



SUBSECTOR PRODUCTIVITY REPORT

CONSTRUCTION & BUILT ENVIRONMENT



Subsector Productivity Report Construction & Built Environment

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Executive Summary

This report prepared by the Construction & Built Environment Productivity Nexus (COBEPN), which is one of the government's initiatives to boost national productivity and economic growth through collaboration between the government, industry players, and academia. The report provides an overview of the Malaysia construction sector and its productivity performance, challenges, and opportunities in 2022. It covers various topics related to the sector and the construction and built environment industry in Malaysia, such as the recovery of the sector in 2022 after two years of contraction, driven by the private sector and the civil engineering, non-residential buildings, and special trade activities sub-sectors; the global and regional outlook of the construction market, which is expected to grow by US\$4.5 trillion from 2020 to 2030, but faces challenges such as rising costs, stalled productivity, hybrid working, and demanding environments.

Discussion also includes the sub-sectors of the Malaysia construction sector, which are infrastructure, residential, energy and utilities, commercial, industrial, and institutional; the productivity performance of the sector, which increased in 2022 due to the recovery of value added and employment; the leading contractors and consultants in the sector; the issue and challenges of the sector due to the COVID-19 pandemic; and the way forward for the sector to achieve net zero emissions by 2050 and align with the Malaysia Digital Economy Blueprint and the Global Roadmap for Buildings and Construction 2020-2050. The report also suggests adopting technology and digitalization, training the workforce, adopting green and sustainable practices, and using the digital solution directory. The report aims to provide useful information and insights for the stakeholders of the sector and the industry.

The report also discusses two initiatives for the construction and built environment industry: the Productivity Step Up Program for Contractors and the Construction & Built Environment Technology Digital Solution Directory. The Productivity Step Up Program aims to improve the productivity of firms through diagnostics, process analysis, and intervention using technology. The program is open to all contractors and registration is complimentary. The Construction & Built Environment Technology Digital Solution Directory is a platform for matching business solutions to enhance digital competitiveness and technology adoption in the industry. It is also a guide to the best practices and standards for embracing digital technology in the industry. Both initiatives can be accessed through Digital Platform Network (DPN+), which is a one stop centre to increase productivity through digitalization.

The report concludes by outlining the way forward for COBEPN, which is to adopt technology and digitalization, train the workforce, adopt green and sustainable practices, and use the digital solution directory. These initiatives aim to improve productivity and competitiveness of the sector, reduce foreign labour reliance, meet environmental sustainability goals, and find and showcase the best technology solutions.

Message from the Director General, Malaysia Productivity Corporation

“ The Subsector Productivity Report 2022 presents a roadmap for attaining sustainable productivity gains, fostering innovation, enhancing the overall competitiveness of our industries, and propelling Malaysia towards sustainable economic growth ”



Malaysia Productivity Corporation (MPC) plays a pivotal role in bolstering Malaysia's economic growth by driving productivity advancements across all sectors, as outlined in the Twelfth Malaysia Plan (12MP). Malaysia's economy demonstrated promising performance, with a remarkable 8.7 percent GDP growth in 2022, surpassing the 3.1 percent achieved in 2021. This growth can be attributed to the recovery of private spending and investment, a decline in unemployment rates, and the strengthening of the ringgit.

The year 2022 presented both opportunities and challenges for Malaysia's economic landscape. Our nation navigated through a dynamic global environment characterised by technological advancements, shifting market dynamics, and the ongoing recovery from the pandemic's impact. Amidst these circumstances, productivity emerged as a critical driver of economic growth and competitiveness, serving as a key pillar for Malaysia's sustainable development.

MPC strategically leverages the sectoral Productivity Nexus to drive significant productivity growth in the services, manufacturing, and agriculture sectors. These efforts are carried out in alignment with the Malaysia Productivity Blueprint (MPB), which outlines

impactful initiatives since 2017, and key policies such as the New Industrial Masterplan 2030 and the 12MP Mid-Term Review. By maximising collaborative efforts across various platforms, MPC actively supports and facilitates the industry-driven initiatives of the Productivity Nexus.

We take pride in highlighting the remarkable achievements of our subsectors in enhancing productivity. Through innovative practices, strategic investments, and a collaborative approach, our industries have embraced initiatives for productivity improvement, charting for an optimistic goal for a labour productivity growth of 3.8% per annum for the remaining 12MP period.

The Subsector Productivity Report 2022 presents a roadmap for attaining sustainable productivity gains, fostering innovation, enhancing the overall competitiveness of our industries, and propelling Malaysia towards sustainable economic growth. We believe that this publication will inspire fruitful collaborations, catalyse meaningful change, and contribute to our nation's shared prosperity.

Encik Zahid Ismail
Director General
Malaysia Productivity Corporation (MPC)

Statement from the Champion, Construction & Built Environment

“ The adoption of Modern Methods of Construction (MMC) enhances the sector’s productivity. MMC has the potential to improve overall performance in the Construction Sector in terms of quality, safety, cost effectiveness, and waste reduction of building materials ”



I wish to compliment the Government of Malaysia and its agency, Malaysia Productivity Corporation (MPC), for their initiative and continuous effort to drive up the industrial productivity of the country. Commencing in 2016 with a Productivity Nexus that has proven to be successful in achieving its intent, the government has further initiated an additional 2 Productivity Nexus in 2022 for Logistics and the Construction and Built Environment sectors.

I am excited to note that the government has agreed to include the entire spectrum of the construction and built environment industry in its productivity agenda, as globally, this industry contributes an average of more than 6% of the world’s employment. The industry also contributes between 6% to 12% of a country’s gross domestic product for many countries, although in the case of Malaysia, it only constitutes a relative low 3% to 4% of the national GDP. Perhaps this low number is attributable to the low productivity of the industry and also in the way in which related activities and the supply chain of this sector are classified and placed under other industries instead of under construction.

Hence, together with the other players and stakeholders in the construction and built environment sectors who formed the COBEPN committee, we are thankful to be involved from the outset to define the methodology, identify the obstacles and explore possible solutions to improve

the productivity of this very important industry. With the government’s agreement to include Built Environment into this Nexus, the committee is now able to take a holistic view of the Environment, Social and Governance aspects of the industry. It is also imperative and timely for the COBEPN to work towards achieving Net Zero Carbon by 2050 by mitigating the estimated 11% embedded carbon in materials used in construction and the 28% greenhouse gas emissions caused by the operations and maintenance of built assets over their lifespan of some 50 years.

