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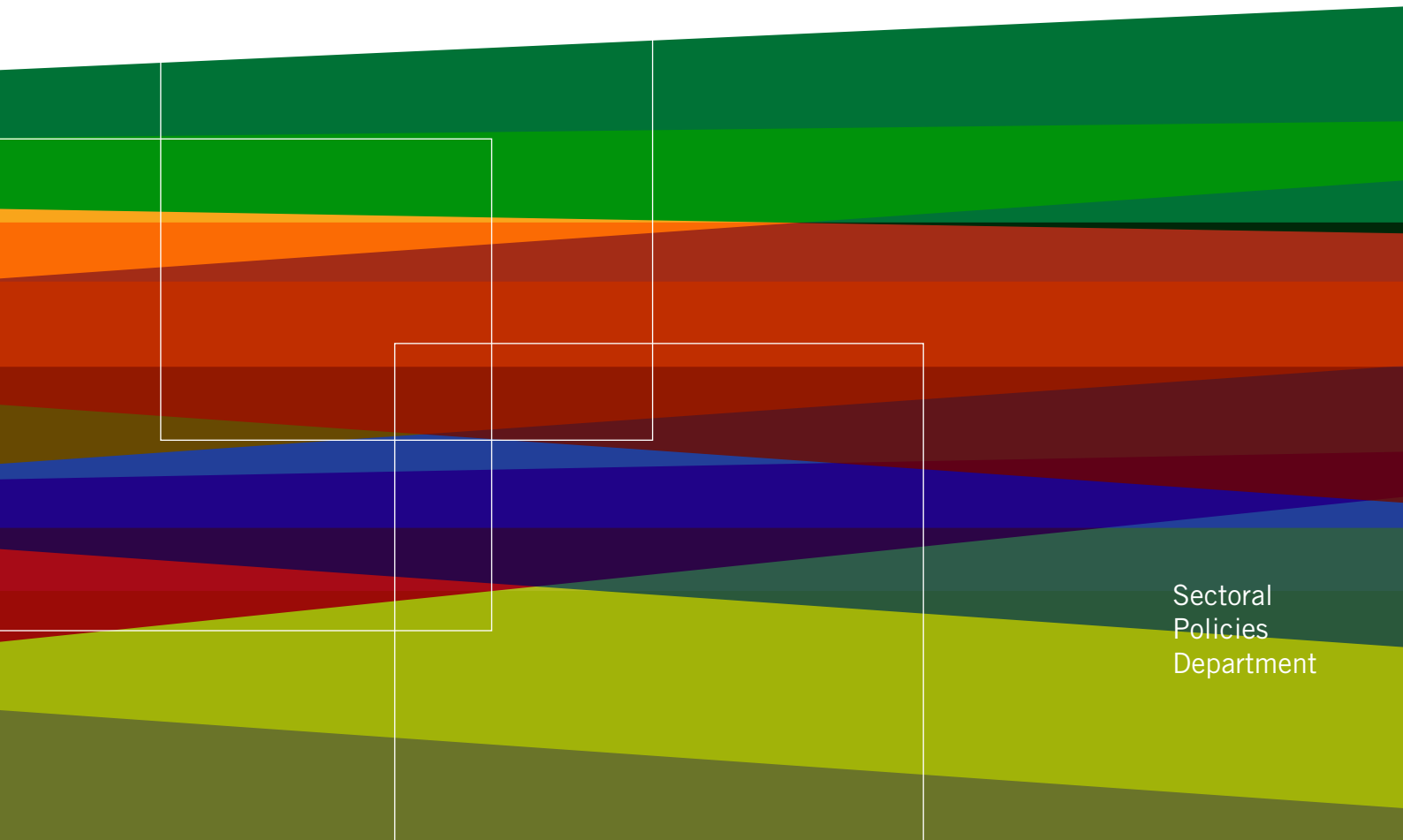
The electronics industry in Indonesia and its integration into global supply chains



Sectoral Policies Department

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The electronics industry in Indonesia and its integration into global supply chains

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Preface

The International Labour Organization (ILO) is the United Nations specialized agency dedicated to advancing opportunities for women and men to obtain decent and productive work in conditions of freedom, equity, security and human dignity. The ILO Sectoral Policies Department (SECTOR) promotes decent work by supporting the Organization's tripartite constituency, namely governments, employers and workers, in creating opportunities and addressing challenges in 22 different economic and social sectors at the global, regional and national levels.

Computers and small electronic products such as smartphones have become ubiquitous in modern life. The increasing demand for electronics is fuelling a competitive and dynamic global electronics industry, which has become one of the largest industrial sectors in the world economy. It is one of the most important revenue generators and the largest employer within the broader manufacturing sector.

Fuelled by outsourcing and offshoring, the electronics industry has become one of the most globally fragmented production systems, with extensive and complex global supply chains. Production of electronics in Indonesia began in the 1980s, when large brands and multinational enterprises established operations in the country. This report describes the history of the electronics industry in Indonesia, its structure, and its integration into global supply chains. Relevant public governance and private compliance initiatives that key stakeholders are pursuing to advance decent work are discussed. The report also identifies challenges and opportunities for the development of Indonesia's electronics industry while ensuring decent work.

This research report is the outcome of the second component of an ILO development cooperation project entitled "The Future of Work in Information and Communication Technology (ICT)". It further contributes to the implementation of the ILO programme of action on Decent Work in Global Supply Chains established in 2017.

This report was prepared by Dr. Gale Raj-Reichert, an external consultant under the supervision of Project Manager, Ms Hitomi Takeuchi-Nakagome, Head, Extractives, Energy and Manufacturing Unit, Mr Casper N. Edmonds, Deputy Director of the Sectoral Policies Department, Mr Akira Isawa, and the Director of the Sectoral Policies Department, Ms Alette van Leur. An external consultant, Mr Andrew Dale, proofread and edited the material. We are particularly grateful to the Director of the ILO Office in Indonesia, Ms Michiko Miyamoto, and to Programme Officer, Mr Tendy Gunawan for their valuable contribution and support in preparation for and during the country level fact finding mission. This work also benefited from valuable input, comments and guidance from a larger group of ILO colleagues, including but not limited to Fernanda Barcia De Mattos, Anna Biondi, Enrico Cairola, Shreya Goel, Adam Greene, Caitlin Helfrich, Wael Issa, David Kucera, Berklee Morganto, Bianca Perina, and Amrita Sietaram.

Finally, I am grateful for the generous and strategic financial support from the Japanese Ministry of Health, Labour and Welfare for this research project.

Alette van Leur
Director
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Abbreviations and acronyms

ASEAN	Association of Southeast Asian Nations
APINDO	The Employers' Association of Indonesia
CSR	Corporate Social Responsibility
EJIP	East Jakarta Industrial Park
FDI	Foreign Direct Investment
GABEL	Indonesian Electronics and Electrical Household Appliances Industrial Association
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (German Corporation for International Cooperation)
ILO	International Labour Organization
ISO	International Organization for Standardization
JCM	Japan Council of Metalworkers' Unions
LIPS	Sedane Labour Resource Centre
MNE	Multinational Enterprise(s)
MoI	Ministry of Industry
MoM	Ministry of Manpower
NGO	Non-Governmental Organization(s)
n.d.	No date
PISA	Programme for International Student Assessment
RBA	Responsible Business Alliance
SME	Small and Medium-Sized Enterprise(s)
UNGP	United Nations Guiding Principles on Business and Human Rights

Executive summary

The electronics industry has been a key driver of economic growth and employment in many developing countries, including Indonesia. Participating in global electronics supply chains can have several benefits, including the growth of domestic industries as competitors and suppliers, and increasing exports.

Like other countries, Indonesia's electronics industry has high growth potential in the form of a rising middle class, lucrative domestic market, and strong regional supply chains. However, poor infrastructure, lack of skilled workers, and a weak domestic supplier industry for high value added inputs present challenges for the growth and integration of the industry in global supply chains. It is crucial to ensure that decent work and inclusive growth are at the heart of policies that promote the growth of the electronics industry in Indonesia and its integration into global supply chains.

The objective of this study is to analyse and better understand the potential for advancing decent work in the electronics industry in Indonesia and the global supply chains it forms part of by improving public governance and other initiatives in the industry. This report presents the findings of an extensive literature review and field research in Indonesia that included in-depth interviews in 2018 with three foreign electronics firms located in the country. These interviews provide a nuanced understanding of the wider picture and of the background to the electronics industry in Indonesia, and involved large foreign firms that had been operating in the country for 25 years or more. Their experience provides a clearer assessment of the way in which businesses, employers, and lead firms work with lower-tier domestic enterprises.

Indonesia offers a lucrative domestic market for electronics. Due to this and several other attractive factors, foreign firms have established operations in the country. Since its foreign investors are mainly from Japan, the Republic of Korea, Singapore, and increasingly China, Indonesia stands to benefit from integration into regional supply chains. However, this requires an understanding of the competitive pressures in the region, particularly with the rise of lower-cost production locations such as Viet Nam and Cambodia.

The domestic industry is still largely dominated by low-value added, low-waged, and low-skilled assembly work and hence is competing in global and regional supply chains largely on the basis of low wages. The findings of this study suggest that a different approach may be needed to upgrade the industry into higher-value added positions within global and regional supply chains. This requires investing in the skills of the workforce, and promoting the growth of domestic firms that are suppliers of high value-added inputs and of domestic brands that are capable of competing at the regional and global level.

The Government of Indonesia has taken a wide range of policy initiatives to upgrade the industry, such as local content requirements. However, such policies require careful alignment with a wider industrial policy approach and framework. Efforts have also been made to improve the education and skill levels of workers through policies focused on higher education and vocational training.

It is important to ensure that efforts to enhance productivity and growth are matched by measures to enhance conditions of work. The findings of this study suggest that wages, social security, occupational safety and health, and working conditions need to be further improved in Indonesia. This requires strong institutions for industrial relations and constructive social dialogue between governments, workers' and employers' organizations, and other stakeholders. Indonesia has several regulations in place that aim to advance decent work in the industry. However, lack of enforcement capacity and policy coherence are barriers to achieving decent work. While constructive tripartite social dialogue is present, it must be further promoted to advance inclusive economic growth as well as sustainable and decent work.

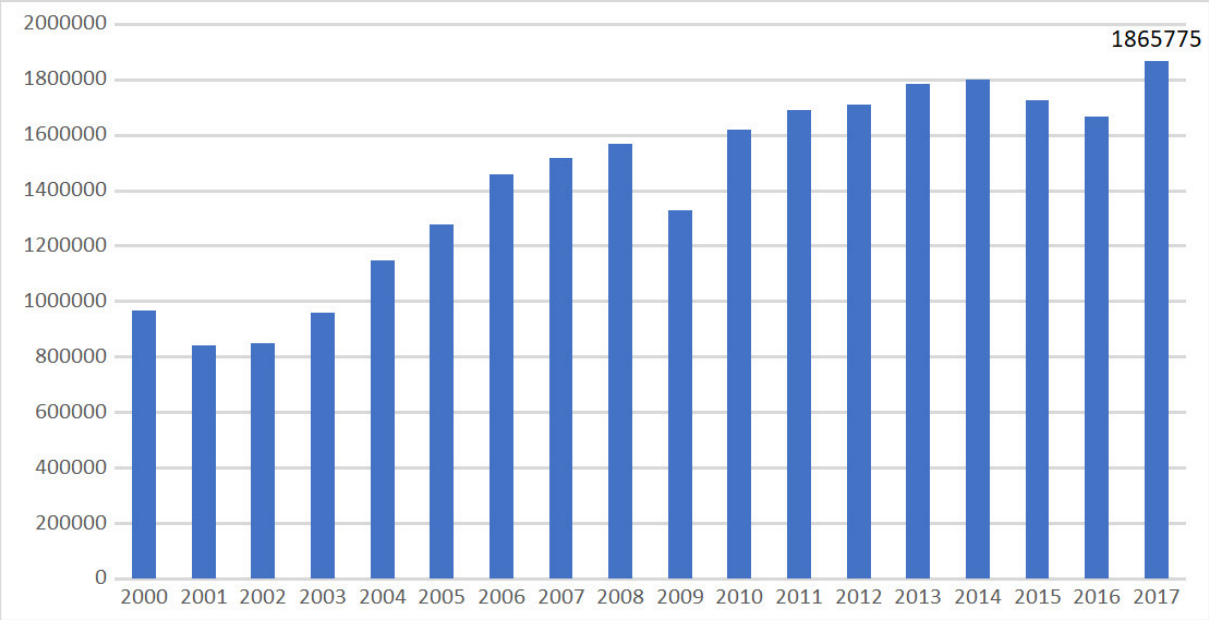
Firm-level initiatives and private compliance initiatives can complement public governance in efforts to ensure and promote the economic and social upgrading of global electronics supply chains in Indonesia. The three firms interviewed had codes of conduct on safety and health and were also working to comply with social, environmental and ethical conduct requirements set by industry associations. Other firm-level initiatives were mostly charitable in nature and strategic initiatives to advance decent work and responsible business conduct were lacking.

Given the complex and fragmented nature of global electronics supply chains, international instruments can provide opportunities for Indonesia to learn from others in the global community about ways to achieve and ensure decent work and inclusive growth.

Introduction

The global electronics industry is one of the largest industries in the world. In 2017 total world exports in office and telecom equipment reached almost US$ 1.9 trillion (Figure 1). The electronics industry is one of the most important revenue generators and the largest employer within the broader manufacturing sector globally.

