Factors of Strategic Management to Create Ubiquitous Organization for Directors in Secondary Educational Service Area Office

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Abstract

This study aimed to create a ubiquitous organization model in Thailand Secondary Educational Service Area Offices. The researchers employed a two-phase research procedure including identification factors in creating ubiquitous organization, followed by using Confirmatory Factor Analysis to test whether the factor structure that the researchers identified was supported by the data. A total of seven and 480 directors or deputy directors were participants in the respective phases using purposive sampling. The qualitative results revealed that six factors were identified by the seven participants that affect the creation of a ubiquitous organization, namely digital communication, smart databases, efficient resource management, monitoring and evaluation, sustaining good practices, and resilient organizational structure. The quantitative results of the ubiquitous organization model were found congruent with the empirical data, with $x^2 = 74.573$, $x^2/ df = 1.129$, p-value = .2196, df = 66, TLI = .993, CFI = .995, RMSEA = 0.020; SRMR = 0.026.

Keywords: *Educational Director; Educational Service Area Offices; Digital Management; Strategic Management; Ubiquitous Organization.*

Introduction

Thailand's education was reflected traditionally on the needs of the local people who are influenced by a mixture of changes in terms of agriculture, tourism, industry, and business development (Khamkhong, 2017).

The late King Bhumibol (Rama IX) introduced the Sufficiency Economy Philosophy, a concept of self-reliance based on three principles, namely moderation, reasonableness, and self-immunity. Consequently, all Thai educational institutions adopted this philosophy not only in their school development plans but also integrated the idea of this philosophy into their teaching (Khamkhong,

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2017). Even though the Thai government has allocated the biggest single share of the national budget each year to promote educational development, educational quality was still reported decreasing. For example, in the Switzerland-based IMD World Talent Report in 2014, Thailand's education system was ranked 49th, compared to neighboring countries such as Singapore (3rd) and Malaysia (11th) (IMD, 2014: p. 26). Despite the educational quality being criticized, particularly in public sectors including Secondary Educational Service Area, the Thai government is aiming to be a regional education hub. If Thai educational quality is below international standards, it becomes urgency for the educational sector to transform to better management skills so that they will be more competitive in ASEAN and globally as well.

The most radical transformation, which is currently occurring in our workplace, the so-called ubiquitous organization is an approach to educational management that controls technology in order to generate a continuous and cohesive system of operations. In other words, ubiquitous technological innovation is beginning to transform the way we work as a result of advances in digital technologies (Ilomäki & Lakkala, 2018). Since the educational world has to respond to the coronavirus 2019 (COVID-19) has caused the greatest speedy transformation of the workplace, we have moved to digitalizing the relationship between directors and subordinates in educational organizations.

Therefore, the capability of an educational organization to innovate is a pre-condition for the successful utilization of intensive resources and new technologies would be an approach of a ubiquitous organization where there are many moving parts and stakeholders to manage as this approach can be particularly useful in school strategic management (Boonkua et al., 2019).

Educational organizations that adopt ubiquitous technologies and concepts can reduce the amount of tension for tasks by taking the anticipated path for getting things done. For example, clients and subordinates are expected to communicate by email and use artificial intelligence in the teaching and learning process. This is because a ubiquitous organization can be a powerful tool for strategic management in educational organizations, helping to create a more efficient, data-driven, and student-centered learning environment. Rongpol et al. (2020) developed a ubiquitous experience-based instructional system to enhance teacher trainees' competencies in operating information technology for education at Nakhon Si Thammarat Rajabhat University, Thailand. Their results indicated that the ubiquitous experience-based instructional system is composed of five components, namely context analysis, input factor analysis, learning process, result, and improvement.

According to Boonkua et al. (2019), there are several methods in which a ubiquitous organization can be applied to strategic management in educational institutions such as streamlining processes, data-driven decision making, enhanced communication, personalized learning, and improved resource management. Streamlining processes refer to educational directors use technology to automate routine tasks so that educational institutions can save time and resources thus reduce the

likelihood of errors. This includes any routine tasks from scheduling and room reservation to managing student information and tracking their learning progress. Moreover, a ubiquitous organization can assist educational directors to collect and analyze data more effectively, allowing for better decision making, so-called data-driven decision making. For example, by tracking student performance, attendance, and behavior, educational directors can identify trends and make data-driven decisions about curriculum, teaching methods, and student support.

In addition, Rongpol et al. (2020) found that a ubiquitous organization can help school directors to improve communication between teachers, administrators, and parents. This encompasses real-time messaging, email, social media, and other digital tools that allow for easy and efficient communication. Rongpol et al. further highlighted that a ubiquitous organization can ease educational institutions to deliver personalized learning experiences that meet the needs of individual students. Consequently, they proposed educational institutions can help students to progress at their own pace and focus on areas where they need more support by leveraging technology to create custom learning plans. Ilomäki and Lakkala (2018) stated that a ubiquitous organization can assist educational directors to manage their resources effectively in order to ensure that teachers and students have the sufficient tools and equipment they need to succeed. As a result, educational directors can save money and create a more efficient learning environment by optimizing resource allocation.