I look forward to working with the public sector representatives, professionals, and stakeholders of the Construction and Built Environment industry to curate a practical and acceptable roadmap over time that would improve the productivity of this sector. I wish to express my gratitude to all participants for sacrificing their invaluable time and effort in the common goal of increasing the productivity of the Construction and Built Environment industry with the objective of not only increasing the prosperity of the country and improving its wellbeing but not also in meeting the ESG and long term sustainability goals of the nation.

Datuk Seri (Dr.) Michael Yam (SMW, DSNS)
Champion
Construction & Built Environment
Productivity Nexus (COBEPN)



PART I

CONSTRUCTION & BUILT ENVIRONMENT SUBSECTOR PERFORMANCE



GLOBAL OVERVIEW

In 2020, the global construction market had a value of US\$10.7 trillion and it is projected to increase by US\$4.5 trillion from 2020 to 2030, reaching US\$15.2 trillion. The highest growth rates in construction are expected in Sub-Saharan Africa and emerging Asia. China, India, US, and Indonesia are the four countries that contribute 58.3% of the global construction growth. The sub-sector that grows the fastest is infrastructure, followed by residential construction. The sector also faces some challenges such as shortages of labour and skills, rising costs of inputs, and volatility of energy prices. The sector also has some of the opportunities such as ^{6,7,8}.

1 Technology adoption :

The use of digital tools and platforms can help enhance the efficiency, productivity, quality, and safety of construction projects. Technology can also help draw new talent, improve collaboration, and lower environmental impact.

2 Infrastructure spending :

The demand for infrastructure development is high in both developed and developing countries. Infrastructure projects can stimulate economic growth, generate jobs, and enhance social welfare. Infrastructure spending can also support the shift to low-carbon and resilient systems.

3 Urbanisation :

The rapid growth of urban population and cities creates a demand for more housing, transportation, energy, water, and sanitation facilities. Urbanisation also provides opportunities for innovation, creativity, and diversity in the construction sector.

Construction Sector and Built Environment Industry 2022 in ASEAN Countries

In 2022, the construction industry in Southeast Asia has been affected by the rapid increase in construction materials and labour costs due to the COVID-19 pandemic and the crisis in Ukraine. Despite its post-pandemic recovery, Malaysia's construction industry has been impacted by a labour shortage¹¹ and a fluctuating currency as well as internal factors.

These internal factors have created significant instability in construction costs, leading to knock-on effects on the price of infrastructure and other construction projects. Combined with external factors such as events in Ukraine and the COVID-19 pandemic, Malaysia has seen a hike in the price of construction materials.

To manage these increases in construction costs, the Malaysian government has offered contractors

working on public sector construction projects awarded between January 2021 and June 2022¹² the option to add a Variation of Price ("VOP") clause to their existing contracts. This clause places the risk of inflation in construction material costs on the employer.

In 2022, Thailand experienced a substantial increase in material costs for construction projects due to inflationary pressures.¹³ However, this has not impeded the growth of Thailand's construction sector, which has been driven by government-based projects. In 2022, almost 80% of Thailand's public sector's construction works were infrastructure works.¹⁴ Thailand has also confirmed major expansion works for its two international airports with bidding expected to be held in 2023 and construction works to begin in 2024¹⁵.

Additionally, Thailand is currently considering passing a bill titled “Act on the Settlement of Disputes regarding Payment in Construction” (the “Bill”). This legislation aims to streamline payment disputes between players in the construction industry and improve cash flow for contractors. If passed, it will introduce a construction adjudication regime similar to those found in Singapore and Malaysia.

If passed, this Bill would be beneficial for contractors and sub-contractors as it would provide them with another (potentially better) option for pursuing claims. With its lower cost and shorter dispute resolution period, contractors and sub-contractors may now be encouraged to pursue claims that they would have previously abandoned or settled for a large discount.

In the first half of 2022, Vietnam's construction sector was affected by rapidly increasing prices of raw materials, fuel, and construction materials due to constraints on the supply chain caused by the Russian-Ukraine conflict and COVID-19. This inflation directly impacted the cost of investment and the efficiency of projects, reducing profit margins for enterprises.¹⁶ Despite these rising construction costs, Vietnam has seen an acceleration in its public investment projects in 2022. Hanoi is focusing on constructing major infrastructure projects such as the pilot metro line section Nhon-Hanoi station.¹⁷ The elevated section is currently scheduled to begin commercial operation in 2023 and the entire route is scheduled to be operational in 2027.¹⁸ It is expected that public infrastructure works will continue to be a key area of development for Vietnam in 2023¹⁹.

Projections for the ASEAN construction sector in 2023

With many government-driven construction projects moving forward and a common focus on large-scale infrastructure works, the region is expected to see greater expansion in the construction sector. At the same time, as Southeast Asia emerges from the COVID-19 pandemic and continues to feel the effects of rising material costs due to the Ukraine crisis, there has been an increase in the number of construction disputes related to increased costs and delays caused by COVID-19 and the Ukraine crisis.²⁰

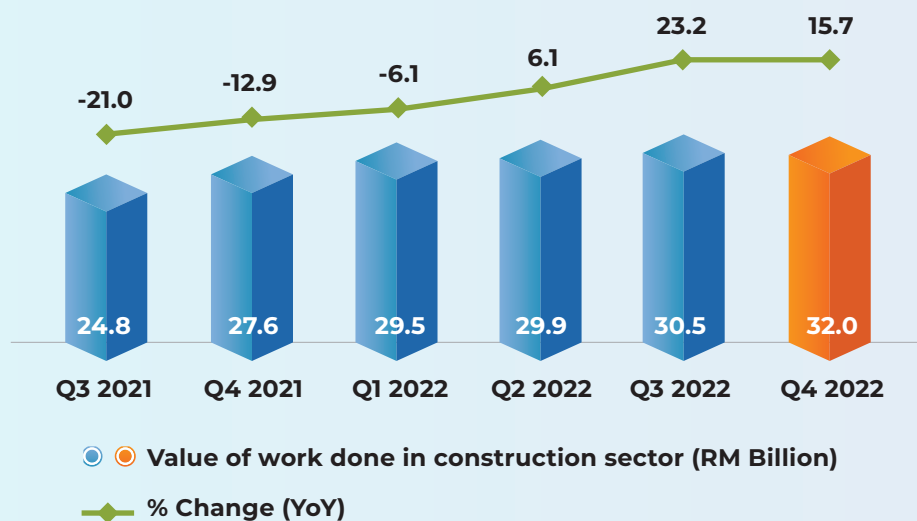
Industry players should be aware of inflationary impacts that are likely to continue into the next year and should try to mitigate these risks by including contingencies in tender bid prices or price fluctuation clauses in their contract conditions to share or pass on inflationary risk.²¹

