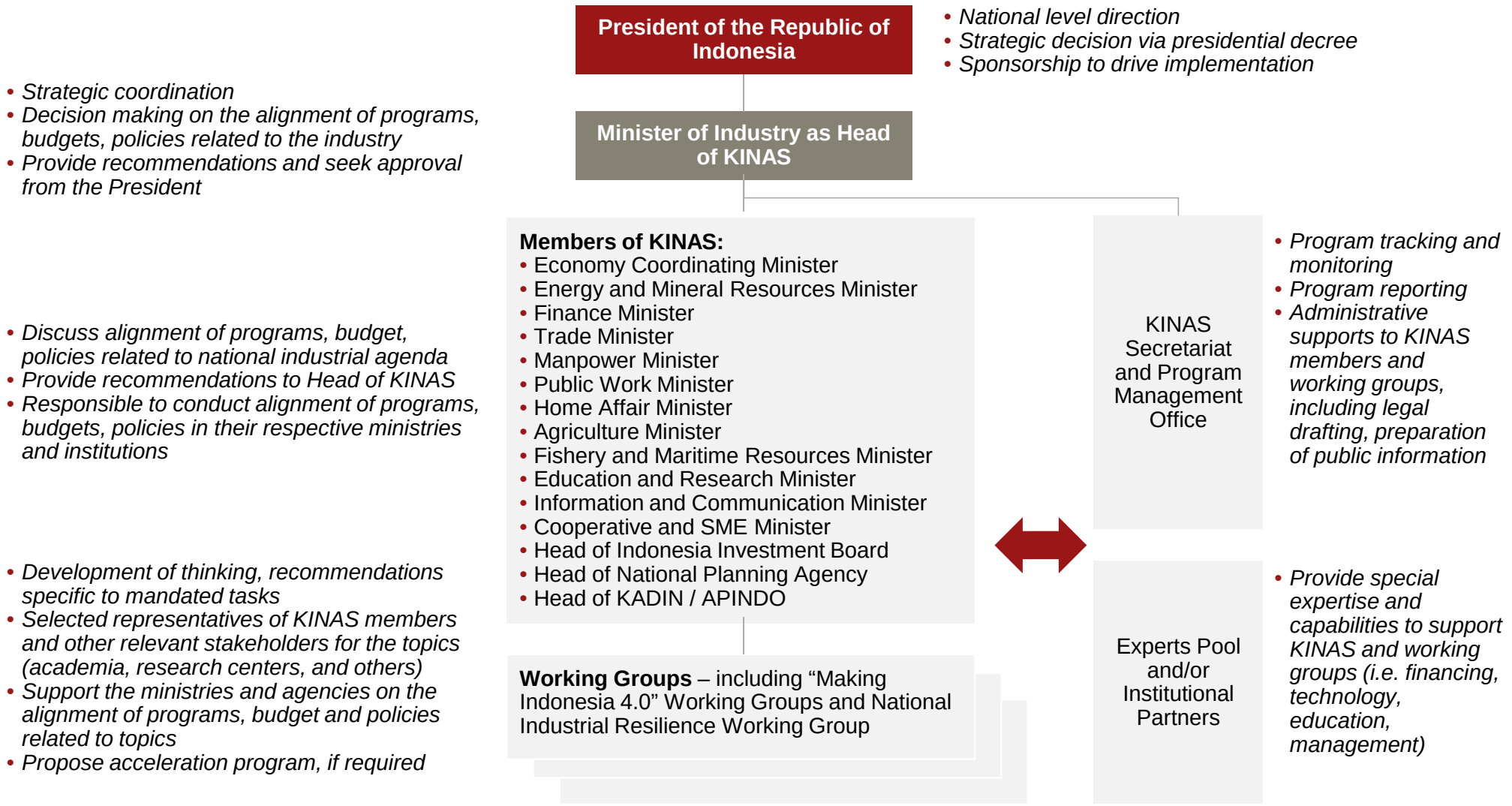
- **Establishment of KINAS**
- **Appointment** of KINAS members : relevant ministers, head of government agencies, head of industry association (KADIN, APINDO)
- **Grant authority** to KINAS to conduct **alignment, program development, monitoring and evaluation of implementation** at national level

Decree of the head of KINAS – "Making Indonesia 4.0" working group

- **Establishment of "Making Indonesia 4.0" working group** as manifestation of mandate from presidential decree
- Cross functional – multi stakeholders representation
- **Day to day execution of KINAS' authority and mandate**, specific to national 4IR implementation

We have identified initial key members of KINAS and "Making Indonesia 4.0" working group

