Supply chain management performance measurement in the development of Indonesian new capital using SCOR method

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Abstract. Isu yang hangat diperbincangkan akhir-akhir ini di masyarakat adalah diskusi tentang wacana pemindahan ibu kota baru Indonesia. Proses pemindahan ibu kota baru membutuhkan banyak sumber daya baik sumber daya manusia maupun material yang berkualitas, sehingga dapat diproyeksikan apakah ibu kota baru dapat dipindahkan dalam waktu yang sangat singkat. Logistik dan rantai pasok adalah dua hal yang tidak dapat dipisahkan dalam proses pergerakan barang dan jasa. Manajemen rantai pasok dalam pembangunan ibu kota baru meliputi material, alat berat, pelayanan SDM, dan pemasok. Tujuan dari penelitian ini adalah untuk mengembangkan kerangka kerja dari pengukuran kinerja rantai pasokan pemindahan ibukota baru dengan menggunakan metode SCOR. Melalui riset SCOR, dapat ditelusuri kemana saja yang perlu menghasilkan lebih banyak dalam hal sumber daya manusia dan material yang dibutuhkan di masa mendatang, sehingga pemerintah dapat membangun kerangka indikator yang harus dicapai dan ditargetkan.

Kata kunci: ibu kota baru, logistik, rantai pasok, sumber daya, SCOR.

Abstract. *The current issue of the Indonesian people is that there is a discussion about the discourse of moving the new capital city. The process of moving capital city requires a lot of qualified human and material resources, but whether we can see whether it is possible for the capital city to move in a very short time. Logistics and supply chains are two things that are not separated in the process of moving goods and services. Supply chain management in the construction of new capital city includes material, heavy equipment, human resource services and suppliers. The objective of this research is to develop the framework of supply chain performance measurement using SCOR method. Through SCOR research, can be traced anywhere that needs to produce more in terms of human resources and materials needed in the future, then the government needs to build a framework of indicators that must be achieved and targeted.*

Keyword: new capital city, logistic, supply chain, resources, SCOR.

1. Introduction

The capital city is an identity of a country which has a very important role in government. The capital city must be able to integrate governmental and political activities, business and all activities that can coordinate holistically from all regions. Indonesia has a capital city named Jakarta, where almost 70% of the country's activities are in Jakarta. Jakarta has become an extraordinary magnet from all parts of Indonesia with the hope that in the Capital City will get a better job. The migration of citizens outside Jakarta to Jakarta, both from educated circles and those who do not have the readiness to try their luck in Jakarta is a problem why Jakarta is a very crowded city. The discourse of moving into a solution that will certainly be strategic towards improving the quality of the nation going forward. However, the focus examined and examined here is the supply chain in the process of moving the capital, both in terms of logistics and supply chain.

The city is a place where residents are densely populated, houses are grouped, and the livelihoods of residents are not agriculture. Meanwhile according to Bintarto in Marangkup & Eka (2006), the city in geographic review is a cultural landscape caused by natural and non-natural elements with symptoms of population concentration that is quite large, with a pattern of life that is quite heterogeneous and materialistic compared to the region behind him, urban concepts that can at least be seen from four points of view in limiting the city, result in an understanding of the city in plural dimensions and so far none of the city benchmarks can apply in general.

The study of the transfer of the capital has been done by Schatz (2003) revealing that moving the capital (physically moving the center of the country from one location to another) is the usual way (not as strange as it seems) that is done to create the shape of a country. In this study it was revealed that there was a link between

the politics of geography and national development in moving the capital. Capital transfers are often not only done on the basis of rational-technique alone, but more often not only on the basis of rational-technique alone, but more than that there are political and social reasons that are carried out in the transfer. Moving the capital is one of the innovative ways to form a state (building states) and national character (national identification). This policy is a big policy that most leaders do not dare to do because of the large financial, logistical and political costs. Like political policies, capital removal policies are influenced by various factors. Differences in perspective will produce a variable that is different from variables taken with other perspectives. From the analysis that has been done, it can be concluded that the transfer of the capital (especially in the analysis of the move of the capital of Kazakhstan from Almaty to Astana) is not only done based on rational-technical reasons, but rather it is done on the basis of social and cultural considerations such as the formation of national and state character. The transfer of the capital is also greatly influenced by the pattern of the country such as state government, cultural distribution, and the condition of the country after imperialism. Another important thing that was discovered was when the location of the capital's move was often competed in the formation and consolidation of the government (which often caused controversy), even though the controversy had the tendency to disappear after the election of a new capital.

