Data Article

Digital adoption by enterprises in Malaysian industrial sectors during COVID-19 pandemic: A data article

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This article presents data on digital adoption by enterprises in Malaysian industrial sectors during the COVID-19 pandemic. The data were collected during the periods of Conditional Movement Control Order (CMCO) and Recovery Movement Control Order (RMCO) from October 11 to December 31, 2020. Data collection was completed through an online questionnaire survey conducted among a sample of 432 enterprises from four industrial sectors, namely services, retail, manufacturing, and tourism, in all states in Malaysia. The sample was selected using cluster and systematic random sampling. The questionnaire asked respondents to state whether they used the Internet, computers, phones, websites, e-payment, and e-commerce to complete their activities relating to finance, production and operations, human resource management, and marketing. The data were analysed using descriptive statistics and cross-tabulation. The data show the extent of digital adoption by Malaysian enterprises during the pandemic in comparison to the situation before the pandemic. The data may be of use to other similar researchers as comparison and to policy makers as guides in devising related policies.
Specifications Table

| Subject          | Economics           |
|------------------|---------------------|
| Specific subject area | Economic Development |
| Type of data     | Table               |
|                  | Raw data (.xls)     |
|                  | Questionnaire survey|
|                  | Descriptive statistics (Table 1) |
|                  | Cross tabulation (Tables 2–5) |

How data were acquired

- Online survey using the SurveyMonkey platform

Data format

- Raw, processed, descriptive

Parameters for data collection

- Cluster and systematic random sampling were used to select 432 enterprises from the services, retail, manufacturing, and tourism sectors as sample, who then participated in an online questionnaire survey.

Description of data collection

- Data were collected during the periods of Conditional Movement Control Order (CMCO) and Recovery Movement Control Order (RMCO) between October 11 and December 31, 2020, in Malaysia. The respondents participated in an online survey through the SurveyMonkey platform.

Data source location

- All states in Malaysia: Terengganu, Kelantan, Pahang, Kedah, Perak, Perlis, Selangor, Wilayah Persekutuan Kuala Lumpur, Melaka, Negeri Sembilan, Pulau Pinang, Johor, Sabah, and Sarawak.

Data accessibility

- Dataset is available on Mendeley Data Repository: https://data.mendeley.com/datasets/xrh8ssskjb/1

Value of the Data

- The data help identify the digital adoption level among enterprises in Malaysian industrial sectors before the COVID-19 and during the COVID-19 pandemic.
- The data may help other researchers compare other similar data on digital adoption by enterprises during the COVID-19 pandemic and contribute to future meta-analysis.
- The data may provide insights to policymakers when proposing policies for improving digital adoption among enterprises and promoting the importance of digital platforms, particularly during the COVID-19 pandemic.

1. Data Description

Due to the COVID-19 pandemic that began to hit Malaysia in early 2020, it has been challenging for enterprises to operate efficiently and safely. One of the ways that can help them maintain efficient and safe operations during the pandemic is to adopt digitalisation. It is interesting to find out to what extent this practice has existed. Presented here are data on digital adoption by enterprises in Malaysian industrial sectors during the COVID-19 pandemic.

The dataset, available on the Mendeley Data repository (https://data.mendeley.com/datasets/ xrh8ssskjb/1), has two parts. The first part contains enterprises' names, their addresses, and their sector types. The second part contains data on enterprises' digital tool adoption according to functions and the variables used to identify their responses. Digital tools included are internet usage, computer/phone usage, web presence, e-payment, and e-commerce. Functions in which digital tools are used are finance activities (payment transactions, working capital management, financing management), production and operations activities (material handling, product
design, production, quality control), human resource management activities (teleworking options for staff, evaluation of staff performance), and marketing activities (sales of goods or services, advertising). The responses covered three periods: before COVID-19; during COVID-19, specifically during the Movement Control Order (MCO) from March 18 until May 12, 2020; and the new norm phase from May 13 until December 31, 2020.