Figure 1. World exports of office and telecom equipment annually (US$ millions) [1]



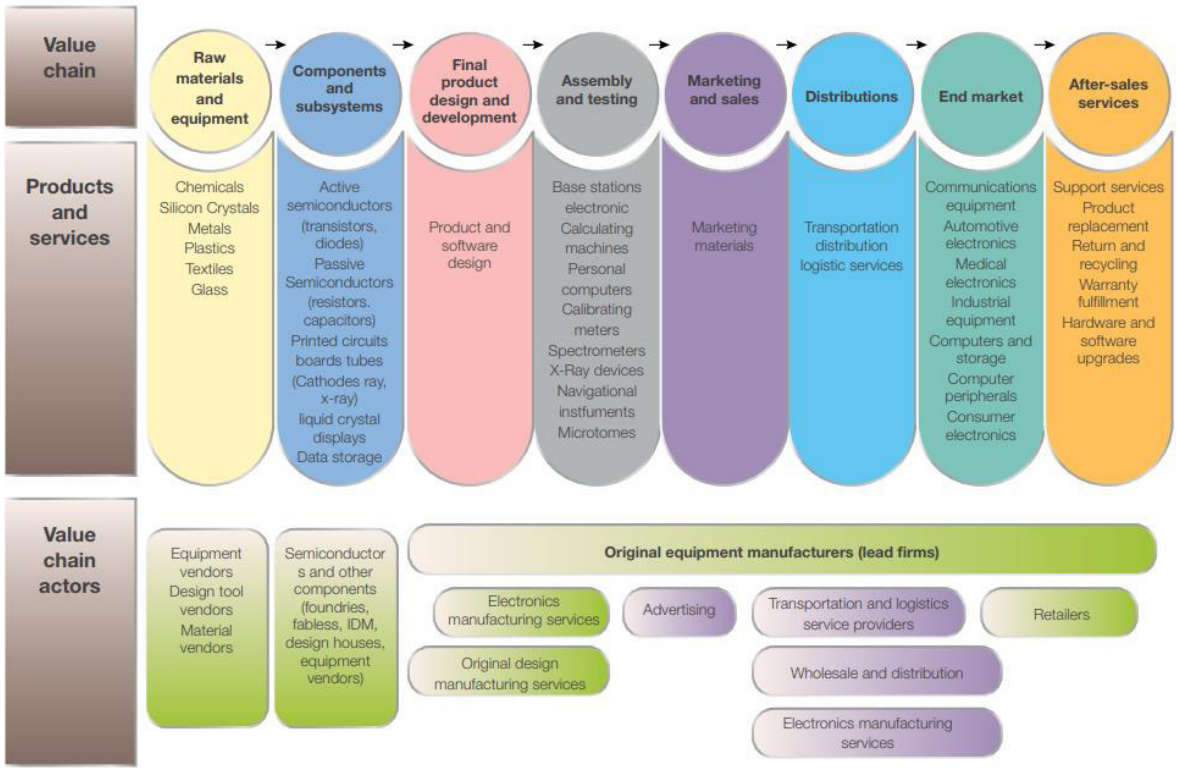
Source: WTO (2019).

Because of outsourcing and offshoring, the electronics industry has become one of the most globally fragmented production systems with extensive and complex global supply chains. The production process requires that parts, components and partially manufactured subassemblies cross borders several times before reaching their final market. Products are also becoming more commodified and generic, and their production has become more flexible and competitive (Sturgeon and Kawakami, 2010; ILO, 2014).

Global supply chains in the electronics industry generally involve the economic activities and actors shown in Figure 2.

[1] Figures were gathered for the WTO classification "Office and Telecom Equipment", which corresponds to SITC codes 75 (Office machines and automatic data processing machines), 76 (Telecommunication and sound recording apparatus), and 776 (Cathode valves and tubes).

Figure 2. The electronics industry global supply chains and their actors

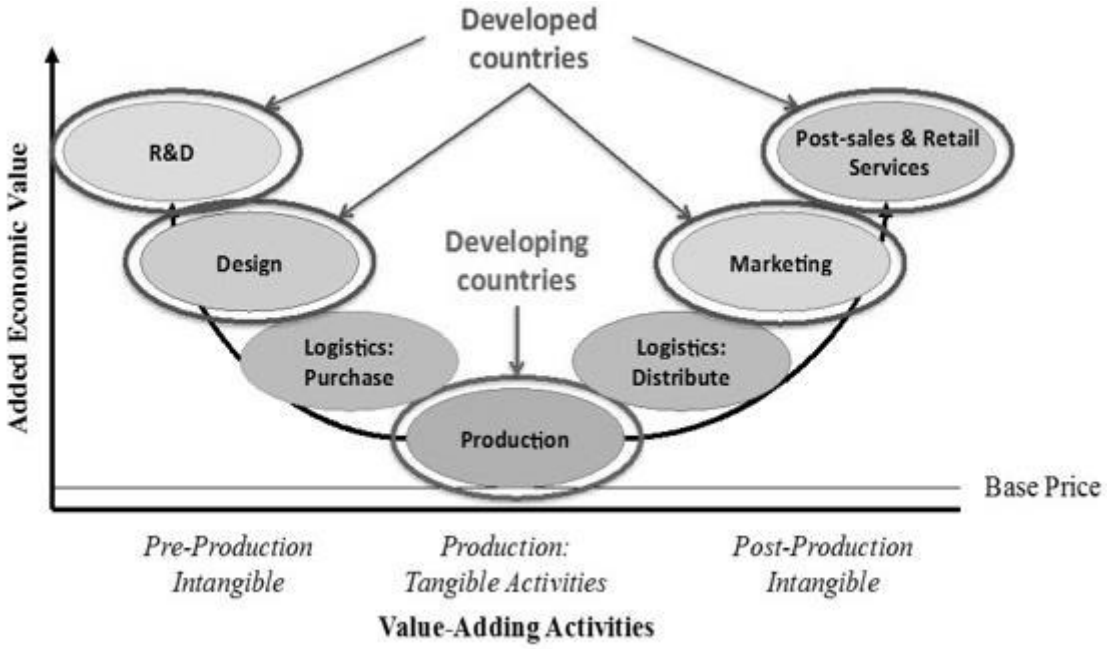


Source: Sectoral Studies on Decent Work in Global Supply Chains (ILO, 2016).

The main groups of firms in these global supply chains are lead or brand firms, first-tier suppliers which include contract manufacturers, and component suppliers. The top earners in the electronics industry, based on profits, are a mixture of brand firms and suppliers. The electronics industry includes powerful suppliers such as Intel, a designer and producer of semiconductor chips. These suppliers influence the technological advances and trajectories of electronic products by brand firms. Foxconn, the largest contract manufacturer in the electronics industry (reported to have 1.3 million workers as of 2017 (Merchant, 2017)), is powerful in its mass production capacity and ability to manage large production orders quickly and efficiently. Other contract manufacturers such as Flex and Jabil have become key suppliers engaged in joint design manufacturing with brand firms and innovators in manufacturing automation (Forbes, 2019; Raj-Reichert, 2018; Stoller, 2018).

The various activities undertaken in global supply chains range from activities with low value added (or with low economic return) such as labour-intensive, low-waged and low-skilled production and final assembly manufacturing, to high value-added activities such as intellectual property rights-protected research, design and marketing services (Figure 3). In the electronics industry, the majority of low value-added final assembly work is located in developing countries (Sturgeon and Kawakami, 2010). A key factor determining the growth and development benefits of a country's participation in global supply chains is the value-added composition of its industry's participation in the chain and the potential of its firms for upgrading.

Figure 3. Value-added "smiling curve" in global supply chains



Source: Fernandez-Stark and Gereffi (2019).

South-East Asia is a key region for outsourced and offshored manufacturing in electronics global supply chains. The first developing countries to manufacture electronic products for brands were China, Malaysia, Singapore and Thailand during the 1970s and 1980s (Chalmers, 1991). During the 1990s and 2000s, the Philippines and Indonesia also became key locations (Lüthje, 2002). The electronics industry is the largest export sector in the Association of Southeast Asian Nations (ASEAN) countries, accounting for around 25 per cent of the region's total goods exports. More than 80 per cent of the world's computer hard drives are produced in ASEAN countries. The industry employs more than 2.5 million workers in the region, and is a major employer in many ASEAN countries. The electronics industry is considered a key engine of growth and is of strategic importance for economic development in the region. This is also the case in Indonesia, an important electronics manufacturing location with over 250 electronics companies (Vineles, 2018).

The electronics industry, given its large size and trajectories for technological advancement, is considered a manufacturing sector in which Indonesia can improve its participation in global supply chains to enhance future economic growth. Most Indonesian firms, however, are in the lower added-value tiers of global supply chains. Moving up the value-added chain through various upgrading trajectories depends on action that addresses both individual firms and the industry as a whole. These include technological advances (including technology transfer), as well as government policies on a range of supportive measures such as education, skills development, and research and development (Fernandez-Stark and Gereffi, 2019).

The industry must also overcome some significant challenges if it is to grow in an inclusive and sustainable manner and provide decent work opportunities for more women and men. The objective of this study is to analyse and better understand the potential for advancing decent work in the electronics industry in Indonesia and the global supply chains it forms part of by improving public governance and other initiatives in the industry.

This report consists of four sections. The first discusses the historical development of the electronics industry in Indonesia and the current status of the industry's integration into global supply chains, with a focus on issues concerning regional competition and foreign investment. The second section provides an overview of the workforce and skill levels in Indonesia and

discusses the various decent work challenges in the industry. Existing governance and private compliance mechanisms as well as governance gaps are presented in the third section. A final section then presents the key findings and provides possible policy responses to address these gaps.

Methodology

This report is based on a literature review and primary research in the form of field interviews conducted in September 2018 in the capital city of Indonesia, Jakarta, and its surrounding areas. Field research included interviews and roundtable discussions with representatives of firms in the electronics industry, government agencies, trade unions, a non-governmental organization (NGO), academia, an industrial town, an industrial association, and experts in the ILO Country Office for Indonesia. Representatives of three multinational enterprises (MNEs) were interviewed (referred to as Firms A, B and C in this report)[2], two of which were Japanese and one Swiss. All interviews were conducted in factory locations in the MM2100 Industrial Town and East Jakarta Industrial Park (EJIP) in Bekasi. Firms A and C are suppliers of components, and Firm B is a consumer electronics brand firm (see Section 3.3.1 for further details).

The key findings from the firm interviews concern company operations, decent work challenges and opportunities, as well as labour governance and compliance mechanisms. While the sample size was small, the interviews were detailed and provided extensive information on the various issues faced by the industry in Indonesia and the complexity of global supply chains. All the firms interviewed have been operating in Indonesia for 25 years or more. As a result, firm respondents were able to reflect on past developments in the industry and compare them with the challenges and opportunities faced today by their firm and by the industry more generally.

The interviews held with representatives of the Ministry of Manpower (MoM) and Ministry of Industry (MoI) in Jakarta focused on the current challenges faced by the electronics industry, as well as on policy initiatives and regulations that aim to improve the performance of the industry in Indonesia. Questions posed to the MoM focused on the situation of the labour market and programmes in place to improve the skills of workers in the electronics industry and of labour inspection. The interviews with the MoI focused on policies to better integrate the electronics industry into global supply chains.

A round table discussion was held with representatives of the Confederation of All Indonesian Workers' Union (KSPSI), the Indonesian Trade Union Confederation (KSPI), the Indonesian Workers Welfare Union (KSBSI), and the labour NGO Sedane Labour Resource Centre or Lembaga Informasi Perburuhan Sedane (LIPS), [3] Discussions with the trade unions and LIPS focused on working conditions in the electronics industry, the state of social dialogue, and their vision of the electronics industry in Indonesia.

Interviews were also held with the President of the MM2100 Industrial Town and the employers' association of Indonesia (APINDO) [4] on their engagement with, and services

[2] The firms interviewed for this research wished to remain anonymous.

[3] LIPS is an independent Indonesian labour rights organization established in 1991 whose work is focused on monitoring labour rights compliance and working conditions through participatory action research and popular education with workers.

[4] APINDO, established in 1952, is the largest employers' association in the country. Its aims are to improve business relations in Indonesia, which includes industrial relations and improving relationships between employers and employees.

provided to, the electronics industry. Given both the respondents' long-term engagement in their respective organizations, their assessment of the industry's challenges and opportunities for growth was highly valuable. The future skills needs of the workforce, corporate social responsibility (CSR), and social dialogue were among the topics discussed.

A round table discussion with academics was held with Dr Haryo Aswicahyono from the Centre for Strategic and International Studies, Dr Yohanes Kadarusman from the Prasetiya Mulya Business School, Dr Mohammad Dian Revindo from the University of Indonesia, and Dr Asep Suryahadi from the SMERU Research Institute. Discussions focused on the current state and future prospects of the electronics industry in Indonesia, the situation of small and medium-sized enterprises (SMEs), the influence of foreign firms on the growth of the industry, and key issues such as skills and wages, concerning electronics industry workers in Indonesia.

1. Overview of the electronics industry in Indonesia and its integration into global supply chains

1.1. A short history of the electronics industry in Indonesia

Before the 1970s Indonesia imported most of its electronics products. This changed between 1969 and 1985, when the Government introduced import substitution industrialization policies and foreign firms were encouraged and supported through state financing to create joint ventures and enter into technical cooperation schemes with domestic firms (Kadarusman and Nadvi, 2013; Negara, 2010). The earliest foreign firms to establish operations in Indonesia through joint ventures during this time were from Japan and Europe. These included Panasonic, National, Sanyo, Grundig and Philips (Electronics Watch, 2018b; Negara, 2010). Investments from these and other foreign firms during the 1980s kick-started the domestic electronics industry in Indonesia.

Until the mid-1980s, the production of electronic goods was mainly for the domestic market and not for export. The industry was small and grew slowly. However, when the Government of Indonesia replaced its import substitution industrialization model with an export-oriented development model from 1985 onwards, the electronics industry grew rapidly. With the increasing trend among MNEs to offshore production as part of new business models to maintain competitiveness, manufacturing operations were relocated to Indonesia by firms from Europe, Japan, Republic of Korea, Singapore, and the United States. This second wave of foreign direct investment (FDI) into Indonesia was focused on production for export markets, and it was during this period that Indonesian firms became increasingly integrated into the global electronics industry (Kadarusman and Nadvi, 2013).

These firms focused on upstream activities such as assembling imported parts and components into final products for export, and were confined to relatively low value-added and labour-intensive stages of the production chain. Foreign brands and investors were attracted by the country's large, unemployed, and young labour force and relatively low labour costs, which resulted in a third wave of FDI in the 1990s in labour-intensive manufacturing operations, led by a new group of Japanese firms. This also coincided with the steep appreciation of the Japanese Yen, which led Japanese firms to intensify offshoring as a key cost-cutting measure (interviews, 2018).

During the 1990s Japanese investors established large industrial areas in the country. These included MM2100 and EJIP, which were established in 1990 and 1992 respectively. While the primary purpose of these industrial areas was to accommodate Japanese firms, other foreign investors also located their factories there. The first tenants of MM2100 were the Japanese firms Sony (to assemble the Walkman in 1991) and Panasonic (to produce VHS videotapes in 1992) (interviews, 2018), as well as the Korean firm LG Electronics in 1990, which started its operations in Indonesia manufacturing refrigerators and colour televisions (LG Electronics, 2008). These were mostly assembly operations where workers assembled imported parts and components to make final products for export (interviews, 2018).

