

THE PREDICTORS OF COOPERATIVE DIGITALIZATION ADOPTION AND THEIR RELATIONSHIPS WITH COOPERATIVE PERFORMANCE

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Received 24 May 2021; Revised 19 August 2022; Accepted 6 September 2022

ABSTRACT

In the current competitive business landscape, digitalization has been acknowledged as one of the significant competitive edges for businesses to ensure survival and remain relevant to the needs and requirements of the market. It has been consistently reported that digitalization could help businesses in crafting their strategies and planning their operational activities. Although there is burgeoning research on the importance of digitalization, there is still limited knowledge about its impact on cooperatives. By adopting the theory acceptance model (TAM) and innovation diffusion theory (IDT), this study contributes to the field by investigating the antecedent influence of external and internal factors towards digitalization adoption among cooperatives as well as the latter's possible impact on the performance of cooperatives. Data were collected from 256 cooperatives and the research model was analysed using both SPSS and SmartPLS software. The findings confirmed that factors such as competitive pressure, government support, top management support, and organization innovativeness positively influence digitalization adoption intention among cooperatives, which in turn, influences their performance. Furthermore, discussion and implications are provided to assist the cooperatives to develop successful digitalization adoption and to ensure sustainability in the industry.

Keywords: *Competitive pressure, cooperative, digitalization, government support, organization innovativeness, top management support*

INTRODUCTION

Digitalisation has been recognised as one of the major trends that have transformed society and business. It has an impact on how business strategies are developed as well as the key operational activities associated with them, such as advertising, manufacturing, sales, and marketing. Digitalisation is defined as the “ability to transform existing products or services into digital variants, utilising Information and Communication Technology (ICT), and hence offer advantages over tangible products” (Henriette, et al., 2015). Moreover, digitalisation also acts as a catalyst to transform society, as well as the business process in an organisation (Cham et al., 2022a; Denner et al., 2018). Digital transformation involves changes in ways of working, roles, and business offerings caused by the adoption of digital technologies in an organisation or the organisation’s operating environment (Ferreira et al., 2019; Parviainen et al., 2017). Business owners should drive their organisation through the digital transformation that leads to profitability gains and competitive advantage while conveying great experience among their clients. Digitalisation could help businesses to increase their revenue, improve service quality, widen the focus on customer targeting, and manage customers effectively, which eventually will improve their operational efficiency in the long run.

Although digitalisation has been viewed as a significant competitive edge for many businesses, the question is whether digitalisation matters for business entities like cooperatives. Such a question has always been a topic of interest throughout business studies. For example, previous studies have put forward the benefits of digitising business processes (e.g., Adomako et al., 2021; Antonucci et al., 2020). Drawing from this context of focus, modern cooperative organisations are encouraged to take several measures to master the advanced technology that could create a new economic paradigm (Nurdany & Prajasari, 2020; Sobolev et al., 2021). As such, cooperative organisations need to be innovative in their operations and digitally ready in order to survive the disruption and remain competitive in the market. Moreover, the challenges posed by COVID-19 have also sent a strong signal that the cooperative sector should leverage digitalisation initiatives to stay relevant in the industry (Malaysia Cooperative Societies Commission, 2021). As a unique business institution, cooperatives differ from other enterprises. For instance, a cooperative is a specialised form of business whereby this entity can be described as a not-for-profit, people-

centred enterprise-owned, controlled and run by its members to realise their common economic, social, and cultural needs and aspirations.

As of December 2019, around 6.1 million people joined as members of cooperatives, with a total business volume of 46 billion Malaysian Ringgit (RM), a total asset of RM 147 billion and a share of members of RM 15 billion (Malaysian Co-operative Societies Commission, 2019). Cooperatives play an important role in Malaysia's economic growth, and the contribution will likely increase if cooperatives implement digitalisation in their business processes. Several studies in the past (e.g., Denner et al., 2018; Eller et al., 2020; Parveen et al., 2015) have suggested the benefits of digitising business processes and their impact on business performance. In this competitive and dynamic environment, cooperatives as a business sector must undertake a digitalisation strategy that allows them to take advantage of the opportunities that exist in the global market. Therefore, access to new technologies and the implementation of innovations must be a priority for cooperatives that intend to gain profit in terms of competitiveness and productivity and eventually improve their market positioning.