Table 1 presents the frequency distribution of respondents based on sector types. The sector type with the highest enterprise involvement was services (38.4%) and the type with the lowest was tourism (10.6%).

Tables 2–5 report the frequency of digital tool adoption in finance activities, production and operation activities, human resource management activities, and marketing activities by enterprises in the services, retail, manufacturing, and tourism sectors.

### Table 1
Respondents’ sector types.

| Type       | Frequency | Percentage |
|------------|-----------|------------|
| Services   | 166       | 38.4       |
| Retail     | 157       | 36.3       |
| Manufacturing | 63      | 14.6       |
| Tourism    | 46        | 10.6       |
| Total      | 432       | 100.0      |

### Table 2
Digital tool adoption in services sector.

| Digital tool               | Before COVID-19 | During COVID-19 (MCO) | New norm |
|----------------------------|-----------------|------------------------|----------|
|                            | Frequency       | Percentage             | Frequency       | Percentage             | Frequency       | Percentage             |
| Finance                    |                 |                        |                 |                        |                 |                        |
| Internet usage             | 141             | 84.9                   | 149             | 89.8                   | 150             | 90.4                   |
| Computer/Phone usage       | 134             | 80.7                   | 141             | 84.9                   | 145             | 87.3                   |
| Web presence               | 37              | 22.3                   | 44              | 26.5                   | 50              | 30.1                   |
| E-payment                  | 94              | 56.6                   | 101             | 60.8                   | 109             | 65.7                   |
| E-commerce                 | 51              | 30.7                   | 55              | 33.1                   | 57              | 34.3                   |
| Production and operations  |                 |                        |                 |                        |                 |                        |
| Internet usage             | 96              | 57.8                   | 101             | 60.8                   | 103             | 62.0                   |
| Computer/Phone usage       | 92              | 55.4                   | 96              | 57.8                   | 100             | 60.2                   |
| Web presence               | 24              | 14.5                   | 29              | 17.5                   | 36              | 21.7                   |
| E-payment                  | 46              | 27.7                   | 51              | 30.7                   | 55              | 33.1                   |
| E-commerce                 | 25              | 15.1                   | 30              | 18.1                   | 34              | 20.5                   |
| Human resources            |                 |                        |                 |                        |                 |                        |
| Internet usage             | 111             | 66.9                   | 124             | 74.7                   | 125             | 75.3                   |
| Computer/Phone usage       | 109             | 65.7                   | 120             | 72.3                   | 123             | 74.1                   |
| Web presence               | 30              | 18.1                   | 40              | 24.1                   | 45              | 27.1                   |
| E-payment                  | 40              | 24.1                   | 47              | 28.3                   | 49              | 29.5                   |
| E-commerce                 | 22              | 13.3                   | 26              | 15.7                   | 29              | 17.5                   |
| Marketing                  |                 |                        |                 |                        |                 |                        |
| Internet usage             | 144             | 86.7                   | 152             | 91.6                   | 154             | 92.8                   |
| Computer/Phone usage       | 138             | 83.1                   | 149             | 89.8                   | 151             | 91.0                   |
| Web presence               | 33              | 19.9                   | 37              | 22.3                   | 43              | 25.9                   |
| E-payment                  | 72              | 43.4                   | 79              | 47.6                   | 84              | 50.6                   |
| E-commerce                 | 54              | 32.5                   | 58              | 34.9                   | 62              | 37.3                   |

Note: The total sample of enterprises for the services sector is 166. The frequency and percentage in the table indicate the number of enterprises out of the total sample that adopted the digital tools.
### Table 3
Digital tool adoption in retail sector.