These historical developments explain the decision of the three firms interviewed for this report to begin manufacturing in Indonesia during the 1990s. Table 1 below lists the reasons behind Firm B and C's choice to establish operations in Indonesia.

Table 1: Reasons for establishing operations in Indonesia

Reason	Firm
Presence of other Japanese electronics firms	B and C
China Plus One strategy in the region	B and C
Openness to Japanese FDI	C
Large domestic market	C
Growing labour force	B and C
Safety in the country	B and C
Maintaining relations with pre-existing suppliers	C

The relatively high growth experienced by the industry during the 1990s slowed after the Asian financial crisis of 1997. As a result of the crisis, Indonesia's real gross domestic product (GDP) fell by more than 13 per cent in 1998 (Rieffel 2007), which drastically reduced domestic demand for consumer electronics. Furthermore, a rise in the exchange rate in Indonesia after the crisis caused several Japanese firms to leave the country (Aswicahyono and Hill 2015): the Japanese firms Sony, Aiwa, and Kyocera left Indonesia between 2003 and 2005 (Wicaksono n.d.). The relocation of Sony from Indonesia to Malaysia and Thailand due to more favourable incentives, infrastructure, and lower production costs, was a significant sign of increasing competitiveness among neighbouring countries in the South-East Asia region and limits to upgrading and growth of Indonesian firms (see discussion below). Another challenge to the growth of the industry occurred during the 2000s, namely the emergence of China and Chinese firms as brand competitors and of Viet Nam as a manufacturing competitor in the region (Negara, 2010).

The Indonesian industry today faces growing competition from firms in other ASEAN countries, in addition to the persistent competition from firms in China (Yang, 2016), and is likely to do so in the future. A recent study among lead firms in the electronics industry found that China remained the dominant location for global electronics manufacturing activities because of the advantages of its supplier base and its status as a major domestic consumer market (Yeung, 2019).

1.2. The electronics industry and its integration into global supply chains today

1.2.1. Structure of the domestic industry

The structure of the electronics industry in Indonesia is characterized by several large foreign brand firms, which established operations in the country during the 1970s and 1980s (Kadarusman and Nadvi, 2013), and by a large number of SMEs that are suppliers to foreign brands. According to the MoI, in 2013 there were approximately 250 electronics and component producers operating in Indonesia. The home appliances sector in the low to middle end of technology was dominated by domestic brands. The higher-end digital electronics producers mainly consisted of international brands engaged in joint ventures with local manufacturers that imported a large share of components.

The main manufacturing activities in the Indonesian electronics industry are assembly and quality control, especially within consumer electronics, based on simple technology and machines (Negara, 2010). The industry largely caters to the domestic market due to the rise

in purchasing power in the country accompanied by increasing demand. [5] While the supply to a domestic market, as opposed to export-oriented production, may involve less integration into global supply chains, the existence of a lucrative domestic market is an important factor that continues to be a driver for investment, such as foreign direct investment or joint ventures by foreign electronic firms in the country (Kadarusman and Nadvi, 2013).

A distinguishing feature of Indonesia's electronics industry global supply chains is the absence of contract manufacturers or electronics manufacturing service providers that undertake final assembly or manufacturing of final products for brand firms on a massive scale, such as Foxconn, Flex, Jabil, or Celestica. As brand firms have consolidated their supplier bases over the previous ten years, a significant amount of supply chain responsibility was passed on to contract manufacturers, which play a fundamental role in managing their own global supply chains of lower-tier suppliers (Raj-Reichert, 2018; Raj-Reichert, 2019). Their absence in Indonesia may be a hangover from the original driver of foreign investment into the electronics industry in Indonesia, which was targeted at the domestic market and supported by import substitution policies, as opposed to the export-oriented industrialization policies implemented by neighbouring countries such as Malaysia and Singapore.

1.2.2. Integration of the Indonesian electronics industry into global supply chains

Since the majority of electronics production in Indonesia is for the domestic market and not for export, there is relatively little integration of SMEs as suppliers in global supply chains. There is a lack of a domestic industry producing parts and components, which has resulted in very high imports of such inputs for the industry in Indonesia (Andres, 2016). A 2017 nation-wide survey of 510 SMEs, of which 80 were in the electrical equipment manufacturing sector, found that only very few had transactions with foreign firms that were located abroad (Todo, 2018). From the firm interviews, it was evident that the few domestic firms that supply foreign electronics firms are mostly producing low-value inputs such as plastics, packaging, and corrugated boxes (interviews, 2018).

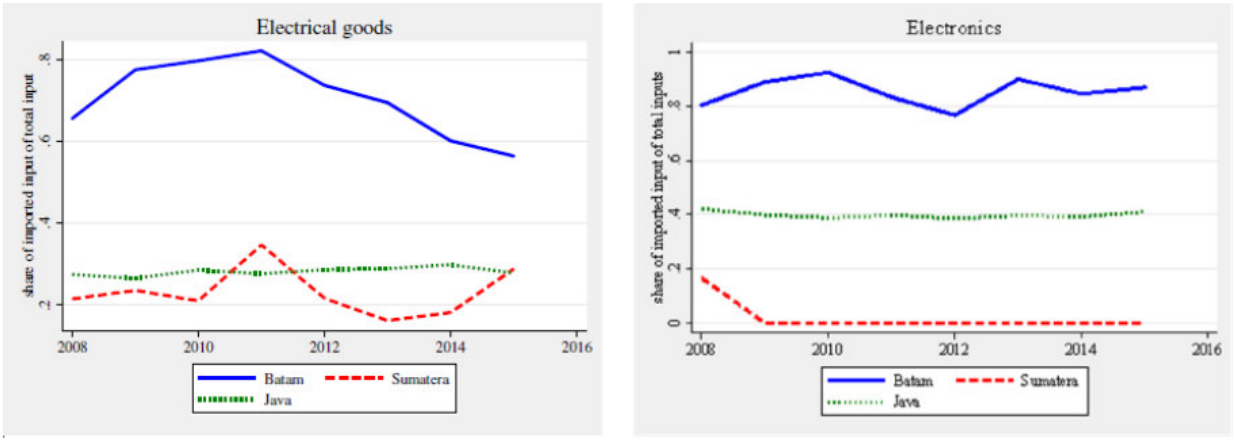
Due to the weak domestic component supplier industry (see discussion below), most parts, components and other inputs into the assembly-dominated industry are imported. This has in turn contributed to the overall negative trade balance [6] in the country (Ministry of Industry, Republic of Indonesia 2015; Reuters, 2015). A study by Negara and Hutchinson (2018) [7] found that firms in the electrical goods and electronics industries in Batam were on average importing approximately 90 per cent of inputs, and in Java around 40 per cent were doing so at a steady rate between 2008 to 2015 (Figure 4). This also shows that there is significant regional variation in Indonesia.

[5] http://www.gbgindonesia.com/en/manufacturing/article/2012/indonesia_s_electronics_and_home_appliances_sector.php

[6] Imports of inputs are much higher than exports.

[7] Their study is based on data collected on around 24,000 firms by the Manufacturing Survey of Large and Medium-Sized Firms of Statistics Indonesia.

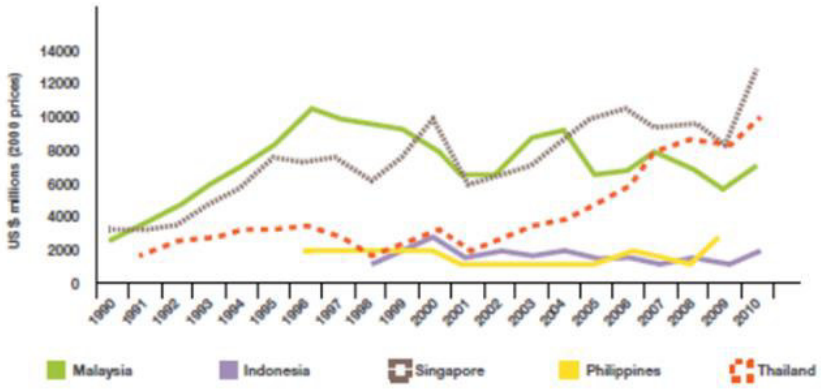
Figure 4. Share of average imported inputs by firms in Batam, Java and Sumatera, 2008-2015



Source: Negara and Hutchinson (2018)

The lack of a domestic component industry is a key reason why Indonesia is lagging behind its neighbouring countries in terms of integration in global supply chains. Countries such as Malaysia and Singapore, which have well-developed local supplier industries (Figure 5), have generally upgraded their electronics industries at a faster rate (Rasiah, Xiao-Shan and Govindaraju, 2014).

Figure 5. Value added in electronics exports, selected South-East Asian countries, 1990-2010



Source: Rasiah, Xiao-Shan and Govindaraju, (2014)

The interviewed firm representatives corroborated the view that the domestic supplier base was generally for low value-added inputs. Their domestic suppliers mainly provided packaging, plastics, electronic cables, printed circuit boards, casing, power supplies, rubber parts, plating, user guides and manuals, and metal stamping. They also confirmed that they relied on foreign component suppliers and that the vast majority of their inputs were imported. Higher value-added inputs, such as chemicals, metals, and other raw materials, were imported from China, Germany and Japan, since local suppliers were unable to meet quality standards or technical requirements. However, Indonesia still has a small number of strong domestic brand firms, which emerged during the 1960s and 1970s. These include Polytron (Box 1) Maspion, and Sanken, which have proven to be strong competitors of long-established foreign firms in the country (interviews, 2018; Wicaksono, n.d.). Furthermore, in the 2010s several domestic brands that started out as producers of own-brand air conditioners and refrigerators, upgraded their product ranges by shifting to the production of smartphones. These domestic firms were able to upgrade into this higher value-added activity by harnessing 4G technologies (interviews, 2018).

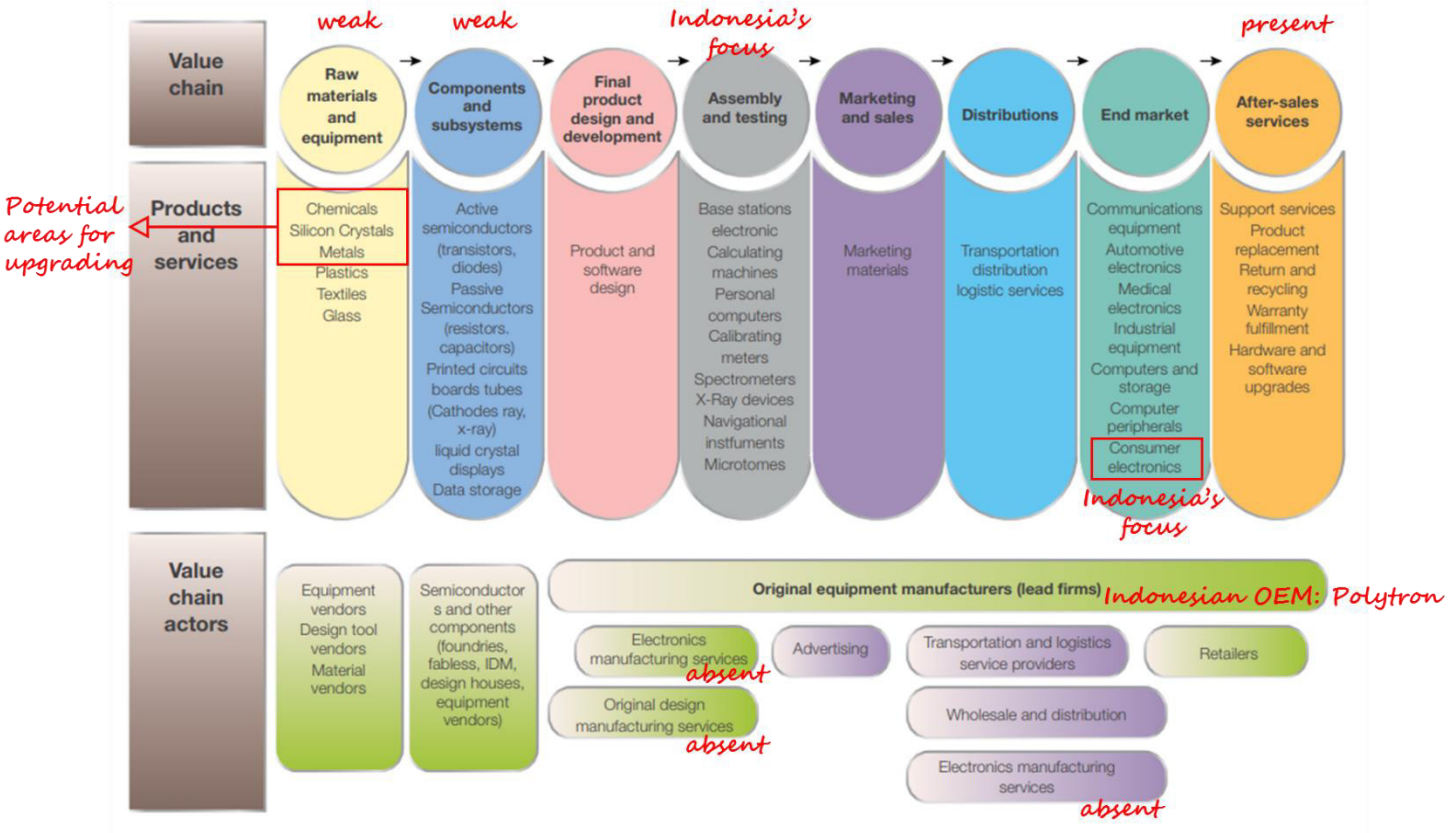
Box 1 – Polytron: a strong domestic electronics brand in Indonesia

The Indonesian brand firm Polytron (Hartono Istana Teknologi) was established in 1975 as a small business with 25 employees producing pocket radios and black and white televisions. It did not engage in joint ventures or foreign investments and hence is one of the few successful examples of a domestically grown company. Today it is a key brand, not only in Indonesia, but throughout South-East Asia, which designs and produces its own audio, video and household appliances such as LED televisions, refrigerators, and washing machines (South China Morning Post, 2016). Its products are exported to more than thirty countries within the region, including the Philippines, Thailand, Myanmar and Viet Nam, and more widely to Pakistan, Sri Lanka, Bahrain, the Dominican Republic, and the United Arab Emirates. It also exports products, under various brand names, to the European market. Polytron is said to hold 38 patents in the United States, Canada and Indonesia (NetralEnglish, 2017; Soejachmoen, 2012).

