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Java Industrial Development Refers to SDGs

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ABSTRACT
Indonesia aims to catapult its trade and industry development and become one of the economic powerhouses of the future. The strategies initially developed in 2011 were expected to increase economic activity and growth. However, due to the steady growth of economic development, an evaluation of the previous RPJMN master plan is proposed. The purpose of this study was to assess Indonesia's economic corridor by considering six provinces on Java Island as the case study. Primary data was obtained from government officials, while public records and benchmarking from other countries provided secondary data. From the results, there is a need for development in each corridor, especially in hardware computing, software computing, automotive, and technology. This research recommends the development of industries and the provision of resources to stimulate economic development.
Keywords*: Development, economic activies, growth, industrial, sustainable*

ABSTRAK
Indonesia bertujuan untuk meningkatkan perkembangan perdagangan dan industrinya serta menjadi salah satu kekuatan ekonomi masa depan. Strategi yang dikembangkan pada tahun 2011 diharapkan dapat meningkatkan aktivitas dan pertumbuhan ekonomi. Namun karena pertumbuhan pembangunan ekonomi yang stabil, maka diusulkan evaluasi terhadap master plan RPJMN sebelumnya. Tujuan penelitian ini adalah menilai koridor perekonomian Indonesia dengan mempertimbangkan enam provinsi di Pulau Jawa sebagai studi kasus. Data primer diperoleh dari pejabat pemerintah, sedangkan catatan publik dan benchmarking dari negara lain menyediakan data sekunder. Dari hasil tersebut, perlu adanya pengembangan di setiap koridor khususnya pada komputasi perangkat keras, komputasi perangkat lunak, otomotif, dan teknologi. Penelitian ini merekomendasikan pengembangan industri dan penyediaan sumber daya untuk merangsang pembangunan ekonomi.
Kata Kunci: *Pembangunan, Kegiatan ekonomi, Pertumbuhan, industri, Berkelanjutan*

INTRODUCTION

The government aims to increase its economic growth and contributes to solving global challengesin the future. For this reason, it deployed the initial masterplan in

2011, which contained strategies toimprove national competitiveness. Indonesia was categorized into several corridors, including Sumatra, Java, Kalimantan, Sulawesi, Bali-Nusa Tenggara, and Papua-Maluku islands. This divisionwas based on potential development and diverse characteristics among islands and provinces. Thesestrategies also attempt to improve the connectivity of the supply chain and increase the accessibility of people and goods. Despite the government efforts to cope with global challenges, the economic landscape of Indonesia shows unsteady growth. As a result, there is a need to evaluate this masterplan and consider the currentsituation. Limited publications dealing with regional development and national economic perspective were found in public records. The purpose of this study therefore is to assess Indonesia's economic corridor by considering Java Industrial Corridor as the case studies. The findings provide recommendations for policymakers and academics researching in similar fields.

In this figure 1 We can see about Java Industrial Corridor refers to SDGs.

