KHAZANAH
RESEARCH
INSTITUTE

Digitalisation of firms:
Challenges in the digital economy

VIEWS 42/20 | 05 October 2020 | Amos Tong and Rachel Gong

Views are short opinion pieces by the author(s) to encourage the exchange of ideas on current issues. They may not necessarily represent the official views of KRI. All errors remain the authors' own.

This view was prepared by Amos Tong, an intern at the Khazanah Research Institute (KRI), and Rachel Gong, a researcher from the Khazanah Research Institute (KRI). The authors are grateful for valuable comments from Aidonna Jan Ayub, Siti Aiysyah Tumin, and Tan Zhai Gen.

Authors' email addresses:
amostong99@g.ucla.edu
rachel.gong@krinstitute.org

Attribution – Please cite the work as follows: Tong, Amos and Rachel Gong. 2020. Digitalisation of firms: Challenges in the digital economy. Kuala Lumpur: Khazanah Research Institute. License: Creative Commons Attribution CC BY 3.0.

Translations – If you create a translation of this work, please add the following disclaimer along with the attribution: This translation was not created by Khazanah Research Institute and should not be considered an official Khazanah Research Institute translation. Khazanah Research Institute shall not be liable for any content or error in this translation.

Information on Khazanah Research Institute publications and digital products can be found at www.KRInstitute.org.

Cover photo by Lukas Blazek on Unsplash.

Introduction

Malaysians use digital technologies widely, but digital adoption by Malaysian businesses still lags behind the global average: only 29% of businesses had a web presence while a meagre 5.2% of businesses engaged in e-commerce in 2015[1].

As more business establishments participate in the digital economy, firms that are left out of this digital revolution will likely struggle to survive, let alone thrive[2]. While there is little dispute about the net benefits of digitalisation, there are significant challenges to the digitalisation of businesses in Malaysia.

The World Bank's 'Malaysia's Digital Economy' report also states that there exists a digital divide among businesses in Malaysia, as "small- and medium-sized establishments [are] less likely than the average business establishment to access and use the internet" and that "businesses engaged in e-commerce tend to be much larger than the average establishment"[3].

[1] World Bank (2018b)
[2] Digital Marketing Institute (2020)
[3] World Bank (2018b)

Malaysia's digital economy faces at least two challenges: (i) inadequate digitalisation by firms of all sizes and (ii) a digital divide between firms. This could potentially result in Malaysian firms not keeping pace with the demands of a global digital economy with small and medium enterprises (SMEs) being left behind. This article discusses these challenges in the digital economy and suggests potential research and policy considerations to address them.

All firms stand to benefit from digitalisation

For large firms, the rationale behind digitalisation is clear: digitalisation improves efficiency, competitiveness and economies of scale. Firms can use complex technologies such as the automation of production processes and data-driven quality control processes to reduce costs and increase profit margins.

However, the case for digitalisation among SMEs is not as clear. Digitalisation is perceived as complex, costly, and unnecessary. But digitalisation does not necessarily mean expensive equipment and total automation. There are at least 5 areas of digitalisation that benefit firms of all sizes (refer to Table 1).

Table 1: Key areas for digitalisation

Key Area	Definition and Explanation
Procurement and inventory	Digital procurement software and inventory management systems reduce costs and streamline business operations as they reduce the manpower required to manually check and update inventory. For example, inventory restocking can be automated using analytical models that predict price fluctuations and customer demand.
Accounting and taxes	Digital accounting software record transactions accurately and instantly without human intervention, significantly reducing accounting errors that are commonly associated with manual bookkeeping.
Digital marketing	Digital marketing campaigns can reach a wider customer base more efficiently, effectively, and cheaply than traditional advertising. For example, platforms such as Facebook, Instagram, or YouTube enable firms to promote their businesses via digital advertising with flexible pricing plans.
E-commerce	E-commerce (e.g. via platforms such as Lazada and Shopee) helps firms overcome geographical limitations and lowers the cost of entry for entrepreneurs and SMEs, allowing them to compete with established firms.
Electronic Point of Sale (ePOS) and contactless payment systems	ePOS is a system that records sales, manages payments, and monitors inventory, enabling accurate, up-to-date information on business operations. The system enables businesses to engage in data analytics (e.g. by generating reports on product popularity), thus optimizing business performance. Contactless payment systems, such as digital wallets, can reduce transaction time, increase security, and improve customer experience.