Background of the Study

As reported in Thailand's Strategic Plan of the Public Sector Development from 2021 to 2022, there are three proposed strategies as follows: (i) Developing government agencies' services; (ii) Revising roles, mission, and structure of the government agencies, and (iii) Increasing the efficiency and integrative of public administration. These three proposed strategies are channeled to achieve the following three goals: (i) Developing the government services to meet global standards and respond to citizen's needs and expectations at anytime and anywhere; (ii) Revising and developing roles, mission, and structure of government agencies to be more resilient to disruptive trends, and (iii) Increasing the efficiency and integrative of public administration by using the digital technology. On top of that, the Office of the Public Sector Development Commission (n.d.) has set four key performance indicators such as (i) At least 85 percent of the satisfaction levels of the citizen with public services; (ii) A total of 20 ministries launch e-Services for 170 government services; (iii) Thailand ranked 50th in the E-Government Development Index by 2022, and (iv) Thailand Competitiveness ranking for Government Efficiency rising to the Top 20 by 2022 (Office of the Public Sector Development Commission, n.d.).

According to the Thailand Strategic Plan of the Public Sector Development from 2021 to 2022, we need to find the factors that can be applied to strategic management in educational institutions to be ubiquitous organizations. Based on the literature reviews, the researchers found there are six factors of the ubiquitous organization namely digital communication (Rongpol et al., 2020), smart

databases (Langholz, October 5, 2021), efficient resource management (Spínola & Travassos, 2012), monitoring and evaluation (Muñoz-Cristóbal et al., 2018), sustaining good practices (Harrington et al., 2015), and resilient organizational structures (Johnson, March 19, 2020). It is undeniable that digital transformation is significantly affected educational directors to play important role in establishing a culture for quality of education. As Osorio and Banzato (2022) emphasized the challenge for the future of the ubiquitous organization is to replicate the probable contribution of contemporary educational management tendencies to assist in creating a balance that facilitates the implementation of digital technologies in education while meeting the social ideas that give meaning to the education system.

The outbreak of the COVID-19 pandemic has caused educational directors to begin to rely heavily on digital communication channels such as email, mobile push notifications, and text messaging (SMS). In this line of reasoning, educational directors have to reorganize their operations, improve digital communication with students and parents, and enhance the learning experience for students. Thus, digital communication became indispensable to directors, teachers, parents, and students during the COVID-19 pandemic. These digital communication channels are not only used for communicating class updates and logistical information but also used as teaching aids and as a means to boost student engagement (Langholz, October 5, 2021). Therefore, digital communication channels can be an essential part of the communication of ubiquitous organizations because these communication channels allow for effective and efficient communication, which assists to improve the experience for students.

In addition, smart databases can be a useful tool for educational management in providing a central source for storing, organizing, and accessing information. As a result, school directors can use smart databases to promote a ubiquitous organization where all users can access the same information. The data is managed in a centralized, automated, and customized manner can lead to increase productivity, and improve educational directors' capability in decision-making. Hence, it a more effective and efficient for the overall performance of a ubiquitous organization (Spínola & Travassos, 2012). Another important factor of a ubiquitous organization is efficient resource management which can assist educational directors to maximize the use of available resources, reducing costs, and improving the learning environment for students. Educational directors can implement strategies for tracking, budget planning procurement, technology, and community partnerships so that they can optimize their resource use, reduce operation costs, and improve outcomes for students. In short, efficient resource management is one of the factors to promote ubiquitous organization because it can create a positive and productive learning environment for students.

Monitoring and evaluation are critical factors of ubiquitous organization in providing a framework for measuring progress, identifying areas for improvement, and making data-driven decisions for school improvement (Muñoz-Cristóbal et al., 2018). Besides, sustaining good practices is a factor of a ubiquitous organization and can be very challenging to implement, according to Harrington et

al. (2015). There are several strategies to sustain good practices of the ubiquitous organization that can be employed to ensure that educational institutions continue to operate in a consistent and effective manner over time. The last factor of a ubiquitous organization is by creating a resilient organizational structure so that educational directors can promote a culture that is flexible, adaptable, and responsive to changes in the learning environment. This can lead to increased efficiency, improved decision-making, and a more resilient and sustainable organization.