In 2014 Polytron became the first domestic company to produce smartphones using 4G technology (Reuters, 2015), and in 2016 had the largest production capacity of smartphones (3.6 million) in the country (Indonesia Investments, 2016). In 2016, it had three factories with around 10,000 workers in Indonesia (South China Morning Post, 2016).

The presence of these strong domestic brand firms provides a good, but rare, example of firms that have been able to upgrade into higher value-added activities. Yet, the general picture that emerges is that Indonesia's electronics industry largely caters to the domestic market and that it is lacking a strong supplier base for inputs, contract manufacturers, and electronics manufacturing service providers, all of which are crucial for greater integration and upgrading in global supply chains (Figure 6).

Figure 6. Strengths, weaknesses and potential in the Indonesian electronics industry and its position in the global value chain



1.3. Challenges and opportunities in upgrading the electronics industry

Following the 1997 Asian financial crisis, the Government of Indonesia introduced measures to upgrade certain global supply chain industries economically through value-added growth (Kadarusman and Nadvi, 2013). This included the electronics industry, which the government targeted as a nationally prioritized industry sector, which it remains today. To meet this goal, the Ministry of Finance introduced regulations providing tax and import duty reductions and exemptions and other safeguards to attract foreign investors. [8] However, foreign investments alone do not automatically lead to domestic upgrading (Morris and Staritz, 2019).

From a global value chain perspective, there are four strategies by which firms can economically upgrade their value-added position in global supply chains (Humphrey and Schmitz, 2002):

1. *Process upgrading*, which involves improvements or increased efficiencies in the production process, for example through automation.

2. *Product upgrading*, which involves a firm moving into new and higher value-added products.

3. *Functional (or intra-sectoral) upgrading*, whereby a firm takes on newer and more sophisticated functions either in-house or in the global supply chain, such as coordinating outsourcing, logistics and quality, as well as design and marketing responsibilities. This would correspondingly involve abandoning lower value-added activities.

4. *Chain (or inter-sectoral) upgrading*, which involves moving into a new industry global supply chain, for example from the manufacturing of electronics to automobiles.

The most commonly used strategies are process and product upgrading. These tend to be associated with suppliers learning from their relationships with lead firms. This occurs when suppliers have direct communications and share tacit knowledge with lead firms (Gereffi, Humphrey and Sturgeon, 2005). For example, a supplier to a large MNE would acquire technological innovation and other forms of knowledge through production and product specification requirements (for example quality standards) or training, and as a result develop capabilities in higher value-added activities, such as product development or design (Humphrey and Schmitz, 2002; Kadarusman and Nadvi, 2013). However, empirical evidence across a range of industries has shown that the process of economic upgrading is not automatic or easy for suppliers, and there are significant barriers, particularly for small firms. Some lead firms tend to prevent functional upgrading of their suppliers, even preventing technological transfers, to avoid suppliers becoming future competitors (Morris and Staritz, 2019).

Supplier upgrading in global supply chains (as conceptualized above) is more difficult in Indonesia because domestic electronic firms are not suppliers in close relationships with foreign lead firms. This is especially the case for small suppliers in lower tiers of the global supply chain and for those domestic firms which produce their own products for the domestic market (Kadarusman and Nadvi, 2013). Regarding learning opportunities, a 2017 survey of

[8] Law No. 25 of 2007 on Capital Investment.

SMEs generally found that these firms did not benefit from knowledge diffusion through the supply chain, external training, or research collaboration (Todo, 2018). In line with the common challenges to upgrading in global supply chains, Todo (2018) found that Indonesian SMEs were also held back by the reluctance of investors and customers to share their technologies and knowledge (trade secrets) so as to prevent their suppliers from gaining tacit knowledge and becoming future competitors. The study found that human resource development, infrastructure development, and the promotion of more research collaboration with universities and foreign institutions were needed for SMEs to upgrade and move into higher value-added segments of the global supply chain (Todo, 2018).

Kadarusman and Nadvi (2013) have also shown various ways in which the relatively few Indonesian suppliers without relationships with foreign firms have learned and gained knowledge about advanced technologies. In this example, knowledge gained for economic upgrading purposes occurred not through training, standards, or close working relationships with lead firms, but rather through the initiative of suppliers themselves to learn independently and separately from lead firms through visits to international exhibitions. Another method of learning was through reverse engineering, which is to understand the design and technological characteristics of a product by disassembling it (Kadarusman and Nadvi, 2013).

Economic upgrading opportunities may also include processes beyond the manufacturing stages in the global supply chain. In the electronics industry in Indonesia this can involve upstream activities, such as processing precious metals and raw materials, and downstream services, such as electronics repair services. Given Indonesia's rich mineral resources and the necessity of minerals such as cobalt and nickel in electronics products, there are important opportunities to build domestic capabilities to process raw materials for the electronics industry in a sustainable manner. If this higher value-added segment of the global supply chain were developed in Indonesia rather than abroad, it would also help Indonesian manufacturing firms produce more quickly and efficiently in response to the ever-shorter production cycles for electronics products (ILO, 2014).

Another opportunity for growth and upgrading exists among small suppliers engaged in after-sales services, such as repair, re-use, refurbishment and recycling services for electronics in Indonesia. In cities, small domestic firms operate as "authorised service centres" that repair brand-name consumer electronic products. They offer a cheaper and quicker alternative to costlier and lengthier repairs by brand firm repair centres that require the product to be shipped abroad. Most of these firms are small, with as little as one to two employees (interviews, 2018).

There are very few formal recycling companies for electronics in Indonesia, and most collection is done by large informal collection network. Nor is there any indication of formal facilities that recover valuable materials. Some informal entities exported recovered materials to China and South Korea due to a lack of formal facilities (Yoshida et al., 2016). There may be an opportunity to build the capacity and capability of domestic firms engaged in these activities to achieve not only process and product upgrading, but also functional upgrading into new service areas which are of higher added value.

1.3.1. Indonesia's local content requirement policy and its challenges

In 2016 the Government of Indonesia introduced regulations requiring a minimum of 20 per cent of local content or inputs for certain categories of consumer electronics. The aim of this regulation was to expand domestic industry, create jobs, increase the added value of the industry in the country, and curb the high imports of foreign manufactured products, especially smartphones (Amin, 2016; Global Business Guide Indonesia, 2017).

The smartphone industry was targeted because Indonesia has the third largest number of smartphone users in the Asia-Pacific region (Table 2). The local content rule resulted in the opening of smartphone manufacturing factories in Indonesia for the first time, including the relocation of the domestic firm Polytron's smartphone factory from China to Indonesia (Reuters, 2015). A host of other domestic smartphone companies are projected to benefit from the regulation, as they are already able to meet the percentage of local content requirement and any future increases in it (Cosseboom, 2015). In 2017 a new regulation required smartphones using 4G (LTE) technology sold in the domestic market to increase their local content requirement to 30 per cent (Indonesia Investments, 2016). For further discussion of this topic, see section 3.1.2.

Table 2: Smartphone user growth in Asia & the Pacific

Number of smartphone users (millions)	2015	2016	2017	2018	2019
China	525.8	563.3	599.3	640.5	687.7
India	167.9	204.1	243.8	279.2	317.1
Indonesia	55.4	65.2	74.9	83.5	92.0
Japan	51.8	55.8	58.9	60.9	62.6
South Korea	33.6	34.6	35.6	36.5	37.0
Philippines	26.2	29.9	33.3	36.5	39.2
Viet Nam	20.7	24.6	28.6	32.0	35.2

Source: Indonesia Investments (2016).

The interviews conducted for this study revealed a number of the unforeseen challenges posed by local content requirements, in particular the lack of domestic or local replacements for foreign inputs at similar quality levels. Most importantly, domestic supplier firms have not benefited from the local content policy to the same extent as foreign firms in Indonesia. This is because domestic suppliers are not yet able to meet the quality standards that foreign firms have already implemented.

To overcome the challenges caused by a lack of high-quality domestic suppliers, and to avoid the perverse effect of increasing foreign suppliers in Indonesia, which can potentially lead to a "crowding out" effect that would further prevent the development of a domestic industry, a broader industrial policy approach is required. According to Morris and Staritz (2019), local content policy should be used as part of a package of industrial policies aimed at developing forward and horizontal linkages in global supply chains by capturing more value-added activities locally, which the authors refer to as "thickening" the supply chain. "Thickening often involves policies such as skills and infrastructure development to meet the specific needs of particular resource sectors, upgrading of local certification institutions to meet global regulations and standards, marketing institutions supporting domestic processing, local content rules and other FDI performance requirements, export taxes forcing local value addition, and industrial zones [which result in] facilitating linkages to local manufacturers" (ibid, p. 576). In other words, in countries faced with challenges and opportunities such as those faced by Indonesia, governments need time to coordinate the onset of local content policies with efforts supporting and building up domestic input suppliers to meet higher quality standards so that they are sufficient to replace or offset the need for imported inputs.

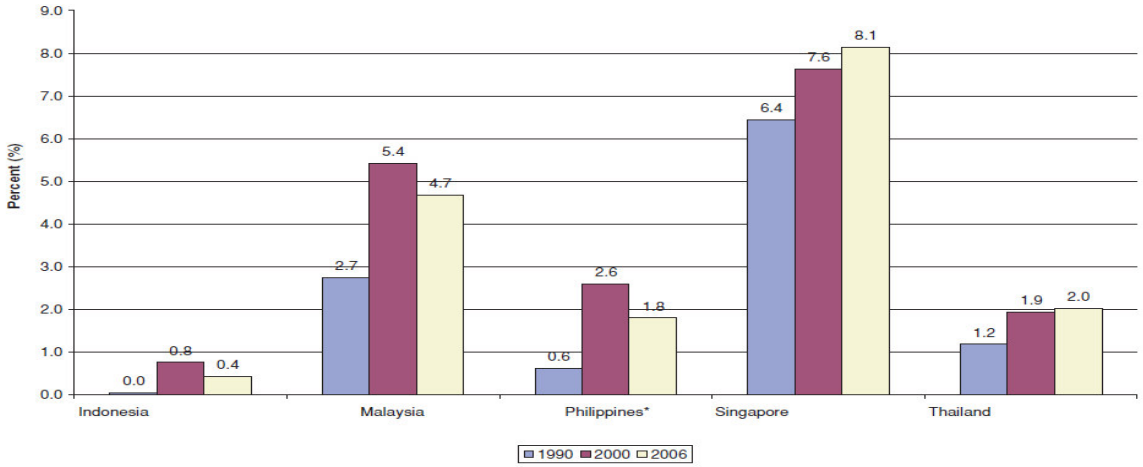
1.4. Regional supply chains and competition

Because of Indonesia's economic integration into ASEAN and the high level of foreign investments and exports within the region, regional supply chains are arguably more

important for the country's electronics industry than its integration within global supply chains. [9] This requires a careful analysis of regional supply chains and competition and of the upgrading opportunities and challenges that Indonesia faces today and those it will face in the future.

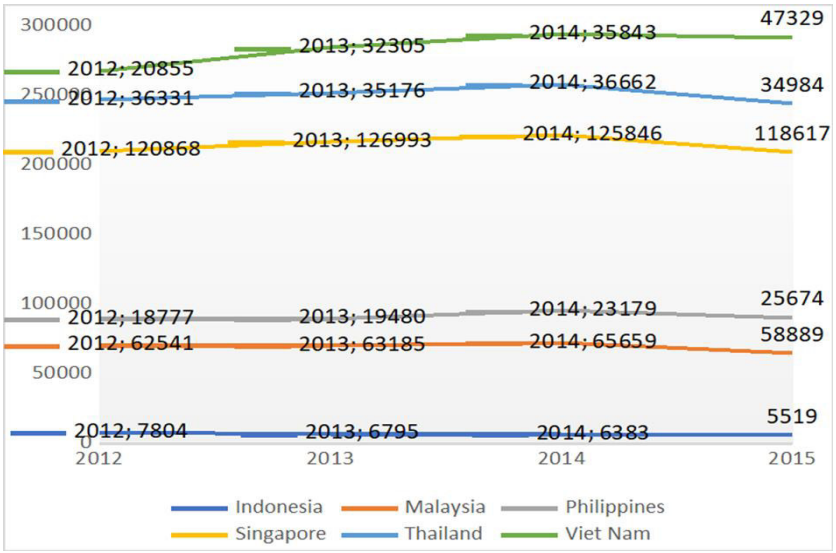
Compared to other countries in the region, Indonesia is a relatively small player in terms of its exports of electronics (Figures 7 and 8) and a latecomer to integration into regional supply chains.

Figure 7. World exports: Share of electronics exports, 1990-2006



Source: Rasiah (2009)

Figure 8. World exports of office and telecom equipment annually (US$ millions), 2012-2015



Source: WTO (2019).

Regional supply chains in the electronics industry have changed considerably in recent years as the result of rising wages in China. This has resulted in production expanding or shifting out of China to the South-East Asia region (Endo, 2018). Furthermore, the recent trade war between China and the United States is creating an additional driver for factories in China,

[9] The main export market for final goods assembled in Indonesia is Singapore, which then re-exports those goods to third countries (Kadarusman and Nadvi, 2013).

both Chinese and foreign firms, to relocate to South-East Asia (Bland and Liu, 2018). While these changes should provide new opportunities for Indonesia, competition in the low-cost, low value-added, and labour-intensive segment of the supply chain has intensified with the emergence of Cambodia, Myanmar, Thailand, and Viet Nam as new locations for low-cost electronics production.

These changing competitive dynamics were highlighted by the firm representatives interviewed for this study. As part of a China Plus One strategy,[10] Firm B and Firm C had chosen to locate in Indonesia to lessen the degree of their dependency on manufacturing operations in China and to avoid the risks that might arise from a trade war between China and the United States. Another reason for their decision to locate in Indonesia were the relatively lower labour costs.

With regard to the increasing competitions from other ASEAN countries, representatives of Firms B and C said that their firms had considered relocating manufacturing operations to Viet Nam. Firm B had considered relocating due to rising wages in Indonesia, but had decided to remain in the country, since it had made a very large investment and it believed that similar cost increases would eventually occur in Viet Nam and other countries.

