





Searching the conformity of Digitalization, innovation, and international polarization in the Era of Platform Capitalism: Case Study Indonesia, China, India, and Europe

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Summary

- Introduction
- Approach: SSIP, CT, IIO, CI
- Data: Input-output database
- Result:
 - STI Analysis
 - CT Analysis
 - Cl and macro Regime
 - Characteristics of Mode of Development: national intellectual capital in banking sector, e-commerce and income in enterprises (SMEs).
- Direction of Polarization with Europe (further study)









Introduction

- 1. This work aims to set foot digitalization into innovation and industrialization in emerging countries, by using social system of innovation and production (SSIP), complementarity of technology (CT), isomorphism of institutions and organization (IIO), complementarity of institutions (CI), and mode of development. This is different to other approaches that merely defines innovation as technological changes and management.
- 2. The situation might be different to emerged countries that already experienced accumulation of intangible capital, patenting, and knowledge economy. Therefore, the issue of polarization becomes important.

Methodology









- 1. In order to answer our research question firstly about the conformity of digitalization adoption in innovation to achieve industrialization in emerging economy and secondly about its inclusion in the international integration or polarization between emerged and emerging countries, this work finds institutional technique will be more appropriate to explain stylized facts and findings that articulate changes and its impact to industrialization process.
- 2. Innovation can be defined by the adoption of technology or management. Different to them, innovation can also be defined by the system of science, technology, and industry (STI), as proposed by Social System of Innovation and Production (SSIP). It seems that information and communication (ICT) can be included to extent STI. We also put construction as opposed to innovation.
- 3. We follow the following logic: science is the producer of idea, technology is mechanization, industry is fabrication, ICT is automatization including self-automatization. They are different to and so opposed to construction. The logic can be continued to sectors and complementary analysis, including routinity and regularity changes by using interview and literature studies, and revisiting intellectual capital analysis.









Categorization

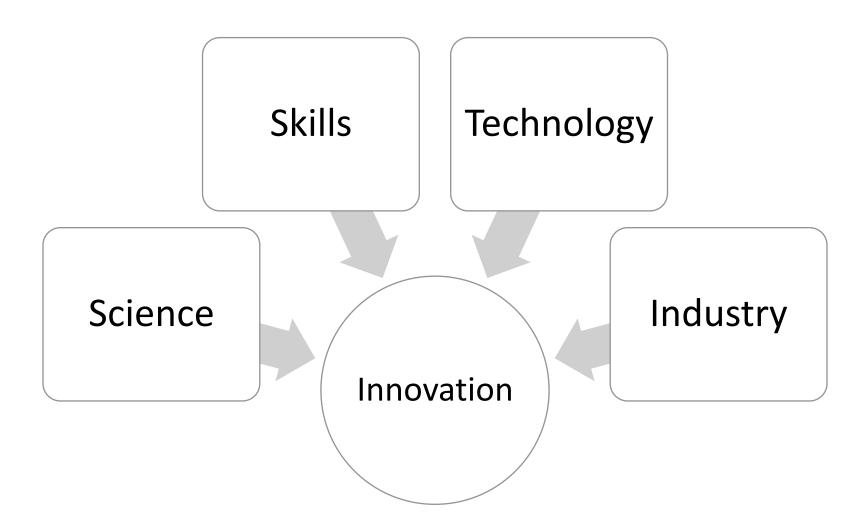
- Science includes Professional, Scientific, and Technical Activites (PST), and education.
- Technology includes computer, electrical equipment, machinery, equipment, other transport.
- Industry is defined as basic metal sector and chemical.
- ICT is defined as telecommunication and internet.
- Construction is construction and real estate.







Social Systems of Innovation and Production









SSIP and Institutional Changes (CT, IIO, CI)

Innovation



Complementarity Technologic



Isomorphism between institution and organization



Mode of Development and Production: Automatization and Profit, and National Intellectual Capital



Complementarity of Institutions



Macro Effect of Innovation









Data

- 1. Input-Output Database for Indonesia, China, India, and France in the period of 2005, 2010, 2015, and 2018.
- 2. The data is obtained from OECD statistics in US Million Dollars.
- 3. The data consisted domestic production and import. We separate import and only use domestic ones.
- 4. We also use data from the World Bank: patents, R&D expenditure, machinery & equipment transport, chemical, and industrial design.
- We also use data from national statistic agency (BPS): MSME and income.
- 6. We also use data from various resources: literature.

STI that supplies to other sectors including STI: Indonesia 🐠 🕮



Year			INDONESIA		
	Science	Technology	Industry	Information and Communication	Construction
2018	Wholesale and retail trade; repair of motor vehicles	Computer, electronic and optical equipment	Agriculture, hunting, forestry	Telecommunications	Construction
	Education	Construction	Human health and social work activities	IT and other information services	
		Motor vehicles, trailers and semi-trailers	Construction		
		Other transport equipment			
		Human health and social work activities			
2015	Mining and quarrying, energy producing products	Computer, electronic and optical equipment	Chemical and chemical products	Telecommunications	Construction
	Education	Construction	Human health and social work activities	IT and other information services	
		Motor vehicles, trailers and semi-trailers	Construction		
		Other transport equipment			
		Human health and social work activities			
2010	Mining and quarrying, energy producing products	Computer, electronic and optical equipment	Chemical and chemical products	Telecommunications	Wholesale and retail trade; repair of motor vehicles
	Education	Computer, electronic and optical equipment	Human health and social work activities	IT and other information services	
		Machinery and equipment, nec	Construction		
		Motor vehicles, trailers and semi-trailers			
		Other transport equipment			
		Education			
2005	Construction	Computer, electronic and optical equipment	Chemical and chemical products	Wholesale and retail trade; repair of motor vehicles	Public administration and defence; compulsory social security
	Education	Computer, electronic and optical equipment	Human health and social work activities	Construction	
		Machinery and equipment, nec	Construction		
		Motor vehicles, trailers and semi-trailers			
		Other transport equipment			
		Coke and refined petroleum products			

