

Malaysia's Industrial Competitiveness: Overview of Malaysia's Industrial Collaboration Programme

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ABSTRACT

This study examines the role of Malaysia's Industrial Collaboration Programme (ICP) in enhancing Malaysia Industrial Competitiveness (MIC) through the technology transfer (TT) and procurement value creation (PVC). The ICP, a government initiative aimed at leveraging procurement activities, facilitates the acquisition of advanced technologies from foreign partners while prioritizing local content development. Based upon the secondary data depicted from the TDA Report to the Ministry of Finance 2023 published by Technology Depository Agency (TDA) and Policy and Guidelines on Industrial Collaboration Programme (ICP) in Government Procurement, Second Edition, this study investigates the roles of the technology transfer (TT) and procurements value chain (PVC) on Malaysia's Industrial Competitiveness (MIC). The results demonstrate the ICP's role in increasing the competitiveness of local industries, encouraging innovation processes, and technology acquisition through partnerships with international counterparts. The paper will present the benefits and drawbacks of ICP and depict how the program will benefit Malaysia's vision of shifting into a regional high-tech nation. The findings emphasize the need for continuous evaluation of ICP projects to maximize long-term competitiveness and economic sustainability.

Keywords: Industrial collaboration programme, technology transfer, procurements value chain, industrial competitiveness.

INTRODUCTION

The Malaysians government has over time embraced procurement activities as a tool to unlock the country's economy pointing at the early 1980s [1]. This path started in the year 1983 when the "countertrade" programme was started by Ministry of International Trade and Industry (MITI) as a forerunner project. At first, the program was expected to achieve extra economic value creation through technology transfer and local product procurement undertakings in addition to straightforward buying transactions. The approach has witnessed a lot of overhauls in order to fit contemporary structures within the country and trends within the global economies. The mid 1990s saw a change in Malaysia's procurement activities where

procurement emphasis was inclined towards the defence sector headed by the Ministry of Defence (MinDef) with the "offset procurement" programme. This particular effort was focused on technology transfer and industrialisation in defence technology, which can be considered as the important turning point in the implementation of the Malaysia industrial policy [2]. Malaysia like other countries was not left behind in modifying the usage of procurement for economic development due to changes in the global economic situation and domestic requirements. The year 2014 has been a significant year for Malaysia's procurement policy through the introduction of Industrial Collaboration Programme ICP, an ignited initiative from previously known Offset Programme [3]. The ICP program differed from the general idea of offsets owing to the expanded range of cooperative activities that focused on boosting sustainable industrial development and know-how exchange across a diverse range of industries. The ICP framework with the strategy as conceptualized and promulgated by the Ministry of Finance (MOF) is closely connected and integrated with other important paradigms in the country, the Five-Year Development Plans, the Industrial Master Plans and notably the Economic Transformation Programme (ETP). By following these actions of the Malaysian government, one is made to understand how the government has been keen to ensure that procurement strategies are consistent with the maximum economic benefit. The frame working of the ICP activities with the overall Malaysian objectives expressed in has been identified as a factor that played a significant role in the success of the program [4]. The Malaysian government has always acknowledged the significance of utilising public procurement as a strategic instrument to drive national economic growth, enhance technological progress, and promote industrial development.

ICP is a strategic program that focuses to achieve the Malaysia broader economic and industrial development objectives [2]. It has marked a departure from the states' traditional approach that has been a static process of obtaining goods and service to an active tool in building up technology, industrial capacities as well as the socio – economic development of the nation of Malaysia. [5]. The structured approach enables Malaysia to align its procurement activities to its developmental requirements hence the differences in priorities of countries depending on their level of industrialization. The literatures on industrial policy and economic development emphasizes the compatibility between national development objectives and particular policy measures like procurement [6, 7]. Based on the preceding discussion, this paper to address the following research questions (RQs) concerning the study on industrial competitiveness:

- RQ1: How does technology transfer (TT) enabled by the Industrial Collaboration Programme (ICP) influence the Malaysia's Industrial Competitiveness (MIC)?
- RQ2: How does procurement value creation (PVC) enabled by the Industrial Collaboration Programme (ICP) influence the Malaysia's Industrial competitiveness (IC)?