The above discussion in accordance with literature reviews had led the researchers to conceptual the predicted relationships between the six independent variables, namely digital communication (Rongpol et al., 2020), smart databases (Langholz, October 5, 2021), efficient resource management (Spínola & Travassos, 2012), monitoring and evaluation (Muñoz-Cristóbal et al., 2018), sustaining good practices (Harrington et al., 2015), and resilient organizational structure (Johnson, March 19, 2020) joined together to appeal to coherent associations in promoting a ubiquitous organization. Figure 1 demonstrates the conceptual framework to justify the main aim of this study. This study aimed to explore the factors of strategic management that could be used by educational directors in Secondary Education Service Area Offices to create a ubiquitous organization, followed by testing the hypothesis that the identified factors are related to each other in a way that is consistent with the proposed underlying factor structure. Figure 1 shows the conceptual framework for this study.
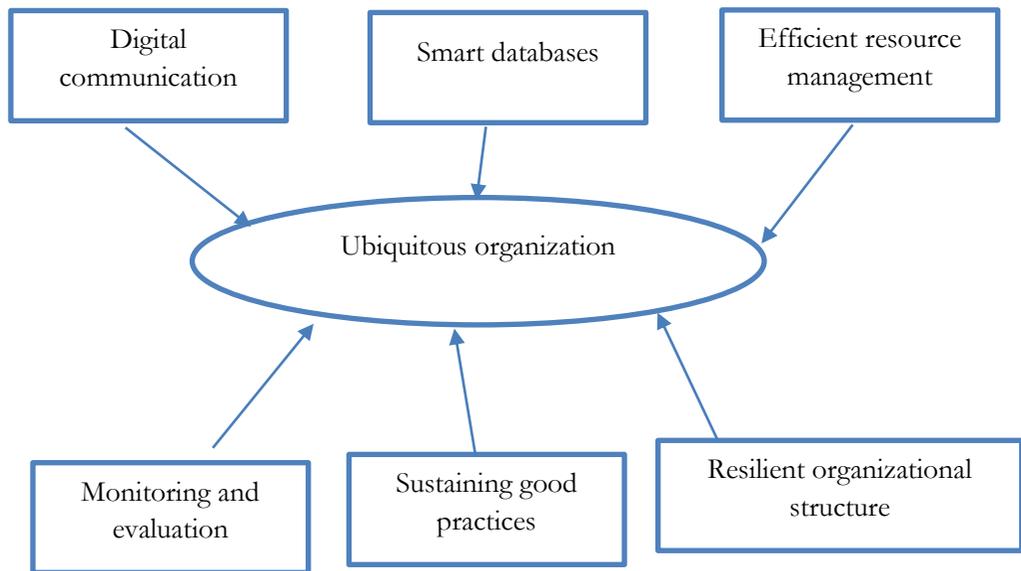

Figure 1. Conceptual framework

Methodology of the Study

Population and participants

The population of this study was a total of 487 educational directors, namely 274 directors and deputy directors of the Secondary Educational Service Area Offices and 213 directors from the Information Technology Department of the Ministry of Education, Thailand. The researchers employed a purposive sampling technique to select seven participants for in-depth interviews. The purposive sampling technique allows the researchers to focus on participants who can provide relevant and valuable insights into the study's aim (Nikolopoulou, December 1, 2022). The researchers decided to select purposively from the selective nature, namely two directors and two deputy directors of the Secondary Educational Service Area Offices and three directors from the Information Technology Department of the Ministry of Education to avoid potential biases that may arise from the sampling technique.

The non-probability sampling technique was used because researchers have limited individuals who are holding the position of directors or deputy directors. Moreover, the researchers have to select the participants based on specific criteria that they have the knowledge and experience about factors of strategic management to create ubiquitous organizations (Nikolopoulou, December 1, 2022). The seven educational directors who were involved in the in-depth interviews were excluded from the second phase of the study. The remaining 480 educational directors were purposively selected to participate in a survey to examine the congruence between the identified factors of a ubiquitous organization for the Secondary Educational Service Area Offices from the first phase and the empirical data.

Study design and instruments

Although the researchers employed a mixed-mode study design typically involved collecting and analyzing both qualitative and quantitative data, with a greater emphasis on qualitative data. The researchers emphasized qualitative data due to these two reasons, namely the complexity of the study aim and the exploratory nature of the study (Schoonenboom & Johnson, 2017). The qualitative method of interviewing seven educational directors was useful when the researchers investigated complex phenomena such as identification factors of strategic management to create a ubiquitous organization for directors in Secondary Educational Service Area Offices that could not be easily measured. In this case, qualitative data could provide more in-depth insights into the experiences and perspectives of the seven study participants who were involved actively in their educational institutions. Moreover, qualitative research design could be especially useful in this study when the researchers were exploring an emerging topic to identify factors of strategic management to create a ubiquitous organization. Hence, this study design allows the researchers to generate new factors that could be tested in the second phase (Schoonenboom & Johnson, 2017).