Discourse about moving the capital out of Jakarta must be understood as an important process before determining a major decision to move the capital out of Jakarta or keep Jakarta as the country's capital. Rukmana (2010) revealed that experience from various countries shows that the relocation of the capital was not merely driven by consideration of the condition of the old capital which was already overcrowded and the lack of infrastructure and urban facilities. Political and socio-economic considerations are also important factors in the decision to move the country's capital. Meanwhile there are three common reasons for moving the capital, namely political considerations, socio-economic considerations, and physical considerations. Political considerations are often the main consideration in moving the capital. In this consideration useful for enhancing national cohesion, building symbols of national revival, and representing better ethnic diversity is a consideration used by the governments of Brazil, Nigeria and Pakistan in moving their respective capitals.

Rawat (2005) conducted a research on global-local perspectives on the removal of capitals stating that in fact, the policies of moving capital in its history were mostly carried out by strong and ambitious leaders when compared to democratic forces. This is because of the difficulty of efforts - which involve political alliances - to convince the public that the large costs incurred by government resources are not wasted and beneficial. Furthermore, the emergence of new capitals in the mid-20th century came to represent the hopes and dreams of a newly independent country. This shows that many countries moved their capital to rebuild their country from adversity. The movement of the capital is not only seen in the local perspective, but also a global perspective to create a city that has a hybrid culture, cosmopolitan, and has good global competitiveness that is connected in international networks. In his research on the relationship between politics and geography in the European region, Dascher (2000) analyzes the relationship between the influence of political forces in the capital and regional political forces and their impact on the economy. In the analysis, two conclusions were drawn, namely (1) moving the capital is a must, but with a grace period, and it should not be as a discourse anymore; (2) the capital city of the country remains in Jakarta but the relocation of several departments and centers of activity has been transferred outside Jakarta.

In the case of the discourse on moving capital in Indonesia, this discourse is considered to be very possible because in the Constitution of the Republic of Indonesia and its Amendments, it does not or does not yet regulate explicitly on this matter. In Chapter II paragraph (2) of the Constitution of the Republic of Indonesia, it is written: People's Consultative Assembly meets at least once every five years in the national capital. In the Constitution there is no article that states where and how the national capital is regulated. Thus, there is high flexibility in regulating including moving the national capital. Furthermore, in research on ISIIP Jakarta's internal public opinion and literature analysis, it shows that in the next five years the discourse of capital movement must have been followed up seriously by related parties. First, in general (34%) respondents responded that the idea of moving the capital in Indonesia was just a discourse, and there were 25% of respondents who were optimistic that the move of the capital should be realized within the next 10 years. Second, the majority (46%) of respondents agreed with the idea of moving the capital in turn between provinces in Indonesia or between three time zones. Third, the reasons are the main consideration for the transfer of state capital. Most votes (17%) of respondents require that the location is not yet solid. As many as 16% of respondents require a conducive and strategic location. Approximately 14% of respondents require efficient travel from the old capital. Fourth, how to move the capital city. The majority (33%) of respondents view the move of the capital to be carried out with technical measures such as phasing out the presidential office, departments, parliaments and foreign embassies (Yunia and Rozi 2007).

2. Literature Review

Supply Chain Operation Reference Model

In 2002, the Supply Chain Council (SCC) introduced and developed a known supply chain performance measurement framework (SCOR) to describe the management process associated with all phases involved to meet customer demand. There are five main supply chain management processes defined in this model, namely: *plan, source, make, deliver, and return.*

Supply Chain Performance Measurement

Management in the business world is often identified with the terms logistics and operation management. But for service-based business activities in the SCM process is how consumers are satisfied with the performance results of a service company or can also be interpreted A series or network of companies that work together to create and distribute products or services to end customers. In general, existing efforts put more emphasis on improving performance in the process. Some opinions that state the definition of supply chain management include the following:

1. Supply chain is a strategic approach to achieving qualified efficiency and measuring SCM performance in an industry which is very important and requires a framework in developing SCM chains (Sillanpaa, 2012)
2. Green supply chain management in the business world both manufacturing and services becomes a very important strategy for sustainable business for companies to obtain and improve international competitiveness effectively by using the SCOR model as a SCM framework, building a performance evaluation indicator system is very important. important for the whole of the SCM chain both from the financial, operating and environmental indicators of the supply chain (Wang, 2013).
3. In SCM a theoretical model is developed to measure the implementation of supply chain management practices both at the company level and supplayer by using survey instruments to determine the performance of the design, methodology and approach used by the company (Hamister, 2011)
4. The paradigm of using SCM to improve organizational competitiveness is that SCM ensures increased efficiency and effectiveness of product transfer and information sharing between complex hierarchies at all levels of the company's business, besides SCM relating to strategies and technologies that effectively manage SCM broadly, in performance measurement the organization (PM) and metrics have a lot of attention from researchers and practitioners for the identification of performance measures, which in turn form the basis for building a framework for measuring SCM performance (VKSunnapwar, et al, 2013)
5. In a business development of a universal framework for the selection of SCM system performance measurements is to find out the supply chain performance categorization which consists of 3 types of identification in which performance measures become the necessary assessment components in supply chain performance measurement systems consisting of: resources, outputs and flexibility by developing volume and delivery flexibility and performance measurement SCM has flexibility measures for the supply chain, and collaborative steps or a mix of new product flexibility and flexibility. SCM models that utilize this can more truly characterize the supply chain system and produce the right configuration effects, thus enabling the development of a more complete, accurate, and effective model for measuring company performance (Beamon, 2014).
6. From some of the above understanding, an understanding of SCM can be drawn, namely SCM not only regulates the process of production activities from upstream to downstream but also as a measure of the performance of the process or the flow of good information, services ranging from quality supplyer to customer service and customer satisfaction becomes a priority In the main flow of SCM, all these units are sought in order to improve and as a reference for continuous improvement in order to achieve customer loyalty and satisfaction.

3. Method

In the SCOR method there are two variables used to identify SCM performance, i.e. dependent variable and independent variable. In this study the dependent variables used are supply chain management performance in SCOR schemes namely Matrix level 1 plan, source, make and deliver.

1. **Plan**; Processes relating to the balance between targets and realization and what has been planned especially in planning the development of the New Capital City.

2. **Source**; Processes related to the preparation of human resources, supporting facilities to meet the development of the existing construction world and the relationship of government cooperation with suppliers and consumers
3. **Make**; Processes related to improving the quality of regional and city layout planning in building a new capital city.
4. **Deliver**; The processes relating to the provision of prospective graduates with civil or construction expertise in accordance with the development of the construction world or labor market demand. The second free variable is a variable whose change does not depend on other variables so that this variable is used in accordance with the conditions and characteristics that exist in each company so that between one company with another company is likely to be different in determining the variable for the company.

The independent variables in this study are five dimensions in the construction supply chain namely matrix Level 2 Supply chain reliability, Supply chain responsiveness, Supply chain flexibility, Supply chain cost and Supply chain asset management efficiency. Identification KPIs on Matrix level 3:

- Reliability: Corporate Reliability
- Responsiveness: Speed of time responding to any changes that occur
- Flexibility: Flexibility with every change
- Assets: Company supporting facilities and facilities
- Cost: Costs required by the company and identification of KPIs on Matrix level 3.

4. Result and Discussion

The intended data collection is all data collected to measure SCM performance in the new capital city through SCM plan, source, make and deliver performance activities in determining which KPIs should be improved in the four SCM activities in the Indonesian Government and what strategies the Government should take.

