

## **A REVIEW OF COVID-19 PANDEMIC IMPACTS ON MALAYSIAN MANUFACTURING INDUSTRIES**

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### **ABSTRACT**

Manufacturing industries mainly convert components through chemical processes into unique products with the aid of power-driven machines. Challenges in the manufacturing industry organization have become critical due to the advancement of technologies in this globalization era. In Malaysia, the manufacturing industry faces a big impact by Covid-19 in the year 2020. Therefore, this study review Covid-19 pandemic on manufacturing industries and proposed solution by industry 4.0 implementations. Industry 4.0 should be an alternative solution to improve productivity during the pandemic.

**Keywords:** Malaysia, Manufacturing, Covid-19, Industry 4.0

### **INTRODUCTION**

Malaysia's economy has been seriously harmed by the pandemic of COVID-19 (coronavirus). Malaysia's economy is expected to contract by 3.1 percent in 2020. Growth slowed to just 0.7 percent in Q1 2020, owing to attempts to flatten the pandemic's curve through a series of movement regulation orders and to extreme uncertainty about global

prospects constraining economic operation. In Q2 2020, a substantial production contraction of around 10% is expected, indicating the significant impact of the economic disruptions caused by the MCO introduced during the quarter. This is predicted to be accompanied by a partial recovery in the second half of the year, as the epidemic subsides and limits on movement gradually lift. This prediction assumes that the pandemic's spread is largely limited at the global level and that governments' massive fiscal and monetary policy support initiatives restrict the depth of global economic contraction. With all of these factors in play, the Malaysian economy's near-term outlook is unusually uncertain at the moment. The COVID-19 pandemic has created an unprecedented crisis, requiring governments worldwide to implement large-scale and unorthodox policy responses. With the recession impacting private demand and triggering supply shocks, the government is charged with promoting economic recovery in the short term. Malaysia's economy continues to be resilient and is built on solid fundamentals. Malaysia, with its diverse economic structure, stable financial system, strong public health response, and constructive macroeconomic policy support, appears to be better equipped to weather the storm than many other countries. Malaysia's fiscal plan should be re-prioritized in the near term to build additional policy space. This would include attempts to reallocate spending toward target areas, the identification of new nontax revenue streams, and the passage of legislation temporarily increasing available fiscal space.

Since its independence in 1957, Malaysia has achieved an impressive development of its manufacturing sector and its overall economy. Having initially been highly dependent on 'natural' resources like rubber and tin ('natural' is used because there is nothing natural about rubber, which was stolen and transposed from the Amazon by the British), it first diversified into other natural resources, like palm oil. While developing some manufacturing industries that are derived from its natural resource bases, such as the palm oil processing industry, Malaysia has also developed many

manufacturing industries that are not related to it – notably electrical and electronics (E&E), as well as the automobile and steel industry.

The manufacturing landscape covers the business line of the manufacturing industry such as the manufacturing, administration, arrangement, and engineering functions. Thus, each process needs to plan meticulously. Considering supply-chain control can swiftly impacting the overall performance of the manufacturing industry, the relationship in the organization whether horizontally or vertically needs to sustain in ensuring strong connectivity across the organization network. Begin in the first production line until the distribution of materials. Digitalization helps this industry become dependable and sufficient in regards to lowering the production cost and reducing time-consuming activity by minimizing any exhaustive additional activities. This is the smart manufacturing concept. Where it brings the idea of digitalization and breaks through the norms in the traditional manufacturing concept existed.

In Malaysia, manufacturing industries are expanding to enhance their execution level (Normah, 2006). To attain the excursion level, producers must be adaptable, versatile, responsive, and innovative (Parida & Pradhan, 2016; Thangavelu, 2016) in expanding their manufacturing industries. It is essential to recognize the ongoing manufacturing status of Malaysian manufacturing organizations. This is because the organizations will be able to distinguish and coordinate their attention in the areas that require change. The organizations will prove to be more mindful of manufacturing that will build on their execution and intensity. With best manufacturing practices, the manufacturer will enhance its business execution and extend its organizational resources, giving work opportunities, and expand to grow the manufacturing industries (Zainol & Ayadurai, 2011). This adds to Malaysia's economic development (Government of Malaysia, 2006).