Source: Adapted from Malaysian Digital Economy Corporation (2020)

It is clear that digitalisation is not size- or sector-specific and that all firms can increase productivity by digitalising multiple aspects of business operations.

Challenge #1: Inadequate digitalisation by firms of all sizes

Between 2010 and 2016, Malaysia's digital economy grew by 9% annually in value-added terms; it is estimated to make up 20% of the economy by 2020. E-commerce alone is expected to exceed RM110 billion – nearly 40% of the digital economy[4] – by 2020. However, efforts by businesses to digitalise and join the digital economy are not keeping pace with this growth. The first challenge in Malaysia's digital economy is with respect to widespread digitalisation of firms of all sizes.

[4] World Bank (2018b)

Businesses in Malaysia are not adopting digital technologies as readily as the Malaysian Government and general population. Asia IoT Business Platform found that only about one in three businesses in Malaysia have implemented digital transformation strategies, while less than one in four businesses have a dedicated digital strategy team[5]. Malaysia also has "fewer businesses with websites, and fewer secure servers than per capita income would predict"[6] compared to other countries. As at 2017, only 37.8% of establishments in Malaysia have a web presence[7].

A survey of 28 top publicly listed corporations also found that large firms in Malaysia do not digitalise as rapidly as those of other countries. Among these 28 corporations, only 5 digitally track their inventories in real-time, while 16 assess internal performance with data analytics. When taken as a whole, top firms in Malaysia recorded a Digital Performance Index (DPI) of 1.7 as opposed to United States' 2.5.[8]

The managing director of Microsoft Malaysia, K. Raman, highlighted two reasons why Malaysian businesses may find it challenging to embrace digital transformation: a lack of technology knowledge and organisational silos[9]. First, firms committed to digitalisation face a myriad of challenges, such as not knowing where to start, how to implement their digital strategies, or where to find technologically skilled employees.

Second, 49% of firms cited organisational silos as a critical challenge in digitalisation[10]. Some firms may have organisational structures so rigid that each department is in its own 'silo', acting independently and lacking coordination. This could be why 55% of Malaysian organisations do not have an integrated enterprise-wide digital transformation strategy[11].

A third challenge to widespread digitalisation among Malaysian firms, especially SMEs, is the costs associated with digitalisation, such as internet connectivity, digital hardware, software subscription fees and worker upskilling. About 50% of SMEs in Malaysia cite funding as a key hindrance to digitalisation[12]. Accenture reported that among 28 leading Malaysian companies it surveyed, 12 "have digital growth strategies in place", but only 2 "have announced dedicated budgets to implement these strategies"[13]. The World Bank suggested that this problem is compounded by relatively expensive yet low quality broadband connectivity in Malaysia[14].

Challenge #2: A digital divide between firms

All firms face challenges digitalising their business operations but SMEs have been found to lag behind larger firms in adopting more complex digital solutions. For instance, although 77% of all digitalised businesses are SMEs, SMEs only make up 25% of businesses achieving advanced digitalisation[15]. The World Bank also stated that "large export-oriented firms dominate the digital economy as they adopt e-commerce at higher rates than SMEs"[16].

[5] Asia IOT Business Platform (2019)
[6] World Bank (2018b)
[7] DOSM (2018)
[8] Accenture (2017)
[9] Yapp (2020)
[10] Modgil (2019)
[11] Business Today (2019)
[12] Huawei Technologies (2018)
[13] Lim et al. (2017)
[14] World Bank (2018a)
[15] Consultancy.asia (2020)
[16] World Bank (2018b)

On the whole, Malaysian SMEs have increased their use of information and communication technologies, with over 80% of businesses using computers and smartphones, and over 70% using the internet in their business operations in 2018[17].