LITERATURE REVIEW

Industrial Competitiveness (IC)

Industrial competitiveness (IC) has remained a key concept in economic growth, development, and is considered the ability of a country or region to produce products and services which can compete in the international market place partly so as to sustain and grow the real incomes of the citizens of that country or region [8]. The definition of competitiveness varies due to the fact that competitiveness comprises of various issues that are complex to context. It also refers

as a measure of ability of an industry to harness resources for undertaking competitively and as a measure of ability of companies to generate additional investments and increasing their market share on products and services by raising efficiency [9]. IC in terms of measurement is often associated with trade, profitability, productivity, employment, technology advancement, value addition, cost optimization and efficiency in stakeholder relations [10,11,12]. Despite the fact that the concept of IC was not defined in a clear manner, it is equally as important and acknowledges value for the growth of the whole society as well as its overall growth in terms of aspects such as the boost in economic activity, creation of new employment opportunities, and enhanced market access.

IC is one of the significant concerns in Malaysian national economic strategies, where the country is planned to transit to innovative, knowledge-based, high-income economy. The literatures on knowledge-based economies emphasizes the importance of innovation, technology transfer, and the development of human capital as key drivers of economic growth [13,14]. It is therefore evident that most of ICP's objectives of technology acquisition and knowledge transfer is well aligned to Malaysia visioned economic goals. When such objectives are incorporated in the government procurement contracts, the ICP guarantees that procurement processes facilitate the advancement of knowledge economy in Malaysia. The programme is designed to enable the use of local products and services to be used in the global value chain and thus prepares Malaysian companies to undertake international competition. Global value chains (GVCs) dealt with the concept of integration into such networks as a tool for improving competitiveness especially for developing & emerging world [15]. Through its role of enabling Malaysian firms' linkages with their international counterparts the ICP opens opportunities for the Malaysian firms to enter the GVCs.

Technology Transfer (TT)

Technology transfer (TT) is the act of providing technology or technology application information or skill, production techniques or any form of intellectual property from one organization or country to another [16]. This transfer involves transfer of both tangible and intangible assets for instance patents, proprietary knowledge, technical know-how, physical products, and takes central role in raising the industrial capacity of the reciprocating party. The transfer of technology has been widely regarded as a key enabler for organizations to remain competitive in the global business environment. Another factor that can be believed to be responsible for the industrialisation of some Asian economies is the ability to harness the technological competence [17,18]. Further, the increase of the gross domestic product (GDP) is closely associated with this industry's success [19]. TT therefore is the responsibility of the source party and the destination party to ensure that technology so transferred is either accepted or else understood, if not utilised, by the right person with the right means and know-how. This means that, the process of exchanging technology between the firms in different countries involves the learning of the firms of each other.

Most developing countries have put in place different policies like the provision of incentives in form of tax holidays and duty-free zones for multinational enterprises to invest in [20]. These countries feel that their ability to attract such enterprises has a lot of benefits; management experience and exports markets among them. There is actually a lot of now known correlation between technology transfer and industrial competitiveness [21, 22]. It is a cause of productivity increase and consequently the improvement of competitiveness. Foreign partner

acts as an important source of technology and hence transfers of technology to local industries is important in the development of technological capabilities within the country. It was found out that the level of absorptive capacity enhances the impacts of technology transfer that has an influence on the level of competitiveness in industries [23]. The success of the technology transfer activities for instance, harnesses upon the absorptive capacity of local industries, that is, the ability of industries to acquire and exploit new knowledge.

Procurement Value Creation (PVC)

PVC is defined as a strategic process of leveraging procurement activity to achieve benefits that are beyond the purchase of goods and services in the case of public procurement (24). Organisation for Economic Co-operation and Development (OECD) stated that public procurement constitutes around 13% of the gross domestic product (GDP) and nearly one-third of government spending in OECD nations (24). The data shows that a sizeable portion is set aside for procurement activities in order to guarantee the provision of public necessities in the corresponding nations and that public procurement is one of the major economic endeavours of the government. It is seen as a policy tool to encourage innovation [25]. The evolution of Malaysia's procurement strategies reflects a broader trend among emerging economies to utilize government procurement as a means to achieve economic and industrial policy objectives. In contrast to conventional procurement where the core objective is establishing the value and satisficing of the procurement to the buyer mostly a government or a public institution, PVC on the other hand hinges on the creation of different value in economic, social and industrial fronts. Within the advanced and procurement capacity of public agencies in developing economies, governments utilise procurement to achieve important policy objectives such as promoting competition, economic growth, green procurement, social goals, and more.

The primary goal of government procurement in Malaysia is to attain optimal value for money [26]. Numerous studies highlighting the potential of procurement activities to drive innovation, foster industrial development, and promote economic growth (27, 28). Value-added procurement critical factor influencing industrial competitiveness. By integrating additional benefits such as skills development, local content requirements, and job creation into procurement contracts, value-added procurement policies can stimulate industrial growth and enhance competitiveness [29]. Value creation in procurement is a dynamic process that involves cooperation between several parties. Collaboration is essential to procurement process because it allows buyers to combine information, resources, actions, and talents with other stakeholders to create value instead of them doing it alone [30]. The ICP's focus on value-added projects aligns with Malaysia's broader economic goals, which emphasizes the importance of moving up the value chain in key industries. The effectiveness of value-added procurement in enhancing competitiveness depends on the extent to which these additional benefits are realized in practice.