STI that supplies to other sectors including STI: China



Year			CHINA		
	S	T	l	ICT	С
2018	Construction	Computer, electronic and optical equipment	Chemical and chemical products	Telecommunications	Construction
	Education	Electrical equipment	Human health and social work activities	IT and other information services	
		Motor vehicles, trailers and semi-trailers	Construction		
		Other transport equipment			
		Agriculture, hunting, forestry			
2015	Wholesale and retail trade; repair of motor vehicles	Computer, electronic and optical equipment	Chemical and chemical products	Telecommunications	Construction
	Education	Electrical equipment	Pharmaceuticals, medicinal chemical and botanical products	IT and other information services	
		Machinery and equipment, nec	Basic metals		
		Motor vehicles, trailers and semi-trailers	Construction		
		Other transport equipment			
		Construction			
2010	Wholesale and retail trade; repair of motor vehicles	Computer, electronic and optical equipment	Chemical and chemical products	Construction	Construction
	Public administration and defence; compulsory social security	Electrical equipment	Human health and social work activities	IT and other information services	
		Machinery and equipment, nec	Basic metals		
		Motor vehicles, trailers and semi-trailers	Construction		
		Other transport equipment			
		Manufacturing nec; repair and installation of machinery and equipment			
2005	Wholesale and retail trade; repair of motor vehicles	Computer, electronic and optical equipment	Chemical and chemical products	Construction	Real estate activities
	Public administration and defence; compulsory social security	Computer, electronic and optical equipment	Human health and social work activities	Wholesale and retail trade; repair of motor vehicles	
		Machinery and equipment, nec	Basic metals		
		Motor vehicles, trailers and semi-trailers	Construction		
		Other transport equipment			
		Manufacturing nec; repair and installation of			
		machinery and equipment			

STI that supplies to other sectors including STI: India

Year			INDIA		
	S	Т	I	ICT	С
2018	IT and other information services	Construction	Chemical and chemical products	Land transport and transport via pipelines	Construction
	Education	Motor vehicles, trailers and semi-trailers	Human health and social work activities	Real estate activities	
		Other transport equipment	Construction		
		Manufacturing nec; repair and installation of machinery and equipment			
2015	IT and other information services	Construction	Chemical and chemical products	Land transport and transport via pipelines	Construction
	Education	Motor vehicles, trailers and semi-trailers	Human health and social work activities	Real estate activities	
		Manufacturing nec; repair and installation of machinery and equipment	Construction		
2010	Machinery and equipment, nec	Construction	Chemical and chemical products	Land transport and transport via pipelines	Construction
	Education	Motor vehicles, trailers and semi-trailers	Human health and social work activities	IT and other information services	
		Other transport equipment	Construction		
2005	Public administration and defence; compulsory social security	Computer, electronic and optical equipment	Chemical and chemical products	Telecommunications	Construction
	Education	Construction	Pharmaceuticals, medicinal chemical and botanical products	IT and other information services	
		Machinery and equipment, nec			
		Motor vehicles, trailers and semi-trailers			
		Other transport equipment			
		Construction			





STI includes other sectors excluding STI in itself, Indonesia, 2018

Science	PST	Wholesale and retail trade; repair of motor vehicles	Financial and insurance activities	Public administration and defence; compulsory social security	Human health and social work activities	Air transport
mechanization	Technology	Construction	Wholesale and retail trade; repair of motor vehicles	Mining and quarrying, energy producing products	Fabricated metal products	Public administration and defence; compulsory social security
Fabrication	Industry	Construction	Agriculture, hunting, forestry	Rubber and plastics products	Wholesale and retail trade; repair of motor vehicles	Electrical equipment
Automatization(self-)	ICT	Wholesale and retail trade; repair of motor vehicles	Construction	Air transport	Publishing, audiovisual and broadcasting activities	Financial and insurance activities
Infrastructure	Construction	Public administration and defence; compulsory social security	Real estate activities	Mining and quarrying, energy producing products	Wholesale and retail trade; repair of motor vehicles	Agriculture, hunting, forestry





Science	PST	Wholesale and retail trade; repair of motor vehicles	Mining and quarrying, energy producing products	Financial and insurance activities	Construction	Public administration and defence; compulsory social security
mechanization	Technology	Construction	Wholesale and retail trade; repair of motor vehicles	Mining and quarrying, energy producing products	Fabricated metal products	Land transport and transport via pipelines
Fabrication	Industry	Construction	Rubber and plastics products	Agriculture, hunting, forestry	Wholesale and retail trade; repair of motor vehicles	Electrical equipment
Automatization(s elf-)	ICT	Wholesale and retail trade; repair of motor vehicles	Construction	Financial and insurance activities	Mining and quarrying, energy producing products	Publishing, audiovisual and broadcasting activities
Infrastructure	Construction	Public administration and defence; compulsory social security	Mining and quarrying, energy producing products	Real estate activities	Wholesale and retail trade; repair of motor vehicles	Agriculture, hunting, forestry