Digital adoption by SMEs is most concentrated in front-end computing devices and connectivity (>85%), and least prevalent in back-end business processes such as inventory management (14%) and order fulfilment software (11%). Furthermore, only 44% and 54% of SMEs use cloud computing and data analytics, respectively[18]. For comparison, in 2014, 85% of SMEs in Singapore used cloud computing[19].

Inclusive competition or exclusive domination?

Digital technologies were expected to bring down long-standing barriers and empower smaller businesses, which would be "inclusive and rewarding for all"[20]. An open internet would theoretically allow all firms equal access to information and markets at greater scale and lower cost, which would benefit smaller business establishments. Achieving this ideal implied a future of perfect competition within the digital economy.

However, the centrality of data in the digital economy means that larger firms that can capture large volumes of data gain an upper hand over smaller businesses. Contemporary economic theories emphasise economies of scale as a factor in minimising cost; the 21st-century version of economies of scale is big data. Big data is data "that is so large, fast or complex that it's difficult or impossible to process using traditional methods"[21].

Due to their large size and access to capital, large firms are more likely to take advantage of big data. For example, a large firm can build customized in-house digital solutions to complement their digital transformation strategies. A dedicated data analytics department with access to market and customer data could help a firm implement its digital strategy more efficiently and effectively by adjusting the pace and structure of digitalisation according to the firm's needs.

In this way, large firms can optimise their operations and maximise profit margins, effectively shutting out competition. For instance, Amazon was accused of collecting and using data from third-party sellers in order to undercut the competition and boost sales of its own products[22]. This behaviour may lead to oligopolies, or even monopolies, in the digital economy.

Platforms: The new mammoths of the digital economy

The digital economy gave rise to a new breed of billion-dollar-corporations – intermediary service providers or platforms – that subverts the conventional direct economic relationship between firms and consumers. These intermediary service providers connect businesses and customers, charging both parties a fee for this service. Ride-hailing behemoth Grab and food delivery service FoodPanda are examples of platforms. These firms can monopolise entire market segments due to *network effects*, their *ability to extract, control and analyse data*, and *path dependency* (refer to Table 2).

[17] SME Corporation Malaysia (2019)
[18] Huawei Technologies (2018)
[19] Yu (2014)
[20] MDEC (2020)
[21] SAS (2020)
[22] Bell (2020)

Table 2: How platforms monopolise the market

Term	Definition and Explanation
Network effects	A platform becomes more valuable as more users use it. For instance, if more drivers join the Grab platform, consumers are more likely to find a ride. Thus, drivers can earn more income, which will attract more drivers. This cycle continues, making the platform more and more valuable for both consumers and drivers.
Ability to extract, control and analyse data	As the platforms connect producers and consumers, they are able to extract vast quantities of data, which can be analysed to cut costs, improve advertising, and improve their product quality. Furthermore, customer analytics can uncover hidden consumption trends and spending patterns, enabling better pricing strategies.
Path dependency	The costs of switching to an alternative platform increases as consumers use the platform more. Platforms can utilise user data to personalise suggestions, advertising, and even build entire social networks that will make it difficult for users to switch to other alternatives.

Source: Adapted from United Nations Conference on Trade and Development (2020)

These platforms could further entrench their positions as market leaders by expanding their data extraction infrastructure and engaging in anti-competitive behaviour such as predatory pricing, which aims to destroy competition in the market. Furthermore, due to their sheer financial size, these digital economy giants could venture into other sectors such as finance, insurance, hospitality, and tourism to diversify their business operations. This could increase the risk of anti-competitive mergers and acquisitions through which large firms could diversify their business operations and dominate multiple sectors concurrently.

Large platforms can gradually build super-apps that encompass a multitude of services, as Grab is already doing in Southeast Asia. As of 2019, Grab has more than 60% of the ride-hailing market share in Southeast Asia and 26.8% of e-wallet market share in Malaysia, making it the dominant player in both industries[23].