Figure1 illustrates the proposed framework for Malaysia's Industrial Competitiveness

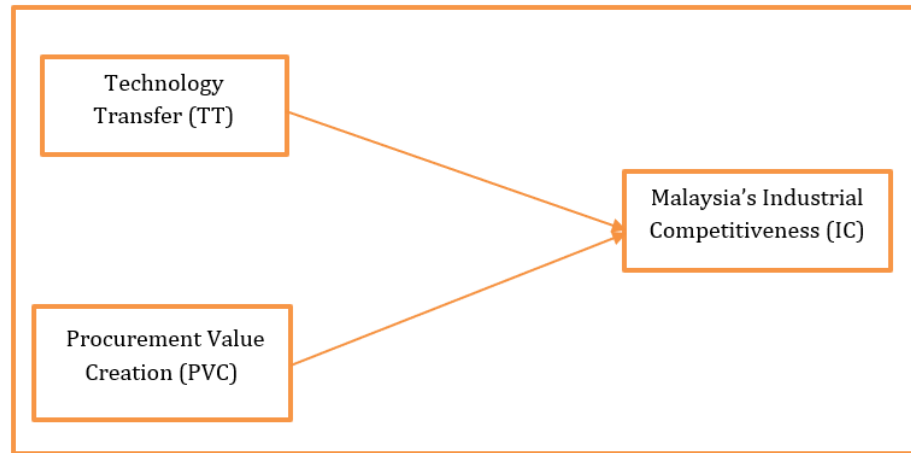


Figure1: Proposed framework for Malaysia's Industrial Competitiveness

RESEARCH METHODOLOGY

This study employs a descriptive-qualitative approach, utilizing secondary data to examine the roles of Technology Transfer (TT), Procurement Value Creation (PVC) on Malaysia's Industrial Competitiveness (IC). In this study, TDA Report to the Ministry of Finance 2023 [31] published by Technology Depository Agency (TDA) and Policy and Guidelines on Industrial Collaboration Programme (ICP) in Government Procurement, Second Edition [32], were used. TDA, which operates under the Ministry of Finance (MOF), is responsible for leveraging and advancing Malaysia's economic and technological domains through ICP, which links local industries to global technology industries. These sources provide valuable insights into the functioning, achievements, and challenges associated with the ICP. Additional reports from MOF are also included to offer broader contextual information on Malaysia's economic and industrial policies. The information derived from these sources is most appropriate whilst exploring the adoption of ICP projects, the results of technology transfer efforts and procurement value chain added worth features. After the data has been collected, all the documents are again reviewed to get used to with some of the most important themes and patterns concerning the ICP. Data is then categorized according to the main variables: technology transfer and value creation in procurement context. The next step involves the kind of analysis that consists in identifying important trends in the reports.

RESULTS AND FINDINGS

The findings focus on addressing the research questions regarding the relationship between TT and PVC, and MIC within the framework of Malaysia's Industrial Collaboration Programme (ICP).

Technology Transfer and Industrial Competitiveness

The data shows that TT is an essential element of the ICP and is vital in increasing the industrial competitiveness of Malaysia. The ICP Policy and Guidelines contains a clear statement of purpose of achieving technology transfer through procurement strategies where there is the need to enhance the technological capacity of the local industries [31, 32]. The guidelines target projects that enhance the acquisition of local capabilities and import substitution of high value-added systems and manufacturing technologies and processes, especially in sensitive industries including defense, aerospace and ICT. The Multiplier System in ICP framework also

makes sure that the higher multipliers are given to those technology transfer activities that significantly affect the local industries. This focus on TT is reinforced by the establishment of linkages between the foreign technology suppliers and domestic firms to enable the latter to obtain the necessary technology and knowledge that are essential in enhancing innovation and productivity. Therefore, the ICP has played a vital role in enhancing technology transfer in Malaysia thus improving the country's competitiveness in the international markets through local innovation and reduced reliance on imported technologies.