OVERVIEW OF MALAYSIA'S CONSTRUCTION SECTOR

As Malaysia attempts to improve its economic standing and become a high-income nation, the construction sector has become an important driver of change in the nation. The construction sector has been acknowledged for its important role in the nation's economy and development, and it has a great deal of potential to aid Malaysia achieve its objectives. The building industry includes civil engineering, specialized trades, and the construction of both residential and non-residential structures. Between the years of 2020 and 2021, the number of workers in this industry fell by 3.5%, from 1,232,769 to 1,190,159. Performance declined by 10% in terms of salaries and wages in 2021, from RM37.1 billion in 2020 to RM33.4 billion.

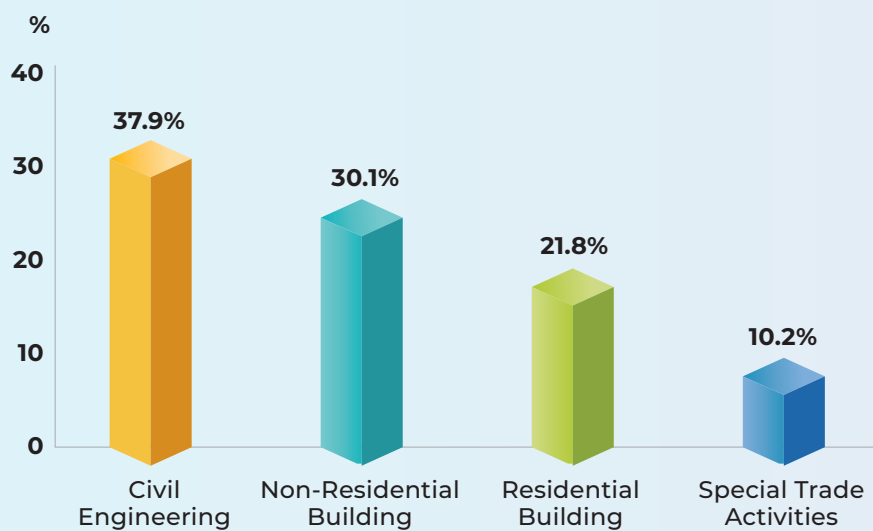
In the fourth quarter of year 2022, the value of work done for the sector increased by 15.7 percent (Q3 2022: 23.2%) amounting to RM 32.0 billion (Q3 2022: RM 30.5 billion) as shown in Figure 1. The civil engineering and non-residential buildings sub-sectors together accounted for over two-thirds of the work done value, with 37.9 percent attributed to Civil Engineering and 30.1 percent to Non-Residential buildings. The Residential buildings and Special Trade activities sub-sectors accounted for 21.8 per cent and 10.2 per cent respectively. (Figure 2)

**Figure 1 : The Value of Work Done in Construction
Q3 2021 - Q4 2022**



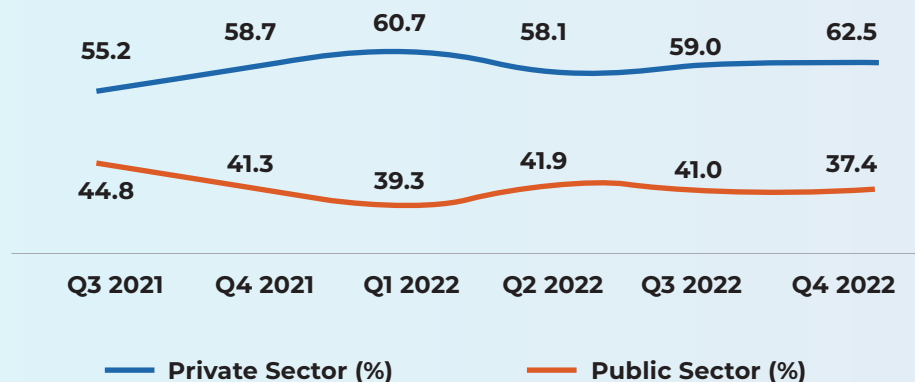
Source: Department of Statistic Malaysia (DOSM)

**Figure 2 : Percentage of Share Value of Work Done by
Sub-Sector in Q4 2022**



Source: Department of Statistic Malaysia (DOSM)

Figure 3 : Growth of Construction Sector by Private and Public Sector in Q3 2021 - Q4 2022

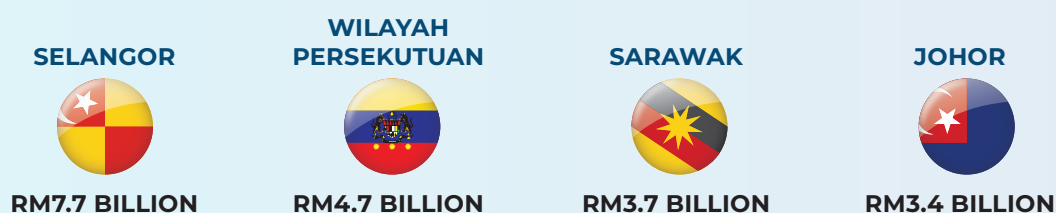


Source: Department of Statistic Malaysia (DOSM)

The private sector was the main driver of growth for the construction sector in quarter 4 for the year 2022 with 62.6 percent (RM 20 billion) share of total value of work done. For the same quarter, the public sector registered 37.4 percent (RM 11.9 billion) of total value of work done as shown in Figure 3.