Table 1 The supply chain performance matrix on the main island

The Region		Labor	Asphalt	Cement	Concrete	Steel	Heavy Equipment	Asphalt Button
Sumatera	Reliability	Not complete	Complete	Complete	Complete	Complete	Complete	Complete
	Responsiveness	Not complete	Complete	Complete	Complete	Complete	Complete	Complete
	Flexibility	Not complete	Complete	Complete	Complete	Complete	Complete	Complete
	Assets	Not complete	Complete	Complete	Complete	Complete	Complete	Complete
	Cost	Not complete	Complete	Complete	Complete	Complete	Complete	Complete
Kalimantan	Reliability	Complete	Complete	Complete	Not complete	Not complete	Complete	Not complete
	Responsiveness	Complete	Complete	Complete	Not complete	Not complete	Complete	Not complete
	Flexibility	Complete	Complete	Complete	Not complete	Not complete	Complete	Not complete
	Assets	Complete	Complete	Complete	Not complete	Not complete	Complete	Not complete
	Cost	Complete	Complete	Complete	Not complete	Not complete	Complete	Not complete
Jawa	Reliability	Not complete	Not complete	Complete	Complete	Complete	Complete	Complete
	Responsiveness	Not complete	Not complete	Complete	Complete	Complete	Complete	Complete
	Flexibility	Not complete	Not complete	Complete	Complete	Complete	Complete	Complete
	Assets	Not complete	Not complete	Complete	Complete	Complete	Complete	Complete
	Cost	Not complete	Not complete	Complete	Complete	Complete	Complete	Complete
Bali-NTT	Reliability	Not complete	Complete	Complete	Not complete	Not complete	Complete	Complete
	Responsiveness	Not complete	Complete	Complete	Not complete	Not complete	Complete	Complete
	Flexibility	Not complete	Complete	Complete	Not complete	Not complete	Complete	Complete
	Assets	Not complete	Complete	Complete	Not complete	Not complete	Complete	Complete
	Cost	Not complete	Complete	Complete	Not complete	Not complete	Complete	Complete
Maluku - Papua	Reliability	Complete	Complete	Complete	Complete	Complete	Complete	Complete
	Responsiveness	Complete	Complete	Complete	Complete	Complete	Complete	Complete
	Flexibility	Complete	Complete	Complete	Complete	Complete	Complete	Complete
	Assets	Complete	Complete	Complete	Complete	Complete	Complete	Complete
	Cost	Complete	Complete	Complete	Complete	Complete	Complete	Complete
Sulawesi	Reliability	Complete	Complete	Complete	Not complete	Not complete	Complete	Complete
	Responsiveness	Complete	Complete	Complete	Not complete	Not complete	Complete	Complete
	Flexibility	Complete	Complete	Complete	Not complete	Not complete	Complete	Complete
	Assets	Complete	Complete	Complete	Not complete	Not complete	Complete	Complete
	Cost	Complete	Complete	Complete	Not complete	Not complete	Complete	Complete

Labor

Construction human resources are dominated by skilled workers, only 8.1% of certified workforce (of the total construction workforce/national construction workforce). From the data of the Indonesian Construction Services Development Board of Indonesia (LPJK), the number of national skilled workers is only 471,404 (70.2%) and the number of construction experts is 200,225 (29.8%). From 4,361,272 students, only 13.63% interested in engineering majors (see Table 2). As much as 34% of all engineering graduates are in the field of computer science-informatics engineering, while civil engineering graduates are the main force in infrastructure development, and only 10% of all engineering graduates.

Table 2 Interest distribution in Indonesia from 2010 to 2016

Specialization	Interest	%
Education	1.605.363	36,81
Economy	800.256	18,35
Technique	594.706	13,64
Social	589.062	13,51
Health	318.944	7,31
Agriculture	155.709	3,57
MIPA	102.487	2,35
Religion	84.230	1,93
Humanities	77.003	1,77
Art	33.512	0,77
Total	**4.361.272**	**100,00**

Source: PII, 2019

Table 3 Specialization distribution of engineering graduates in Indonesia from 2010 to 2016

Specialization	%
Computer Science – Informastics Engineering	34
Computer Science – System Information	21
Civil Engineering	10
Electrical Engineering	7
Mechanical Engineering	6
Industrial Engineering	6
Architecture	4
System Computer	2
Chemical Engineering	2
Others	8

Asphalts

Table 4 Tools and transportation for Asphalt

Tools and Transportation	Total
Asphalt Mixing Plant	260
Concrete Batching Plant	89
Generator Set	422
Stone Crusher	180
Tronton	168
Truk Mixer	258
Dump Truk	2475
Truk Scale/Weight	53

Table 5 Asphalt work equipment for construction

Tools	Total
Air Compressor	359
Asphalt Distributor	38
Asphalt Finisher	420
Buldozer	123
Cold Milling	31
Concrete Paver	21
Excavator	480
Motor Grader	222
Tandem Roller	388
Three Wheel Roller	52
Tire Roller	384
Vibrator Roller	252
Water Tanker	191
Wheel Loader	367

Cements

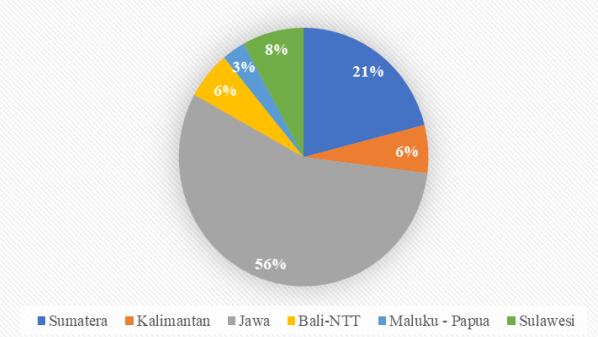


Figure 1 Distribution of cement needs in Indonesia.