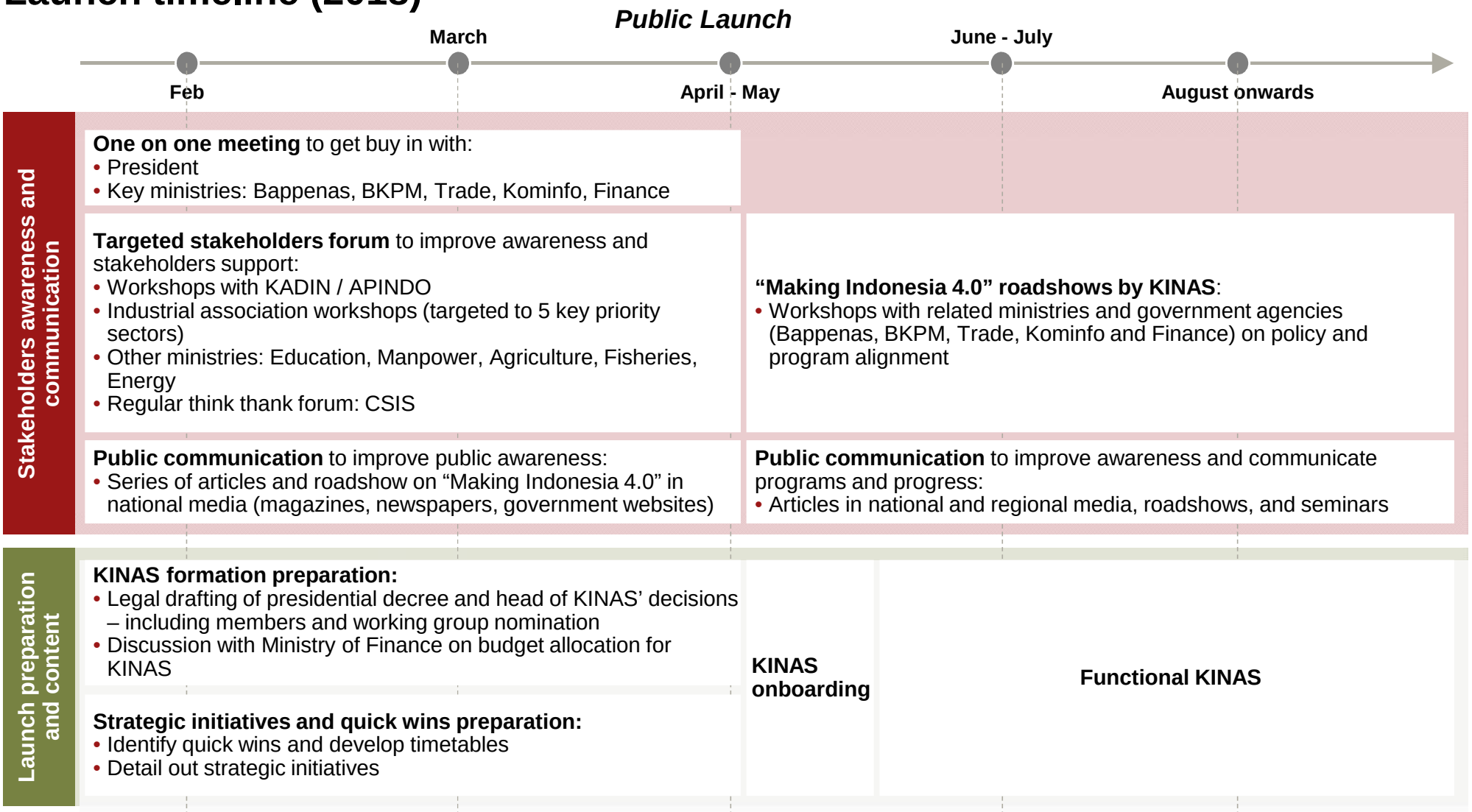
National Industrial Committee (KINAS) functional model



Source: A.T. Kearney

MoI should target to launch the "Making Indonesia 4.0" roadmap during the Indonesia's Industry Summit 2018

Launch timeline (2018)



Source: A.T. Kearney

Close alignment and clear governance is required to ensure effective coordination between KINAS and functional ministries

Split of responsibilities KINAS working group and functional ministries

Example - MoI

KINAS

Working group ("Making Indonesia 4.0")

- Ministries' representatives (including MoI)
- Agencies' representatives
- Other relevant parties – experts, academia, institutional partners

Alignment, harmonization of initiatives, programs, budgets

MoI

MoI's representative in working group

MoI technical directorates

- Directorate General Agro
- Directorate General Chemical and Textile
- Directorate General Metal, Electronics and Transportation

MoI functional units

Planning bureau	R&D bureau	Legal bureau
Education bureau	Industrial zone directorate	SME directorate

- Lead internal MoI coordination in relation to "Making Indonesia 4.0" and KINAS agenda
- Issue policy, regulations and guidelines aligned with KINAS agenda
- Develop MoI's program aligned with "Making Indonesia 4.0" roadmap and KINAS agenda
- Liaise with industry players within sectors
- Provide supports to technical directorates on program development

Source: A.T. Kearney