Figure 4 : States which Contributed the most in the Construction Sector (Q4:2022)

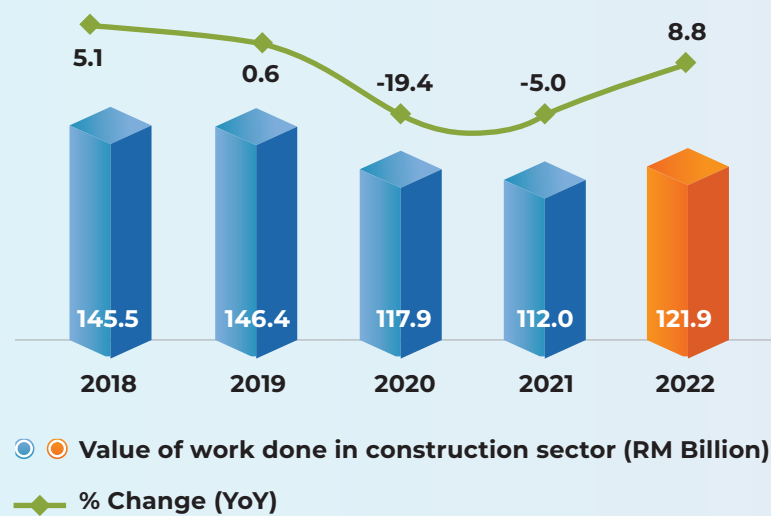
More than 60 percent of the work done value in Q4 2022 was concentrated in Selangor, Wilayah Persekutuan, Sarawak and Johor.



State	Contributions (Billion)
Selangor	RM7.7 billion
Wilayah Persekutuan	RM4.7 billion
Sarawak	RM3.7 billion
Johor	RM3.4 billion

Source: Department of Statistic Malaysia (DOSM)

More than 60 per cent of the work done value in Q4 2022 concentrated in Selangor (RM7.7 billion or 24.2 per cent) shown in Figure 4; Wilayah Persekutuan (RM4.7 billion or 14.7%); Sarawak (RM3.7 billion or 11.7%); and Johor (RM3.4 billion or 10.7%). For the whole year of 2022, the Construction sector posted a rebound of 8.8 per cent after two years of negative growth shown in Figure 5.

Figure 5 : The Value of Work Done in Construction 2018-2022

Source: Department of Statistic Malaysia (DOSM)

Productivity Performance of The Construction Sector

Malaysia's economic growth relies heavily on the construction sector, which creates income, capital, and employment. The sector must overcome significant challenges and seize opportunities to achieve net zero emissions by 2050, which will demand innovation, collaboration, and transformation across the value chain. The sector is projected to grow due to investment in large-scale transport and energy projects, as well as affordable housing and sustainable city development. The sectors' labour productivity by value added per employment for the year 2022 shows growth of 5.2 percent with the value of RM 38,575 per person compared to the previous year, decline -4.3% with the value of RM 36,669 per person. (Figure 6)

The decline in the sector can be attributed to several factors such as difficulty in meeting workforce demand, slow in adopting technology and regulatory barriers impacting project implementation.

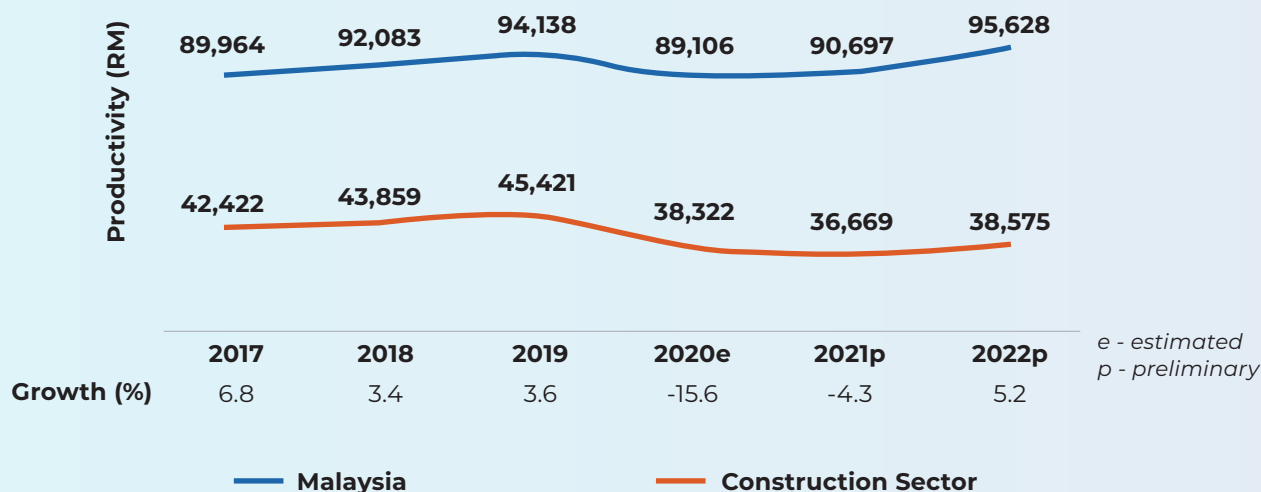
According to the 12th Malaysia Plan, the construction sector's productivity is expected to grow at an average rate of 3.8% per annum with a value of RM46,200 supported by increased adoption of modern methods of construction; and to contribute 4.2% to the output growth of the construction sector.

Construction sector has contributed RM66.2 billion to national GDP in 2022, compared to RM50.8 billion in 2021. Construction activity in Malaysia rose 15.7 percent year-on-year in the fourth quarter of 2022, easing sharply from a 23.2 percent expansion in the previous quarter. This was the third consecutive period of growth, as output increased faster in the Civil Engineering sector (20.8 percent vs 14.6 percent in Q3). On the other hand, it slowed in Special Trade activities (12.7 percent vs 32.2 percent), Non-Residential buildings (19 percent vs 37.7 percent), and Residential buildings (5.3 percent vs 17.8 percent). For the year 2022, the construction output grew by 8.8 percent, rebounding from a 5 percent drop a year ago.

Compound annual growth rate (CAGR) in 2022 recorded positive increase at 5.9% as compared to the 2015-2021 CAGR which was at -1.4%. Labour productivity in Malaysia, as expressed by value added per employment, saw a year-on-year growth of 3.6% in Q4 2022 (Q3 2022: 10.2%), according to data from the Department of Statistics Malaysia (DOSM).