Table 6 Projection of cement production capacity in Indonesia up to 2024

Company	Volume in Tons						
	2.018	2019*	2020*	2021*	2022*	2023*	2024*
PT Semen Padang	8.900.000	8.900.000	8.900.000	8.900.000	8.900.000	8.900.000	8.900.000
PT Semen Gresik	19.200.000	19.200.000	19.200.000	19.200.000	19.200.000	19.200.000	19.200.000
PT Semen Tonasa	7.400.000	7.400.000	7.400.000	7.400.000	7.400.000	7.400.000	7.400.000
PT Solusi Bangun Indonesia	15.531.480	15.531.480	15.531.480	15.531.480	15.531.480	15.531.480	15.531.480
PT Indocement Tunggal Prakarsa	25.500.000	25.500.000	25.500.000	25.500.000	25.500.000	25.500.000	25.500.000
PT Semen Baturaja	3.850.000	3.850.000	3.850.000	3.850.000	3.850.000	3.850.000	3.850.000
PT Semen Kupang	400.000	400.000	400.000	400.000	400.000	400.000	400.000
PT Semen Bosowa Maros	7.400.000	7.400.000	7.400.000	7.400.000	7.400.000	7.400.000	7.400.000
PT Cemindo Gemilang	7.690.000	7.690.000	7.690.000	7.690.000	7.690.000	7.690.000	7.690.000
PT Jui Shin Indonesia	1.800.000	1.800.000	1.800.000	1.800.000	1.800.000	1.800.000	1.800.000
PT Sinar Tambang Arthalestari	1.800.000	1.800.000	1.800.000	1.800.000	1.800.000	1.800.000	1.800.000
PT Semen Jawa	1.800.000	1.800.000	1.800.000	1.800.000	1.800.000	1.800.000	1.800.000
PT Conch Cement Indonesia	8.700.000	8.700.000	8.700.000	8.700.000	8.700.000	8.700.000	8.700.000
PT Hong Shi Cement	-	-	3.000.000	3.000.000	3.000.000	3.000.000	3.000.000
PT Semen Grobogan	-	-	3.000.000	3.000.000	3.000.000	3.000.000	3.000.000
Total Capacity	109.971.480	109.971.480	115.971.480	115.971.480	115.971.480	115.971.480	115.971.480
Needs	69.541.056	71.627.288	73.776.106	75.989.389	78.269.071	80.617.143	83.035.658
Utilization (%)	63,2	65,1	63,6	65,5	67,5	69,5	71,6
Growth in Needs (%)	4,8			Assumption of growth 3%			

The installed capacity of the cement industry is already excessive, hoping that the Government will not issue permits for new plant construction until 2023. The cement industry continues to increase export volumes in order to achieve an optimal level of factory utilization which is above 70%. The cement industry is ready to meet the needs of cement, especially for property, infrastructure and other strategic projects. This has an impact on the demand for cement, especially bulk cement, which has increased every year. The cement industry encourages the use of environmentally friendly cement, both for housing and infrastructure projects.

To expedite the supply of cement to remote areas, development/extension (port docks) are intensified especially in areas where there are no packing plants. Strengthen the road with a concrete road so that the carrying capacity of large cargo trucks (500-600 zak) can run smoothly. The cement industry is ready to meet the needs of national cement until 2024.

Concrete

The current condition of production capacity in 2024 depends on the project plan of the ministry of public works and public housing and other investment projects.

Table 7 Projection of concrete production capacity from 2014 up to 2018

Years	Capacity of Production (Ton/Years)	Factory in Indonesia
2014	24.566.513	57
2015	25.325.469	58
2016	26.776.333	63
2017	34.422.455	7
2018	35.679.433	80

Pessimistic target of 2024 increase in capacity of 5% per year 48 million tons per year, optimistic target of 2024 increase in capacity of 2% per year 40 million tons per year. With a note that each capacity of 1 million tons requires an investment of approximately 400 billion.