Science	PST	Construction	Mining and quarrying, energy producing products	Financial and insurance activities	Wholesale and retail trade; repair of motor vehicles	Public administration and defence; compulsory social security
mechanization	Technology	Construction	Wholesale and retail trade; repair of motor vehicles	Fabricated metal products	Land transport and transport via pipelines	Coke and refined petroleum products
Fabrication	Industry	Construction	Rubber and plastics products	Wholesale and retail trade; repair of motor vehicles	Agriculture, hunting, forestry	Coke and refined petroleum products
Automatization(s elf-)	ICT	Wholesale and retail trade; repair of motor vehicles	Financial and insurance activities	Construction	Publishing, audiovisual and broadcasting activities	Public administration and defence; compulsory social security
Infrastructure	Construction	Wholesale and retail trade; repair of motor vehicles	Agriculture, hunting, forestry	Real estate activities	Mining and quarrying, energy producing products	Mining and quarrying, non-energy producing products



STI includes other sectors excluding STI in itself, Indonesia, 2005

Science	PST	Construction	Wholesale and retail trade; repair of motor vehicles	Human health and social work activities	Financial and insurance activities	Computer, electronic and optical equipment
mechanization	Technology	Coke and refined petroleum products	Construction	Wholesale and retail trade; repair of motor vehicles	Other service activities	Public administration and defence; compulsory social security
Fabrication	Industry	Construction	Agriculture, hunting, forestry	Rubber and plastics products	Electrical equipment	Textiles, textile products, leather and footwear
Automatization(self-)	ICT	Wholesale and retail trade; repair of motor vehicles	Construction	Financial and insurance activities	Education	Public administration and defence; compulsory social security
Infrastructure	Construction	Public administration and defence; compulsory social security	Agriculture, hunting, forestry	Wholesale and retail trade; repair of motor vehicles	Real estate activities	Mining and quarrying, non- energy producing products





Science	PST	Construction	Wholesale and retail trade; repair of motor vehicles	Real estate activities	Computer, electronic and optical equipment	Machinery and equipment, nec
mechanization	Technology	Construction	Land transport and transport via pipelines	Wholesale and retail trade; repair of motor vehicles	Electricity, gas, steam and air conditioning supply	Professional, scientific and technical activities
Fabrication	Industry	Construction	Machinery and equipment, nec	Electrical equipment	Agriculture, hunting, forestry	Rubber and plastics products
Automatization(self-)	ICT	Construction	Public administration and defence; compulsory social security	Computer, electronic and optical equipment	Financial and insurance activities	Wholesale and retail trade; repair of motor vehicles
Infrastructure	Construction	Real estate activities	Public administration and defence; compulsory social security	Electricity, gas, steam and air conditioning supply	Education	Agriculture, hunting, forestry





Science	PST	Wholesale and retail trade; repair of motor vehicles	Construction	Real estate activities	Machinery and equipment, nec	Computer, electronic and optical equipment
mechanization	Т	Construction	Land transport and transport via pipelines	Administrative and support services	Professional, scientific and technical activities	Electricity, gas, steam and air conditioning supply
Fabrication	I	Construction	Electrical equipment	Machinery and equipment, nec	Agriculture, hunting, forestry	Rubber and plastics products
Automatization(self-)	ICT	Construction	Public administration and defence; compulsory social security	Financial and insurance activities	Computer, electronic and optical equipment	Wholesale and retail trade; repair of motor vehicles
Infrastructure	Construction	Real estate activities	Land transport and transport via pipelines	Public administration and defence; compulsory social security	Wholesale and retail trade; repair of motor vehicles	Electricity, gas, steam and air conditioning supply

STI includes other sectors excluding STI in itself

: China, 2010

Science	PST	Wholesale and retail trade; repair of motor vehicles	Real estate activities	Electrical equipment	Computer, electronic and optical equipment	IT and other information services
mechanization	Т	Construction	Professional, scientific and technical activities	Electricity, gas, steam and air conditioning supply	Basic metals	Telecommunications
Fabrication	I	Construction	Machinery and equipment, nec	Electrical equipment	Rubber and plastics products	Agriculture, hunting, forestry
Automatization(self-)	ICT	Construction	Computer, electronic and optical equipment	Basic metals	Wholesale and retail trade; repair of motor vehicles	Financial and insurance activities
Infrastructure	Construction	Real estate activities	Human health and social work activities	Public administration and defence; compulsory social security	Land transport and transport via pipelines	Wholesale and retail trade; repair of motor vehicles



STI includes other sectors excluding STI in itself: China, 2005

Science	PST	Wholesale and retail trade; repair of motor vehicles	Construction	Computer, electronic and optical equipment	Real estate activities	Financial and insurance activities
mechanization	т	Construction	Electricity, gas, steam and air conditioning supply	Professional, scientific and technical activities	Land transport and transport via pipelines	
Fabrication	ı	Construction	Machinery and equipment, nec	Electrical equipment	Other non-metallic mineral products	Rubber and plastics products
Automatization(self-)	ICT	Construction	Financial and insurance activities	Wholesale and retail trade; repair of motor vehicles	Electrical equipment	Machinery and equipment, nec
Infrastructure	Construction	Real estate activities	Education	Financial and insurance activities	Public administration and defence; compulsory social security	Land transport and transport via pipelines