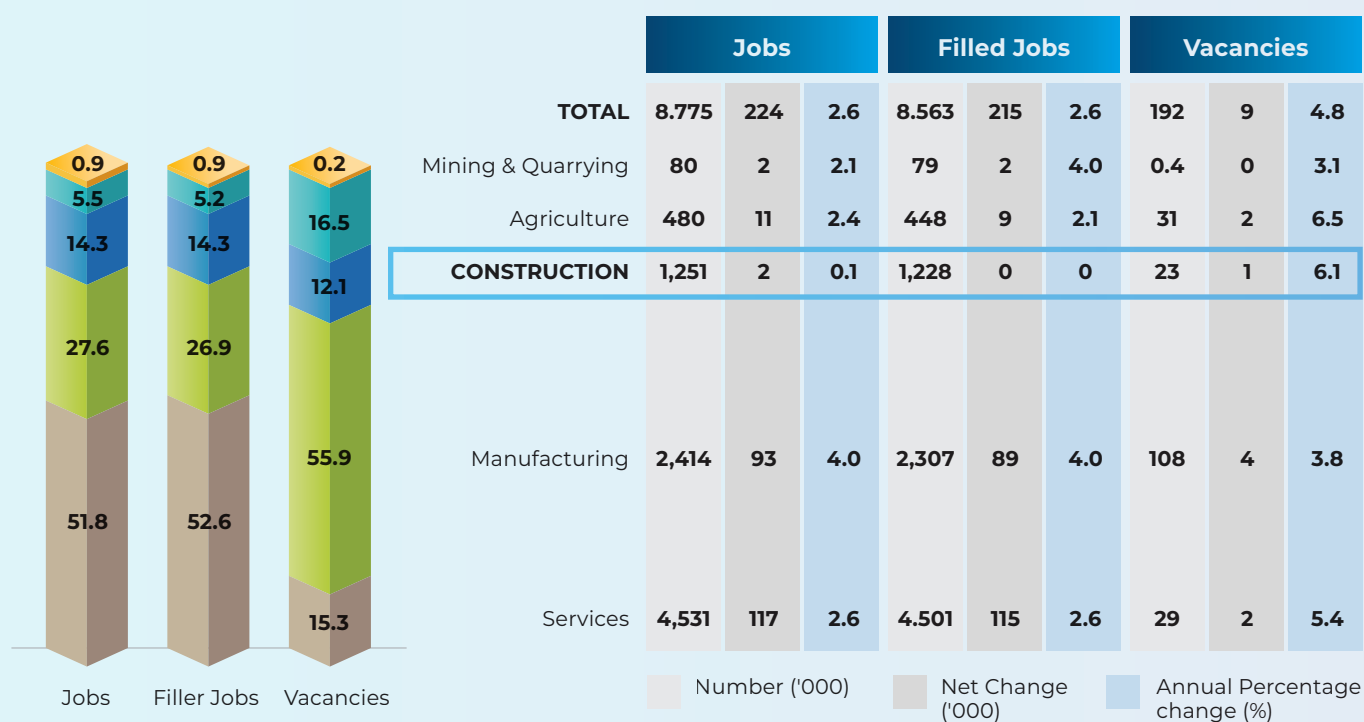
Construction jobs made up 14.3 per cent of the economy and grew slightly to 1.25 million in Q4 2022. Most of them (98.1%) were filled, leaving only 23.3 thousand vacancies as highlighted in Figure 7.

Figure 6 : Construction Sector Labour Productivity Performance



Source: Department of Statistic Malaysia (DOSM)

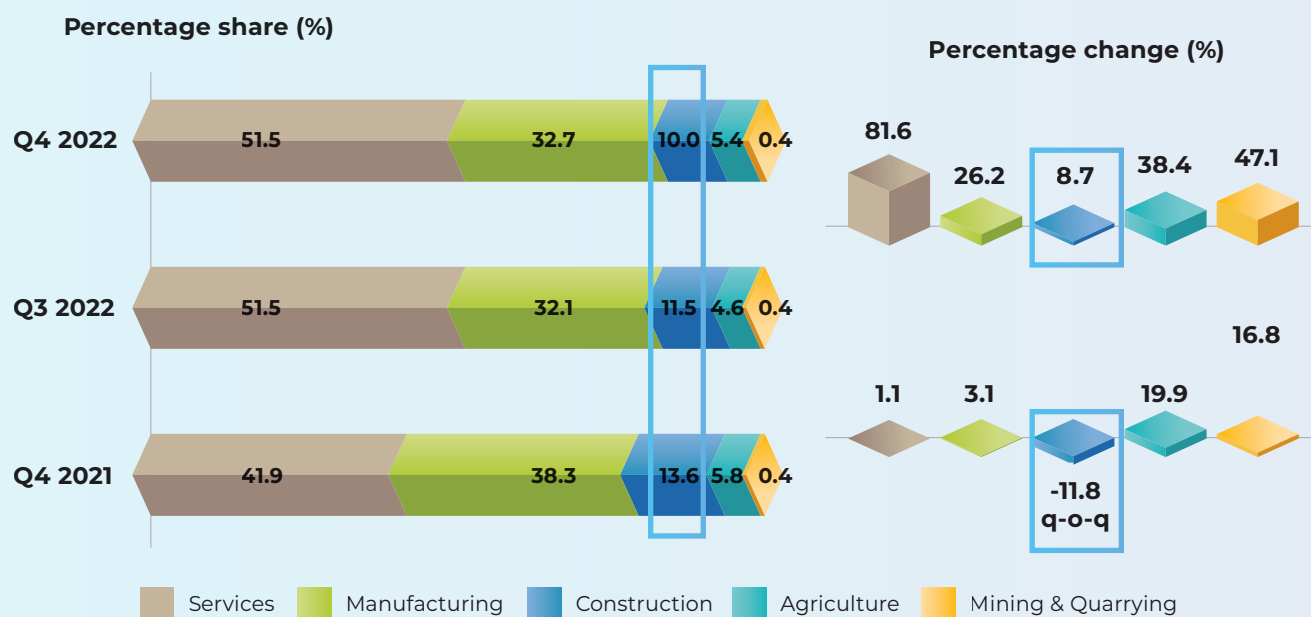
Figure 7 : Jobs, Filled Jobs, and Vacancies by Economic Activity, Q4 2022