Domestic problems are sufficient but the price difference with imports is quite large with the proposal to ensure national production capacity. Then the current conditions the government limits imports in order to protect domestic producers by proposing to control the price of local products versus imports to a certain difference.

At present the Standard National of Indonesia (SNI) does not cover all products, because the cost of compiling SNI is sourced from the APBN, the preparation of SNI requires a large cost and quite a long time, with the proposed process of ratification of SNI being accelerated.

Steel

Portion of Steel in Construction Work:

- The value of steel works is around 30% of the value of construction works
- The use of steel in the construction sector is around 78% of all national steel consumption
    - 40% for infrastructure work and 38% for non-infrastructure
    - The use of reinforcing steel is about 32% of the total use of construction steel
    - National steel consumption will continue to grow. PTKS has and is developing facilities to anticipate consumption growth and support national development. Therefore government support is needed so that PTKS and the national steel industry can continue to grow
    - Imported steel products are still very high at around 50%, whereas the capacity utilization of the National Steel industry is still relatively low in the range of 35-66%.
    - Protection of the national steel industry as the mother of industry from the flood of products
    - Imported steel needs to be done either through tariff barrier or non tariff barrier.
    - National steel industry companies have implemented some 4.0-based technologies so that they are expected to support the performance of the national steel supply chain. In addition, the steel industry cluster construction plan will add to the existing capacity so that it can meet domestic steel needs.
    - Regarding the Indonesian National Standard (SNI) which is intended as a technical barrier, it is necessary to maximize the application of mandatory SNI for steel products including submission for products that do not yet have compulsory SNI, monitoring SNI in the domestic market and providing SPPTSNI to be more monitored and prioritize the interests domestic producer
    - Considering that in the case of the use of steel for construction, such as reinforcing concrete steel, steel elbows/profiles, and steel plates for buildings/roofs/buildings it is necessary to pay attention to the source of raw materials because they are related to the security and safety aspects of the building or building

- It is expected that steel materials used by government projects do not use spent materials that do not use materials produced from factories with induction furnace technology, to avoid structural damage that can cause casualties, especially with conditions in Indonesia prone to earthquakes

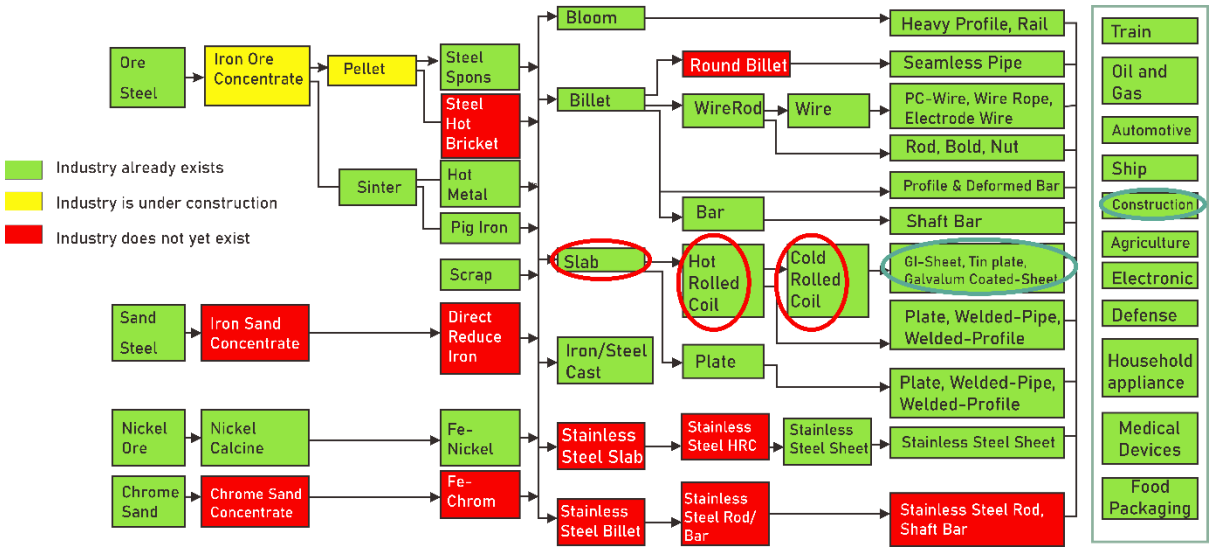


Figure 2 Indonesia's light steel industry profile.
Source: Indonesian Light Steel Producers Association-Asosiasi Produsen Baja Ringan Indonesia (APBRI)

