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A Conceptual Paper of Managing Information System Resources for Agriculture Productivity

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ABSTRACT

Agriculture is the backbone of food production and a key component of a nation's economic development. Rapid advancements in information technology (IT) have promised significant potential benefits, particularly for developing countries. Numerous prior studies have documented the success of IT applications in agriculture. However, regardless of its success, the transition has created many problems and challenges for farmers. Thus, this conceptual paper of a future study based on the review of literature explored information technology (IT) in agriculture, Resource Based-View (RBV) theory and Dynamic Capabilities (DC) perspectives. Despite the rapid growth of IT in agriculture, the usage and application of IT in this sector remain inadequate due to several issues in managing the area. Therefore, this conceptual paper suggests a model that could explain how the Information Systems (IS) resources of a local farming business in Malaysia are being managed to achieve agriculture productivity along with the perspective of DC. This paper then went on to examine the subject, concepts, and objectives for the upcoming study using a variety of works of literature from several disciplines. The findings of this prospective study may provide insight into how IT management in agriculture might be improved to fully utilise IT potential to boost agricultural productivity.

Keywords: Information Technology (IT), RBV theory, DC perspective, Agriculture Productivity

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1. INTRODUCTION

Agriculture is an important sector that plays a critical part in a country's economic development and food security (Pawlak & Koodziejczak, 2020). Contribution to national income, source of food and raw material, provision for export agriculture products, development of agriculture infrastructures, relief from capital shortages, reduction in income inequality between rural and urban areas, and creation of effective demand for purchasing power are just a few of the crucial roles of the agriculture sector (Praburaj, 2018). So far, the agriculture sector has contributed to developed countries' economic welfare while expressing its vital significance to economic development in developing countries (Macatta, 2016). In developing countries such as Myanmar, Ethiopia and Somalia, people mainly depend on the agriculture and farming industries (Edwin, 2017). According to the World Resources Institute, the global human population will nearly reach ten billion people by 2050, and as demand for food is expected to grow substantially in 2050, it is required to ensure 56 per cent greater food production to meet human requirements (Ranganathan et al., 2018). Due to that, technology applications could help farmers and related parties use reliable data genuinely in making decisions that offer low-input agriculture but still maintain sufficient agriculture productivity (Santiteerakul et al., 2020).

The unprecedented impact of the Covid-19 epidemic on livelihoods and food security has served as a wake-up call to address the inadequacies, vulnerabilities, and numerous hazards in agri-food systems, as well as to secure their functions in the event of disruptions. The agriculture sector may increase farm profitability and productivity thanks to technological advancements (Shivappa et al., 2018). Precision agriculture, for example, is widely employed in developed countries such as the United States, the Netherlands, and Ireland, and the implications could be seen in higher net returns and operating profits (Saiz-Rubio & Rovira-Más, 2020; Schimmelpfennig, 2016). Current technology, such as e-commerce, the internet of things (IoT), big data analytics, automation, artificial intelligence, and digital service delivery systems, must be in place to develop a digital bio-economy (FFTC & MARDI, 2021, Santiteerakul et al., 2020). Digital agriculture also offers massive potential in opening new opportunities for agri-food producers such as micro and small and medium enterprises to enter regional and global markets (FFTC & MARDI, 2021). All related parties are called out to emphasise the importance of digital agriculture in this phase. Therefore, it is significant for policymakers, industry players, researchers, and agri-food producers to give attention to these digital applications as their plan of action to

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build up the food value chain, add value to economic growth, and indirectly improve the excellent quality of sustainability transformation (FFTC & MARDI, 2021).

The world population has continually increased, and there is no argument over this fact. However, the effort to produce more foods to meet the population's demand has become crucial (Fróna et al., 2019). It took so many decades for farmers to work hard and experience many changes from the traditional to a digital world to supply food to fulfil the food demand. In 2017, more than 50% of the world's vegetated land for agriculture had been used, and there is a need to prevent using more land as land resources are limited and currently difficult for anyone to access (Ritchie, 2017). Katarzyna Zmija et al. (2020) found that research in both developing countries of Europe and African, nearly half of the respondents do not operate their production solely on their land, proving that farmers are struggling to access land, thus causing them to run their farm production on lease land (FAO, 2017; Żmija et al., 2020). Covid-19 also has disrupted the agriculture sector with a shortage of labour when there is a limitation of people across borders and lockdown, effect the significant changes in the composition of consumer demand and disruptions to food supply chains were to prevent these risks, immediate changes in the way food are prepared and distributed are required. Furthermore, there is also an issue of access to financial resources, such as obtaining credit and finance for Europe and African farmers, as the formal banking sector has considered farming a high-risk field to invest in (Żmija et al., 2020). Human resource issues also are no exception. Young generations nowadays prefer to work in sectors other than agriculture, which causes a workforce shortage and leads farmers to hire migrant labours (Rahmat et al., 2019).