Generally, the preliminary investigation conducted by the researchers found that not many cooperatives in Malaysia are aware of the concept of digitalization and its significant benefits towards their day-to-day operations. In addition, the review of the literature also found that studies that focused on the area of digitalization among cooperatives are still minimal to date. Hence, this scenario represents a major drawback in the research that requires further examination and empirical evidence. Grounded based on the technology acceptance model and innovation diffusion theory, the present study aimed to examine the influence of the factors that could influence cooperatives' intention of digitalization adoption, which in turn will influence the cooperative's performance.

LITERATURE REVIEW

Constructed based on the theory of technology acceptance model (TAM) and innovation diffusion theory (IDT), the present study is set to explore the factors that hold potential influence on cooperatives' intention of digitalization adoption. The concept of TAM is primarily developed based on the theory of reasoned action (TRA) and the theory of planned behaviour (TPB) as

introduced by Ajzen and Fishbein (1977). As demonstrated in the studies by Aw et al., 2022; Cham et al. (2022b); Ho et al. (2022); Valencia-Arias et al. (2019) within the area of information system and innovation adoption, the former literature has confirmed the model's validity for the discovery of one's acceptance for technological usage. On the other hand, the concept of the IDT has been extensively employed in the relevant studies of both IS and IT research (Kwon et al., 2021; Yuen et al., 2021). Furthermore, according to Tung et al. (2008), innovation is an object, idea, or practice that is perceived as new by adopting users, and diffusion is the longitudinal process by which innovation is communicated among members of a social system through specific domains. Innovation diffusion can be collectively explained as a transformational process within an organization or an individual upon encountering innovative implementations. As a result, the current study proposed a workable combination of TAM and IDT paradigms for developing and explaining the investigated correlations.

Based on the review of the literature alongside with a preliminary investigation among industry experts, it was found that both external and internal factors were found to have a significant impact on digitalization among business organizations. For example, the evidence across the literature indicated that external factors, such as competitive pressure, government support, and vendor support, were found to have a direct significant direct effect on the digitalization adoption intention among business organizations (e.g., Cobos et al., 2016; Molinillo & Japutra, 2017). Likewise, the literature also indicated that internal factors such as top management support, organization innovativeness and employee capability and knowledge were found to have a significant direct effect on the digitalization adoption intention among business organizations as well (e.g., Hsu et al., 2019; Maduku et al., 2016). Moreover, the past literature highlighted that digitalization adoption intention was found to have a significant impact on the performance of business organizations. Assuming the reviewed discussions within the areas of digitalization adoption among cooperatives, the following hypotheses were, therefore, stipulated:

- H1: Competitive pressure has a significant direct effect on cooperatives' digitalization adoption intention.
- H2: Government support has a significant direct effect on cooperatives' digitalization adoption intention.

H3: Vendor support has a significant direct effect on cooperatives' digitalization adoption intention.

H4: Top management support has a significant direct effect on cooperatives' digitalization adoption intention.

H5: Organization innovativeness has a significant direct effect on cooperatives' digitalization adoption intention.

H6: Employee capability and knowledge has a significant direct effect on cooperatives' digitalization adoption intention.

H7: Cooperatives' digitalization adoption intention has a significant direct effect on their performance.

RESEARCH METHODOLOGY

As for the present study, the target population was the cooperatives in Malaysia. Simple random sampling (with two qualifying questions) was used to collect data from the respondents. In order to generate reliable responses, the two screening criteria that have been imposed in assessing individual qualifications as the respondents for this study include (1) the individual must be a member of the board of director of the cooperative; and (2) he/she is aware of the digitalization effort of the cooperative. The survey questionnaires were distributed using the online-survey platform, Google Forms. A survey invitation was sent to the 300 potential respondents via email and WhatsApp. However, of the entire collected questionnaires, only 256 were found to be usable. As for the context of survey measurement, the measurement scales for the present study were adapted from the existing literature. All measurement items were adapted based on the existing literature and were measured based on the 6-point Likert scale, from 1 = Strongly Disagree to 6 = Strongly Agree.