Grab's dominant market position has indeed been scrutinised. After Grab's purchase of Uber's Southeast Asia operations, it was fined RM86 million by the Malaysia Competition Commission (MyCC) for "distorting competition" and "creating barriers to entry and expansion for Grab's existing and future competitors."[24] The general concern for large platforms is that, left unchecked, platforms could monopolise and dismantle competition in their sectors, neutralising SMEs' ability to compete in the digital economy.

The way forward

Given these challenges, policies could be developed to encourage universal digitalisation by businesses and to bridge the digital divide between firms in the digital economy. The goal of such policies is to build an inclusive digital economy so that all parties can reap the benefits of the digital age. We suggest the following areas for research and policy consideration:

1. Reduction in the costs of digitalisation

As described earlier, approximately 50% of business establishments in Malaysia cited cost as a big challenge to digitalisation. The Government could consider reducing the barriers to digitalisation by collaborating with technology solution providers to introduce lower pricing packages for SMEs. Moreover, temporary tax incentives could be introduced for newly digitalised SMEs to offset the initial financial investment.

[23] Trefis Team (2019), Nathan (2018)

[24] Al Jazeera and News Agencies (2019)

MDEC runs a wide variety of programmes intended to spur digitalisation among firms, such as the SME Business Digitalisation Grant, the SMART Automation Grant, the Digital Transformation Acceleration Programme, and the Malaysia Tech Entrepreneur Programme[25]. However, some of these programmes have restrictions. For instance, the SME Business Digitalisation Grant is limited to 100,000 SMEs[26]. This means that only 11% of the 907,195 SMEs[27] in Malaysia can benefit from this initiative. Admittedly the take up rate of these programmes may be low as many SMEs may be unaware of or uninterested in such programmes, a topic worth further investigation. Nonetheless, the Government could expand these programmes to all interested SMEs.

2. Development of worker skills

To overcome the digital skills mismatch faced by firms, the Government could also aim to improve the technical skills of the workforce. Existing training and upskilling programmes for workers could be tailored towards specific digital and technical skills useful for digitalisation, such as database management or digital marketing.

Training may be required not just in terms of developing competitive technical skills, but also in business management in order to effectively implement digital technologies across different sectors. For example, research has shown that addressing the skills mismatch is a key component of addressing graduate unemployment[28]. Further research is needed to identify and prioritize the development of skills relevant to the digital economy.

3. Digitally relevant regulations

There is a need for more research to determine if and/or which regulations need to be reviewed and updated in the context of the digital economy. A combination of competition and data protection regulations may help close the digital divide between firms.

Some platforms may offer their services for free but extract user information extensively. This may not be considered anti-competitive in contemporary competition legislation. However, as seen in the case of Amazon above, platforms with a large user base and thus with access to a large volume of data have a significant advantage over their competitors. Further research is warranted on the extent of this phenomenon, which could be a form of predatory pricing in the digital age. As some have already argued, the extraction and use of data by businesses for commercial purposes should be regulated[29].

A review of mergers and acquisitions of firms in the digital economy may also be warranted. Firms in the digital economy may acquire smaller competing firms to accelerate the expansion of their businesses and reduce competition. This behaviour should be strictly regulated to restrict the abuse of market position by large oligopolies and monopolies in the digital economy.

[25] MDEC (2020)
[26] MDEC (2020)
[27] SME Corporation Malaysia (2019)
[28] Khazanah Research Institute (2018)
[29] Khan (2016), Zuboff (2019)

4. The role of digital governance

Two critical components of the digital economy are infrastructure and data.

High quality digital infrastructure is necessary to support the increasing requirements of data processing and data transfer involved in digitalisation. Government standards, such as the Mandatory Standards for Quality of Service, have a key role to play in ensuring that reliable infrastructure exists to support the digital economy and the digitalisation of firms. Further research on these standards and current demand could help set minimum standards that are appropriate for different locales and sectors of the economy.