While this conceptual paper discussing on developing countries, Malaysia is no exception in facing IS management issues in the agriculture sector. Past studies have analysed and discovered many issues and challenges of IS resources management in agriculture businesses. Evolvement and acceptance of the computerized-accounting system in the agriculture sector of Malaysia are considered to be at a low rate (Shukor et al., 2020). Furthermore, there is lacked reliable Internet connection in rural areas and limited knowledge about advanced technology used in the agriculture industry among local farmers in Malaysia (Tambi & Dardak, 2020). Moreover, low teaching capacities and insufficient resources funded by the government and related parties have also deployed technological usage among traditional farmers (Razali et al., 2018). Technically, this conceptual paper has come out defining IS resources that refer to the integration of Accounting Information System (AIS) and other IT resources categorised as infrastructure, people and organisation within the scope of resources in agriculture that could be managed to achieve agriculture productivity. This paper has found that the current situation in Malaysia is similar to other developing countries such as Thailand, the Philippines and Indonesia. Thus, this conceptual paper on managing IS resources could benefit agriculture in Malaysia in terms of understanding and exploring how local farmers actually manage their IS resources for agriculture productivity. The table below shows the similarity of issues and challenges faced by the country mentioned collected from past literature.

Table 1: Similarity of AIS and other IT resources issues in nearby countries

Country	AIS	Infrastructure	People	Organisation
Malaysia	Low rate of acceptance and usage among farmers	Lack of Internet connection in rural areas	Limited knowledge of advanced technology in agriculture	Insufficient funds from the government and related parties
Philippines	Lack of capability training on usage of AIS	Insufficient amount of farming mechanisms and facilities	Lack of young generation participation	Minimal support for research and development
Thailand	Slow development of software	Poor water management	Lack of well-rounded managers	Weak governance and farm debt issues
Indonesia	Slow development and improvement of IS integration	Decline investment in rural infrastructure	Aging farmers in the agriculture sector	Weak management of government and related parties

The conceptual paper is significant because it has implications for several groups of potential academic and agricultural sector users. The study investigated the impact of managing information technology resources in the farming business of developing countries on agricultural productivity. Also, the current context will look into the relationship between RBV and DC theories for agricultural productivity. As a result of these linkages, existing and potential small agriculture businesses may be better to improve resource management while also learning new information and skills for greater productivity in their farming operations. This research is also essential for policymakers who are developing agricultural policies in order to meet the goal of producing enough food to feed the world's population in the year 2050. In conclusion, managing IS is crucial for agriculture business development to support farming productivity. Therefore, the purpose of this study was to inform the farmers about the major issues and challenges concerning the usage of IS in the agriculture sector. These issues of IS resources could benefit Malaysia in terms of understanding and exploring more how local farmers actually manage their resources. In turn, the insights obtained from this study could affect the usage and utilisation of IS in agriculture businesses.

Therefore, this conceptual paper intends to propose a model that could explain how the IS resources are being managed to achieve the agriculture productivity of a local farming business in Malaysia with the perspective of dynamic capabilities. As such, research questions that will be addressed are:
i. What are the IS resources used in a local farming business?
ii. How are the IS resources managed to achieve agriculture productivity?

In this conceptual paper, the study is derived to explain on how a local farming business manages it's IS resources, including AIS and other IT resources, from the perspective of DC for agriculture productivity. Hence, the above discussion entails a need for enhancement of IS resources for agriculture productivity, thus bringing the significant potential to the farming industry.