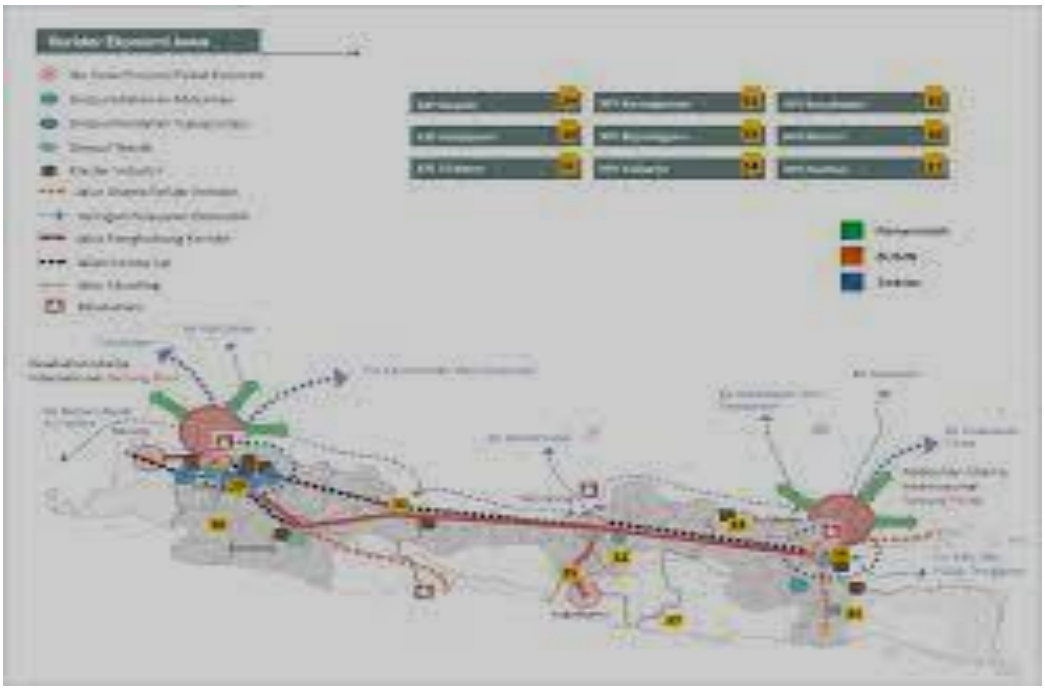

Fig. 1. Java Industrial Corridor Based On SDGs

Based on the SDGs Sustainable investment in infrastructure and innovation is an important driver of economic growth and development. Today more than half of the world's population lives in cities, therefore mass transportation and renewable energy

are very important, as well as the growth of new industries and information and communication technologies. Technological advances are also key to finding long-term solutions to economic and environmental challenges, such as providing new jobs and promoting energy efficiency. Promoting sustainable industries as well as investing in scientific research and innovation are important ways to facilitate sustainable development. Investment in infrastructure and innovation is one of the 17 Global Goals set out in the 2030 Agenda for Sustainable Development. And an integrated approach is critical to progress across all of the goals.

This research will discuss the existing conditions of the industry in Java, its obstacles and also its development.

METHODS

Data Collection Methods

Data resource for this research comes from primary data, namely direct surveys to sample locations. The team conducts a one-on-one interview with experts for about 10-20 minutes due to their busy and tight schedules. Their input is used for research validation and confirmed the findings.

Meanwhile the secondary data, namely those sourced from the MP3EI and RPJMN Masterplan Bappenas and also regulations from the Minister.

Data Analysis Method

The research adopts a combination of data, primary from government officials and secondary frompublic records, and benchmarking from other countries to evaluate the industries in each corridor.The experts from Indonesia institution have a background related economic, regional development andinfrastructure from the Ministry of Environment and Forestry, Ministry of Industry, and Ministry of National Development Planning. They were selected due to national characteristics which other localsmay not comprehend or deeply understand regarding the situation and judgment.

RESULT AND DISCUSSION

Java Existing Industries

Java corridor consists of six provinces, including Banten, Jakarta, West Java, Central Java, Yogyakarta,and East Java. Each corridor is developed based on their potential

industry, such as information and communication technology, coal processing,and tourism, respectively. Previous research has been conducted to produce a mapping of commodities. Figure 2 shows the detail of industries and commodities for each province.

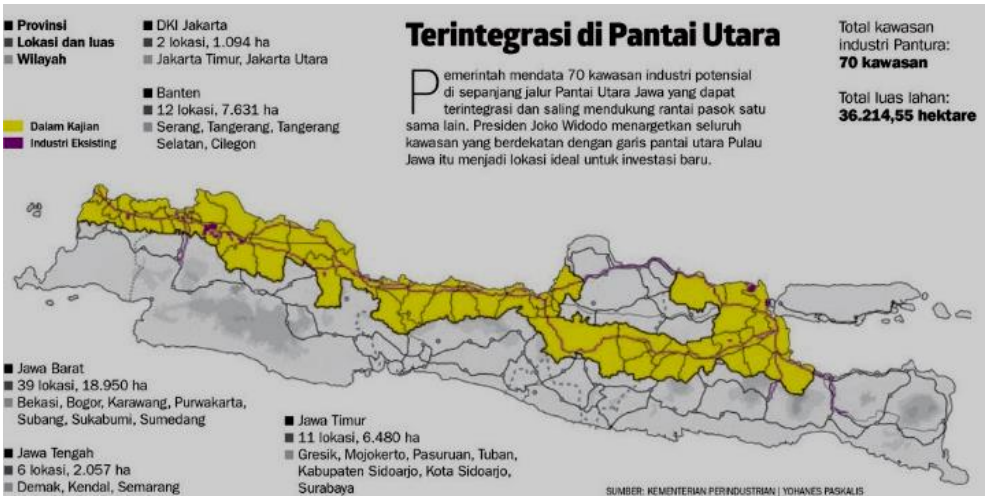

Fig. 2. Java Industrial Corridor Potential Development

As known as Java is famous as hardware, software and automotive also technology industry center. Computer hardware and associated types of equipment are types of equipment are essential components supporting the computer system as a whole. There integrated semiconductors and gadget needed in computer components whose industry can be developed including semiconductor including integrated semiconductors and gadgets.