Data analytics can uncover consumption patterns, optimal pricing strategies and hidden consumer preferences. Access to market research and proprietary user data may give larger firms an advantage in the digital economy. Allowing open access to government data, such as population demographics and geographical price trends, may allow SMEs to engage in data analytics without the high overhead costs of proprietary market research. Research suggests that open data benefits academic research[30]; additional research could assess the impact of open data on the digitalisation of firms.

Conclusion

The digital economy presents an abundance of opportunities for Malaysia, but it also surfaces tough challenges. Firms of all sizes across all sectors stand to benefit from digitalisation by increasing productivity and becoming more efficient and competitive. Nonetheless, lack of technological knowledge, organisational silos and costs remain barriers to digitalisation.

The digital economy can bring about inclusive free market competition or exclusive dominance via a monopolistic economy. In the best case, perfect competition will lower prices and increase product quality. In the worst case, monopolistic firms could arbitrarily set prices and have unfettered access to user data. By extracting user information and engaging in anti-competitive activities, platforms could dominate the digital economy, leaving SMEs behind.

Thus, it is crucial that inclusive policies be put in place to encourage digitalisation by firms of all sizes and to close the digital divide between firms in Malaysia.

[30] Ahmad Ashraf Ahmad Shaharudin (2020)

References

Ahmad Ashraf Ahmad Shaharudin. 2020. "Open Government Data: Principles, Benefits and Evaluations." Khazanah Research Institute. September 22, 2020. http://www.krinstitute.org/assets/contentMS/img/template/editor/DP%20-%20Open%20Government%20Data%20-%20Principles%20Benefits%20and%20Evaluations%20(002).pdf

Al Jazeera and News Agencies. 2019. "' Distorting competition': Malaysia fines ride hailing firm Grab." *Al Jazeera*. October 3, 2019. https://www.aljazeera.com/ajimpact/competition-malaysia-fines-ride-hailing-firm-grab-191003052221120.html

Bell, Karissa. 2020. "The antitrust case against Amazon just got stronger." *Engadget*. July 30, 2020. https://www.engadget.com/amazon-antitrust-hearing-third-party-sellers-201126053.html?guccounter=1

Business Today. 2019. "Most Malaysian Companies Lack Integrated Digital Transformation Strategy." September 18, 2019. https://www.businesstoday.com.my/2019/09/18/the-digital-transformation-blueprint-software-defined-enterprises-in-asia-pacific/

Consultancy.asia. 2020. "Malaysia's digital economy now contributes one fifth to GDP." July 7, 2020. https://www.consultancy.asia/news/3370/malaysias-digital-economy-now-contributes-one-fifth-to-gdp

Department of Statistics Malaysia. 2018. "Usage of ICT and E-commerce By Establishment." https://www.dosm.gov.my/v1/index.php?r=column/pdfPrev&id=U3FYOHJ3cE90UnNWMWdUaVMzRElKdz09

Digital Marketing Institute. 2020. "What's The Cost Of Not Going Digital For A Business?" https://digitalmarketinginstitute.com/blog/what-is-the-cost-of-not-going-digital-for-a-business

Ho, Sue Yuin. 2019. "5 Key Opportunities for Digitalization in Malaysia." *Asia IOT Business Platform*. February 26, 2019. http://iotbusiness-platform.com/blog/5-key-opportunities-for-digitalisation-in-malaysia/

Huawei Technologies. 2018. "Accelerating Malaysian Digital SMEs: Escaping the Computerization Trap." https://www.huawei.com/minisite/accelerating-malaysia-digital-smes/img/sme-corp-malaysia-huawei.pdf

Khan, Lina M. "Amazon's Antitrust Paradox." *Yale Law Journal* 126, no. 3 (2016): 710–805.