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2. DELIMITATIONS AND LIMITATIONS

In order to gain a broader spectrum of theoretical knowledge, this conceptual work is constrained by insufficient readings of literature from other disciplines. In addition, this conceptual paper also has its own set of research restrictions. This publication, for example, is only a review of other journals, and the data has yet to be gathered. Another drawback is that the literature relating to the topics is not completely investigated because of time constraints. This conceptual paper for a future study is based on the review of the literature that discusses RBV theory and DC perspectives and also information technology (IT) resources in agriculture; which are listed as an accounting information system (AIS), infrastructure, people, organisation and environment.

3. THEORETICAL OVERVIEW

The Resource-Based View Theory (RBV)

The father of modern RBV theory, Jay Barney (1991) have developed the concept of RBV into a strategic management focus by explaining that the potential of having sustained competitive advantage could be achieved if the firm resources are filled with specific characteristics along with two assumptions of a competitive advantage which are heterogeneous and immobile (Barney, 1991; Baysinger & Hoskisson, 1989). Four characteristics of an organisation's resources must have, are valuable, rare, imperfectly imitable and non-substitutable. When resources are able to develop solutions that improve a company's efficacy and productivity, they are regarded as valuable. On the other hand, an organisation should guarantee that its resources are scarce so that other firms cannot exploit them similarly. Thus, this will boost industry competitiveness and increase economic survival likelihood (Barney, 1991). Moreover, a firm with a vision of sustained competitive advantages must-have resources that are imperfectly imitable, such that other firms will be unable to conceive or engage with the strategies because they are lacking in many ways and powerless in comparison to strategic innovators and first-movers who lead these resource characteristics (Barney, 1991). Besides, the firm resources must be non-substitute, and no other strategic equivalent substitute could be valuable, rare, and imperfectly imitable, according to the RBV theory's final attributes.

The type of resources includes tangible, intangible and organisational capability assets such as a machine, land, firm's management skills, information and knowledge and the organisation's routines and processes (Barney, 1991; Barney et al., 2001). For example, the Toyota brand has grown in popularity among consumers and has become more compelling. This aids in the production of value among customers. Firms can charge greater pricing and make more profit this way. In addition, Toyota pioneered a lean manufacturing system that is difficult to duplicate and adapt. It will improve the firm's efficiency and product since the functions can do their tasks consistently, resulting in higher product quality and cheaper prices (UKessays, 2015).

Dynamic Capabilities (DC) Perspectives

Resources and capabilities could be viewed as the primary source of competitive advantage and profitability for a firm where these elements drive firms to better strategic management and to face competition with their products (MBA Skool Team, 2020). However, the traditional RBV perspective does not consider how resources should be managed and used to influence a firm's competitiveness in the market. Thus, it is vital to concern an organisation's resources and capabilities in the context of a firm's value creation and external development (Nijssen & Frambach, 2001). Therefore, the dynamic capability (DC) perspective is developed to build, integrate and reconfigure resources to focus on how resources can be adapted to changing environments (Teece, Pisano & Shuen, 1997; Eisenhardt & Martin, 2000).

DC concept is derived from the Resource-Based View (RBV), already known as a theory that explains sustainable competitive advantage. However, in this research, DC addresses the limitation of RBV that does not explain how these resources were expanded over time and how the resources should adapt to the uncertain environment (Bahri et al., 2016). Hence, DC helps define the ability of a firm to combine, develop and reconfigure external and internal expertise to respond to rapid changes in the environment (Teece, Pisano & Shuen, 1997). Similarly, Einsenhardt and Martin (2000) describe DC as the processes that use resources specifically to integrate, reconfigure, acquire and utilise resources to keep up with and design market changes. Thus, DC refers to the capacity of an organisation to purposefully use its resource base for operation (Teece et al., 1997; Winter, 2003).

The concept of dynamic capabilities has been evolving since 2007. Teece (2007) have explicated three matters essential for corporate business agility to counter opportunities and threats: sensing, seizing and reconfigurations. Sensing operations bring unstructured data and disorganised information from the outside world into the organisation's system. Seizing capabilities refer to how quickly the system can recognise opportunities and dangers once they have been detected and are essential to the organisation's competitive advantage. Finally, maintaining competitiveness throughout the reconfiguration phase necessitates upgrading, integrating, safeguarding, and reconfiguring an organisation's tangible and intangible assets as necessary for future competitive advantage.