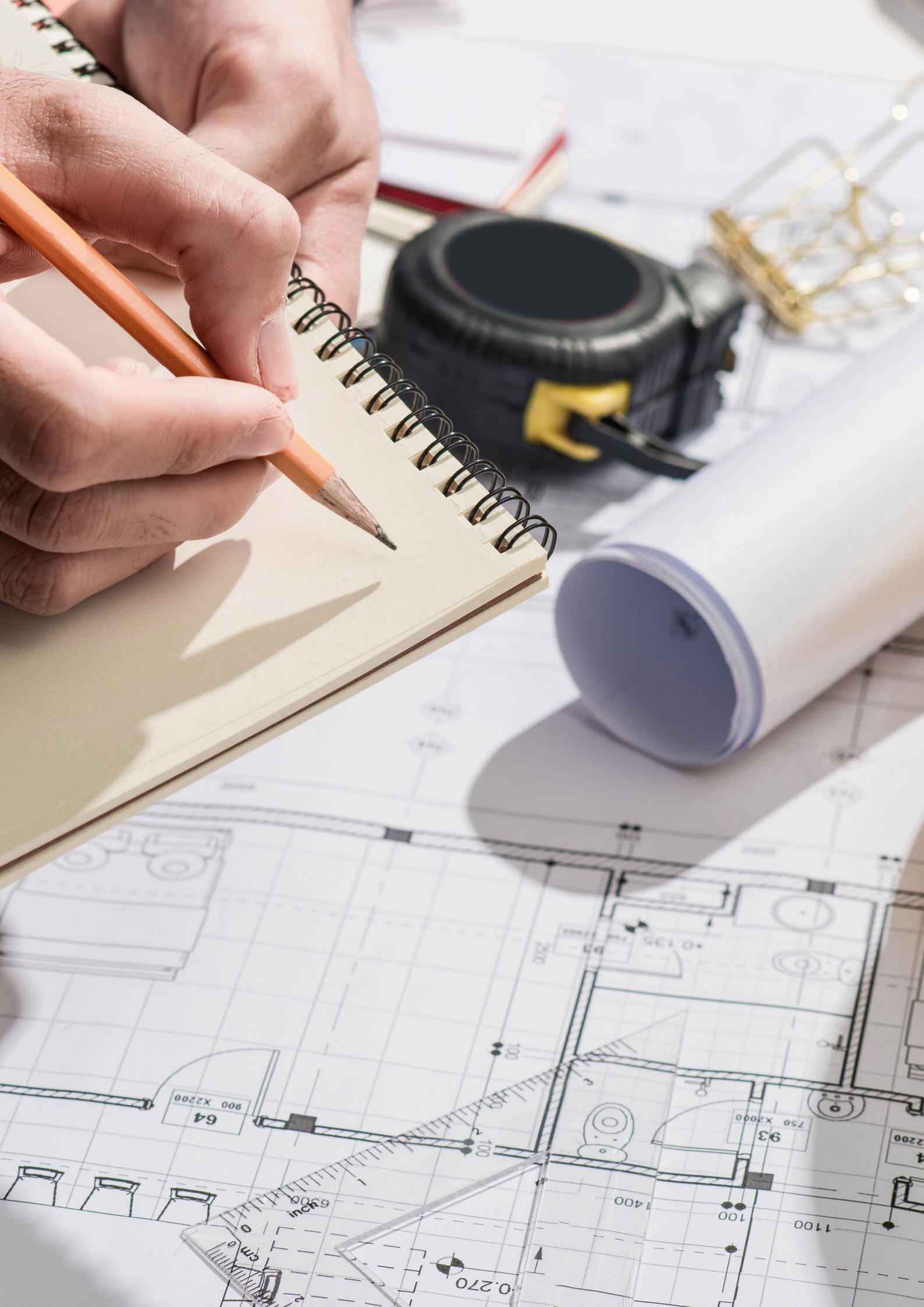
Source: Employment Statistics, Malaysia, Q4 2022, DOSM

Further analysis of jobs created by economic activity; all sectors posted positive year-on-year growth in Q4 2022. Jobs created in the Construction sector composed 10.0 per cent, which increased 8.7 per cent (+0.2 thousand) to record 3.1 thousand jobs created. The data was highlighted in the Figure 8 below:

Figure 8 : Jobs Created by Economic Activity, Q4 2021, Q3 2022 & Q4 2022



Source: Employment Statistics, Malaysia, Q4 2022, DOSM.



PART II

CHALLENGES, INITIATIVES AND RECOMMENDATIONS





ISSUE AND CHALLENGES WITHIN THE CONSTRUCTION & BUILT ENVIRONMENT INDUSTRY

COVID-19 pandemic delayed the economic growth, and it did impact to construction industry. In 2022, the global economic starts to recover slowly. However, global construction industries are still facing several issues including manpower shortage, construction cost increase and consumer spending behaviour changing. Below are some of the difficulties that the global construction sector needs to overcome in 2022 :

1. INSUFFICIENT MANPOWER

The construction sector in Malaysia depends heavily on foreign workers to complete the projects. However, the lockdown imposed by the country has drastically reduced the availability of overseas workers. Even though the hiring of foreign workers restarted in February 2022, many industrial fields in Malaysia still face a lack of workers. This is partly due to the slow approval process by the government. Malaysia needs foreigners to work in factories, plantations, and service sectors. The insufficient workforce has affected the project completion and increased the construction expenses as the labour wages have soared. The COVID-19 pandemic has caused a significant decline in the number of foreign workers in the Malaysian construction sector.

The Malaysian government has taken various steps to address this issue. Some industries have loosened the requirements for hiring foreign workers while others have kept them unchanged. The government has also urged foreign workers to go back to their home countries to reduce their presence in Malaysia. Moreover, the government has enforced strict quarantine rules to prevent the transmission of the virus. These actions have helped to control the virus outbreak in the country. However, they have also aggravated the workforce shortage in the construction sector. The rise in the construction expenses due to the higher labour costs has also resulted in higher project costs.

The lack of workers has forced many industries to suspend their operations temporarily and harmed many people. This has negatively affected the country's economic growth. The decline in output has also reduced the productivity in many sectors and raised the cost of production. Many sectors of the economy are at risk of collapsing due to the insufficient labour force.