| Digital tool          | Before COVID-19 | During COVID-19 (MCO) | New norm |
|-----------------------|-----------------|-----------------------|----------|
|                       | Frequency | Percentage | Frequency | Percentage | Frequency | Percentage |
| **Finance**           |           |            |           |            |           |            |
| Internet usage        | 134       | 85.4       | 143       | 91.1       | 145       | 92.4       |
| Computer/Phone usage  | 127       | 80.9       | 134       | 85.4       | 135       | 86.0       |
| Web presence          | 17        | 10.8       | 24        | 15.3       | 26        | 16.6       |
| E-payment              | 64        | 40.8       | 75        | 47.8       | 78        | 49.7       |
| E-commerce             | 36        | 22.9       | 44        | 28.0       | 47        | 29.9       |
| **Production and operations** |            |            |           |            |           |            |
| Internet usage        | 65        | 41.4       | 70        | 44.6       | 71        | 45.2       |
| Computer/Phone usage  | 60        | 38.2       | 65        | 41.4       | 65        | 41.4       |
| Web presence          | 15        | 9.6        | 16        | 10.2       | 17        | 10.8       |
| E-payment              | 23        | 14.6       | 25        | 15.9       | 28        | 17.8       |
| E-commerce             | 15        | 9.6        | 15        | 9.6        | 18        | 11.5       |
| **Human resources**   |           |            |           |            |           |            |
| Internet usage        | 87        | 55.4       | 94        | 59.9       | 97        | 61.8       |
| Computer/Phone usage  | 80        | 51.0       | 87        | 55.4       | 88        | 56.1       |
| Web presence          | 16        | 10.2       | 21        | 13.4       | 23        | 14.6       |
| E-payment              | 24        | 15.3       | 25        | 15.9       | 29        | 18.5       |
| E-commerce             | 16        | 10.2       | 17        | 10.8       | 19        | 12.1       |
| **Marketing**         |           |            |           |            |           |            |
| Internet usage        | 129       | 82.2       | 134       | 85.4       | 135       | 86.0       |
| Computer/Phone usage  | 119       | 75.8       | 123       | 78.3       | 125       | 79.6       |
| Web presence          | 16        | 10.2       | 17        | 10.8       | 20        | 12.7       |
| E-payment              | 47        | 29.9       | 49        | 31.2       | 54        | 34.4       |
| E-commerce             | 43        | 27.4       | 50        | 31.8       | 54        | 34.4       |

Note: The total sample of enterprises for the retail sector is 157. The frequency and percentage in the table indicate the number of enterprises out of the total sample that adopted the digital tools.

### Table 4
Digital tool adoption in manufacturing sector.

| Digital tool          | Before COVID-19 | During COVID-19 (MCO) | New norm |
|-----------------------|-----------------|-----------------------|----------|
|                       | Frequency | Percentage | Frequency | Percentage | Frequency | Percentage |
| **Finance**           |           |            |           |            |           |            |
| Internet usage        | 54        | 85.7       | 56        | 88.9       | 58        | 92.1       |
| Computer/Phone usage  | 52        | 82.5       | 56        | 88.9       | 57        | 90.5       |
| Web presence          | 12        | 19.0       | 17        | 27.0       | 23        | 36.5       |
| E-payment              | 33        | 52.4       | 37        | 58.7       | 42        | 66.7       |
| E-commerce             | 13        | 20.6       | 15        | 23.8       | 19        | 30.2       |
| **Production and operations** |            |            |           |            |           |            |
| Internet usage        | 46        | 73.0       | 48        | 76.2       | 51        | 81.0       |
| Computer/Phone usage  | 44        | 69.8       | 47        | 74.6       | 50        | 79.4       |
| Web presence          | 13        | 20.6       | 15        | 23.8       | 19        | 30.2       |
| E-payment              | 19        | 30.2       | 21        | 33.3       | 25        | 39.7       |
| E-commerce             | 8         | 12.7       | 9         | 14.3       | 11        | 17.5       |
| **Human resources**   |           |            |           |            |           |            |
| Internet usage        | 41        | 65.1       | 45        | 71.4       | 47        | 74.6       |
| Computer/Phone usage  | 39        | 61.9       | 43        | 68.3       | 45        | 71.4       |
| Web presence          | 9         | 14.3       | 10        | 15.9       | 16        | 25.4       |
| E-payment              | 12        | 19.0       | 15        | 23.8       | 18        | 28.6       |
| E-commerce             | 7         | 11.1       | 9         | 14.3       | 10        | 15.9       |
| **Marketing**         |           |            |           |            |           |            |
| Internet usage        | 57        | 90.5       | 59        | 93.7       | 62        | 98.4       |
| Computer/Phone usage  | 55        | 87.3       | 58        | 92.1       | 61        | 96.8       |
| Web presence          | 11        | 17.5       | 12        | 19.0       | 17        | 27.0       |
| E-payment              | 27        | 42.9       | 29        | 46.0       | 31        | 49.2       |
| E-commerce             | 17        | 27.0       | 18        | 28.6       | 21        | 33.3       |