More recently, competition from China has changed from a cheap location for manufacturing to competition for market shares in Indonesia (Negara, 2010). Chinese electronics brands are increasingly competing with Japanese and Korean brands and domestic firms in fast-moving electronics consumer goods. The competitive advantage of low-end Chinese smartphone companies, particularly vis-à-vis more expensive brands such as Apple and Samsung, is largely due to their better knowledge and understanding of, and increased response rates to their own domestic low-end market, which is similar to low-end markets in Indonesia. High-end foreign smartphone brands have to date focused less on low-end markets.

1.5. Other factors critical to inclusive growth

The expansion of the electronics industry and its further integration into global and regional supply chains will also, to a large degree, depend on investments by the government in infrastructure and human resources (Aswicahyono and Hill, 2015).

The main manufacturing operations in Indonesia are located on the islands of Java (in West Java) and Riau (city of Batam). In West Java, the capital city of Jakarta and its surrounding areas are the most important locations for electronics manufacturing due to historically better infrastructure and the presence of industrial zones. For example, EJIP, which has 1.7 million workers and is the largest industrial area in South-East Asia, is located in East Jakarta. Firm A, located in MM2100, and Firm C, in EJIP, have expanded their operations with new factories in recent years. However, representatives from the three firms interviewed stated that rising traffic congestion and increasing labour costs in West Java are a concern for firms operating in this part of the country, and there are reports of firms relocating to other parts of Indonesia with lower production costs.

[10] Under this strategy MNEs investing in China combine their investment with others in the region. The most popular of other locations for this strategy include Viet Nam, Cambodia, Thailand and Indonesia.

In order to ease congestion in its major production hub, the Government of Indonesia, along with foreign investors, has recently completed several new infrastructure projects. In 2015 a new 116 km long toll road opened in the area as a second highway. Another major ongoing infrastructure project is the new Kertajati International Airport, which is being constructed east of Jakarta in Majalengka in the north-eastern part of West Java (Figure 9). This is also the planned location for a new seaport, which is funded in part with a 118.9 billion yen (US$ 1,091 million)[11] loan from the Government of Japan.

Figure 9. Improvements to transport infrastructure with benefits for industry

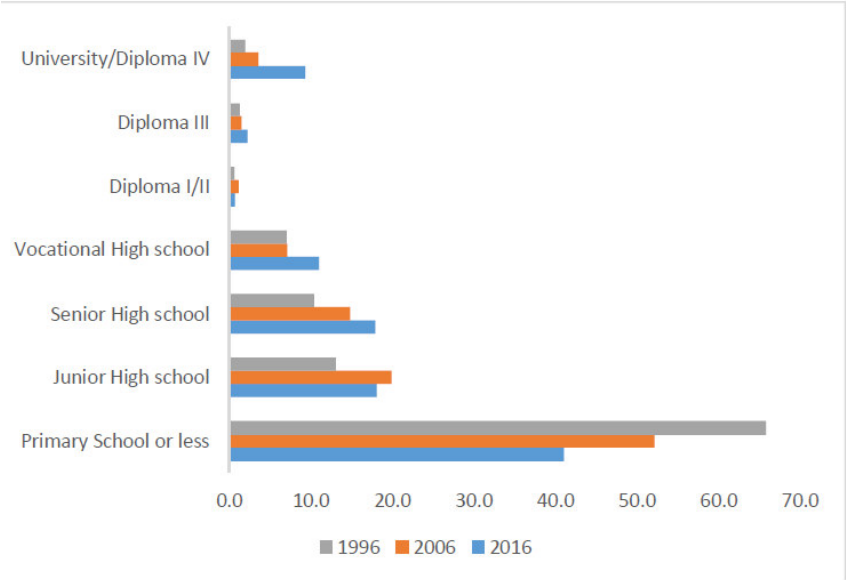
Source: Suzuki (2018).

In 2019 Indonesia announced that it planned to invest US$ 115 million to create a port on Batam, an island located south of Singapore, with the aim of promoting Batam as an alternative shipping and manufacturing hub to Singapore, and to attract approximately US$ 60 billion in new investments.

The second critical factor that has an impact on inclusive growth in the electronics industry is the level of skills of the workforce. While there has been a significant improvement in the level of educational attainment over the last two decades, it remains low and skills gaps are persistent. A considerable proportion of the labour force (41 per cent) had only reached primary education or less in 2016 (Figure 10) (ILO, 2017b), signalling a high dropout rate after primary school (Aswicahyono and Hill, 2015).

[11] Exchange rate calculated on 26 November 2019.

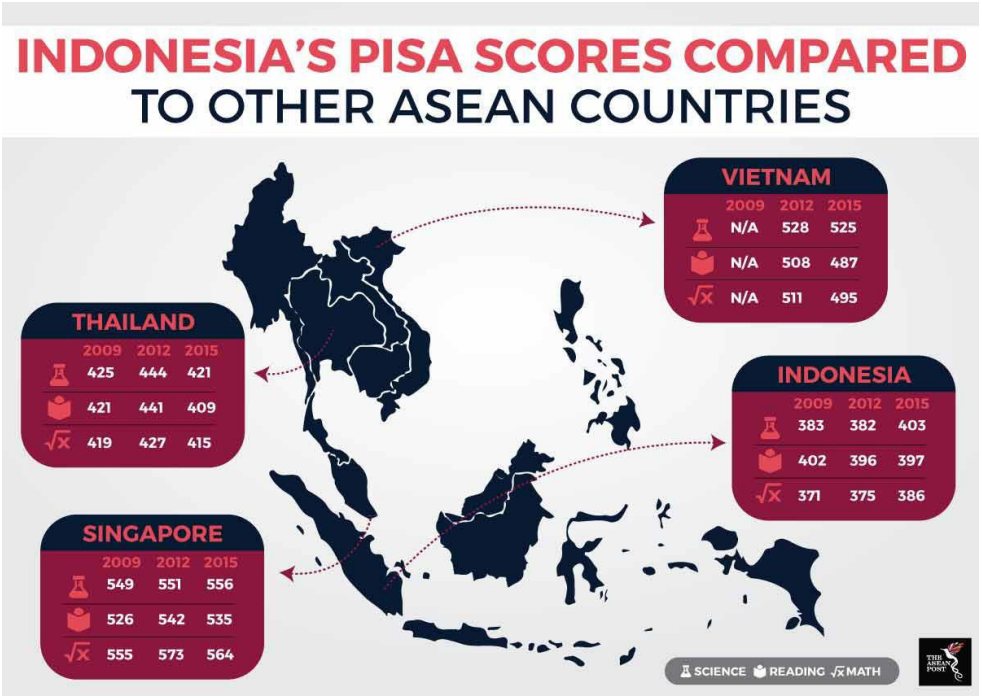
Figure 10. Education levels of overall workforce, 1996, 2006 and 2016



Source: ILO (2017a).

In the most recent Programme for International Student Assessment (PISA) results for 2015, Indonesia was ranked 62 out of 70 countries and scored lower than its regional competitors (Figure 11) (Khidhir, 2018).

Figure 11. A comparison of Indonesia's PISA scores in the region



Source: Khidhir (2018).

An important way to enhance the quality of education is to increase investment in education. The proficiency of students and the skill sets of workers remain unsatisfactory, suggesting that attention needs to be directed towards the manner in which funds are spent (World Bank, 2019).

Another issue of concern is the poor quality of the country's vocational schools. In 2017 the unemployment rate among vocational high school graduates was 11.4 per cent, compared to 5.2 per cent among college graduates (Triananda, 2018). In order to tackle the critical lack of skills, government agencies and the private sector have begun to actively engage in programmes to improve the skills profile of the workforce. The following section discusses these initiatives in more detail.

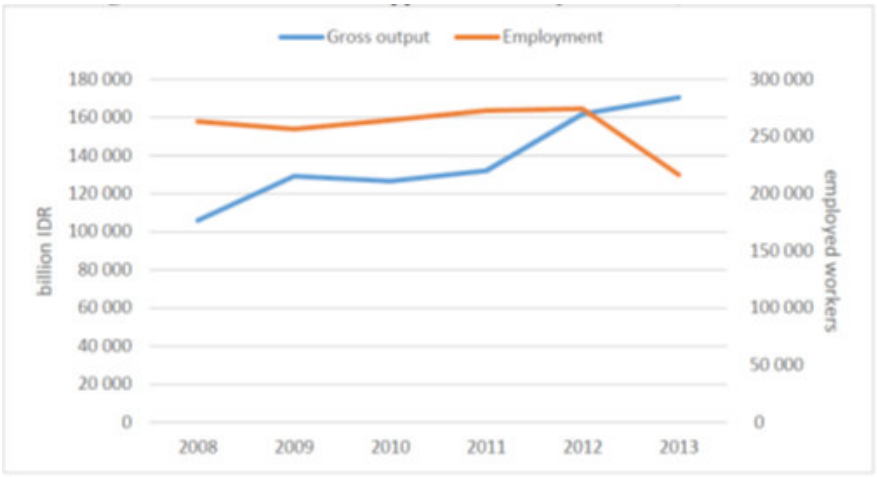
2. Employment and working conditions in the electronics industry of Indonesia and its supply chains

Indonesia has a population of over 260 million people, half of whom are under 30 years old, and a large labour force of over 130 million women and men (World Bank, 2019). Two million young women and men enter the workforce every year, and it is predicted that the workforce will continue to grow steadily over the next 30 years (Indonesia Investments, n.d.).

2.1. Employment

From 2008 to 2013 the number of workers in the electronics industry was around 250,000 (Figure 12) (Andres, 2016). According to Statistics Indonesia, the figure had risen to around 260,000 in 2015 (Table 3). These figures show how relatively small the industry still is in the overall economy.

Figure 12. Number of workers in the electronics industry, 2008-2013



Note: Figures represent gross output and employment of medium and large manufacturing enterprises in the subsectors of "Computer, Electronic, and Optical Products" and "Electrical Equipment".
Source: BPS and APEC PSU staff estimates.

Source: Andres (2016).

Table 3: Number of electronics workers by subsector and gender in Indonesia, 2015

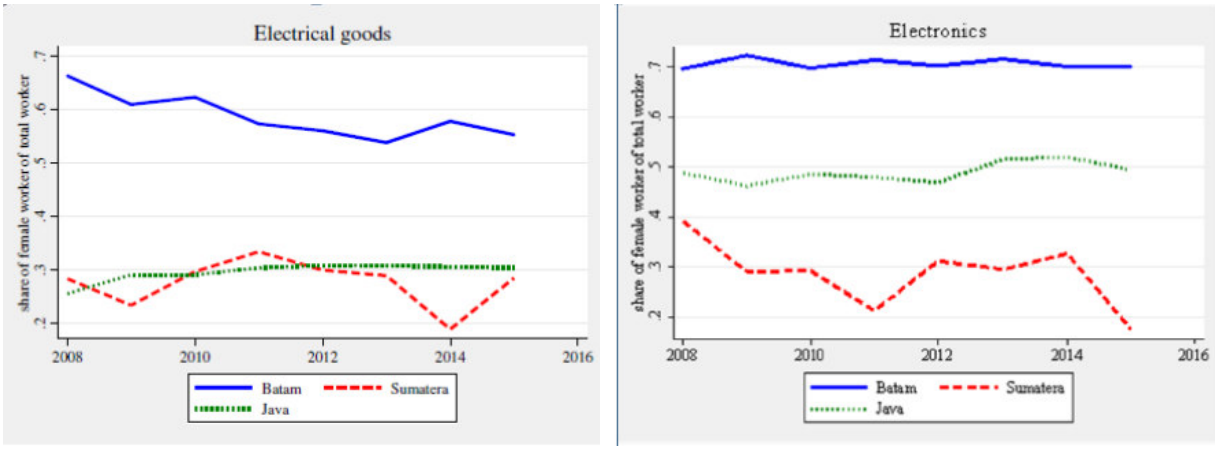
Industry code 26: Computer, Electronic and Optical Products (365 establishments)		
Male workers	55,387	36%
Female workers	98,962	64%
Total	154,349	100%
Industry code 27: Electrical Equipment (345 establishments)		
Male workers	62,270	60%
Female workers	41,795	40%
Total	104,065	100%

Source: Statistics Indonesia (2019).

Electronics Watch (2018b) estimates that 80 per cent of workers in the electrical goods and electronics industry throughout Indonesia are women. This is in line with the generally higher level of female employment in labour intensive manufacturing industries in many developing countries that are part of global supply chains, such as electronics and garments (Osterreich, 2013).

In Indonesia the growth in the industry can offer employment opportunities to a growing labour force of female workers (Osterreich, 2013; World Bank, 2012). A study by Negara and Hutchinson (2018) found that firms on average employed a higher percentage of female workers, especially among firms located in Batam (Figure 13). This trend was also observed among the firms interviewed. The vast majority of workers in Firm A were female, 70 to 80 per cent of the workers in Firm B were female, and around 80 per cent of the workers in Firm C were female.

Figure 13. Share of female employment in firms in Batam, Java and Sumatera, 2008-2015



Source: Negara and Hutchinson (2018).

Regarding skill levels, a study by Suryahadi and Izzati (2018) found that less than 20 per cent of electronics workers had attained an education beyond high school, a further indication of the low-skilled nature of the activities which has persisted in the industry.

2.2. Temporary contract workers

The continuous shortening of production cycles and poor forecasting of future production demand is widely regarded as one of the main reasons for the excessive use of temporary employment contracts in the electronics industry (ILO, 2014). Firm A stated that production demand and orders fluctuated monthly, which made it difficult to hire permanent workers.

In the early 2000s Indonesia introduced a number of market-oriented growth policies. At the same time it also legalized contract work and the use of labour outsourcing, albeit in a restricted manner (Manpower Act No.13, 2003). The 2004 "Decree on Temporary Working Agreement" limited the use of contract workers to no more than two years, with a one-year extension allowed for specific reasons. The outsourcing of production and services was limited to non-core activities (Alisjahbana and Manning, 2009).