The Malaysian construction industry is facing a shortage of workers for several reasons. Firstly, the workers are afraid to go back to work because of the risk of getting infected by the virus. Secondly, many construction workers have become unemployed due to the shutdown of their businesses because of the quarantine measures imposed by the Government. Thirdly, many construction sites have been closed due to the rising spread of the disease in the country. Finally, the scarcity of skilled workers in the industry is hindering the timely completion of the projects. These are some of the factors behind the shortage of workers in the Malaysian construction industry.

2. MATERIAL COST IN MALAYSIA IS UNSTABLE

The lockdown impacted the planning of all industries including the logistics industry. Besides the prolonged lockdown in China, high gasoline prices, a shortage of shipping containers and the restriction of manpower and entry to the country disrupted the global supply chain. The lack of supply caused the material costs to fluctuate and increased the construction costs eventually.

Figure 9 : Average price of Steel Bar (December 2021-December 2022) - Malaysia



Source: Building Materials Cost Index December 2022, DOSM

Figure 10 : Average price of Cement (December 2021-December 2022) - Malaysia



Source: Building Materials Cost Index December 2022, DOSM

According to the Building Materials Cost Index December 2022 provided by DOSM, compared to last year (2021), the average prices of steel and cement rose by 10.2 percent and 9.0 percent respectively (Figure 9 & Figure 10). A monthly comparison by construction materials and areas showed a rise in the unit price index for selected materials such as cement, bricks and masonry, sanitary materials, and paints in all areas of Peninsular Malaysia, Sabah, and Sarawak.

The unit price index for cement recorded a rise of 1.5 percent in December 2022 compared to November 2022 and showed a rise for two consecutive months. Coal is used as the main energy source for the combustion process in cement production, so the increase in coal price is one of the reasons for the price increase of this material.

Meanwhile, the unit price index of steel recorded a slight drop of 0.4% compared with November 2022, and the drop in the price index of steel is consistent with the drop in the prices of the world's main raw materials such as iron ore and steel at the global level. However, the December 2022 unit price index for construction materials recorded year-on-year increases ranging from 1.8 to 11.8 percent. The unit price index for steel and cement rose by 1.8 percent and 8.4 percent year-on-year, respectively, in December 2022.

The average price of cement (ordinary Portland cement) recorded a slight rise of 0.3 per cent to stand at RM20.95/ 50kg compared to RM20.88/ 50kg (November 2022). Meanwhile, the average price for aggregates and sand remained unchanged at RM41.14 per tonne and RM36.30 per tonne respectively.

3. INVESTMENT TREND IS NOT FAVOURING CONSTRUCTION SECTOR

On the other hand, investment in Malaysia is picking up as well as the gradual recovery of the global economy. According to the statistics of MIDA, the total amount of investments in the services, manufacturing and primary sectors increased by 2.5% compared to the period from January to September 2021, and more than half of the investment relies on foreign direct investment (FDI). About 60% of the investment is in the service sector, and the areas that received significant investments were Johor, KL and Selangor.

After ending the COVID-19 pandemic, Malaysia will be more appealing to international investors with its strategic location, rich natural resources, and dynamic human resource. Given the increase in investment in the service sector, the Government focuses on the digital economy and energy and high-value manufacturing.

4. REGULATORY BARRIERS ARE NOT ENCOURAGING PROJECT IMPLEMENTATION

Regulatory barriers can lead to increased costs, project delays, and reduced competitiveness in the construction sector¹. Overcoming these barriers requires a combination of policy reform, increased investment, and industry-wide collaboration²⁴. It can significantly impact the construction sector in Malaysia in several ways :

a) Lack of Political Will, Legislation, and Enforcement

The absence of strong political will, comprehensive legislation, and strict enforcement can hinder the adoption of sustainable building strategies. This lack of regulatory support can slow down innovation and progress in the construction sector²⁴.

b) Financial Constraints

The COVID-19 pandemic has led to financial constraints for many contractors. Work cessation due to Movement Control Order (MCO) meant suspension of work and payments, leading to contractors assuming the recurring costs of rental expenses, salaries, and fixed costs. This financial strain can be exacerbated by regulatory barriers such as stringent loan conditions or high taxes³⁰.

c) Contractual Obligations

The Temporary Measures for Reducing the Impact of Coronavirus Diseases 2019 Act 2020 provides temporary protection to a defaulting party's inability to continue any contractual obligations caused by measures, unforeseen events, and difficult period under the Prevention and Control of Infectious Diseases Act 1988. However, this can also create uncertainty and risk for contractors³⁰.

d) Technical Understanding and Consideration of Sustainability Measures

A lack of technical understanding among project team members and a lack of consideration of sustainability measures by project team members were identified as primary barriers. Regulatory barriers can exacerbate these issues if they do not provide clear guidelines or incentives for adopting sustainable practices²⁴.

5. LOW TECHNOLOGY ADOPTION

The construction sector is often seen as cautious when it comes to embracing new techniques or methods. Companies typically lean towards technology only after seeing its successful implementation by another company, particularly a competitor. Furthermore, contractors need solid evidence from vendors, such as improved productivity, safety, and waste reduction, before they adopt construction technology. While technology has indeed streamlined the construction process, not all these technologies have led to productivity gains due to a lack of integration among applications.

This suggests that our current understanding is somewhat lacking when it comes to the factors influencing the adoption of technologies in construction projects. When the adoption of technology is low, it can lead to a decrease in productivity, a slower rate of digitalization, economic consequences, and a delay in adopting effective technologies like BIM. This underscores the vital role of technology adoption in enhancing productivity and competitiveness in the construction industry. Here's how low technology adoption can affect productivity (31,32)

a) Productivity

The construction industry in Malaysia does not quite match up to most other sectors when it comes to productivity. This is mainly because new technologies or best practices are not adopted as widely, and there is a continued dependence on low-income foreign labour.

b) Digitalization

While other industries have made significant strides in adopting new technology to weather the pandemic, the construction industry has not quite caught up. This slow pace of digital adoption can put a damper on progress and innovation.

c) Economic Impact

The construction sector plays a big role in Malaysia's economy and is linked to over 120 different industries. But the COVID-19 pandemic and the enforcement of movement control orders led to a 19.4% decrease in the GDP of the Malaysian construction industry in 2020. This economic impact could have been softened with a higher rate of technology adoption.

d) Building Information Modelling (BIM)

BIM is a powerful tool that can aid and streamline construction projects. But Malaysia's adoption rate of BIM is slower compared to other countries mainly due to the lack of trained professional, high adoption cost and resistance to change. This slow pace can limit the efficiency and effectiveness of construction projects.