STI includes other sectors excluding STI in itself: India, 2018

Science	PST	Administrative and support services	Financial and insurance activities	Wholesale and retail trade; repair of motor vehicles	IT and other information services	Warehousing and support activities for transportation
mechanization	Т	Construction	Wholesale and retail trade; repair of motor vehicles	Food products, beverages and tobacco	Agriculture, hunting, forestry	Basic metals
Fabrication	I	Construction	Motor vehicles, trailers and semi-trailers	Textiles, textile products, leather and footwear	Machinery and equipment, nec	Electrical equipment
Automatization(self-)	ICT	Land transport and transport via pipelines	Administrative and support services	Construction	Warehousing and support activities for transportation	Financial and insurance activities
Infrastructure	Construction	Real estate activities	Wholesale and retail trade; repair of motor vehicles	Agriculture, hunting, forestry	Administrative and support services	Other service activities



STI includes other sectors excluding STI in itself: India, 2015

Science	Science PST		Administrative and support services	Financial and insurance activities	Wholesale and retail trade; repair of motor vehicles	Warehousing and support activities for transportation
mechanization	T Construction		Basic metals	Agriculture, hunting, forestry	Wholesale and retail trade; repair of motor vehicles	Land transport and transport via pipelines
Fabrication	cation I Construction		Motor vehicles, trailers and semi-trailers	Textiles, textile products, leather and footwear	Electrical equipment	Machinery and equipment, nec
Self-Automatization	ICT	Land transport and transport via pipelines	Construction	Administrative and support services	Electricity, gas, steam and air conditioning supply	Warehousing and support activities for transportation
Infrastructure	Construction	Real estate activities	Wholesale and retail trade; repair of motor vehicles	Basic metals	Electricity, gas, steam and air conditioning supply	Agriculture, hunting, forestry





Science	nce PST Financial and insuactivities		IT and other information services	Wholesale and retail trade; repair of motor vehicles	Administrative and support services	Telecommunications
mechanization	Т	Construction	Basic metals	Food products, beverages and tobacco	Land transport and transport via pipelines	Wholesale and retail trade; repair of motor vehicles
Fabrication	I Construc		Motor vehicles, trailers and semi-trailers	Machinery and equipment, nec	Electrical equipment	Textiles, textile products, leather and footwear
Automatization(self-)	If-) ICT Land transport at transport via pipel		Construction	Electricity, gas, steam and air conditioning supply	Warehousing and support activities for transportation	Financial and insurance activities
Infrastructure	Construction	Real estate activities	Wholesale and retail trade; repair of motor vehicles	Public administration and defence; compulsory social security	Electricity, gas, steam and air conditioning supply	Basic metals





Science	Science PST		Wholesale and retail trade; repair of motor vehicles	IT and other information services	Public administration and defence; compulsory social security	Machinery and equipment, nec
mechanization	nization T Construction		Basic metals	Food products, beverages and tobacco	Fabricated metal products	Wholesale and retail trade; repair of motor vehicles
Fabrication	Fabrication I Construc		Motor vehicles, trailers and semi-trailers	Machinery and equipment, nec	Electrical equipment	Textiles, textile products, leather and footwear
Automatization (self-)	tomatization (self-) ICT Land transport v		Construction	Electricity, gas, steam and air conditioning supply	Warehousing and support activities for transportation	Financial and insurance activities
Infrastructure	Construction	Real estate activities	Public administration and defence; compulsory social security	Wholesale and retail trade; repair of motor vehicles	Electricity, gas, steam and air conditioning supply	Coke and refined petroleum products



Complementary Technological Analysis

1. CT/CO explains relation between innovation, equipment, working, and organization. The analysis of innovation (SSIP) is thus related to CT to signify relation between science, mechanization, fabrication, and automation, that are different between countries. and thus resulted in routines changes from previous to existing institutions, before its implication to macro regime.



	Indonesia 2018			China 2018			India 2018		
	Type of CT	Sector	Form	Type of CT	Sector	Form	Type of CT	Sector	Form
1	SA	Air Transport, Financial and Insurance	e-operation: on-time flight, crew/plane rotation, average seat per kilometer (ex. Citilink), e-banking	SMA	Wholesale, retail, motor vehicle (repair), Computer, electronic and optical equipment (SA)		SA	Warehousing, financial and insurances, and administrative supports	
2	SMFA	Wholesale Trade, construction	E-commerce	SMF	Machinery and equipment	Agricultural machinery	MFA	Construction	The use of technology and chemical and autonomization in construction: possible in chemical plant or roads
3	MF	Fabricated metal, electrical equipment	Electrification "hilirisasi"	SM	Professional, scientific, and technical activities	Professional service in the transaction of operational rights such as in farm operational, farm mechanization	MC	Agriculture, hunting, and forestry	Farm mechanization and construction includes buildings, irrigation etc
4				SMFA	Construction	Transport and electricity infrastructure network			
5				MF	Electrical equipment				
					Sectors outside compler	mentarity technologique			