Since the legislation was introduced, the use of contract workers has become widespread in Indonesia, including in the electronics industry, where a substantial number of workers have temporary or non-permanent contracts. This was corroborated by the firm representatives interviewed. Some 70 per cent of the workers at Firm B were contract workers, and Firm C employed contract workers on 11-month contracts. Some of the firm respondents saw the increasing use of shorter contracts as an unintended consequence of the above legislation

(Wicaksono n.d.; Electronics Watch, 2018b). Similar laws in other countries have also resulted in an increase in the use of temporary contracts (ILO, 2014).

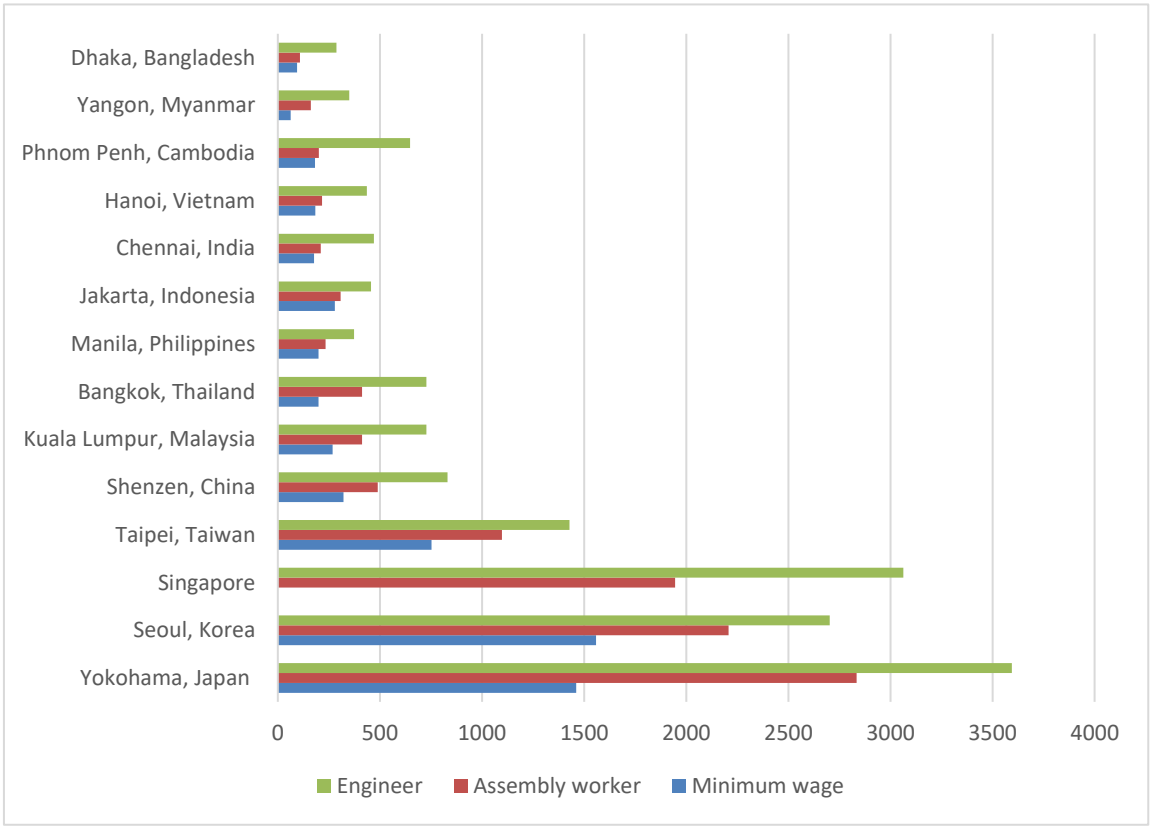
Workers on temporary contracts do not enjoy the same benefits as permanent or regular employees (Electronics Watch, 2018b). Various challenges related to the employment of contract workers were raised during discussions with trade union federations, and these included temporary contract workers receiving lower wages and benefits. Workers on permanent contracts have also been persuaded to terminate their contracts with severance pay only to be re-hired under temporary contracts (Electronics Watch, 2018b).

The use of contract workers was a major factor in the historic general strike of 2012, which involved tens of thousands of workers throughout the country (Bland, 2018). As the hiring of non-permanent workers has risen in the electronics industry, it has become a major source of disputes brought by trade unions in recent years.

2.3. Wages

In 2015 the government introduced for the first time a minimum wage growth formula through the adoption of Law No. 78, which is based on inflation levels and GDP growth during the year prior to calculation (Indonesia Investments, 2017). The aim was to ensure a more steady and predictable increase in the minimum wage from year to year and to reduce large differences between regions (Manning and Pratomo, 2018). The law was also motivated by concerns about rising wages and decreasing competitiveness vis-à-vis neighbouring countries such as Viet Nam (interviews, 2018). At the time of the introduction of the minimum wage formula, average wages in the manufacturing sector in Indonesia were higher than those in Viet Nam, Cambodia and Myanmar (Figure 14) (IndustriALL, 2019).

Figure 14. Average wages of manufacturing workers in Asia (2018-19, US$/month)



Source: IndustriALL (2019) from JETRO.

Trade unions have not supported the minimum wage law since it removed the "Dignified Living Needs" calculation that was used in wage setting before the law came into force (Lane, 2018). Since the introduction of the formula, the minimum wage has increased by 8 to 11 per cent per year. This is lower than previous wage rises of around 20 per cent or more (Electronics Watch, 2018b).

The representatives of the firms interviewed welcomed the stability and predictability of regular increases in the minimum wage, noting that there had been less worker unrest since the adoption of the minimum wage law. At the same time most firm representatives questioned the method of calculating inflation, and felt the current minimum wage was too high. The representative of Firm C was concerned that higher wages would increase production costs and create a ripple effect down the supply chain which would be particularly hard for smaller suppliers to absorb. The firm had begun implementing low-cost automation to deal with rising wages, and had shed 150 workers by applying such automation in assembly lines.

2.4. Working hours

A number of reports have addressed the issue of long working hours and overtime in the electronics industry globally (ILO, 2014; ILO, 2016; Lederer, n.d.). Representatives of Indonesian trade unions argued that this was, in many instances, related to daily piece-rate production targets, which can result in long working hours. This is corroborated by research conducted by LIPS, which found that daily piece-rate targets were in some cases set so high that it would require many hours beyond a normal shift to achieve them.

Focus group discussions with workers revealed that workers working overtime hours to meet production targets were not always paid overtime wages, and that limits had in some cases been imposed on toilet breaks or rest breaks when high production targets had to be met (Electronics Watch, 2018b). It was also reported that student interns were expected to work long hours but did not receive payment for overtime (Electronics Watch, 2018b).

2.5. Occupational safety and health

Occupational safety and health is a major concern for workers in the electronics industry in Indonesia. A recent study on hazardous substances in the electronics industry was conducted by LIPS in Batam, Bekasi, and Sukabumi. It found that many of the workers it interviewed in 14 factories suffered from various occupational illnesses, including haemorrhoids, pulmonary and respiratory problems, breast cancer, and miscarriages. It also found that workers had been exposed to toluene, a particularly hazardous chemical, without proper personal protective equipment (PPE). Exposure to this chemical can cause miscarriages and damage to the central nervous system, respiratory system, liver, and kidneys (Electronics Watch, 2018b).

In discussions with LIPS on its recent research on the factory workers of foreign firms in Batam, the labour NGO further argued that: (1) firms were not being inspected, which was a result of the limited number and capacity of labour inspectors; (2) government regulations had changed the barcodes for various types of hazardous waste, re-classifying them as non-hazardous material; (3) workers did not have proper PPE; and (4) there was poor knowledge among workers about the hazardous chemicals and wastes they handled. According to LIPS, workers were only shown how to use chemicals on the production line, but were not informed of what the actual chemicals were or of the health risks associated with exposure to them (interviews, 2018).

3. Approaches to advancing inclusive growth and decent work

3.1. Public governance

Since the early 2000s the Government of Indonesia has actively pursued regulatory reforms concerning working conditions, industrial relations, and a national social security system to promote decent work in the country (ILO, 2011). The government has ratified six ILO Conventions since 2000, and has committed to meeting the targets of decent work and inclusive growth in pursuit of Sustainable Development Goal 8 (decent work and economic growth). From 2012 to 2015 the ILO Decent Work Country Programme was implemented with the MoM, APINDO, and the four major trade unions with a view to formulating and implementing policies and programmes for inclusive and sustainable employment creation, sound industrial relations, and social protection for all (ILO, n.d.a.).

Various government ministries have taken initiatives to enhance the growth and productivity of the electronics industry for the benefit of the economy, enterprises and workers. These include measures to:

- expand labour inspection, based on Manpower Ministerial Decree No. 33/2016, and Manpower Ministerial Decree No. 257/2014 on Labour Norm Experts;
- promote domestic industry, based on Regulation No. 14 Year 2015 concerning the Master Plan of National Industry Development 2015-2035, and Regulation No. 65/2016 on local content requirements for certain consumer electronics (in particular smartphones); and
- develop the national training system for skills upgrading, based on the Manpower Act (Law No. 13/2003).

In addition, it is important to note that Indonesia was the first country to introduce regulations mandating social and environmental responsibility with the adoption of Law No. 40/2007 on Limited Liability Companies (Article 74), which requires companies to contribute a percentage of their profits to CSR. While this law originally focused on the natural resources industry, the Government of Indonesia has followed up with seven additional laws and regulations on CSR, which some argue has created a norm within the business community to engage in efforts to improve social and environmental outcomes where they operate (APINDO and GIZ, 2016). The role of CSR in the electronics industry is discussed in the next section.

3.1.1. Public governance measures to ensure decent work

Indonesia has undergone a major economic and political transformation, leading to a more democratic and strengthened rights-based system supported by labour market, labour law, and social security reforms to promote decent work. Indonesia has adopted several key laws (Law No. 13 of 2003 concerning Manpower, Law No. 21 of 2000 concerning Trade Unions,

Law No. 2 of 2004 concerning Industrial Disputes Settlements, and Law No. 40 of 2004 concerning National Social Security System) to advance the national legal framework. [12]

Indonesia has also ratified 20 international labour Conventions, including all eight ILO fundamental Conventions. Table 4 below lists the most relevant to the industry.

Table 4: ILO Conventions ratified by Indonesia currently in force of greatest relevance to the electronics industry

Labour Inspection Convention, 1947 (No. 81)
Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87)
Equal Remuneration Convention, 1951 (No. 100)
Abolition of Forced Labour Convention, 1957 (No. 105)
Discrimination (Employment and Occupation) Convention, 1958 (No. 111)
Minimum Age Convention, 1973 (No. 138)
Tripartite Consultation (International Labour Standards) Convention, 1976 (No. 144)
Worst Forms of Child Labour Convention, 1999 (No. 182)
Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187)

3.1.1.1. Labour inspection

The role of labour inspectorates and labour inspection is critical to advance and ensure decent work in the electronics industry and in all other economic sectors in Indonesia (ILO, 2006). Manpower Ministerial Decree No. 33/2016 sets out regulations governing labour inspection under the auspices of the MoM. General inspectors undertake three key duties, which are: (1) prevention and education; (2) non-judiciary out-of-court settlements and the issue of reprimands; (3) investigations involving the judiciary. Indonesia's labour inspectorate system, however, is hampered by a lack of inspectors (interviews, 2018; ILO, n.d.a). It was reported that in 2016 there were only 1,923 labour inspectors for over 21 million companies (ILO, 2017a), covering a workforce in employment of over 127 million (Table 5). [13]

[12] https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-jakarta/documents/genericdocument/wcms_189860.pdf

[13] See https://www.indonesia-investments.com/finance/macroeconomic-indicators/unemployment/item255 (accessed 15.12.2018)

Table 5: Labour inspection in Indonesia (as of end 2016)

National level	Number
1. Labour inspectors (total)	1,923
2. Companies in the country	21,591,508
Ratio of inspectors to companies	*1:11,228*
Specializations	
Civil servant investigators	383
Functional inspectors	984
Electrical installation safety inspectors	44
Fire safety specialists	33
Steam and pressurized safety specialists	91
Occupational health specialists	30
Working environment specialists	23
Construction safety specialists	16
Forklift and crane safety specialists (PAA)	52
Chemical safety specialists	3

Source: ILO (n.d.b).

In 2016, only 61,134 companies were inspected. During the interviews, the MoM stated that it was only able to inspect ten per cent of workplaces per year and, due to severe staff shortages, it was only able to target five to eight inspections per month. The companies to be inspected are selected on the basis of size. Various interview respondents noted that SMEs were the least likely to be inspected, yet faced the greatest challenges in complying with laws and regulations.

In order to overcome the limited capacity to undertake labour inspections, the government adopted Manpower Ministerial Decree No. 257/2014 to establish the Labour Norm Expert/Cadre, which provides that workplaces with over 100 employees must have a certified labour norms expert. The MoM since then has begun a programme in collaboration with the ILO's Better Work Indonesia programme to implement the concept of "Labour Norm Experts" as part of the "Labour Norms Compliance Programme" which involves a "Labour Compliance Index". Labour Norm Experts are trained and deployed to raise awareness of working conditions compliance within companies in order to prevent violations and occupational accidents. The Experts are trained and certified and are normally human resource managers or compliance officers within a company. They can also be from a third party such as an NGO (interviews, 2018).

The programme involves self-assessments by companies and verification by labour inspectors for high-risk cases. The approach is based on "strategic compliance", which involves working with private companies and prioritizing certain risk factors. Assessment results measured against the Labour Compliance Index would be publicly reported. In 2016, it was reported that there were 444 Labour Norm Experts (ILO, 2017a).

3.1.1.2. Upgrading workers' skills

One of the key challenges or gaps identified by firms in the electronics industry is the lack of skilled workers. All firms, including those interviewed, are in need of more graduates with general skills and soft skills, not necessarily only technical skills.

The Government of Indonesia has set an ambitious goal of preparing a projected workforce of 1.4 million workers in the country with necessary skills and capacities by 2025 (interviews, 2018).

To meet this goal, various ministries have begun to conduct training programmes to improve skill levels, which will contribute to improving productivity and working conditions and ensuring decent work as well as higher-skilled jobs. A major remit of this responsibility lies within the MoM, which is responsible for skills development in different sectors. Training programmes are conducted in Public Vocational Training Centres that are specialized for individual sectors. Reskilling activities are focused on workers that have been laid off or who are unable to find employment during labour market transformations due to a lack of relevant skills.