INTRODUCTION TO COBEPN AND ITS INITIATIVES

The Malaysia Productivity Blueprint (MPB) was initiated in May 2017 as part of the Eleventh Malaysia Plan (RMK-11). It aimed to achieve a yearly labor productivity growth rate of 3.7% in Malaysia until 2020. In alignment with the Twelfth Malaysia Plan (RMK-12), the new target for national labor productivity growth is set at 3.6% annually until the year 2025. MPB presents a holistic approach towards unlocking the potential of productivity of the nation by addressing productivity challenges at national, sector, and enterprise levels. Among the challenges that is impeding productivity growth across the economic sectors are Talent, Technology, Incentive Structure, Business Environment, and Productivity Mindset.

Hence, MPB outlines five core strategic thrusts that serve as the foundation to enhance productivity and address current challenges through a partnership between the Government, Private Sectors, and Academia. The strategic thrusts that will drive nation-wide productivity improvement are Building

workforce of the future; Driving digitalisation and innovation; Making industry accountable for productivity; Forging a robust ecosystem; and Securing a strong implementation mechanism.

Construction & Built Environment Productivity Nexus (COBEPN) was established in year 2022 under RMK-12 to drive the implementation of the initiatives at the sectoral and enterprise level. It is targeted that under the RMK-12 era, the construction sector is expected to grow by 4.2% per year. The growth is expected to grow supported by increased adoption of modern methods of construction which have the potential to improve the overall performance.

Five (5) Technical Working Groups (TWG) were established in order to ensure the implementation of various initiatives aimed at improving productivity. The TWG includes TWG vision & client's wish; TWG concept, design & approval; TWG procurement & construction; TWG operations & management; and TWG end of life.



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COBEPN INITIATIVES TO CATALYSE PRODUCTIVITY GROWTH

YEAR 2022 INITIATIVES

CONSTRUCTION AND BUILT ENVIRONMENT
DIGITAL ROADMAP

The adoption of emerging technologies plays a crucial role in the efforts to achieve net-zero carbon footprint. Despite the potential advantages, small-sized contractors have been hesitant to embrace such technologies because one of the primary reasons is the concern surrounding increased expenditures. Many construction companies are hesitant to invest in new technologies as they see it as an additional financial burden. The initial costs associated with implementing these technologies, such as purchasing and installing new equipment or training staff, can be significant. This financial strain creates a lack of motivation or urgency among industry players to adopt technological advancements in their building activities.

Thus, COBEPN has developed a Digital Roadmap that aims to provide guidance to digitally transform Malaysia's construction sector, with focusing on roles and responsibilities of construction players towards the next industrial revolution. The roadmap includes selected construction activities within the Malaysia Standard Industrial Classification (MSIC) Code. It provides guidance or step-by-step guide on how the construction players can get started with digital transformation based on the three phases which are the basic, intermediate, and advance stage.

Digital transformation is affecting the construction industry faster than ever before due to rapid advancement in technologies, bringing along many benefits such as cost reduction, improved collaboration, and increased productivity. The roadmaps conclude by emphasizing the need for collective action and commitment from all stakeholders in the subsector to realize the potential of digital transformation.



YEAR 2023 UPCOMING INITIATIVES

PRODUCTIVITY STEP UP FOR CONTRACTORS

Productivity Step Up for Contractors programme organized by COBEPN in collaboration with the Construction Industry Development Board (CIDB). The initiative is designed to encourage and foster the adoption of digital technology among contractors with the aim to achieve the goal of increasing the productivity of construction firms. All contractor that is currently registered with CIDB is eligible to participate in the programme. The programme includes three main phases which are Diagnostics; Process analysis; and Intervention/implementation.

a) Diagnostics

This component involves a productivity assessment for companies to evaluate their overall performance and readiness to adopt technology. The companies will learn about their strengths, weaknesses, and areas for improvement.

b) Process Analysis

This component focuses on the current processes of companies. Participating companies will be guided to examine their key processes and identify their pain points and problem statements. Moreover, it can help the companies decide on the best solution and intervention.

c) Intervention / Implementation

This component introduces a solution through process intervention and the use of technology within the selected indicators (cost, waste, time, capital, etc.). Companies will produce a project report on the solution proposed, either through digitalisation (dashboard, IoT, big data, AI, etc.) or other process improvement solutions.

Productivity Step Up for Contractors programme is conducted together with the appointed technology centres or training centres in Malaysia. Currently, about xx companies has registered and joined the productivity step up programme.



BUILDTech FINDER

BuildTech Finder also known as Construction and Built Environment Technology Digital Solution Directory is a platform for matching business with technology solution providers to enhance their digital competitiveness and technology adoption. This BuildTech Finder aims to expedite the adoption of technology within construction firms, facilitating their transition towards more technologically advanced practices.

It provide information for construction firms to acquire information on various construction technologies and service providers. The BuildTech Finder can be accesses through Digital Platform Network (DPN+)

<https://dpnplus.net/>, which is a one stop centre to increase productivity through digitalisation. This is to enable construction firms easily gain access on information from the technology providers on the solutions.

The directory for construction and built environment technology digital solution is a useful platform for businesses that want to enhance their digital competitiveness and technology adoption. The directory can also enable technology businesses to showcase their offerings and connect with potential customers and partners.

WAY FORWARD

In an era marked by rapid technological advancements, the construction sector is making significant advances to enhance its productivity and competitiveness. Thus, COBEPN will continue to embark on key initiatives to drive the transformation through adoption of technology and digitalization, upskilling and reskilling of workforce, and adopting green and sustainable practices. These initiatives aim to increase productivity and competitiveness, decrease foreign labour reliance, meet environmental sustainability goals, and lastly, find and showcase the best technology solutions.

COBEPN productivity improvement initiatives comprise all construction phases including pre-construction, during construction, and post-construction which start from the vision & client's wish stage; concept, design & approval stage; procurement & construction stage; operations & management stage; and end of life stage.

It is in line with the national agenda towards green and sustainable construction practices which seeks to minimise the carbon footprints.

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