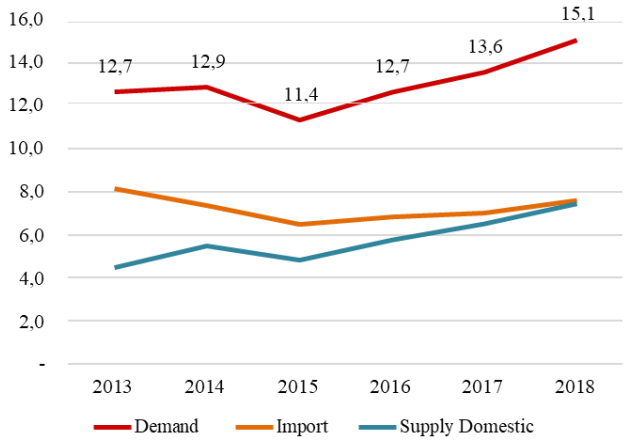
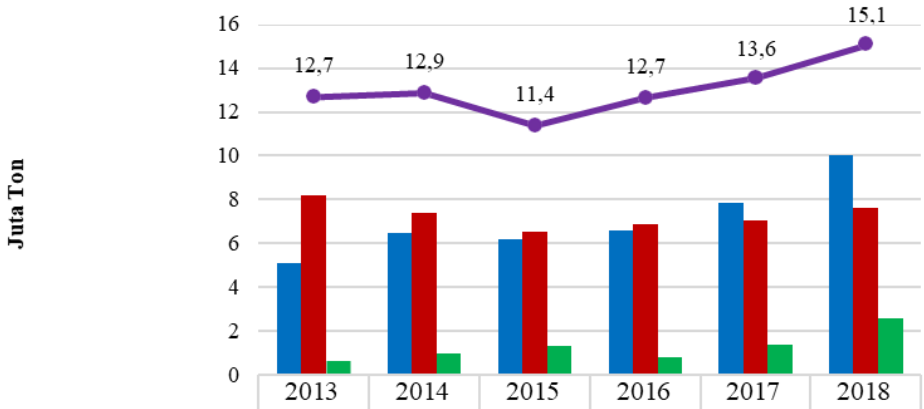


Figure 3 Supply vs Demand of steel from 2013 to 2018.

- National steel consumption in 2018 of 15.1 million tons, this figure shows an increase of 11.03% from the previous year.
- Although consumption has increased, import volumes are still quite high with a market share reaching 50.3%.
- Whereas the national production supply after being reduced by exports (net production) only gets a market share of 49%.



	2013	2014	2015	2016	2017	2018
Production	5,1	6,5	6,2	6,6	7,9	10,0
Import	8,2	7,4	6,5	6,9	7,1	7,6
Export	0,6	1,0	1,3	0,8	1,4	2,6
Apparent Steel Consumption	12,7	12,9	11,4	12,7	13,6	15,1

Figure 4 Apparent steel consumption of Indonesia from 2013 to 2018.

Heavy Equipment

- Difficulties in anticipating heavy equipment needs from year to year result in huge inefficiencies.
- Excessive cost-of-doing-business: taxes, compliance regulations, labor.
- The government needs to provide fiscal and non-fiscal support to the heavy equipment industry because:
  - Strategic industries supporting development and foreign exchange earners
  - Indonesia has the potential to become a regional base of heavy equipment production
  - Can raise the degree of Indonesia to a high technology-based country.