The Java automotive industry is one of the drivers of the developing Indonesian economy. The industry is predominantly clustered in the DKI Jakarta, West Java, Central Java and East Java. The industry is heavily dominated by Japanese automotive firms. US and European carmakers play a marginal role at best. Six Japanese brands have a market share of just under 90% in Indonesia. Consequently, Japanese carmakers were able to impose their traditional system as the basis for the Indonesian automotive industry.

Obstacles

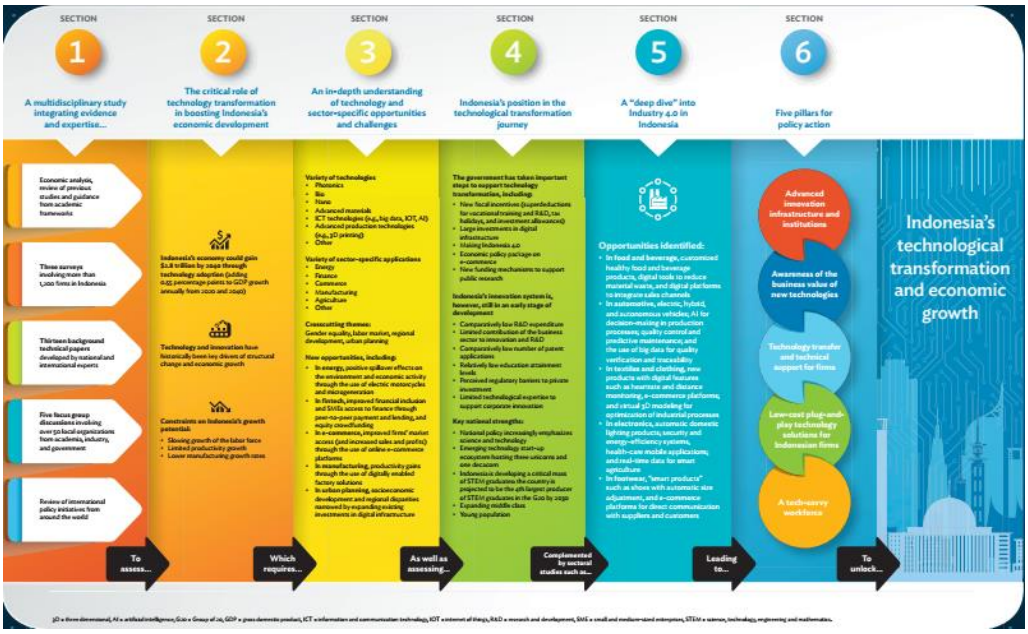

Fig. 3. Indonesia Economic Growth Transformation

From figure 3 above We can learn about Econonic Growth in Indonesia especially industry aspect. Like other countries, Indonesia is experiencing economic development. But on the other hand, industry, especially in Java, is the center of state activity where 60% of the population resides here and one of the economic activities in the industrial sector is in Java. For this reason, it is necessary to study policies andcapital that can later accommodate industrial development in Java.

In addition to the RPJPN and the RPJMN, two other key documents have formed the basis of Indonesia's current industrial policy. The first is the 2008 National Industrial Policy and the second is the Indonesian Master Plan for Acceleration and Expansion of Indonesia Economic Development (MP3EI) launched in 2011. Both documents would be deliberated below. Indonesia has also just endorsed its new Industrial Bill in late 2013 and its new Trade Law in early 2014; many of their implementing regulations are still forthcoming.

Potential Growth and Development

While the importance of technology in economic development is widely accepted in the literature, estimating the impact of particular technologies in national economies is fraught with challenges. Technologies, sectors, and innovation activities are becoming

increasingly complex and interdependent. As a result, the emerging picture is characterized by a high degree of uncertainty. Studies on the impact of technological change on employment are a case in point. Academics, consultancies, and international organizations around the world have produced studies revealing a significant effect of new technologies on employment. Predictions are, however, far from forming a consensus. In fact, a number of studies have been criticized for presenting an overly simplistic view of the tasks carried out by workers and for not accounting for variations in economic and institutional contexts across countries.

As an illustration of complexity and uncertainty in estimating the impacts of technology, a review of international studies reveals a great deal of variation in predictions of the impact of automation on jobs. Figures go from the creation of over 100 million jobs15 to the loss of over 200 million. The variation in predictions is down to differences in definitions, assumptions, and methodological approaches. Following a pattern seen before in history, alarms about the power of new technologies to replace jobs echoed worldwide over the last decade. More recently, however, a more balanced story has been emerging, which suggests that, while new technologies might have a profound effect on the global economy, they will bring opportunities and challenges alike. Figure 4 We can see about industrial new scheme with policies and capital.