Procurement Value Creation: Implications to Industrial Competitiveness

The ICP framework also stress the importance of PVC for each procurement to go beyond meeting the government's current requirements to support long term economic and industrial development. According to the ICP guidelines all contracts should support the country's economic development through procuring value-added goods and service such as training, local content and employment [31]. The Economic Enhancement Programme (EEP) that is included in the ICP contracts help improve local involvement and encourage the use of local products [32]. The policy focuses on the development of projects that increase the participation of local firms in the production and provision of services for contracted supplies with the aim of increasing their competitiveness in the domestic and international markets. This information also shows that procurement under the ICP has created a lot of local content since a minimum of 30% of the ICP project credits are expected to be sourced from local industries. This approach has enhanced Malaysia's domestic industries thus providing the necessary skills, capabilities and experience to participate in strategic sectors such as railway, automotive, aerospace and ICT. The analysis of the data confirms that the ICP is one of the most important instruments that enhance Malaysia's industrial competitiveness through the support of technology transfer (TT), and procurement value creation (PVC). These ICP's components are critical as they not only address current needs of government procurement but also encourage sustainable economic and industrial advancement in the long-run.

CONCLUSION

This study examined the role of the Industrial Collaboration Programme (ICP) in enhancing Malaysia's industrial competitiveness, focusing on technology transfer, and procurement value creation. This research also shows that technology transfer under the ICP has greatly enhanced the level of technology of the local industries particularly in aerospace, ICT and manufacturing sectors. ICP has thus helped Malaysian firms to acquire foreign technologies and with this, Malaysian firms have been able to innovate, increase their productivity and reduce their dependence on imports of technologies. Nevertheless, the technology transfer is highly dependent on the local firms' ability to assimilate new knowledge, which is an issue in some industries. The study also pointed to the significance of the procurement value creation (PVC) to the competitiveness of industry. ICP projects that focus on local content, skills and employment have created sustainable economic returns in Malaysia. Thus, it is necessary to expand researches and investigate specific difficulties, which the domestic industries can encounter when absorbing and applying foreign technologies with the help of the ICP. Moreover, research on the outcome of stakeholder engagement models in other similar industrial programs in other countries may provide useful lessons on how to improve the collaboration in Malaysia's ICP. Another area that needs further research is the effect of ICP related activities on the competitiveness of firms in Malaysia especially in the value chain. In this area of research, it is possible to gain important knowledge on the efficacy of ICP in

improving the competitiveness of countries engaged in GVCs and the possible challenges that may hinder such countries from continuing to participate in GVCs.

References

- [1]. Technology Depository Agency, TDA (2024). About ICP. <https://www.tda.my/about-icp/>
- [1]. Abdullah, A., & Safari, Z. (2017). Industry Collaboration Program (ICP): Empowering Technology Development for National Economic Growth. *Journal of Advanced Manufacturing Technology (JAMT)*, 12(1(2), 159-172
- [2]. International Trade Administration (2024). Malaysia Tender Offset Policy. (2024). <https://www.trade.gov/market-intelligence/malaysia-tender-offset>
- [3]. Government of Malaysia. (2021). Policy and Guidelines on Industrial Collaboration Programme (ICP) in Government Procurement. <https://www.tda.my/wp-content/uploads/2022/06/ICP-Policy-and-Guidelines-Second-Edition.pdf>
- [4]. Ministry of Finance, Malaysia (2019). First Tier Industrial Collaboration Programme Agreement Signing Between The Government of Malaysia and Bombardier Hartasuma Consortium. [https://www.mof.gov.my/portal/arkib/press/MR2019/Apr/Press%20Release%](https://www.mof.gov.my/portal/arkib/press/MR2019/Apr/Press%20Release%20190401.pdf)
- [5]. Guarnieri, P., & Gomes, R.C. (2019). Can public procurement be strategic? A future agenda propositions. *Journal of Public Procurement*, 19 (4), 295–321.
- [6]. Bohari, A.A.M., Skitmore, M., Xia, B., & Teo, M. (2017). Green oriented procurement for building projects: Preliminary findings from Malaysia. *Journal of Cleaner Production*, 148, 690–700.
- [7]. World Economic Forum (2019), The Global Competitiveness Report 2019, World Economic Forum, http://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf.
- [8]. Aiginger, K., S. Bärenthaler-Sieber., & J. Vogel (2013), Competitiveness under New Perspectives, <http://www.oecd.org/economy/Competitiveness-under-New-Perspectives.pdf>.
- [9]. Davidson, P., C. Kauffmann., & M. de Liedekerke (2021). "How do laws and regulations affect competitiveness: The role for regulatory impact assessment", OECD Regulatory Policy Working Papers, No. 15, OECD Publishing, Paris, <https://doi.org/10.1787/7c11f5d5-en>.
- [10]. Zhao, J.W., & Wen, Y.J. (2004), Chinese Industrial Competitiveness Index System and Evaluation, Dongbei University of Finance and Economics, Harbin.
- [11]. Boltho, A. (1995). The Assessment: International Competitiveness. *Oxford Review of Economic Policy*, 12 (3), 1-16.
- [12]. OECD (2005). Oslo Manual Guidelines for Collecting and Interpreting Innovation Data, 3rd ed., Paris, (19900414). <https://www.oecd-ilibrary.org/content/publication/9789264013100-en>.
- [13]. Hadad, S. (2017). Knowledge economy: characteristics and dimensions. *Management Dynamics in the Knowledge Economy*, 5 (2) 203-225.
- [14]. Guei, K. M. (2021). Global Value Chains, Trade and Technology: Evidence from European Countries. *Journal of International Logistics and Trade*, 19(2), 83–94.
- [15]. Cinar, O., Altuntas, S., & Alan, M. A. (2020). Technology transfer and its impact on innovation and firm performance: empirical evidence from Turkish export companies. *Kybernetes*, 50(7), 2179–2207.