4. DISCUSSION OF THE LITERATURE REVIEW

Information System (IS)

Information systems (IS) use a range of information technologies (IT), including computers, software, databases, communication systems, the Internet, mobile devices, and much more, to carry out particular tasks, communicate with, and inform various actors in various organisational or social contexts (Boell & Cecez-Kecmanovic, 2015). Generally, Information Technology (IT) is defined as a tool such as a computer software and hardware solutions that are needed to support the management, operations and strategists to increase the productivity of an organisation (Thong & Yap, 1995). However, in the context of agriculture, IT in agriculture is defined as a tool for direct contribution to agricultural productivity and as an indirect tool for entitling farmers to take information and make quality decisions that would positively impact agriculture activities (Mitra, 2014). Modernised farming can be classified by the technological level and strong integration with domestic and international markets as well as

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solid policymaker oriented while traditional farming is characterised by limited access to the domestic markets and a shallow level of technology (Ismail et al., 2009). The adoption of technology in agriculture has a huge potential to resolve some issues in agriculture.

Accounting Information Systems (AIS)

According to Boocholdt (1999), AIS can best be described as a system that handles data gathering, processing, categorising, and reporting financial data to provide financial information for an organisation for the book-keeping purpose, attention directing decision-making. Similarly, Grande et al. (2010) defined AIS as a system that records a business or organisation's financial transactions that combine methodologies, controls and accounting techniques with the technology. Usage of AIS in an organisation is essential as the accounting system is indicated as a subsystem of information inside the company. This medium gathered all the information from several different subsystems of the organisation and processed the information into reliable fiscal non-fiscal information (Elsharif, 2019). Therefore, optimal use of AIS significantly impacts the more remarkable high performance of the management in the organisation (Al-Delawi & Ramo, 2020). AIS also had been shown to positively impact corporate performance and the quality of financial statements provided for managerial decision-making (Sutriani et al., 2019).

Within the bounds of AIS, farmers experienced issues distinguishing the modern accounting concept from conventional farm accounting, such as how expenses should be addressed and categorised, due to the lack of understanding of accounting concepts, as one of the challenges they encounter in implementing AIS. Furthermore, there is a deficiency in using financial data for farming management, making AIS insignificant from a farming business standpoint (Tingey-holyoak et al., 2021). These findings demonstrate that incompetence and a lack of awareness of the importance of accounting information in farming operations have resulted in agriculture businesses suffering. Unfortunately, in Malaysia also, the agriculture industry is left behind in catching up on the usage of AIS due to low acceptance rate for this kind of technology by local farmers (Shukor et al., 2020). Despite the numerous advantages of employing AIS in the agriculture business, usage of AIS for agriculture in most countries is currently insufficient (Xu, 2022).

Infrastructure

Past literature by Jochimsen (1966) defined infrastructure as a system that sum of material, institutional, personal facilities and data available to the economic agents to contribute to the inputs in the case of allocation of resources and result in the integration and maximum level of economic activities (Buhr, 2003). In other words, infrastructure acted as a system of interaction in economic agents and ensured a linkage between production and consumption phases (Baskakova & Malafeev, 2017). Several categories of infrastructure include institutional infrastructure, personal infrastructure and material infrastructure (Buhr, 2003). In terms of agriculture, infrastructure is an essential key element for the success of agriculture development programmes (Eswaran et al., 1995). Patel also agreed that infrastructure leads to expansion of markets, economies of scale and improvement in factor market operations (Patel, 2010). Infrastructure in agriculture as primary can be classified into three specifications: capital intensive, capital extensive and institutional infrastructure (Wharton, 1967).

A discussion from a research paper by Munyanyi (2013), Gajigo and Lakuma (2011) stated that infrastructure is the major aspect of agricultural productivity growth. The authors also listed three main agricultural infrastructures road network, irrigation technology and post-harvest storage technology. The current IT infrastructure development in agriculture Malaysia is facing insufficient necessary infrastructure to transforms to digital access for agriculture productivity (Mat Lazim et al., 2020). Despite that, a well-designed IT infrastructure in agriculture development will help to improve the availability and transparency of agriculture information and lower agricultural trade transaction costs (Bojnec & Ferto, 2011). For example, the development of physical infrastructures such as Farm recording Application Software and Personal Digital Assistant (PDA) in Nigeria helps to keep data entry for field records and maintains the smooth of operations (Igwe et al., 2019). Sadly, many developing countries struggle with IT infrastructure access in their farming businesses.