	Indonesia 2015				China 2015			India 2015		
	Type of CT	Sector	Form	Type of CT	Sector	Form	Type of CT	Sector	Form	
1	SA	Finance and Insurance		SA	Computer, electronic and optical equipment		MC	Agriculture, hunting, forestry; Basic metals	Agricultural and farm mechanization	
2	SMFA	Construction		SAC	Wholesale, retail trade, and repair of motor vehicles		SMC	Wholesale, retail trade, and repair of motor vehicles		
3	SMFAC	Wholesale, retail trade, and repair of motor vehicles		SF	Machinery and equipment nec		MFA	Construction		
4	SC	Public administration, defence, and compulsory social security		МС	Land transport and transport via pipelines; Electricity, gas, steam and air conditioning supply		AC	Electricity, gas, steam and air conditioning supply		
5	SAC	Mining , quarrying, and energy producting products		AC	Public administration, defence, and compulsory social security		SA	Warehousing and support for transportation		
	Sectors outside complementarity technologique									

Kompus Merdeko

	Indonesia 2010			China 2010			India 2010				
	Type of CT	Sector	Form	Type of CT	Sector	Form	Type of CT	Sector	Form		
1	SMFA	Construction		SAC	Wholesale, retail trade, and repair of motor vehicle; Computer, electronic and optical equipment		SMC	Wholesale, retail trade, and repair of motor vehicle; Computer, electronic and optical equipment			
2	SMFAC	Wholesale, retail trade, and repair of motor vehicle		МА	Basic Metals		MC	Basic metals			
3	SA	Financial and insurance activities		MFA	Construction		MFA	Construction			
4				SF	Electrical equipment		SA	Finance and insurance activities			
5											
		Sectors outside complementarity technologique									



		Indones	ia 2005		China 2005	5		5	
	Type of CT	Sector	Form	Type of CT	Sector	Form	Type of CT	Sector	Form
1	SA	Finance and insurance activities		SA	Wholesale, retail trade, and repair of motor vehicle; Finance and insurance activities		SF	Machinery and equipment nec	
2	SMFA	Construction		FA	Machinery and equipment nec; electrical equipment		MFA	Construction	
3	SMAC	Wholesale, retail trade, and repair of motor vehicle		SMFA	Construction		SMC	Wholesale, retail trade, and repair of motor vehicles	
4	MAC	Public administrati on, defence, and social compulsory security					SC	Public administration, defence, and repair of motor vehicle	
5							AC	Electricity, gas, steam and air conditioning supply	

From CT to IIO, explaining macro regime changes..., Indonesia



No	Institutions	Changes	Sectors	Firms
1	Financial regime (SA)	Payment system (e-), e-money, p2p lending	Road transport, Banking	Jasa Marga, Central Bank, Commercial Banks
2	Competition	Commerce (e-), e-price, industrial district extensification, vertical integration ('hilirisasi')	Pharmaceutical	Bio Farma, Kimia Farma, Krakatau Steel
3	Working (SA)	flexibility (by distance), informality (network relation, intellectual capital), knowledge-intensive work, job description (role) vs project deliverability (multitasking), creativity test, e-operation	Air Transport	Citilink
4	State	Formality (submission), e-procurement, big data use, Online System submission(OSS)	Utility	PLN, PJB, IP, ministry of finance
5	International (MF)	Local-international partnership, Market openness	Fabricated Metal	KS-Nippon, Bukopin- Haka,



National intellectual capital and Financial Regime Changes

- 1. In the area of finance, creative economy including science and digitalization has signified the development of intellectual capital also at the level macro.
- 2. It signifies the isomorphism and institutional complementarity between innovation and financial regime that explains institutional complementarity (CI) between financial regime and form of competition marking norms changes (mode of régulation) such as the possibility to use intellectual capital as a collateral to have a loan.







Factor analysis of intellectual capital

Table 1 Factor analysis of the key country environment factors that influence the impact of intellectual capital on innovation.

IMD indicator	Factor 1	Factor 2	AVE	CR	α
Skilled labour availability			0.66	0.88	0.914
Skilled labour is readily available		0.975			
Qualified engineers are available in your labour market		0.918			
Digital/technological skills are readily available		0.700			
Competent senior managers are readily available	0.383	0.609			
Appropriability regime			0.78	0.93	0.927
The legal and regulatory framework encourages the competitiveness of enterprises	0.895				
Intellectual property rights are adequately enforced	0.866				
Competition legislation is efficient in preventing unfair competition	0.965				
Development and application of technology are supported by the legal environment	0.786				