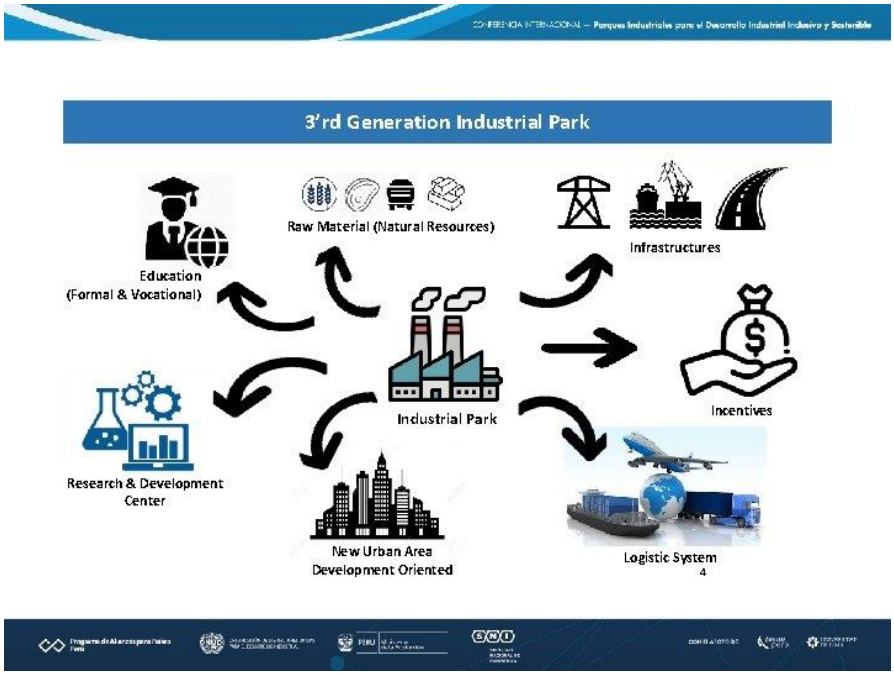

Fig. 4. Industrial New Scheme

As illustrated above, estimates about the impact of particular technologies on national economies are likely to depend on the particular methodology adopted. Given the complexity involved, results should be taken as indicators of the rate of change and useful to highlight relationships between variables, rather than as precise estimations of impact.

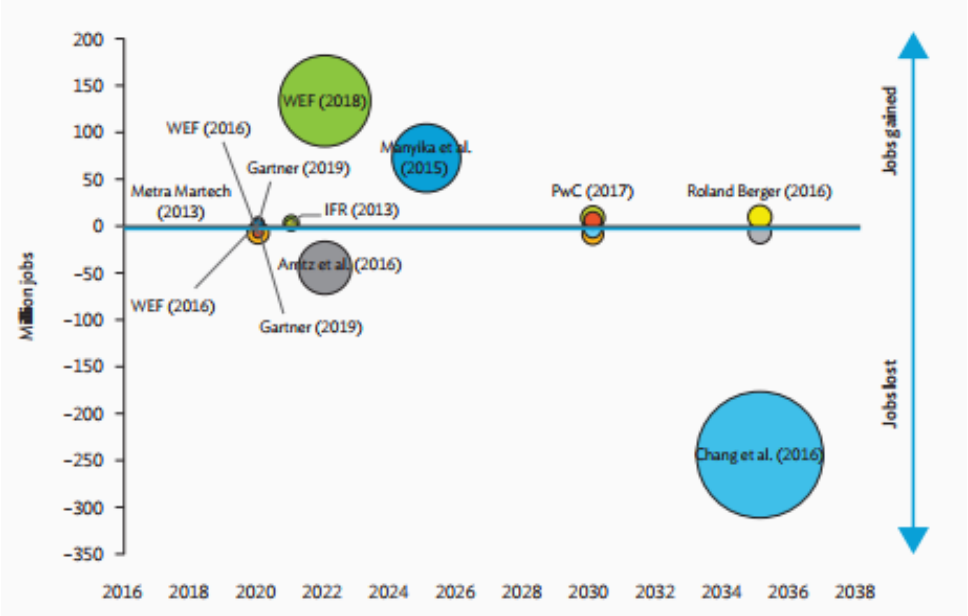

Fig. 5. Industrial New Scheme

In the framework of this study, the potential impact of new technologies on growth in Indonesia's economy during the period 2020–2040 was estimated.18 The impact was computed using a general equilibrium model where the effects of new technology were estimated through sector-specific labor-productivity shocks. The analysis focused in particular on the effect of digitalization, robotization, and artificial intelligence technologies.