In a line with Malaysian Eleventh Plan (11MP), 2016 – 2020, (Government of Malaysia, 2016) is the latest five-year plan before

Malaysia's dream to achieve high-income status by 2020. In 1991, Vision 2020 is made to envision Malaysia as a developed country along with all dimensions (e.g. economically, politically, socially, spiritually, psychologically, and culturally). However, the 11MP revisits the Government's promise to envision growth that encourages building a better Malaysia for all Malaysian. The private sector's contributions are high for the country towards economic achievements. Private investment is expected to grow at 4.9 percent per year, with an estimated average annual expenditure of RM291 billion in current prices (Government of Malaysia, 2016).

Besides, the previous two Industrial Master Plans which has laid the basic contributions to the rapid improvement of the industrial development in Malaysia. The Third Industrial Master Plan (IMP3), 2006-2020, is projected to improve industrial elements to a higher level of attractiveness globally. However, the nation's mission continues to struggle through global competitions over the next five years is a serious effort to improve nation status as a developed country. Hence, the targeted industries can improve their competitiveness through successful plans and policies that are organized and listed in the Third Industrial Plan. Therefore, to become competitive worldwide, manufacturing organizations will need to focus on improvement activities. Total productivity factor able improves through efficient management, utilization of human capital and resources, relocations and carry out activities of high potential which involving in research and development, and be integrated with the regional and worldwide production, distribution, marketing, and supply networks (Normah, 2006; Thangavelu, 2016). Consequently, the performance of the Malaysian manufacturing sector by the value of gross output rose 5.7 percent per annum to RM1,275.8 billion in 2017 as compared to 2015 (RM1,142.0 billion). Value-added improved 6.9 percent per annum to RM294.0 billion in 2017 (2015: RM257.1 billion). The number of persons engaged grew 2.2 percent to 2,214,883 persons in 2017 as compared to 2,119,158 persons in 2015.

Besides, the Annual Economic Survey 2018 demonstrated the value of the gross output of the Manufacturing sector escalated 5.7 percent a year to RM1,275.8 billion compared to RM1,142.0 billion in 2015. Electrical, electronic and optical products sub-sector accounted the highest value of gross output with RM361.8 billion (28.4%), followed by Petroleum, chemical, rubber and plastic products subsector with RM340.4 billion (26.7%) and the Vegetable and animal oils & fats and processed foods sub-sector with RM214.0 billion (16.8%).

From 2015 to 2017, the value-added of the Manufacturing sector increased from RM257.1 billion to RM294.0 billion with a growth rate of 6.9 percent per annum. The Petroleum, chemical, rubber, and plastic products sub-sector remained as the dominant contributor with a value of RM89.6 billion (30.5%) in 2017. The second-largest contributor was the Electrical, electronic and optical products sub-sector which amounted to RM78.6 billion (26.7%), followed by the Non-metallic mineral products, basic metal, and fabricated metal products sub-sector with RM38.1 billion (13.0%).

However, The Industrial Production Index (IPI) continues to record positive growth of 0.3 percent in August 2020 as compared to the same month of the previous year. The increase in IPI in August 2020 was driven by the positive growth of 2.4 percent in the Manufacturing index. Meanwhile, the Mining and Electricity index recorded a decrease of 6.7 percent and 1.2 percent respectively. The Manufacturing sector output based on year-on-year comparison grew by 2.4 percent in August 2020 after recording an increase of 2.9 percent in July 2020. The major sub-sectors contributing to the growth in the manufacturing sector in August 2020 were Electrical and Electronics Products (6.9%), Transport Equipment and Other Manufacturers (6.9%), and Food, Beverages and Tobacco (4.7%). The Mining sector output dropped 6.7 percent in August 2020 as compared to the same period of the previous year. The deterioration was due to the decrease in the Crude Oil and Condensate index (-5.0%) and Natural Gas index (-8.0%). The Electricity sector output decreased 1.2 percent in August 2020 as compared to the same month of the previous year.