Study instruments used in this study consisted of two types, namely an interview protocol and a questionnaire to collect qualitative and quantitative data. The interview protocol comprised six interview questions to investigate factors of a ubiquitous organization for gaining insights into organizational dynamics and factors that contribute to creating a ubiquitous organization. The researchers carefully planned and executed the study to make sure that the interview questions were adequately addressed so that the results were meaningful and valid. The researchers developed the structure of the questionnaire which consisted of 25 closed-ended items after the factors of strategic management of educational directors had been identified by the seven participants in the first phase.

A total of six sections encompassing six variables, with 25 items was a quantitative instrument used in the second phase of this study. The six variables were digital communication, smart databases, efficient resource management, monitoring and evaluation, sustaining good practices, and resilient organizational structure. Section A of the questionnaire comprised six items, planning to collect data about educational directors' perceptions of digital communication levels. Section B to Section F were explicitly used to measure the frequency of the rest of the factors such as smart databases (5 items), efficient resource management (4 items), monitoring and evaluation (4 items), sustaining good practices (3 items), and resilient organizational structure (3 items), giving a total of 25 items. To evaluate the respondents' responses toward the variables perceived by educational directors of Secondary Educational Service Area Offices, a five-point Likert scale was applied.

Pilot study and data analysis

The researchers conducted a pilot study to test the interview protocol and questionnaire to ensure that the interview questions and questionnaire items were effective in eliciting the information needed to achieve study aims and improved the quality of the data collected during the actual study. Firstly, the researchers identified a small sample of five participants who are educational directors and similar to the target participants of this study. This was followed by administering the interviews with the five selected participants and asking them the six interview questions. The interviews were conducted in person. The researchers observed the five participants' reactions and responses to the interview questions. At the same time, the researchers took note of any misperceptions that arose and recorded the time taken to complete the interview. After the researchers completed the interviews of the pilot study, participants responses to the interview questions were analyzed in order to identify any questions that were not clear, or the participants struggled to provide a response. Finally, the researchers revised the interview questions using the feedback obtained from the pilot study. The researchers reworded some questions and added clarifying statements to ensure that the interview questions are clear and easily understood (Gay et al., 2009).

On the other hand, the researchers also conducted a pilot study to test the questionnaire that was developed based on the interview results from the actual study. The pilot study was an important

research process to confirm that the questions are clear, easy to understand, and effectively elicit the information needed to achieve the study aim. The researchers selected five academic experts from a faculty of education to judge the content validity of the questionnaire. This was followed by selecting 10 educational directors who have a similar background to the target group of this study to answer the questionnaire that was administered online. In the pilot testing of the reliability, Cronbach's alpha values indicated that the questionnaire was reliable and good to utilize as the overall reliability value of the pilot test was 0.971.

The researchers employed content analysis to analyze the interview data. Firstly, the researchers transcribed all interview data into a written format. The whole qualitative analysis process was carried out using the NVivo software program (McNiff, November 9, 2016). This was followed by unitizing the data by breaking it down the data into smaller units, such as sentences or paragraphs, that could be analyzed. The next step was to code the data. The researchers assigned codes to the units of data that represent concepts or themes that emerged from the data. Then, the researchers started to group the codes into broader categories or themes. This step involves looking for similarities and differences among the codes and grouping them together according to those similarities and differences. The final step was to analyze the data by looking for patterns, themes, or any relevant information that emerged from the data. This was done using narrative analysis as the method of data analysis.

A hypothesized model was specified after the researchers obtained the qualitative results from the first phase with a set of observed variables (ubiquitous organization) and latent variables (digital communication, smart databases, efficient resource management, monitoring and evaluation, sustaining good practices, and resilient organizational structure). The researchers employed Confirmatory Factor Analysis (CFA) as a statistical technique used to test the factor loading in the ubiquitous organization model. The factor loadings would represent the relationship between the observed variable and the latent factors. The purpose of using CFA was to determine how well the observed variable is associated with the latent factors in the ubiquitous organization model (Hair et al., 2003).

Results

The results are first presented as qualitative interview results followed by quantitative survey results. The researchers organized the results in a way that best supports the overall aim of this study.

First phase of study: Interviews results

The main aim of the in-depth interview with the seven educational directors was to obtain the identification of factors of strategic management to create ubiquitous organization in Secondary Educational Service Area Offices. The seven participants were labeled as P1 to P7.