Characteristics of Mode of Development

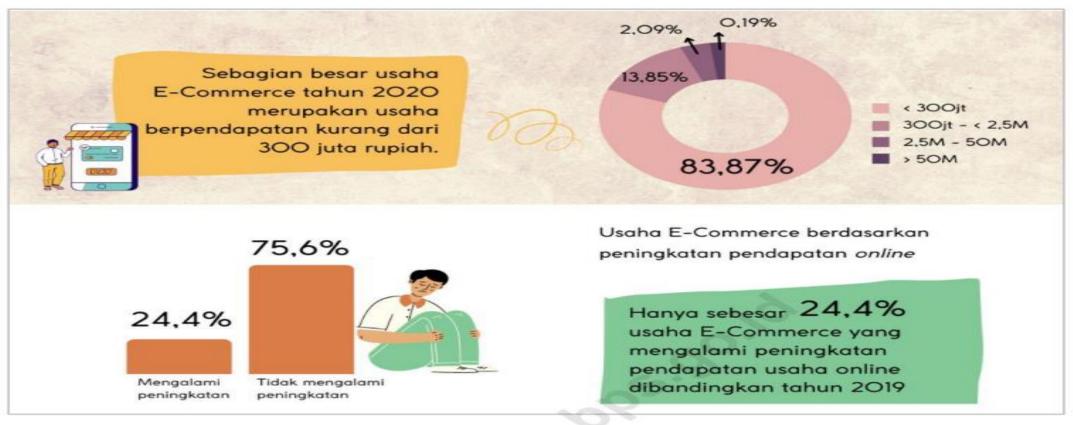
- 1. Digitalization has characterized complementarity of technology and thus stylized the mode of development including the productivity of investment and enterprises. Empirical findings in banking sector and enterprises (MSMEs) are as follows in Indonesia:
 - 1. Small bank tends to overinvest, and therefore intellectual capital will be ineffective, wheras large bank oftenly underinvest resulting no benefit to productivity and income. Therefore, there are 'grey area'.
 - 2. Financial Authority has proposed to use intellectual capital as collateral. This will accelerate loan and possibly financialization.

Further... IT Investment and IC in Banking & Financial Sector? Practices from SAAR How IT Investment & IT transformation (Industry 4.0) bring impact on Intellectual capital? Evidence from banking and financial services in The South Asian Association for Regional Cooperation

- Findings: Wang et al (2021) found that IT investment, other intangible assets, and intangible asset investments do not have any impact on the overall VAIC, or any of its subcomponents, there is a significant impact of all the three components, on the competitive advantage.
- The contradiction in results between Islamic banks and conventional banks indicates a unique evolution in Islamic banking — _this is true especially in terms of the asset base, where the proportion of IT investment required in Islamic banks has an inverse effect on intellectual capital, indicating a misallocation of resources for this particular segment.



In the area of trade in the case of MSMEs: Income and E-Commerce, BPS, Survey

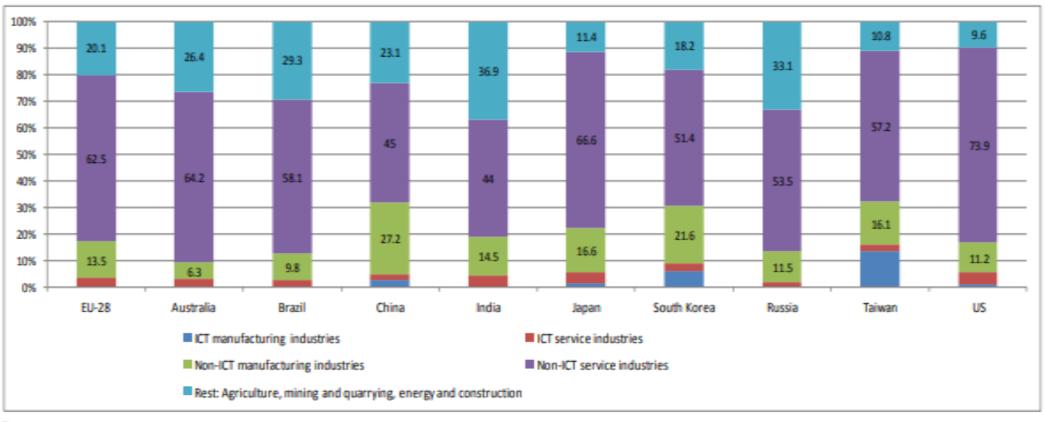


Gambar 10. Persentase Usaha *E–Commerce* menurut Nilai Pendapatan Total dan *E–Commerce*, Tahun 2020



Mode of Development in the Area of productivity as indicated by value added

Figure 7. ICT sector value added share of GDP and comparison with non-ICT economic activities in select economies, 2014 (in percent)



Source: Mas et al. (2017: 17).









Some Preliminary Conclusions

- 1. Indonesia, China, and India have different characteristics of innovation in terms of complementarity of technology.
- 2. In Indonesia, automatization is observed in the complementary with science without mechanization. Industry specialization is trade sector (no manipulation or transformation) and financial and insurance sector. Relation between mechanization and fabrication is recognized in fabricated metal and electrical equipment.
- 3. In China, CT is more varied including mechanization and fabrication. Automatization is not only with science in the area of trade (wholesale) but mainly in the area of industry and technology.
- 4. In India, automatization is observed in mechanization and fabrication.
- 5. Intellectual capital has characterized financial regime changes by using it as collateratel.
- 6. Capitalization of IIO (intellectual capital including relations and routines changes) does not always effective. It depends on the size of firms.
- 7. Effect of digitalization to firms income increase remains debatable.
- 8. It should study the IIO between polarization and digitalization between emerged and emerging countries.









Merci, Thank You...