- [16]. Cai, H., Wang, Z., Ji, Y., & Xu, L. (2024). Digitalization and innovation: How do the digital economy drive technology transfer in China? *Economic Modelling*, 136, 106758.
- [17]. Lee, C. a. L. (2019). Nuclear science and technology in the Malaysian context: Three phases of technoscientific knowledge transfer (ETTLG). *Studies in History and Philosophy of Science Part A*, 77, 130–140.
<https://doi.org/10.1016/j.shpsa.2017.10.002>
- [18]. Deng, P., & Lu, H. (2021). Transnational knowledge transfer or indigenous knowledge transfer: which channel has more benefits for China's high-tech enterprises? *European Journal of Innovation Management*, 25(2), 433–453.
- [19]. Warwick, K. (2013). *Beyond Industrial Policy: Emerging Issues and New Trends*, OECD Science, Technology and Industry Policy Papers, No. 2, OECD Publishing.
- [20]. Konstandina, M. S., & Gachino, G. G. (2020). International technology transfer: evidence on foreign direct investment in Albania. *Journal of Economic Studies*, 47(2), 286–306.
- [21]. Azam, M. (2021). A journey from Rio to Paris via Kyoto to facilitate technology transfer to the LDCs under the UNFCCC. *Journal of Property Planning and Environmental Law*, 13(1), 60–84.
- [22]. MIGHT, Malaysian Aerospace Blueprint 2030, (2015). <http://www.might.org.my/en/Event Documents/Aero Bluetrint.MIGHT @ LIMA'15 Open Forum.pdf>.
- [23]. OECD (2023). Public procurement performance: A framework for measuring efficiency, compliance and strategic goals", OECD Public Governance Policy Papers, No. 36, OECD Publishing, Paris, <https://doi.org/10.1787/0dde73f4-en>.
- [24]. Hassan, S. H. A., Ismail, S., & Mutalib, H. A. A. (2020). Public procurement in Malaysia: objectives and procurement principles. *Journal of Economic and Administrative Sciences*, 37(4), 694–710.
- [25]. Ministry of Finance Malaysia (2010). Malaysia's government procurement regime. www.treasury.gov.my/pdf/lain-lain/msia_regime.pdf
- [26]. Grandia, J., & Meehan, J. (2017). Public procurement as a policy tool: using procurement to reach desired outcomes in society. *International Journal Public Sector Management*. 30 (4), 302–309.
- [27]. Offei, I., Kissi, E., & Badu, E. (2016). Public procurement policies and strategies for capacity building of SME construction firms in Ghana". *International Journal of Procurement Management*, 9 (4), 455-472.
- [28]. Caldwell, N., Walker, H., Harland, C., Knight, L., Zheng, J., & Wakeley, T. (2005). Promoting competitive markets: the role of public procurement. *Journal of Purchasing and Supply Management*, 11(5/6), 242-251.
- [29]. Storsjo, " I.T., & Kachali, H., (2017). Public procurement for innovation and civil preparedness: a policy-practice gap. *International Journal Public Sector Management*, t 30 (4), 342–356.
- [30]. TDA Report 2023 (2023). <https://www.tda.my/wp-content/uploads/2024/04/New-MOF-Report-FA5.pdf>
- [31]. Policy and guidelines on industrial collaboration programme (ICP) in government procurement second edition. <https://www.tda.my/wp-content/uploads/2022/06/ICP-Policy-and-Guidelines-Second-Edition.pdf> (Second Edition). <https://www.tda.my/wp-content/uploads/2022/06/ICP-Policy-and-Guidelines-Second-Edition.pdf>