In addition, the current research adopts partial least squares structural equation modelling (PLS-SEM) approach for the statistical analysis. Smart PLS 3.2.3 software was used to analyse the data collected. The core reason for the use of PLS-SEM is attributed to the appealing characteristics of the current research model, which matches the nature of variance based structural equation modelling. A total of 256 cooperatives participated in this research. Among the total cooperatives that took part in this research, the majority of them (76.2%) have been in operation for 1 year,

while 2-years in operation and 3-years in operation are recorded at 14.1% and 9.4% respectively. In terms of the main functions served by the cooperatives, 30.5% of them carry the function of finance and banking, 27.0% take care of services; and 15.6% are in plantation. Also, it was found that only 34.8% of all cooperatives have employees whose job it is to keep an eye on their digitalization activities.

DATA ANALYSIS AND RESULT

The evaluation of PLS-SEM entails two steps; the first step involves the measurement model assessment, while the second step looks into the structural model assessment (Cham et al., 2020; Hair et al., 2019). Generally, measurement model assessment examines the model's validity and reliability. According to Hair et al. (2017), convergent validity and discriminant validity are examined in the first step. Convergent validity is assessed based on the variables' factor loadings, composite reliability (CR), and the average variance extracted (AVE). For the current research, the variables fulfil the requirements of CR (i.e., > 0.70) and AVE (i.e., > 0.50). Apart from that, most of the items' loadings are greater than the threshold value of 0.7, except several items from the constructs of "Vendor support" and "Employee capability & knowledge" were below the threshold value and thus removed from further analysis. After removal of these items, the result of the analysis indicated that the constructs meet reliability and convergent validity requirement at the measurement level.

Having addressed the requirements of convergent validity, the discriminant validity of the model is then assessed. Discriminant validity measures the extent to which each latent variable is distinguished from other constructs in the model (Hair et al., 2017). Hair et al. (2019) proposed the use of the Heterotrait-Monotrait (HTMT) criterion for discriminant validity testing. Henseler et al. (2015) added that the establishment of discriminant validity, with the HTMT statistics should not exceed 0.90 or 0.85, depending on whether the constructs are conceptually similar. The result of the analysis indicated that all the HTMT values are below 0.90, and thus it can be ascertained that the discriminant validity for the present research is established.

As for the structural model testing, a bootstrapping procedure using 1,000 resampling was conducted to generate the t-values to measure the statistical significance of the path coefficients.

The path co-efficient assessment as showcased in Table 1 indicates that seven hypotheses (H1, H2, H4, H5, and H7) proposed in this research are found to be supported. The results suggest that Competitive Pressure ($\beta= 0.156, p < 0.05$), Government Support ($\beta= 0.049, p < 0.05$), Top Management Support ($\beta= 0.138, p < 0.05$), and Organization Innovativeness ($\beta= 0.255, p < 0.001$), are significantly related to Digitalization Adoption Intention. Additionally, Digitalization Adoption Intention ($\beta= 0.813, p < 0.001$) is also significantly related to Perceived Performance.