If we look at the calculation of the graph of economic development, it can be seen that when Java the economy goes up, it will have an impact on the nation. It can be seen on table 1.

TABLE I. ECONOMIC DEVELOPMENT NATION AND EACH PROVEINCE

	National	Sumatra	Java	Kalimantan	Sulawesi	Bali NT	Papua Maluku
Baseline scenario, annual GDP growth (%)							
2020–2030	5.20	4.60	5.85	3.81	4.72	4.79	3.42
2030–2040	5.20	4.38	5.88	3.84	4.53	4.83	3.56
2020–2040	5.20	4.49	5.87	3.83	4.63	4.81	3.49
With new technology adoption, annual GDP growth (%)							
2020–2030	5.73	5.00	6.48	4.15	5.14	5.22	3.72
2030–2040	5.77	4.64	6.65	4.12	4.83	5.20	3.80
2020–2040	5.75	4.82	6.57	4.14	4.99	5.21	3.76
Growth gain difference (percentage points)							
2020–2030	0.53	0.40	0.63	0.35	0.42	0.43	0.30
2030–2040	0.57	0.26	0.77	0.28	0.30	0.37	0.24
2020–2040	0.55	0.33	0.70	0.31	0.36	0.40	0.27

The effects forecasted across regions are, however, uneven. The gains in economic growth are projected to be concentrated in Java, while Papua and Maluku, the most disadvantaged regions, would obtain the smallest growth gains. This indicates that, though the adoption of new technologies could drive significant economic growth, it is likely to demand appropriate policy countermeasures to avoid widening interregional disparities.

From table 1 We know that variations in impact are also expected across sectors. Productivity shocks and output expansions are predicted to be largest in the machinery and equipment and automotive industries, and lowest in the mining industry, agriculture, and the food and beverage industry. By 2040 machinery industry output could be 42% above its baseline if new technologies are adopted, while the motor vehicle industry could expand by 28%. The third largest expansion is expected in the financial sector, up 19% from the baseline.

Cross-sectoral differences in the projected impacts of technology adoption on productivity and production are also reflected in heterogeneous impacts on employment. In comparison with the baseline without technology adoption, the largest gains in employment are projected to occur in machinery and equipment at 19%, business services 9.6%, and automotive 9.3%. The sectors expected to show levels of employment below their baseline are mining industry at –15.9%, food and beverage –7.2%, other services –3.6%, agriculture –1.3%, and the manufacture of metal products –1%. These negative numbers do not necessarily mean job losses; they

indicate lower increases in employment in comparison with a scenario where new technologies were not adopted in these sectors. Two likely explanations were identified for the differentiated impacts on employment projected across sectors. The first is that abor-intensive sectors are more likely to show a negative balance on jobs, and the second is that sectors that are more technologically sophisticated are more likely to show a positive balance on jobs, even if they are labor intensive.

CONCLUSSION

Indonesia has taken important steps to strengthen its national innovation system in recent years. The importance of technology and innovation is widely recognized in the national policy agenda. Ongoing government initiatives to support technological transformation include new fiscal incentives large investments in digital infrastructure, and new funding mechanisms to support public research. Making Indonesia 4.0 is a national initiative that recognizes the critical importance of technology for the future of Indonesia.

The majority of consulted firms, or 64%, report low technology adoption, performing many activities with basic tools such as spreadsheets and e-mail. Only a relatively small 6% of firms report advanced technology adoption, using emerging digitally enabled tools. Industry 4.0 technology adoption remains relatively low for all technologies covered in the survey: 27% for robotics, 16% for cloud computing, 14% for big data, 8% for 3D printing, and 7% for AI. A number of opportunities exist for Indonesian firms to create new innovative products, services, manufacturing processes, and delivery methods to interact with customers. They could enable in turn improvements in productivity, energy efficiency, planning and budgeting, knowledge of customer needs, and product quality. However, barriers to technology adoption include financial constraints, lack of skilled workers, technical uncertainties, resistance to change, and digital infrastructure gaps.

Five pillars for policy action have been identified to support Indonesia’s industrial transformation and economic development. These pillars represent areas where, considering Indonesia’s particular context policy action is critical to drive technological transformation:

- Pillar 1: Advanced innovation infrastructure and institutions

- Pillar 2: Awareness of the business value of new technologies
- Pillar 3: Technology transfer and technical support for firms
- Pillar 4: Low-cost plug-and-play technology solutions for Indonesian firms
- Pillar 5: A tech-savvy workforce

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