Digital communication

The results revealed that the seven educational directors have suggested some ways in which digital

management can be applied in Secondary Educational Service Area Offices using student information systems, learning management systems, communication platforms, digital assessment tools, and resource management. The followings are the verbatim interview records to support the importance of digital communication factor in creating ubiquitous organizations:

"I feel that student information systems of educational institutions can be one of the factors to cultivate ubiquitous organization. This is because educational directors can track and manage student information easily, such as attendance records, academic performance, and behavioral data. This information is very important to educational directors because we can use it to identify struggling students at the early stage, create targeted interventions, and track their progress over time." (P1)

"In my opinion, learning management systems can be another factor to promote a ubiquitous organization. This kind of learning management system can help educational institutions deliver online learning experiences, organize course materials, and track student progress, particularly during COVID-19 and also New Normal now. This learning management systems allow for greater flexibility in how students learn and thus assist teachers to better personalize instruction." (P2)

"I would like to suggest digital communications such as email, messaging platforms, and social media as an essential factor of the ubiquitous organization. These communication platforms can help educational directors communicate more effectively with parents, students, and teachers. Hence, educational directors can build stronger relationships with families and create a more supportive learning environment if we are keeping everyone informed and engaged." (P3)

"We need to admit that a ubiquitous organization can help educational directors to improve digital communication between teachers, administrators, and parents thus enhancing smooth communication. This includes real-time messaging, email, social media, and other digital tools that we have nowadays. I feel that digital communication tools allow for easy and efficient communication." (P4)

"I take one example of digital communication such as email which is a widely used form of digital communication that can be used for a variety of purposes. This includes sharing information, scheduling meetings, and sending newsletters. Email is a quick and easy way to communicate with many people at once." (P5)

"I would like to emphasize digital communication like social media. Social media platforms that I mean such as Facebook, Twitter, and Instagram can be used to share information, updates, and news about the educational institution. These social media platforms can be utilized to engage with parents and students and ultimately building a sense of community." (P6)

The results revealed that digital communication is one of the factors in promoting ubiquitous organization. This implies that digital communication can ease educational directors communicate more effectively and efficiently with parents, students, and other stakeholders. Besides, digital

communication can help to rationalize communication processes, saving time and resources. However, it is vital to make sure that digital communication is utilized in a way that is appropriate for the educational institution's needs, and that all stakeholders are comfortable with the technology being used.

Smart databases

The interview results indicated that all participants agreed that smart databases are one of the essential factors in promoting ubiquitous organization together with the ways in which smart databases can be applied in educational management at the Secondary Educational Service Area Offices. The seven participants suggested that smart databases should be applied in student information systems, resource management, digital asset management, curriculum management, and communication management. The verbatim responses are explicitly demonstrated how to use smart databases to create a ubiquitous organization:

"A smart database can be used to store and manage student information, such as enrolment data, attendance records, academic performance, and behavioral data. This can assist school directors and teachers so that they can access and analyze this information easily. Therefore, student information systems can be used to identify struggling students at the initial stage, create targeted interventions, and track progress over time." (P7)

"My view is smart databases should be used to manage school resources, such as equipment, textbooks, and supplies. Resource management using smart databases assist educational directors to track inventory levels, allocate resources efficiently, and identify areas where resources are needed." (P1)

"A smart database can be used in digital asset management like storing and managing digital assets, namely photos, videos, and documents. Appropriate digital asset management can help educational directors and teachers to access and share those assets easily and can be used to support the teaching and learning process." (P4)

"I think smart databases should be used in curriculum management like storing and managing curriculum materials. Curriculum materials that I mean are lesson plans, assessments, and course content. If our curriculum management using smart databases can help teachers to access and update easily that can be used to improve the quality of instruction and enhance the student's learning experience." (P6)

"Smart databases can be used in communication management such as managing communication with parents and other stakeholders. Digital communication platforms include email, messaging platforms, and social media. I mean educational directors can utilize smart databases in their communication management so that they are able to inform and engage everyone and build strong relationships with their students' families, and create a more supportive learning environment." (P2)

The above interview results concluded that smart databases can be a powerful factor to promote the ubiquitous organization in terms of student information systems, resource management, digital asset management, curriculum management, and communication management. This implies that educational directors should use smart databases so that their management becomes more efficient, effective, and student-centered. As a result, it is important for educational directors to ensure that the data is stored in an accurate and secure database, and in compliance with data protection regulations as well.

Efficient resource management

The seven educational directors confirmed that efficient resource management is one of the factors in creating ubiquitous organization. They recommended some ways in which efficient resource management can be applied, namely resource tracking, budget planning, effective procurement, implementing technology, and community partnership. The summary of the five participants' interview results is presented below:

"In my opinion, what the educational directors can manage efficient resource management is resource tracking. For instance, they should keep track of all resources, such as textbooks, equipment, and supplies, so that all these resources are being effectively used. This includes they have to implement a tracking system to monitor inventory levels, usage, and maintenance schedules." (P3)

"As we all know every school is having its budget planning. Therefore, a well-planned school budget is an important part of resource management. For example, educational directors should review their financial position regularly, set priorities, and allocate resources effectively. In other words, they have to identify those areas where cost savings are required, for instance reducing energy usage, optimizing staffing levels, and minimizing waste." (P5)