Table 1: Hypotheses testing

Hypotheses	β	SE	t-value	P-value
H1: Competitive Pressure -> DAI	0.156	0.046	3.403	0.000
H2: Government Support -> DAI	0.049	0.047	1.054	0.046
H3: Vendor Support -> DAI	-0.002	0.047	0.040	0.484
H4: Top Management Support -> DAI	0.138	0.060	2.305	0.011
H5: Organization Innovativeness -> DAI	0.255	0.082	3.090	0.001
H6: ECK -> DAI	0.059	0.064	0.918	0.180
H7: DAI -> Perceived Performance	0.813	0.026	31.724	0.000

Note: ECK= Employee Capability & Knowledge, DAI = Digitalization Adoption Intention, β = Coefficient Beta, SE = Standard Error

DISCUSSION AND CONCLUSION

There are several key findings worth noting in this study. First, it was found that external factors (e.g., competitive pressure and government support) play an important role in influencing the cooperative's digitalization adoption intention. In particular, this finding reveals that when a firm has sensed that it is under pressure by its competitor, the firm will start to retaliate by following the competitor strategy (Wamba et al., 2020). Hence, competitive pressure may coerce cooperatives into adopting technology so as not to lose competitive advantage. From the lens of policymakers, government support is reported to have a significant influence on the adoption of innovative technology by businesses (Stornelli et al., 2021). In this sense, it is plausible to claim that the support from the government through both monetary and non-monetary aspects can promote cooperative members to digitalize their operations.

As for the internal aspect, it is interesting to note that factors such as top management support and organizational innovativeness were found to be significantly related to the cooperative's digitalization adoption intention. Such findings were also reflected in the past studies whereby it was indicated that top management involvement has an effective role in convincing the employees with their persuasions and motivating their work behaviour (Hsu et al., 2019). This scenario is plausible as top management support is able to connect the role of innovation within the organization's overall strategy, emphasizing the significance of creativity and innovation to subordinates and rewarding initiative (Maduku et al., 2016). Besides, the sense of innovation in an organization can be seen as the willingness of the organization to embark upon new ideas and depart from existing practices (Cham et al., 2022). In this case, it is clear that cooperative members believed that the sense of innovation was critical in influencing their digitalization intentions.

Based on the findings above, it can be concluded that digital transformation in cooperatives requires change management. It involves continuous effort from the board members and the management of the cooperative itself to accept and utilize the use of digitalization technology in their business activities. Cooperatives should respond quickly to enhance their understanding and usage of new technologies in their business operations. Changes to accept the use of digitalization in cooperatives need to be implemented at their process, organizational and business levels. These changes will create more business opportunities and add value to the cooperative's business operations. Digitization does not change the existing processes to digital versions but rather re-evaluating the current operations of the cooperative from a new perspective using digital technology. Therefore, it is important for cooperatives to take a proactive approach in this matter in order to respond to the market and stakeholders' needs. Digitalization transformation is a key issue that provides cooperatives with effectiveness in their organizations as well as provides opportunities such as new services and delivery to their members. In addition, adopting digitalization technology will result in significant changes in the process, organization and business aspects of the cooperative. The cooperative's ongoing commitment to digitalization efforts can help turn these changes into success.

At the policy-making level, policies that use flexible and dynamic approaches suit to the cooperative ecosystem should be viewed in a more holistic manner. This is due to the unique nature

of the cooperative as a member-based organization. The policy formed related to digitalization initiatives must support the business ecosystem of the cooperative and its members. Any activities to inculcate digitization culture and business development in cooperatives should be in line with the existing policies to ensure clearer roles that need to be played to support the government's efforts towards digitization. Apart from that, training bodies such as the Cooperative Institute of Malaysia could assist the government in formulating policies related to digitization as well as being a "One Stop Centre" for digitization initiatives. The development of integrated and updated training modules related to digitalization also needs to be carried out continuously by the institution.

Due to the hypercompetitive landscape, it is of utmost importance for organizations to understand the importance of adopting the latest technology in their operations to remain competitive in the market. Hence, the current findings from the present study have successfully put forward various remarkable contributions to the cooperative sector, specifically as a benchmark of digitalization adoption. With the increased knowledge on issues regarding digitalization adoption intention among cooperatives, the outcomes serve as a guide for cooperatives in improving their day-to-day operations and business strategies to respond to the intense competition head-on, ensuring their long-term profit margin and achieving sustainable growth. Apart from that, this study also yields valuable and relevant information for policy making at the governmental level.

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