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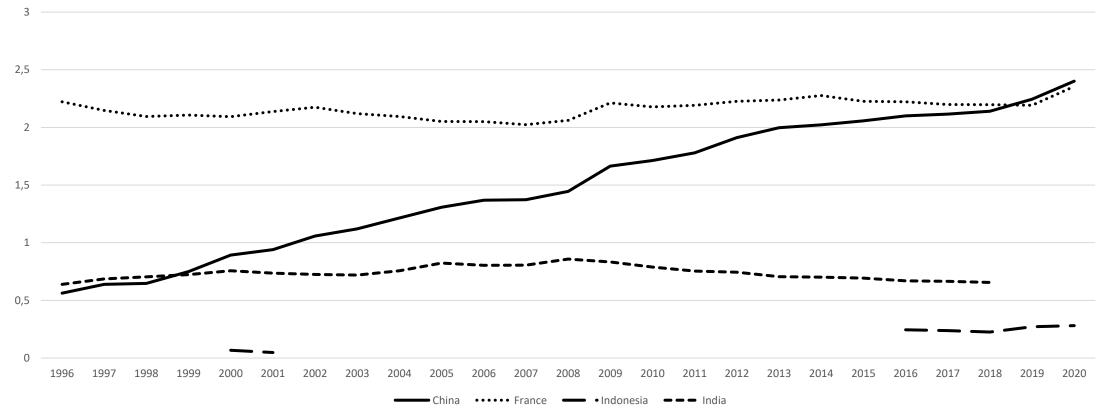