"Efficient resource management is defined as effective procurement. If educational directors can procure resources efficiently will definitely reduce costs and improve resource management. This includes their ability in negotiating prices with suppliers, use cooperative purchasing agreements, and purchasing resources in bulk are some of my suggestions." (P7)

"In the current conditions, technology is an important tool for improving resource management. Therefore, educational directors must possess the ability in using software to manage inventory and track usage, implementing online learning platforms to reduce the need for physical resources, and using energy-efficient technologies to reduce energy costs. All these procedures are the ways of implementing technology" (P1)

"Community partnership can be one of the efficient ways of resource management. This is because partnership with community organizations is an effective method for us to access additional resources and support for our organizations. We can be a partner with local businesses for supplies, donations, volunteer support, and partnering with a community organization for after-school

programs, mentoring, and other support services are a few examples of community partnerships." (P2)

The interview results revealed that some strategies including resource tracking, budget planning, effective procurement, implementing technology, and community partnership are important for educational directors to consider in order to manage resources efficiently.

Monitoring and evaluation

The fourth factor is monitoring and evaluation as identified as a significant factor of the ubiquitous organization. The participants came to the consensus of five key steps for effective monitoring and evaluation in educational institutions as follows: (i) Set clear goals and objectives; (ii) Develop performance indicators; (iii) Collect and analyze data; (iv) Use data to inform decision-making, and (v) Communicate results.

"The first step of the monitoring and evaluation process is to set clear goals and objectives. Educational directors should establish clear goals and objectives that align with the institution's vision and mission. These goals have to be specific, measurable, achievable, relevant, and time-bound in order to make sure that these goals and objectives are achievable and actionable." (P1 to P7)

"The second step is to develop performance indicators. Performance indicators are metrics that are used to measure progress toward the goals and objectives set in the first step. These indicators should be based on reliable data sources and should be measurable and relevant to the specific goals being pursued." (P1 to P7)

"The third step is to collect and analyze data. Educational directors should collect and analyze data on a regular basis to monitor progress toward the goals and objectives. This includes academic performance data, attendance data, behavioral data, and feedback from stakeholders. The data should be analyzed regularly to identify areas for improvement and to track progress over time." (P1 to P7)

"The fourth step is to use data to inform decision-making. Educational directors should use the data collected to make informed decisions about school improvement. This includes developing action plans to address areas of weakness, identifying best practices to replicate, and making changes to policies and procedures based on the data." (P1 to P7)

"The final step is to communicate results. Educational directors should communicate the results of the monitoring and evaluation process to stakeholders, including teachers, parents, and students. This includes sharing progress reports, hosting community meetings, and publishing results on the school's website." (P1 to P7)

The researchers concluded the five steps of monitoring and evaluation are important for identifying areas of improvement and for making data-driven decisions that can improve the learning

environment for students. Schools can create a culture of continuous improvement and drive better outcomes for students by following the five steps presented above.

Sustaining good practices

Sustaining good practices was identified as an essential factor to create ubiquitous organization. The participants provided some strategies for sustaining good practices in Secondary Educational Service Area Offices to maintain a culture of continuous improvement in educational institutions and ensure long-term success as reflected in the following verbatim responses.

"I feel that educational directors should establish a culture of continuous improvement that values ongoing learning and development as a way to sustain good practices. Therefore, educational directors should provide sufficient opportunities for teachers and administrators, encouraging feedback and reflection, and prioritizing collaboration and teamwork." (P1)

"In my opinion, we can institutionalize good practices. For instance, good practices should be integrated into the school's policies and procedures. Sustaining good practices include developing standard operating procedures, creating policies that support good practices, and embedding good practices into the school's curriculum and instructional practices." (P2)

"We also need to monitor the progress of good practices. As a result, school directors should monitor the progress of good practices regularly to make sure that they are progressing toward the educational institutions' goals and objectives as a method of sustaining good practices. What the educational directors should do are collecting and analyze data on student performance, teacher effectiveness, and other key indicators." (P3)

"Sometimes celebrating successes can ease us to reinforce good practices. Thus, it can motivate teachers and students to continue their efforts as a way of sustaining good practices. In this line of reasoning, educational directors should recognize and reward achievement, share successes with the wider community, and highlight the impact of good practices on student learning and achievement." (P4)

"We cannot deny that engaging stakeholders, such as parents, teachers, and students can help us to develop a rapport for good practices and ensure their sustainability at the same time. Therefore, I would like to suggest to educational directors that they can solicit feedback and input, involve stakeholders in decision-making processes, and communicate regularly about the progress and successes of the educational institution." (P5)

The interview results of sustaining good practices were found to be an essential factor for creating a ubiquitous organization to ensure long-term success in educational institutions. This is because educational directors can create a sustainable environment that supports ongoing learning and development for students and teachers by establishing a culture of continuous improvement, institutionalizing good practices, monitoring progress, celebrating successes, and engaging stakeholders.