Training programmes targeted at the electronics industry began only in 2016-17, [14] and their outcomes cannot yet be assessed comprehensively. Examples of specific training courses include courses for audio/video technicians (1-3 month training), fibre-optic technicians (conducted in collaboration with MNEs for 130 hours or one month), and satellite transmission technicians. Overall, 19 vocational training centres have been established by the central government and there are others at the provincial level. Vocational training centres in major cities also provide training courses free of charge (interviews 2018).

The MoM works closely with industry in designing its training centres. The curricula must follow the national competence standards, which are developed with the involvement of industry to match their skills needs. It was however acknowledged that one of the key gaps and challenges the MoM faces in its training programmes is a lack of knowledge about needs and dynamics at sector-specific levels. Another major challenge is a lack of financing for its activities (interviews, 2018). Work is under way to develop a Skills Development Fund; the fund would require firms to pay a percentage of their taxes into the fund, which would be used by the government to run its skills development and training programmes. Many countries within the region, including neighbouring Malaysia, have similar schemes in place.

3.1.2. Promoting domestic industry

Discussions with the MoI (interviews, 2018) raised a number of specific challenges facing the electronics industry, such as dependency on the import of core components and the need to upgrade the electronics industry domestically. The MoI aims to overcome these challenges and to generate opportunities for more SMEs and decent jobs through the promotion of local content use, such as further investment in locally produced core components, incentives for core component companies to invest domestically through tax allowances, and incentives to establish research and development centres in the country.

As mentioned above, the local content policy was introduced in 2012 and has been fully implemented as of 2016. In the electronics sector so far only the smartphone industry has been required to comply with the policy. The smartphone industry was targeted due to its high growth rate since 2011 and its impact on the trade imbalance at the time of the policy decision (interviews, 2018). A successful example of the outcome of the local content policy shared by a representative at the MoI involved the Chinese smartphone brand Oppo, which established a Chinese supplier in Indonesia to manufacture its phone chargers in order to meet the local content requirement. The Chinese charger producer was able to provide

[14] https://www.thejakartapost.com/news/2017/03/01/govt-launches-free-industrial-skills-training-program-nationwide.html

chargers to other firms and thereby helped further develop the domestic smartphone industry as a supplier (interviews, 2018).

In 2018, the local content requirement for smartphones was 30 per cent, which could be met by hardware, software, or innovation development conducted locally. For example, Apple fulfilled the innovation development requirement through an innovation centre which teaches local students programming languages to develop applications for Apple's iOS operating system. The hope is that the Apple innovation centre will generate hundreds of local software developers annually. [15] While local innovation development can help improve local skills, however, it does not create demand for a local industry producing hardware inputs such as core components.

3.2. Measures by the social partners in Indonesia

The Government of Indonesia has ratified the ILO's Right to Organise and Collective Bargaining Convention, 1949 (No. 98) and the Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87). These Conventions uphold rights for workers exercised through institutions within a tripartite industrial relations system. The role of employers' and workers' organizations is critical to improving working conditions, safety and health, productivity, inclusive growth, and decent work in the electronics industry.

3.2.1. Employers' associations

In general, employers' associations play an important role in promoting and facilitating dialogue on governance and compliance processes between firms, industry and government.

APINDO

APINDO was established in 1952 and is the largest business association in the country. Its member companies mostly operate in labour-intensive industries. APINDO has national level members, which are mainly large companies, and members at the regional level, which are mainly SMEs (APINDO and GIZ, 2016). According to its representative, in 2018 APINDO represented businesses in all 34 provinces in the country. It has approximately 13,000 members, which represents around five per cent of all companies in Indonesia. Some 90 per cent of its members are large firms spanning several industries, including electronics. It has 300 offices and coordinates 40 business associations (interviews, 2018).

APINDO's aim is to improve the business climate in Indonesia. This involves improving industrial relations and relationships between employers and workers, as well as advocating for policies favourable to business. Its activities are tied to the Indonesian National Chamber of Commerce, and APINDO provides advice to Parliament and to government agencies on policy issues (APINDO and GIZ, 2016).

APINDO has been active in social dialogue in Indonesia since 1998. In 1999 APINDO became a member of the Tripartite Task Force on Social Dialogue established by Ministry Decree No. 7 along with various ministries and trade unions (ILO, 1999), which makes it the only employer association that is formally engaged in labour relations and industrial relations in Indonesia. As part of its activities with the task force, APINDO has participated in the formulation and implementation of two ILO Decent Work Country Programmes (2006-2010 and 2012-2015) (ITUC, 2016).

[15] https://www.thejakartapost.com/news/2018/05/08/apple-opens-first-developer-academy-in-asia.html

APINDO itself has engaged in and promoted various CSR initiatives on SME development in areas of international marketing, finance, and managerial skills (interviews, 2018). Furthermore, APINDO has established its own training centre with the aim to accelerate the competence and quality of human resources. The trainings are designed to promote harmonious industrial relations.

The Indonesian Electronics and Electrical Household Appliances Industrial Association (GABEL)

With only 34 company members, GABEL is smaller than APINDO. All of its members are large firms and its largest member is currently Panasonic. Like APINDO, GABEL has regular contact and dialogue with different government ministries concerning regulations. It is in regular contact with the MoM, MoI, Ministry of Trade, and the Indonesian Investment Coordinating Board (BKPM) (interviews, 2018).

Like APINDO, GABEL supports its members through advocacy on policy and regulatory initiatives and issues. Government agencies also consult GABEL on new regulations. According to the GABEL representative, the government's efforts to engage with the industry association have improved over the years (interviews, 2018).

As regards industrial relations, GABEL does not engage with sectoral unions, but only with unions at the company level. For some of the firms interviewed, GABEL was an important business association. Firm C noted that its communication with government ministries, such as the MoI, was through GABEL. Its members have noted that rising wages, the lack of a supporting component industry, and the inability to meet local content requirements were among the key challenges facing the electronics industry (interviews, 2018).

3.2.2. The Trade Union Law and trade unions

Indonesia enacted Law No. 21 of 2000 Concerning Trade Union/Labour Union, which states that freedom of association and the right to organize are the rights of every citizen. It has also enacted the Manpower Act No. 13 of 2003, which recognizes the right to collective bargaining (Anwar and Supriyanto, 2012).

A large share of the workers in the electronics industry in Indonesia are members of national trade union federations. They are particularly strong in Batam, which has the largest workforce in the electronics industry. The main federations of trade unions representing workers in the electronics industry are the Federation of Indonesian Metalworkers Labour Union (FSPMI) and Lomenik (under KSBSI) which represent metal and steel workers. These trade unions are affiliates of the global union federation IndustriALL.

There are also some examples of private trade union models. One such example is the Federation of the Panasonic Gobel Workers Union. It engages in various activities with its workers that include industrial relations, collective labour agreements, dialogue with policy makers, social and employee care, and human resource development.

Trade unions have the right to negotiate a collective labour agreement with management in Indonesia. However, less than five per cent of firms in the electronics industry have registered collective bargaining agreements (Electronics Watch, 2018b). [16] This is partly due

[16] The low rate of collective bargaining agreements (CBAs) in the electronics industry is comparable to the situation in the garments sector, where in 2017 only six per cent of enterprises had CBAs in place (see https://www.ilo.org/jakarta/info/public/fs/WCMS_622984/lang--en/index.htm).

to government regulations defining many terms and conditions of employment in the workplace (Anwar and Supriyanto, 2012). There have also been reports of intimidation, forced resignations, and layoffs of union officials, which have hampered activities such as the formation of unions and negotiation of collective bargaining agreements (Anwar and Supriyanto, 2012; Electronics Watch, 2018b)[17]. The Manpower Act No. 13 of 2003 places no time-limit on employers to re-negotiate the extension of collective bargaining agreements. The Act also states that in the event of multiple unions in an enterprise, the union representing more than 50 per cent of workers is entitled to negotiate the collective bargaining agreement. These limitations have created challenges to the development of collective bargaining in the country (Anwar and Supriyanto, 2012).

The interviews with firm-level representatives confirmed that collective bargaining and social dialogue were used infrequently by the industry. Firm B, however, had held weekly meetings at the unit level with trade unions for the previous five years. Interviews revealed that the most active social dialogue forum was that held regularly at MM2100. Hosted by the industrial estate and the Japan Council of Metalworkers' Unions (JCM), social dialogue forums were held with trade unions and managers of firms in Indonesia as part of annual workshops for exchanges on industrial relations (interviews, 2018). The first of these workshops, organized by JCM, was held in 2010 and was focused on building constructive labour-management relationships in Japanese companies. This workshop was attended by managers from Japanese and Indonesian firms, FSPMI officers, and JCM officials. Workshops were also held to further understanding of labour-management relations in Indonesia, in which Mr. Kobi, the President of MM2100, participated to share knowledge on the industrial relations situation in Indonesia (JCM, n.d.a; n.d.b).

3.3. Private compliance initiatives

In 2016, APINDO conducted a joint project with the German Corporation for International Cooperation (GIZ) and conducted a study on the CSR practices of some of its member companies (APINDO and GIZ, 2016). As a result APINDO identified three forms of CSR conducted by firms in Indonesia:

1. charitable CSR, which is separate from the core business of companies
2. promotional or marketing-related CSR
3. strategic CSR or CSR 2.0 (Visser 2011).

The majority of CSR activities among the surveyed companies were charitable.

APINDO has argued for increased engagement in strategic CSR, which is more sustainable. Strategic CSR is related more closely to a company's core business, and is based on creativity, scalability, responsiveness to the situation, "glocality" – the ability to adopt global norms and principles locally – and circularity, meaning being able to continuously generate resources for its activities. APINDO believes that strategic CSR will be beneficial for Indonesian firms, society, and the environment in the long term (APINDO and GIZ, 2016).

All of the firm representatives described a variety of private compliance initiatives that the three firms interviewed for this report had taken, such as codes of conduct, audits, and training programmes, including for its suppliers. Several of the firms were members of the

[17] Further details of problems in this area may be found in the ILO's NORMLEX database, https://www.ilo.org/dyn/normlex .

Responsible Business Alliance (RBA). This means that they subscribe to the RBA code of conduct (Box 2).

Box 2 - Responsible Business Alliance (RBA)

The RBA (formerly the Electronics Industry Citizenship Coalition) is an international organization that works in collaboration with its member firms and their suppliers to support improvements in social, environmental, and ethical standards in global supply chains. RBA members must take responsibility for the enforcement of the RBA code of conduct with their suppliers, who must in turn ensure that *their* suppliers comply. In this way, the RBA code of conduct aims to cascade down to lower tiers of global supply chains.

Supplier governance by a member includes several levels of assessments as well as a self-assessment. Based on assessments and corresponding corrective action, suppliers receive certification of their compliance with the RBA code of conduct.

In Indonesia, however, there are only a limited number of members and suppliers, though many of the major brands in the electronics industry (including firms interviewed for this study) are RBA members. RBA also works in Indonesia to prevent labour violations, such as forced labour (for example resulting from high recruitment fees) by labour recruiters of workers who leave to work as migrant workers in electronics factories in other countries, such as Malaysia.

One of the key recommendations from the project was for companies to approach their CSR activities in terms of a value chain or global supply chain. Examples of strategic CSR conducted by the companies surveyed included activities that enhanced the capabilities and competitiveness of suppliers or other complementary businesses in their supply chains or promoted the development of specific suppliers, depending on the inputs or services needed. Other examples were activities that focused on recruiting and training workers and others within the supply chain, including the provision of scholarships to students at a local university. A separate initiative involved a company creating a cooperative savings and credit institution for its workers.

3.3.1. Initiatives by the three interviewed firms

Firm A was established as a joint venture in Indonesia in 1993 and subsequently became an independent firm in 2011. It is a Swiss brand firm manufacturing products for electricity generation (such as switches and breakers).

It has its own code of conduct, which details the values that workers are expected to adopt in areas such as collaboration and trust, safety and integrity, innovation and speed, and performance. All workers are required to sign an agreement whereby they commit themselves to comply with the company's code of conduct.

Among the three firms included in the study, Firm A conducted the largest number of audits. Managers in the factory, a safety and health officer and an auditor from its headquarters, conducted safety observation tours every quarter. These involved observing employees at work and their working environment, and conducting worker interviews. The findings of these tours were reported to a central database at the firm's headquarters. The safety and health officer ran an annual programme of occupational safety and health (OSH) activities and was said to continuously observe workers and conduct training courses when specific problems arose.

The firm had introduced a supplier sustainable development programme, with a supplier code of conduct for firms in its supply chain. This programme involved an initial quality audit for potential new suppliers, which was followed by a health and safety audit by management. Existing suppliers were audited by a third-party auditor to ensure compliance with the supplier code of conduct, which includes meeting government regulations, standards on working conditions, respecting employees' freedom of association, and

compliance with international standards such as the eradication of child labour. In the past, the firm had terminated a supplier contract because an audit found that the supplier had paid wages below the minimum wage.

The respondents at Firm A noted that small domestic suppliers were not always able to comply with the regulations, for example on safety. However, it was felt that small suppliers were able to learn from their larger customers on norms concerning safety and better working conditions. Firm respondents noted that the labour inspectorate was very weak in enforcing regulations.

The firm also reported that it had felt the repercussions of recent government regulation that restricted the use of workers from labour agencies to non-core businesses activities, such as cleaning, security, and reception services, but not production. This had reduced the firm's ability to use temporary workers for production.

Firm B is a Japanese brand firm that was established in Indonesia in 1995. It produces consumer electronics products (printers and scanners). It is a member of the RBA and complies with its Code of Conduct and audit findings. The firm also used the RBA Code of Conduct to audit its suppliers. These supplier audits were conducted by a special audit team from the company's headquarters. According to the respondents, suppliers have been provided with feedback and improvement plans after audits. Audits of quality are conducted annually, while RBA audits are conducted every three years.

Firm B's corporate philosophy is to become a sustainable company. Mid-term goals concerned worker safety, the environment, and CSR issues such as aligning operations with social trends and consumer health and safety, fostering diversity, and respecting human rights. Quarterly progress reports on these topics were sent to headquarters.

Firm B was particularly active in the charitable form of CSR. It provided activities for its workers, such as holidays for different religious observations, gifts, sports and arts activities, and music, which included a band formed by its employees. It held an annual party for the "welfare for employee". There was also a mosque on site with a capacity of 1,000 persons.