Khazanah Research Institute. 2018. "The School-to-Work Transition of Young Malaysians." December 12, 2018. http://www.krinstitute.org/Publications-@-The_School-To-Work_Transition_of_Young_Malaysians.aspx

Lim Yin Sern, Teh Wee Vien, Loganantha Esparan, Bobby James, Karyn Chua Su Yin. 2017. "Malaysia's Digital Performance Index." *Accenture*. https://www.accenture.com/_acnmedia/PDF-63/Accenture-Faster-Than-Ever-Infographic.pdf%23zoom=50

Malaysia Digital Economy Corporation (MDEC). 2020. "Digitalising SMEs." https://mdec.my/digital-economy-initiatives/for-the-industry/sme/

Malaysia Digital Economy Corporation (MDEC). 2020. "SME Digitalisation Grant." https://mdec.my/digital-economy-initiatives/for-the-industry/sme-digitalisation-grant/

Malaysia Digital Economy Corporation (MDEC). 2020. "Who We Are." https://mdec.my/about-mdec/who-we-are/

Malaysia Digital Economy Corporation (MDEC). 2020. "Digitalising SMEs." https://mdec.my/digital-economy-initiatives/for-the-industry/sme/

Malaysiakini. 2015. "Minister: M' sians can't afford higher speed Internet." September 28, 2015. https://www.malaysiakini.com/news/313805

Nathan, Lydia. 2018. "E-wallet users see rapid growth in M' sia." *The Malaysian Reserve*. December 21, 2018. https://themalaysianreserve.com/2018/12/21/e-wallet-users-see-rapid-growth-in-msia/

Modgil, Shwera. 2019. "49% of C-suite executives in Malaysia see organisational silos as key challenge: Report." *People Matters*. July 22, 2019. https://www.peoplemattersglobal.com/news/c-suite/49-of-c-suite-executives-in-malaysia-see-organizational-silos-as-key-challenge-report-22428

Open Knowledge Foundation. 2020. "Open Definition: Defining Open In Open Data, Open Content And Open Knowledge." https://opendefinition.org/od/2.1/en/

SAS. 2020. "Big Data: What it is and why it matters." https://www.sas.com/en_my/insights/big-data/what-is-big-data.html

Siddhartha Raja, Richard Record. 2019. "Malaysia's need for speed: How regulatory action is unleashing ultrafast Internet." *World Bank Blogs*. August 7, 2019. https://blogs.worldbank.org/eastasiapacific/malaysias-need-speed-how-regulatory-action-unleashing-ultrafast-internet

SME Corporation Malaysia. 2019. "SME Annual Report 2018/2019." *National Entrepreneur And SME Development Council (NESDC)*. https://www.smecorp.gov.my/images/SMEAR/SMEAR2018_2019/final/english/SME%20AR%20-%20English%20-%20All%20Chapter%20Final%2024Jan2020.pdf

Trefis Team. 2019. "How Much Is Grab Worth?" *Forbes*. January 10, 2019. https://www.forbes.com/sites/greatspeculations/2019/01/10/how-much-is-grab-worth/#20036d1e56d4

United Nations Conference On Trade And Development (UNCTAD). 2019. "Digital Economy Report 2019." *United Nations*. September 4, 2019. https://unctad.org/en/PublicationsLibrary/der2019_en.pdf

World Bank Group. 2018a. "Malaysia Economic Monitor, June 2018: Navigating Change." Washington DC: World Bank. https://openknowledge.worldbank.org/handle/10986/29926.

World Bank Group. 2018b. "Malaysia's Digital Economy: A New Driver of Development." September 2018. https://www.kkmm.gov.my/pdf/KPI/Laporan%207.pdf

Yapp, Edwin. 2020. “Malaysia’s digital transformation efforts progress.” *ComputerWeekly.com*. March 16, 2020. https://www.computerweekly.com/feature/Malaysias-digital-transformation-efforts-progress-amid-challenges

Yu, Eileen. 2014. “Singapore SMBs to spend $415M on cloud.” *ZDNet*. September 3, 2014. https://www.zdnet.com/article/singapore-smbs-to-spend-415m-on-cloud/

Zuboff, Shoshana. 2019. *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. Public Affairs.