Resilient organizational structure

Resilient organizational structure was the final factor identified by participants to create ubiquitous organization. The participants emphasized the importance of organizational structures that are resilient for strategic management in educational institutions that could be designed to support effective decision-making, collaboration, and communication. There are five key characteristics of resilient organizational structures for strategic management in educational institutions, namely clear lines of authority and responsibility, collaborative decision-making, flexibility and adaptability, efficient communication channels, and continuous improvement demonstrated in the following verbatim responses.

"We need to know that an effective organizational structure is established on clear lines of authority and responsibility so that everyone knows his or her roles and responsibilities. Therefore, educational directors should define clearly job descriptions, report structures, and decision-making processes to their subordinates." (P6)

"I would like to give my idea regarding collaborative decision-making as one of the key characteristics of a resilient organizational structure. A resilient organizational structure should prioritize collaborative decision-making to guarantee that all stakeholders have their voice in making important decisions. So, educational directors can create cross-functional teams, establish a committee, and solicit feedback from teachers, students, and parents." (P7)

"My points for a resilient organizational structure is the flexibility and adaptability. This can be done by educational directors by creating contingency plans, anticipating potential challenges, and adjusting strategies and plans as needed. These steps can prepare a resilient organizational structure to be flexible and adaptable to changing circumstances." (P1)

"Another important point I would like to highlight is efficient communication channels. This is because a resilient organizational structure should establish efficient communication channels to guarantee that information is shared quickly and effectively. This can be worked with the condition that we must use digital tools, such as email and messaging apps, and establish regular meetings to create ubiquitous organization." (P2)

"I always believe that a resilient organizational structure should prioritize continuous improvement to make sure that creating ubiquitous organizational processes and practices are continually evaluated and refined. I suggest to educational directors should establish regular performance reviews, seek feedback from stakeholders and implement data-driven decision-making." (P3)

The interview results revealed that educational directors should prioritize clear lines of authority and responsibility, collaborative decision-making, flexibility and adaptability, efficient communication channels, and continuous improvement in order to create a resilient organizational structure that supports strategic management in creating ubiquitous organization.

Second phase of study: Survey results

After the researchers identified the six factors (latent construct) of strategic management to create a ubiquitous organization, a CFA was employed to evaluate the fit of a theoretical model to the data. Hence, the researchers determined whether the model provides a good representation of the relationships among the variables.

Quantitative results of CFA for factors of ubiquitous organization

The researchers sought to obtain estimates of the parameters of the ubiquitous organization model by examining the validity of the six identified factors and their factor loading of the ubiquitous organization. In other words, factor loading was used to measure the strength of the relationship between a latent variable and its observed indicators. In CFA, a latent variable is defined by a set of indicators that are hypothesized to be related to the underlying construct (Hair et al., 2013). Since factor loading was calculated by regressing the observed indicator on the latent variable, and the resulting coefficient represented the strength and direction of the relationship between the each identified factor and ubiquitous organization, factor loadings range in value from -1 to 1, with higher absolute values would be used for indicating stronger relationships between the latent variable and the observed indicator.

Table 1 shows that the co-variance with factors of ubiquitous organization ranged from 65.30 to 99.50 percent. The factor loading of all factors of ubiquitous organization are ranged from 0.808 to 0.997 and is statistically significant at 0.01. The factor with the highest factor loading value is smart database. This is followed by digital communication, monitoring and evaluation, efficient resource management, and resilient organizational structure. The factor that has the lowest factor loading value is the sustaining good practices. In conclusion, all the five identified factors are found to be vital constructs of ubiquitous organization for educational directors of Secondary Educational Service Area Offices. Table 1 illustrates the initial quantitative results of the second phase.

Table 1 Results of CFA for factors of ubiquitous organization

Factors	Factor Loading			Coefficient Determination R^2
	β	S.E.	t	
Digital communication	0.963	0.028	35.006	0.927
Smart databases	0.997	0.023	43.470	0.995
Efficient resource management	0.930	0.040	23.416	0.865
Monitoring and evaluation	0.950	0.045	21.150	0.903
Sustaining good practices	0.808	0.055	14.566	0.653
Resilient organizational structure	0.882	0.030	29.792	0.779

The Goodness of Fit Indexes for ubiquitous organization model with empirical data. The overall ubiquitous organization model was investigated whether it was acceptable or not in Structural Equation Model (SEM) depending on the fit indices (Ullman, 2001). The results of the linear

structural equation model of factors exposed that there is a goodness of fit with distinct data or highly correlated with experimental data, with $x^2 = 74.573$, $x^2 / df = 1.129$, p-value = .2196, df = 66, TLI = .993, CFI = .995, RMSEA = 0.020; SRMR = 0.026. The quantitative results showed that the survey assessments have successfully verified what method associated with real scores were fixing to the expected scores in the ubiquitous organization model. In other words, these tests were utilized to determine how associated real values are fitting to the expected values in the ubiquitous organization model in accordance with the rules of thumb and cut-off values for evaluating fit indices in SEM set by the following specialists (Diamantopoulos & Siguaw, 2000; Hu & Bentler, 1999; Ullman, 2001).