People

Human capabilities can be defined as human resource management that plays a crucial role in achieving organisational goals, and human resource management is closely related to the policies of recruiting, selecting, training, rewarding, retaining and firing employees (Cao, 2012). According to Guest (1987), human resource management has four critical dimensions: commitment, flexibility, quality and integration as contributions that could be expected from an employee to the organisation. Human resource development is considered a force for optimising human growth, organisational effectiveness and national development through skill enhancement in the workforce (Rivera, 1995). Rivera (1995) also agreed that in terms of agriculture, new technologies and better on-farm adoption depend on the people factor. Gardner (2003) mentioned that growth would only come from attracting, retaining and developing the people within the industry, supporting research, education and other service infrastructure. Some of the human capability's issues can be analysed in a case study by Zmija (2020), where the lack of young farmers participants in the farming business has lost potential for developing a more efficient, competitive and innovative business environment. Furthermore, a study in West Bengal showed that a low level of education and lack of communication among entities in the farming business has resulted in a major lack of awareness regarding modern research and inventions in agriculture development (Makal et al., 2017). The human resources management and issues in Malaysia agriculture also could not be ignored. Local farmers in Malaysia are currently having a weak perception of technologies used in agriculture, low-level education of farmers and as well as limited knowledge of the usage and managing of IT resources for the development of their farm productivity (Mat Lazim et al., 2020).

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Organisation and environment

According to Robbin (1984), an organisation is defined as a formal structure of organised coordination involving two or more people to achieve goals by authority relationship and a division of labour. In agribusiness, many subsectors work together to provide goods and services to consumers around the world, involving foods as an economic good with distinctive cultural, institutional and political aspects that develop the economic environment and business processes of the sector (Gunderson et al., 2014). Regarding agriculture, organisation issues might include agriculture policy and relationships with agriculture stakeholders. Government policy has been recognised as a direct and tangible factor shaping agricultural productivity as government policies and programmes were compiled to assist farmers in input support, output support or restriction, technical support and financial support (Lencucha et al., 2020). For example, Zimbabwe was dealing with the struggle to access infrastructure financing, high land cost, and limited market access. A related study discovered that Europe and Africa have difficulties accessing subsidies, credit and finance as the farmers lack knowledge on how to draft and build business plans for the financial section (Munyanyi, 2010; Żmija et al., 2020).

Most traditional agricultural operations nowadays give gloomy returns toward environmental health, and future generations might have uncertainties in fulfilling their needs for food security. For example, in Zimbabwe, agricultural activities led to environmental issues such as air pollution, insufficient quantity and quality of water resources, depletion and land degradation (Akesson, 2016). The same situation also occurs in Kenya, where agriculture is considered the primary productive sector for the nation's earnings contribution, and yet land exploitation will affect environmental loss and degradation (Emerton et al., 2001; Mulinge, 2015). Last but not least, in Malaysia also, the agriculture industry is struggling on the same thing. There is low teaching capacities and inadequate resources as well as funds from the government and related parties to the local farmers for upgrading their farms into advanced technologies operation (Mat Lazim et al., 2020).

Agriculture Productivity

FAO (2017) states that productivity can be measured for a single entity. For example, a farm, a commodity, or a group of farms at any geographical scale. The measure should reflect the purpose of measurement for the inquiry. The reasons for measuring productivity by FAO could be that a firm or an industry can be better at allocating scarce resources for other purposes, and by reallocation, firms would be able to handle more efficiently inputs, thus leading to a higher national income (FAO, 2017). At the farm level, measuring productivity involves collecting data on all the outputs and various inputs and production factors used. Conceptually, productivity is known as a ratio of outputs to inputs, and the quantification of productivity not only focus on main crops or farming activities but also requires a proper assessment of minor aspect such as manure for fertilisation (FAO, 2017).

Productivity is often confused with production. However, increased production usually results from an increase in inputs, while productivity is generally an increase in production because of the efficient use of inputs or might also incur due to the increasing number of inputs (Ogbeide, 2015). Other scholars defined agriculture productivity as the potential of an economy, where the maximum level of output that can be produced by the available inputs such as labour, capital, resource endowments and changes in technologies, along with observing how quickly the economy is moving toward that potential output (Gordon et al., 2015). Similarly, an author described agriculture productivity as reflected by the excellent organising of production processes which could also be related to changes in government policies due to improvements in technology or knowledge.