## **IMPACT OF COVID-19 PANDEMIC TO MANUFACTURING INDUSTRY**

A severe pandemic originated from Wuhan, China is known as SARS-CoV2 or Coronavirus/ Covid-19 put the world into a frantic condition. Currently, coronavirus cases infected around 22million number of people worldwide where the total of recovered cases is 15million, and the mortality rate is almost 800, 000 which is around 5%. Even though the cases dissipate slowly but, the second wave hits again and brings a much more frightening state as more cases are identified in the asymptomatic category. On 9 June 2020, World Health Organization (WHO) stated that the transmission occurrence among asymptomatic patients was still unidentified. It is a condition where people did not develop any symptoms unknowingly having Coronavirus. With over 170, 000 total mortality United States of America (USA) is classified as the country with the highest infection rate followed by Brazil with a total of 3.5million cases then India 2.9million cases. China, where the country with the first outbreak currently in 34th rank with a total of more than 84,000 cases.

According to Coronavirus live update, Malaysia ranked 89th out of 215 covid-19 infected countries. On 8 July 2020 Tan Sri Dr. Noor Hisham Abdullah, Malaysia health director stated that almost 70% of covid-19 cases in Malaysia commenced from asymptomatic carriers. At present number of coronavirus cases in Malaysia increasing steadily with the addition of some new clusters almost every week. At the beginning outbreak, Malaysia successfully controls the pandemic from spreading and increase violently by introducing Movement Control Order (MCO) law throughout the country. This happened during 2<sup>nd</sup> wave outbreak where the total number of cases almost hit 700. Then, the Malaysia Prime Minister, Tan Sri Muhyiddin Yassin gradually announced extended order when Malaysia condition becomes more stable which is, Conditional Movement Control Order (CMCO) on 13 May until 9 July and followed by Recovery Movement Control Order (RMCO) from 10 June until it supposes date 31 August

2020. Malaysia doing a great job by taking lots of precautionary action throughout this time.

Malaysia managed to handle Covid-19 to minimize any potential spread by taking strict action through the implementation of MCO during the 2nd wave outbreak since the virus is deadly and can be transmitted through droplets. Hence, cases in Malaysia were somewhat in control. During the Movement Control Order (MCO) there are some strict rules people need to follow whether they are residents of Malaysia or foreigners. If people staying in Malaysia not obeying the said rules, the government has the authority to fine them accordingly. The rules in MCO aimed to prohibit mass gatherings from happening. Thus, many business industries need to shut except for supermarkets and certain shops that providing necessities to its resident.

During this time, the downfall of business industries including the manufacturing sector decreases exponentially. Malaysia is not the only country affected by this problem since this pandemic caused a global downturn and put people into a panic state. Any investment in Malaysia needs to be put on hold as no operations are allowed to be executed. Around 1,015 projects are pending due to Coronavirus and Malaysia MCO state. This leads to possibly lost 109, 998 jobs which will be opened, and imagine losing RM 158.46 billion investment in the manufacturing area. The manufacturing sector is not necessary thus, people are forced to prioritize what is important first which is their health, safety, and daily need. In turn, Malaysia needs to embrace around RM12.9billion losses in manufacturing industries during the two weeks control order. It is a troubling condition as, this sector providing a huge amount of the sum to GDP.

There are so many negative impacts affecting Malaysia's manufacturing sector during this pandemic outbreak. For example, production in 60 days-time if companies stopped operating, causing dangerous failure of export advantages for about RM51.2billion. Originally, the manufacturing industry holds 84.6% of the overall

domestic export which is around an RM834billion which is frighteningly large. The MCO prevention measure put this industry into a threatening state with grossly RM32 billion of losses. This is due to the deactivation of all sectors.