The result of x^2 / df was found to be 1.129 which should be <2 according to Ullman (2001). This was followed by the CFI and TLI scores 0.995 and 0.993 respectively were near to 1. Hence, the CFI and TLI values should be ≥ 0.95, according to Hu and Bentler (1999). In addition, the RMSEA = 0.020 which is < .06 thus fulfilling the cut-off values recommended by Hu and Bentler (1999). Finally, the SRMR = 0.026 was < .05, as the cut-off values proposed by Diamantopoulos and Siguaw (2000). In short, the CFA results were found to achieve the cut-off criteria for fit indexes in covariance structure analysis (Hu & Bentler, 1999). Therefore, the researchers concluded that the validity of their assumptions about the relationships among the variables and the factor structure are found consistent across different subgroups of the population.

Discussion and Conclusion

The current study suggests that a ubiquitous organization is found to be an organizational structure that is capable of operating anytime, anywhere, and with any device. In this line of reasoning, the results showed that this type of organization is empowered by digital communication, smart databases, efficient resource management, monitoring and evaluation, sustaining good practices, and a resilient organizational structure. These results confirm past studies, including Rongpol et al. (2020), Langholz (October 5, 2021), Spínola and Travassos (2012), Muñoz-Cristóbal et al. (2018), Harrington et al. (2015), and Johnson (March 19, 2020).

The implications of these results are discussed in detail. The first factor is digital communication which enables a ubiquitous organization to collaborate and communicate effectively, regardless of geographical barriers. The second factor is smart databases which are essential for ubiquitous organizations to store, organize, and analyze data efficiently. Moreover, ubiquitous organizations require efficient resource management to ensure that educational directors can operate effectively, regardless of location or device as the third factor. Monitoring and evaluation are crucial for ubiquitous organizations to measure their performance, identify areas for improvement, and adjust their strategies accordingly. Thus, the fourth factor is monitoring and evaluation identified by the seven participants in this study. Nevertheless, ubiquitous organizations must sustain good practices as the fifth factor to ensure that educational directors can maintain high standards of performance and also their competitive advantage. Finally, a resilient organizational structure is an essential

factor for ubiquitous organizations to survive and thrive in an increasingly competitive and uncertain environment.

In conclusion, digital communication, smart databases, efficient resource management, monitoring and evaluation, sustaining good practices, and a resilient organizational structure are all significant factors as reflected in CFA survey results for the success of the ubiquitous organization for Secondary Educational Service Area Offices in Thailand. In this line of reasoning, educational directors are suggested to practice the most significant factor, namely smart databases. They should allow their educational institutions to quickly access and analyze data from various sources, leading to better decision-making and improved performance. This implies that smart databases enable ubiquitous organizations to identify trends, patterns, and insights, which can be used to create new services and teaching models. The second highest significant factor is digital communication. The results imply that educational directors should allow for foster and more efficient communication through various digital channels such as email, video-conferencing, and instant messaging. With digital communication, ubiquitous organizations can respond to students, parents, teachers, and stakeholders in real-time, leading to increased productivity, efficiency, and competitive advantage.

The third significant factor is monitoring and evaluation which can be utilized to promote ubiquitous organization. By monitoring key performance indicators, ubiquitous organizations can track progress towards their goals, identify trends, and detect potential issues before they become critical issues. Besides, evaluation can help educational directors to learn from their successes and failures, leading the educational institutions to continuous improvement. The fourth significant factor is efficient resource management. This factor includes managing physical resources such as office space and equipment such as cloud storage and software licenses. Efficient resource management assists educational institutions to reduce costs, optimize processes, and improve overall performance. The fifth significant factor is resilient organizational structure encompasses having flexible and adaptive structures that can respond quickly to changes in the market or operating environment. The results imply that resilient organizational structures also include clear lines of communication, effective leadership, and a culture of innovation and continuous improvement.

The least capacity factor is sustaining good practices which includes establishing best practices for communication, collaboration, resource management, and customer service. Therefore, ubiquitous organizations can improve their efficiency, quality, and overall performance by sustaining good practices. Therefore, educational directors are suggested to leverage these six factors so that organizations can achieve greater agility, flexibility, and efficiency, leading to increased performance, client satisfaction, and competitive advantage. Finally, Thailand Ministry of Education was suggested to include ubiquitous organization model in educational administrators' preparation training program. On top of that, future researchers can develop a critical instrument by helping as a reasonable yardstick for professional training development, and for advancing more desirable experimental study on how ubiquitous organizations in terms of utilization of the six

identified factors.

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