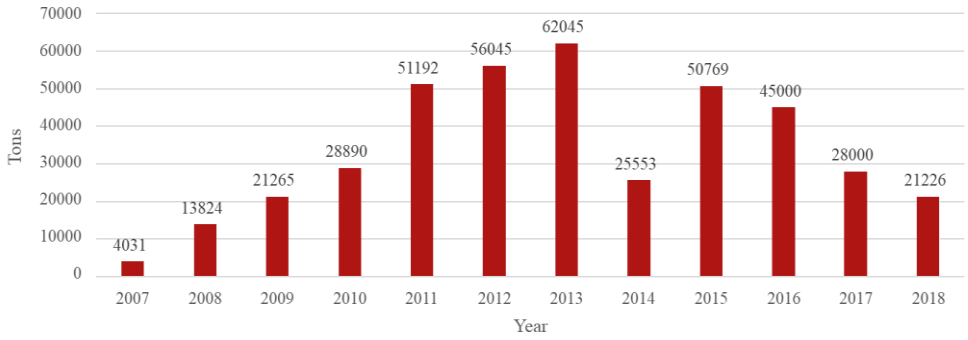


Figure 5 Total consumption of national Asbuston from 2007 to 2018 = 407,840 tons. (0.06% of deposit reserves)

Asphalt prices are unstable because they are influenced by crude oil prices and international demand. Asbuton prices are more stable because they do not depend on fluctuations in crude oil prices.

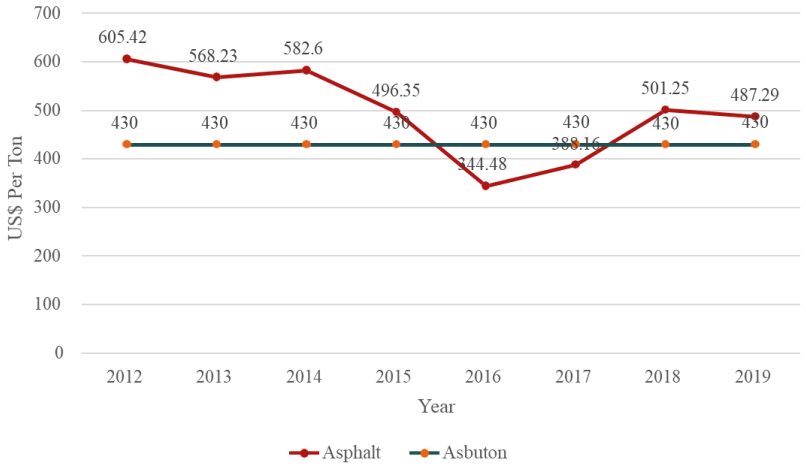


Figure 6 Asphalt vs Asbuthon price from 2012 to 2019.

5. Conclusion

The research succeeded in building a framework to measure the success of the relocation of the Indonesian capital. From the survey results, it is determined that Indonesia currently still lacks the human resources and materials needed to build a new capital city. In terms of labor in the regions of Sumatra, Java and Bali - NTT still lacks construction workers. Asphalt in Java is still inadequate, concrete in Kalimantan, Bali-NTT, Sulawesi is not enough, and asbuton in Kalimantan still tends to be unstable because it depends on crude oil fluctuations.

Through SCOR research, can be traced anywhere that needs to produce more in terms of human resources and materials needed in the future. then the government needs to build a framework of indicators that must be achieved and targeted.

No	Region	Component of Productivity																	
		Cements			Steel			Asphalt			Asphalt Buton			Concrete			Heavy Equipment		
		S	D	K	S	D	K	S	D	K	S	D	K	S	D	K	S	D	K
1	Bali dan Nusa Tenggara	400	200,21	199,789	0	53,388	-53,388	90,9	52,294	38,605	0	0	0	68,184	458,774	-390,59	1,509	959	549
2	Jawa	72,347,000	1,676,231	70,670,769	17,709,250	446,99	17,262,262	121,6	437,83	-316,24	438	16,39	421,61	30,184,996	3,073,800	27,111,195	23,79	8,03	15,8
3	Kalimantan	5,800,000	278,246	5,521,753	0	74,197	-74,197	86,5	72,677	13,822	0	1,261	-1,261	48	695,272	-647,272	2,129	1,33	795
4	Kepulauan Riau	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Maluku	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Papua	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Sulawesi	11,800,000	390,047	11,409,952	20	104,01	-84,01	142,5	101,88	40,61	410	44,31	365,69	622,37	946,919	-324,549	4,58	1,87	2,71
8	Sumatera	16,124,480	610,199	15,514,280	1,090,000	162,72	927,282	248,1	159,38	88,757	30	5,451	24,548	4,755,883	1,365,571	3,390,311	5,227	2,92	2,3

Information:
S = Supply
D = Demand
K = Supply Balance - Demand

Finally, in developing an integrated MPK supply chain system, it certainly cannot only rely on one party. To achieve this goal, collaboration and synergy between all stakeholders involved is certainly needed.

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