Note: The total sample of enterprises for the manufacturing sector is 63. The frequency and percentage in the table indicate the number of enterprises out of the total sample that adopted the digital tools.
Table 5
Digital tool adoption in tourism sector.

| Digital tool                | Before COVID-19 | During COVID-19 (MCO) | New norm |
|-----------------------------|-----------------|-----------------------|----------|
|                             | Frequency | Percentage | Frequency | Percentage | Frequency | Percentage |
| Finance                     |            |            |          |            |          |            |
| Internet usage              | 37        | 80.4       | 40       | 87.0       | 41       | 89.1       |
| Computer/Phone usage        | 32        | 69.6       | 35       | 76.1       | 36       | 78.3       |
| Web presence                | 6         | 13.0       | 6        | 13.0       | 7        | 15.2       |
| E-payment                   | 26        | 56.5       | 30       | 65.2       | 32       | 69.6       |
| E-commerce                  | 15        | 32.6       | 19       | 41.3       | 20       | 43.5       |
| Production and operations   |            |            |          |            |          |            |
| Internet usage              | 24        | 52.2       | 26       | 56.5       | 26       | 56.5       |
| Computer/Phone usage        | 20        | 43.5       | 22       | 47.8       | 22       | 47.8       |
| Web presence                | 2         | 4.3        | 3        | 6.5        | 3        | 6.5        |
| E-payment                   | 6         | 13.0       | 8        | 17.4       | 8        | 17.4       |
| E-commerce                  | 4         | 8.7        | 6        | 13.0       | 6        | 13.0       |
| Human resources             |            |            |          |            |          |            |
| Internet usage              | 21        | 54.7       | 25       | 54.3       | 25       | 54.3       |
| Computer/Phone usage        | 18        | 39.1       | 21       | 45.7       | 21       | 45.7       |
| Web presence                | 4         | 8.7        | 6        | 13.0       | 7        | 15.2       |
| E-payment                   | 4         | 8.7        | 7        | 15.2       | 7        | 15.2       |
| E-commerce                  | 3         | 6.5        | 5        | 10.9       | 6        | 13.0       |
| Marketing                   |            |            |          |            |          |            |
| Internet usage              | 33        | 71.7       | 36       | 78.3       | 37       | 80.4       |
| Computer/Phone usage        | 30        | 65.2       | 32       | 69.6       | 32       | 69.6       |
| Web presence                | 4         | 8.7        | 5        | 10.9       | 5        | 10.9       |
| E-payment                   | 16        | 34.8       | 18       | 39.1       | 18       | 39.1       |
| E-commerce                  | 14        | 30.4       | 16       | 34.8       | 16       | 34.8       |

Note: The total sample of enterprises for the tourism sector is 46. The frequency and percentage in the table indicate the number of enterprises out of the total sample that adopted the digital tools.