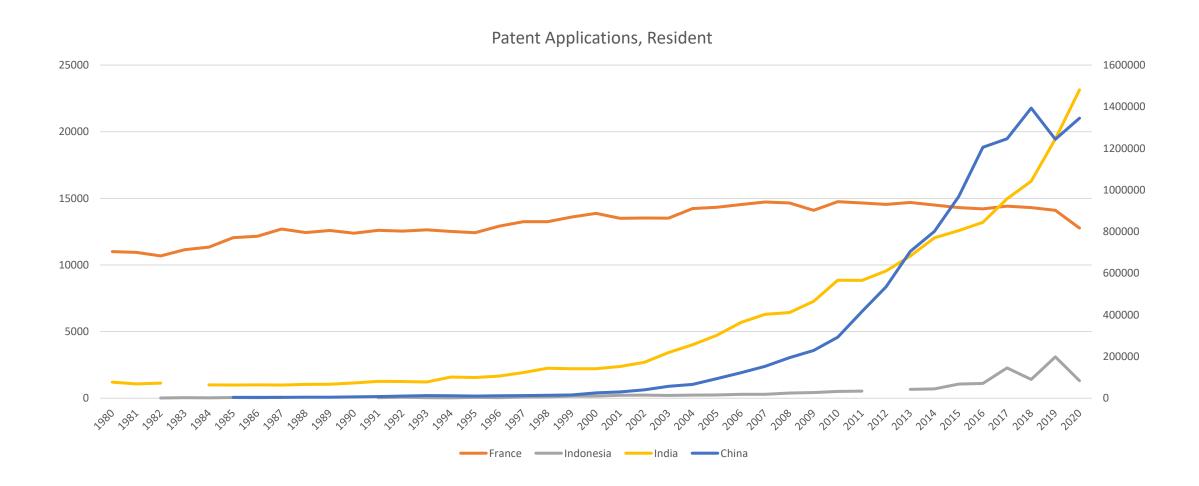












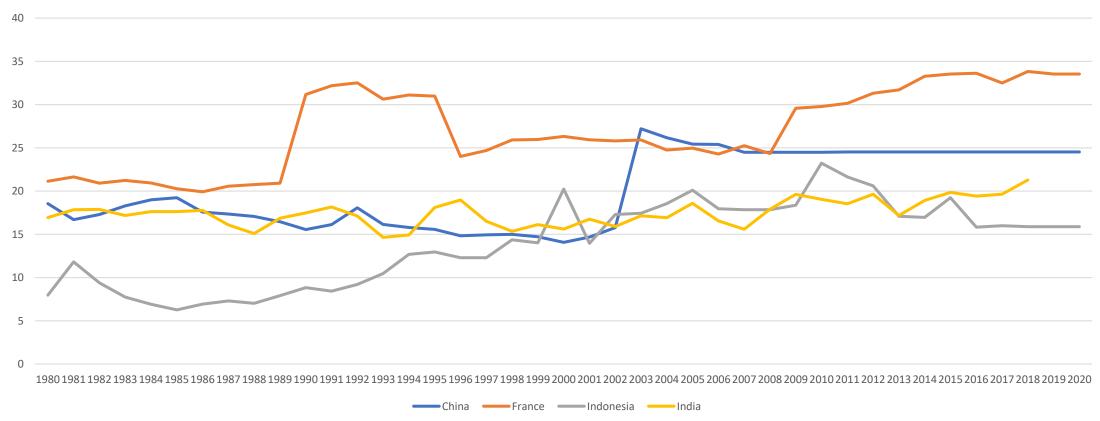








Machinery and Transport Equipment, % of Value Added in Manufacturing



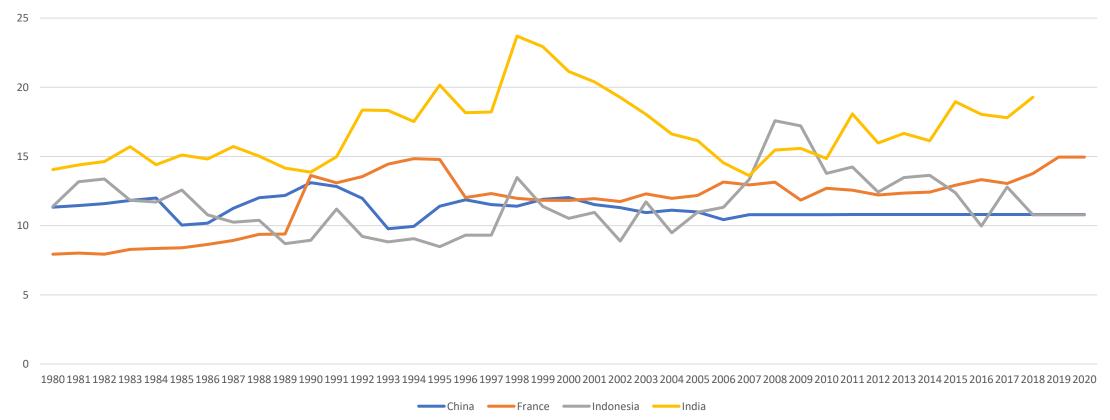










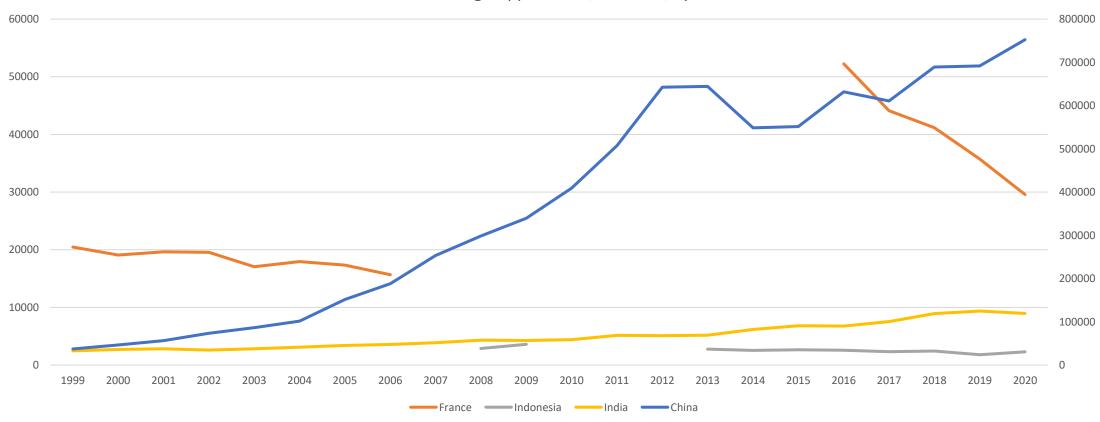








Industrial Design Applications, Resident, by count



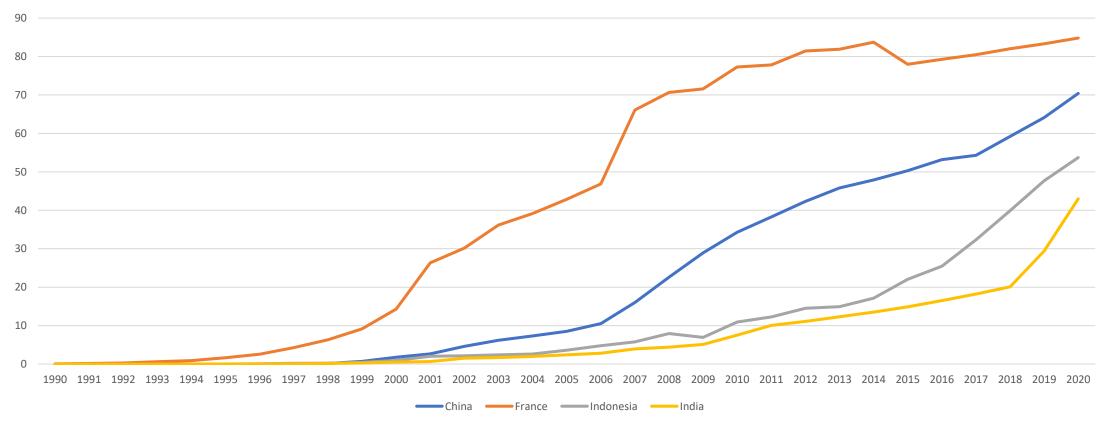








Individuals Using Internet, % of Population











Literature

- Amable, Bruno. 2003. The Diversity of Modern Capitalism. Oxford.
- Boyer, Robert. 2004. Une théorie du capitalisme est-elle possible? Odile Jacob.
- Bureau, Marie-Christine, Patrick Dieuaide. 2018. Institutional change and transformations in labour and employment standards: an analysis of 'grey zones'. *ETUI*, Vol. 24(3) 261–277.
- Joshi and Little. 2010. India's Economic Reforms, 1991-2001. Oxford.
- OECD. Innovation, Agricultural Productivity and Sutainability in China. https://read.oecd-ilibrary.org/agriculture-and-food/innovation-agricultural-productivity-and-sustainability-in-china/overall-assessment-and-recommendations 9789264085299-4-en#page12.
- Rawal, Vikas, Jayati Ghosh, et al. 2021. When Governments Fail A Pandemic and Its Aftermath. Tulika Books & IDEAs.