The manufacturing sector is closely related to the supply chain. Both are equally important to ensure production efficiency. Without a proper supply chain, a shortage of material such as raw materials high probability will happen. MCO restricting any sort of movement from happening. Only selective people could strictly move. This makes, operations on large scale could not be conducted including supply chain activity. Malaysia's biggest supplier is in China, where the origin of the pandemic outbreak is. During this time, any export activities were banned especially with China as their state was still in control. As result, the manufacturing industry could not be progressing and this arguably become one of the biggest issues. With low movement in this industry, they experiencing declining in customer demand and it worsens their profitability. Pandemic putting people to work from home, via online. Certain jobs take advantage of this opportunity to improve their smart system. However, it is different with manufacturing cases. Even though some divisions can be performed online such as 3D printing but, not all can operating without proper machinery, equipment, labor, and so on. The manufacturing sector requires both human and machines operation to interact together to build items. Physical attributes are the key point. Thus, the process could not be performed online only.

Manufacturing industry witnessing a drop in their monthly income as well as job performance as a result of this unprecedented situation. It is one of the most affected industries whereas, the employability rates decreasing sharply. Due to the inability to supply products to customers, this sector also experiencing declining in a monthly income of about 48.7%. Although there are still some worker's situations remains unchanged during this condition but, there are also people burdened with half-paid, unpaid leave, and certainty losing their jobs.

Economic activity slowing down and market demand decrease dramatically. Companies fight to find the best way to manage their cash flow to avoid bankruptcy. Manufacturing industries become vulnerable with their limited operations. It is necessary to close the industries to prioritize health and safety issues to avoid the spread of the virus. Even so, Malaysia needs to have its backup plan to avoid this economic destruction.

## CONCLUSION

Industry 4.0 brings the manufacturing industry implementing the smart system in its activities. In this competitive era, we need to build something efficient at the same time at a low cost and not time-consuming. If the manufacturing sector depends mostly on physical labor, the quality of work decreased drastically same goes with the profit margin. This is due to the slow-moving activity as a result of human limitations. The situation becomes more critical especially if the item is in a large amount yet, the progressing work is using dependent activity where a task can only be performed after completion of the previous tasks. The consequences are, the product could not be delivered and reaching the customers on time. This will cause huge losses to the company and customers' dissatisfaction. The incorporation of industry 4.0 technology could aid organizations as they struggle to recover from the Covid-19 outbreak. In the future, the incorporation of industry 4.0 technologies could aid the recovery efforts from the Covid-19 disaster. The current emphasis on IoT, AI, and cloud computing, and cloud computing and AI data seems to persist into the next-generation operations, because of the need for fast response time-sensitive data. When a business is aware of the effect on demand for certain products and services, knows where the assets and supplies are, and where their resources are, and understands the impact on demand in the distribution network, they are able and move to get back to normal faster.

According to these new theories of human intelligence, artificial intelligence and machine learning will adapt quickly to changes in

requirements and programming. There could be a rise in the number of enterprises as well as new ideas on how robots can be used in their industries following the emergence of global supply chains and social desking. Before the pandemic, there was no particular drive in this industry to use virtual reality training technology, but such solutions would help employees perform new tasks more quickly. This can theoretically help to alleviate short-term skill shortages while social demands or to promote a new product or service growth are met or overlooked in other projects, or it is used for temporary support of different projects.

Ultimately, digital twins could become common as they offer a virtual, real-time representation of something or as well as providing a physical manifestation of that object. Many experts agree that digital twins will also help improve the efficacy of remote control, and performance, but this is not the traditional way of their use. Companies can minimize the need for workers to be on-site by using a digital twin production system that is a reality check for human interaction, which helps them track metrics more closely. During the Covid-19 pandemic, additive manufacturing has helped the health industry in meeting the need for increased plasma-derived therapy. Some of the firms manufactured respiratory kits, while others supplied equipment such as face masks and protective shields for use by the hospitals. In comparison with the general advance of computer and communication technologies, such as telecommuting, workers took longer to accommodate new technologies, particularly those which allowed people to keep working from home. This is going to increase in prevalence in the coming years.

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