2. Experimental Design, Materials and Methods

The data were collected among a sample of 432 enterprises in Malaysian industrial sectors through a self-administered online questionnaire survey hosted at SurveyMonkey.com. The survey was conducted during the periods of Conditional Movement Control Order (CMCO) and Recovery Movement Control Order (RMCO) from October 11 until December 31, 2020. It is acknowledged that the data collected over the short period of less than three months may not reveal the actual extent of digital adoption by the enterprises during the pandemic, and that data collected over a longer period during the pandemic may present the more actual rate of the digital adoption. However, it was not possible to extend the period due to an external factor that influenced the duration of data collection. The collected data, which contained nominal and ordinal values, were then coded, edited, processed, and analysed. Analysis methods used were descriptive statistics and cross-tabulation.

The sample of 432 enterprises was selected using cluster and systematic random sampling. First, a full list of registered enterprises in different industries in all Malaysian states was obtained from Malaysia’s Ministry of Entrepreneur Development and Cooperatives (MEDAC). Then, enterprises under several industries were grouped together into any of the four major industrial sectors, namely services, retail, manufacturing, and tourism. Enterprises under health, education, and medicine were grouped into the services sector. Enterprises under grocery store, department store, and supermarket/hypermarket were grouped into the retail sector. Enterprises under petrochemical manufacturing, automotive, and engineering were grouped into the manufacturing sector. Those under food and beverages (F&B) and transportation were grouped into the tourism sector. Next, the number of enterprises to be sampled from each sector was calculated. The calculated number was in proportion to the total number of enterprises grouped into each
sector. Finally, based on the calculated number, enterprises were randomly selected from each sector to form a sample.

The questionnaire had two sections. Section 1 contained items that asked for personal particulars of enterprises, including name, address, email, and phone number, and their type of industry, whether services, manufacturing, retail, or tourism. These items were adapted from Abdulle et al. [1], with two more sectors added as types of industry, namely retail and tourism. Section 2 contained items on digital tool adoption by the enterprises in various functions, namely finance activities, production and operations activities, human resource management activities, and marketing activities. Digital tools included as options were internet usage, computer/phone usage, web presence, e-payment, and e-commerce. These options were adapted from Tan and Chian [2]. Internet usage referred to the use of the Internet by the enterprises for their work. Computer/phone usage referred to desktops, laptops, netbooks, tablets, tablet computers, smartphones, portable or handheld computers, minicomputers, mainframes, or workstations used by enterprises for their work. Web presence referred to websites (including mobile versions) or any other web pages where enterprises have control over the content of the pages. E-payment referred to making or receiving payment through electronic means for procurement and/or sales of products and/or services. E-commerce referred to sales or purchases of goods and services over computer-mediated networks or the Internet (excluding orders received/placed by telephone, fax, or normal mail), but the payment and delivery of the goods and services can be offline. Functions included in the questionnaire were those related to finance (payment transactions, working capital management, financing management), production and operations (material handling, product design, production, quality control), human resource management (teleworking options for staff, evaluation of staff performance), and marketing (sales of goods or services, advertising). These were adapted from Temponi et al. [3]. Each item asked respondents to provide responses for three periods: before COVID-19, during COVID-19, and the new norm phase, as suggested by Papadopoulos et al. [4].

Ethics Statement

All procedures performed in studies were in accordance with the ethical standard of Universiti Malaysia Terengganu. Informed consent was obtained from all respondents involved in the study. Participants were informed that the survey was anonymous.

CRediT Author Statement

Suriyani Muhamad: Writing - Original draft preparation, Conceptualisation, Supervision; Suhal Kusairi: Methodology, Formal analysis; Mustafa Man: Data Retrieval; Nur Fatma Hasni Majid: Investigation; Wan Zulkifli Wan Kassim: Writing - Reviewing and Editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships which have or could be perceived to have influenced the work reported in this article.

Data availability

Digital Adoption by Enterprises in Malaysian Industrial Sectors During COVID-19 Pandemic: Survey Data (Original data) (Mendeley Data).
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