The firm had a separate code of conduct on bribery, which included punishment for violations. According to the firm's director, a whistle-blower system was in place, including a suggestion box for anonymously reporting worker complaints, which were then followed up with investigations.

As regards engagement with the government on issues concerning workers, the representatives of Firm B stated that the mediation provided by the MoM regional officer was weak. This meant that disputes with trade unions often failed in mediation, and instead ended up in court.

Firm C is a Japanese brand firm manufacturing electrical components that was established in Indonesia in 1992. Firm C's facility is focused on two lines of business: electronic and mechanical components (switches and relays, and parts for factory automation, automotive electronics, automatic ticket gates, and transport systems), and (to a lesser extent) industrial automation (parts for factory automation).

Among the business activities in the factory, Firm C had a closer governance relationship with suppliers for industrial automation; manufacturers engaged in high-tech products were selected through self-assessment questionnaires, visits, and audits. Because these suppliers manufactured parts and components in Indonesia, quality certifications were required to ensure they met specific quality standards.

The firm representatives reported on a goal to localize or procure domestically some 500 parts that at the time of the interview were imported from China. The first step was to assess

the capability of 20 suppliers in Indonesia to meet standards requirements. Suppliers were required to pass an audit process established internally to assess their capability and knowledge, which focused on the company's compliance with ISO 9001, ISO 14001, and an internally developed process approach. At the time of the interview, eleven suppliers had passed the audit – all of which were Japanese firms located in Indonesia.

These findings suggest that creating demand for suppliers to undertake the manufacture of more technologically advanced parts and components in Indonesia can lead to their upgrading within the country. However, it may be a challenge to ensure that the benefits of these changes also reach domestic suppliers along with foreign suppliers located in Indonesia.

According to the respondent, one of the key challenges Indonesian suppliers faced in passing the internal audit concerned the chemical management processes. It was also noted that stamping and moulding capabilities were lacking due to the high level of investments required for this process, which Indonesian suppliers were not able to afford.

Among the three firms included in the study, Firm C was the most advanced with regard to the introduction of new automated technologies; their introduction in its factory production lines had resulted in a workforce reduction of 150 workers. In 2017 the firm established an Automation Training Centre at its facility in EJIP, showcasing its automation technologies, which other firms including its suppliers were able to utilize.

A representative of Firm C identified gaps in technology and lack of capital among domestic suppliers as a major challenge. The technological and knowledge gap of domestic suppliers was thought to be too large to overcome at present in order to meet its quality requirements, and the firm had no specific activities in place to build the capacity of such suppliers. Discussing structural challenges within the electronics industry, the respondent, who had worked in the automotive industry in the past, found that – in contrast to the automotive industry where parts and components from suppliers were more valued – the very low value or price of parts and components supplied by domestic suppliers was part of the challenge. There was no real incentive for foreign firms to build the capacity of domestic suppliers to produce inputs that were low-priced and not technologically advanced. The respondent noted that while brand firms in the automotive industry shared knowledge and worked closely with their first-tier suppliers, this was not the case in the electronics industry, since electronics mainly involved assembly work. The development of suppliers was hence not a key concern for them (interviews, 2018).

Firm C has its own Global Purchasing Code of Conduct, which includes standards on bribery, customs, and compliance with laws and regulations. Its purchasing practice standards include consideration for labour, investment, expenses, gifts, and purchasing, among others. Firm C reports regularly on business and working conditions to its regional headquarters through risk management reports and reports by individual corporate planning units.

At the time of the interview, Firm C was a member of the RBA and complied with its Code of Conduct, which was incorporated into its own global code of conduct. Audits conducted on its own code hence included compliance with the RBA Code of Conduct. Firm C also benefited from programmes that its lead customer firms had implemented, and had received several supplier awards, in particular for environmental quality.

Firm C was also engaged in charitable CSR work, for example, providing extra amenities to its employees. Its facility included a recreation centre, badminton field, volleyball court, music room, fitness centre, and a library.

Table 6 summarizes the various codes of conduct among the firms interviewed.

Table 6: Standards and codes of conduct among firms interviewed

	Firm A	Firm B	Firm C
Private codes and standards		RBA	RBA
Firm-specific codes and standards	Company code of conduct		Company code of conduct; Global Purchasing Code of Conduct; Global standard on labour, investment, expenses, gift, purchasing agreements, management
International standards	OHSAS 18001	ISO certifications	ISO 9001, ISO 14001

Most firms had private codes that addressed working conditions and the safety and health of workers. The discussion above has highlighted the firms' focus on worker welfare and the charitable nature of their CSR initiatives. While one firm had a close supplier governance relationship, none of the firms interviewed referred to any initiatives that would facilitate the economic upgrading of suppliers.

3.3.2. Industry support of private vocational high schools

In order to fill the gaps in skills among recent graduates in Indonesia, industry actors have established private vocational high schools. One particularly successful private vocational high school is the SMK Mitra Industri in MM2100, which was established in 2011 by Japanese and local company officials (interviews, 2018; Triananda, 2018). The curriculum is taught by volunteers from firms located in MM2100 and firms that seek to hire its graduates. The success of the vocational high school has been attributed to its direct links to the needs of industry in the MM2100 Industrial Town (interviews, 2018). For example, there is a course on skills for maintaining motorcycles and learning how the engine works, which is supported by Honda. There are other courses on how to set up electronic panels and conduct soldering. Students also undertake internships at various companies. According to the respondent from MM2100, graduates are able to begin working in factories directly after graduation.

3.4. International governance

3.4.1. ILO Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy

Adopted by the ILO Governing Body in 1977, and most recently revised in 2017, the ILO's MNE Declaration is a set of principles addressed to multinational and national enterprises, governments of home and host countries, and employers' and workers' organizations providing guidance in such areas as employment, training, conditions of work and life, industrial relations as well as general policies. The guidance is founded substantially on principles contained in international labour standards. The principles contained in the MNE Declaration constitute good practice for socially responsible labour policies that promote both compliance and "compliance-plus" impacts on national development and decent work,

and specify the roles of government and of MNEs and companies. [18] The principles in the ILO's MNE Declaration can provide guidance for Indonesia's electronics industry.

3.4.2. United Nations Guiding Principles on Business and Human Rights

The United Nations Guiding Principles on Business and Human Rights (UNGP) are grounded in recognition of: (a) States' existing obligations to respect, protect and fulfil human rights and fundamental freedoms; (b) the role of business enterprises as specialized organs of society performing specialized functions, required to comply with all applicable laws and to respect human rights; and (c) the need for rights and obligations to be matched to appropriate and effective remedies when breached. The General Assembly resolution, through which the UNGP were adopted in 2011, underscored that while the State has the duty to enforce legislation, business enterprises are required to comply with it. It highlights that weak national institutions, legislation and implementation hamper maximizing the benefits of globalization and that further action is required to bridge governance gaps at the sectoral, national, regional and international levels. Actions should include capacity building of all actors in order to better manage decent work challenges in global supply chains. The UNGP apply to all States and to all business enterprises, both transnational and others, regardless of their size, location, ownership and structure.

States that commit to the UNGP are required to develop a National Action Plan (NAP) on Business and Human Rights, which guide policies and actions to protect against human rights violations by corporations and provide effective access to remedies.

Regulation No. 75 of 2015 is a Presidential Regulation in Indonesia concerning the NAP for 2015-2019. In early 2019, the coordinating Ministry for Economic Affairs began developing a NAP (Danish Institute for Human Rights, n.d.). Following an in-depth study by Indonesia's National Commission on Human Rights (Komnas HAM) and the Institute for Policy Research and Advocacy (ELSAM) (2017), a number of recommendations were made towards the development of the NAP. They included developing new regulations and ensuring that existing ones abided by the UNGP. These included encouraging and assisting enterprises to develop due diligence processes to protect and prevent human rights violations, and creating specific policies to protect the most vulnerable members of the population against the risk of human rights violations. According to Komnas HAM and the ELSAM, Regulation No. 75 of 2015 was not sufficient to regulate the corporate responsibility of respecting human rights, and a large number of cases of human rights violations were reported (Komnas Ham and ELSAM, 2017).

In Indonesia regional authorities are responsible for implementing the NAP to promote and protect human rights, which includes setting out a budget for doing so. Given that the majority of the electronics sector is made up of micro, small and medium-sized enterprises, specific attention is needed to ensure that particular risks of human rights violations within such enterprises are prevented. This also applies to the more than 100 state-owned enterprises in Indonesia.

[18] For more information, see https://www.ilo.org/jakarta/whatwedo/eventsandmeetings/WCMS_533038/lang--en/index.htm

3.4.3. European Union Directives on Public Procurement

A more recent approach is the harnessing of socially responsible public procurement by government purchasers. Box 3 gives an example of an organization assisting public buyers.

Box 3: Electronics Watch

Electronics Watch is a non-governmental organization that promotes human rights and improvements in working conditions in the electronics industry global supply chain. It assists public buyers (including public buyers in the EU) with implementing social clauses in purchasing contracts and with understanding working conditions in the factories that produce the electronics products they buy. Electronics Watch also works with electronics firms and their suppliers to monitor working conditions and compliance with social clauses using worker-led monitoring approaches. Electronics Watch has engaged with suppliers in countries in South-East Asia such as China and Viet Nam (Electronics Watch, 2018a).

Public procurement, or the purchase of goods and services by government institutions in the European Union (EU), is overseen by two EU Directives on Public Procurement (Directive 2004/17/EC and Directive 204/18/EC). These Directives require government institutions to include social conditions in their purchasing tenders for electronic goods. This means that social considerations, which include standards on working conditions and the protection of human rights in global supply chains, can be included in the bidding criteria for electronics companies. These directives provide an example of socially responsible public procurement as a governance tool being used by government institutions at the national and subnational level to improve working conditions in electronics industry global supply chains. Given the buying power associated with public procurement contracts, they are seen as having the potential for significant leverage and widespread influence on social and sustainability issues. However, no reliable data is available on the social or economic effects of such governance tools.

3.5. Challenges and opportunities

Based on discussions in this chapter, Table 7 summarizes the challenges and opportunities in the governance of Indonesia's electronics industry:

Table 7: Challenges and opportunities

Area	Challenges	Opportunities
Labour governance	Low level of inspection Difficulties in inspecting SMEs Lack of sector-specific knowledge on training designed under MoM Lack of collaboration with other relevant partners in designing curricula Lack of financing for skills development and training programmes	Training programmes available for inspectors Sector-specific training available to workers
Public governance on promotion of domestic industry	The specifics of local content requirement policies are unclear Local content requirements are not always effective	Could benefit from approaches that focus on developing domestic suppliers and domestic brand firms
Social dialogue	Remains weak Regulations on collective bargaining pose barriers to concluding collective bargaining agreements Less than five per cent of firms have collective bargaining agreements	Large membership in trade unions Employers' organizations play an active role in policy advocacy Workers' and employers' organizations collaborate with ILO programmes
Private compliance initiatives	Mostly charitable, and there is a lack of strategic CSR	Codes of conduct can cascade down to lower tier suppliers
International governance	Lack of capacity to implement Impact of public procurement standards is unclear due to lack of reliable data	International instruments can help close gaps in growth policies, including regarding responsible working conditions The influence of foreign firms located domestically can spread to domestic firms

4. Key findings and possible policy responses

The global electronics supply chain is complex, diverse and fragmented. Indonesia has a large electronics industry that caters heavily to the domestic market and that is largely operating in the lower value-added segments of global supply chains. The industry has the potential to grow through further upgrading and integration into global supply chains and regional supply chains and thus generate more opportunities for SMEs and foster the participation of women and youth in the workforce. It also has the potential to facilitate technology transfer, skills development, and productivity improvements.

However, the absence of a strong domestic supplier base or domestic brand firms and a lack of skilled workers are key obstacles to growth. Several decent work deficits in the areas of wages, working hours, employment relationships, and occupational safety and health have been identified above. The findings also point to a lack of labour inspectors and opportunities to expand social dialogue.

The Government of Indonesia has issued regulations and policies to advance decent work in the country's electronics industry. These address skills development, minimum wage reforms, and local content requirements. However, the impact of these policies has been debated and the government has only limited capacity for effective enforcement. Taking guidance from the ILO resolution concerning decent work in global supply chains,[19] some useful measures for the government to effectively strengthen the industry in close collaboration with employers' and workers' organizations might include:

(a) Collect reliable data and conduct further research on the electronics global supply chain and the domestic electronics industry.

(b) Strengthen labour administration and labour inspection systems, for example by promoting the Labour Norms Experts programme (see section 3.1.1.1), in order to ensure full compliance with laws and regulations and access to appropriate and effective remedy and complaint mechanisms.

(c) Actively promote social dialogue between social partners, for example by promoting greater engagement in social dialogue between the industry, APINDO, and trade unions, in order to ensure decent work in the electronics sector including fundamental principles and rights at work.

(d) Create an enabling environment for enterprises to strengthen their contribution to decent work and ensure their growth and sustainability.

(e) Effectively implement and enforce existing legislation to improve working conditions and ensure that this is accompanied by increased productivity.

(f) Improve skills training generally and specifically encourage coordination between the Ministry of Manpower, workers' and employers' organizations, sector specialists from universities, research institutions, and industry groups in doing so.

[19] Adopted by the International Labour Conference in 2016. See https://www.ilo.org/ilc/ILCSessions/previous-sessions/105/texts-adopted/WCMS_497555/lang--en/index.htm

(g) Ensure coherence in laws, regulations and policies to advance decent work in the industry.

(h) Implement specific measures targeted at SMEs to increase their productivity and to promote decent work.

(i) Promote strategic CSR that furthers decent work and fosters the development of a domestic industry that supports, but does not replace, the effectiveness and efficiency of public governance systems.

The findings of this research showed that while union membership was relatively high and the role played by employers' organizations was important, there were still barriers to their full and meaningful engagement to address challenges and find solutions now and in the future. Workers' and employers' organizations could play a much stronger role in shaping a brighter future of work in the electronics industry in Indonesia, including through the provision of information, support, and guidance to their members.

Finally, the report found that international instruments can play an important role in ensuring decent work and promoting the Indonesian electronics industry. The promotion, ratification and effective implementation of relevant ILO standards, as well as the adherence to the guidance offered in the ILO MNE Declaration and the United Nations Guiding Principles on Business and Human Rights, are key to help reduce decent work deficits in Indonesia's electronics industry while promoting its integration in global supply chains.

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