5. CONCEPTUAL MODEL DEVELOPMENT

This conceptual paper examines how a local farming business manages its IT resources, including AIS and other IT resources, with the perspective of dynamic capabilities for agriculture productivity. A study was performed on a variety of models developed by different scholars. As a result, the study offered (as indicated in Figure 1):

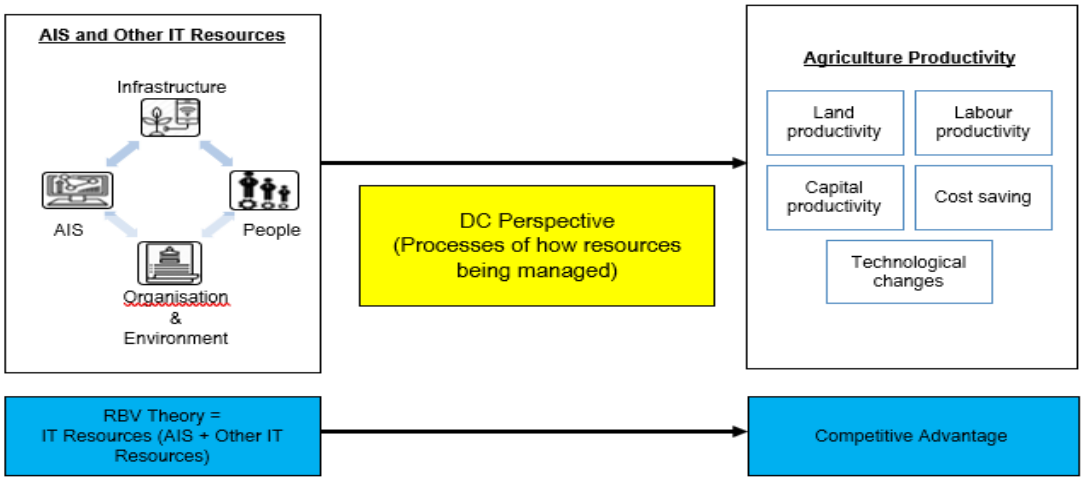

Figure 1: Conceptual framework for managing AIS and other

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Figure 1 above illustrates this research's conceptual framework, which involves several important things such as RBV theory, DC perspective and agriculture productivity. For this research, the proposed framework is not developed to generate the existing RBV theory, instead, the framework is used to, i) expand the theory by employing DC perspective and ii) reflect the resources element of RBV that referring to the AIS and other IT resources as well as and the performance which directly refers to agriculture productivity. As shown in the figure above, this research will directly indicate how usage of IT resources in agriculture production will result in higher agriculture productivity. However, within the process of achieving agriculture productivity, there were limitations and deficiencies in how to manage those IT resources efficiently. Thus, the implementation of the DC perspective is extended in the middle of the conceptual journey. In this research, we will indicate the potential of agriculture productivity that would be achieved if farmers and related parties fully utilise the capabilities of IT resources in their production compared to current ways to carry out the needs and demands of the future human population. Firstly, this research will identify the IT resources related to farming finances and operations by analysing the previous studies and the issues connected to the resources. Based on the literature review, this research has analysed four main IT resources which raise concerns about future farming and the food industry. The four IT resources identified as AIS, infrastructure, people and organisation. In simple words, AIS is an IT tool such as computer software and hardware applications to support the management with useful financial information for decision-making. Meanwhile, infrastructures refer to the system that facilitates and eases farming procedures and operations by using hardware and software. People resources mention the human resources issues and management, directly and indirectly, involved in farming procedures. Lastly, the organisation involves internal and external parties within a farming organisation, such as the government, investor and supplier and other parties that influence the organisation's processes.

In this research, we also believe that to be a competitive agribusiness, farmers must implement RBV theory and identify four specific criteria for managing their resources. Farmers with these four elements in their resources will have the potential to achieve a competitive advantage within the food industry and maintain the operation for a long time. According to RBV, four criteria that must be presented in the IT resources of a farm are valuable, rare, imperfectly imitable and non-substitutable. These four criteria will help farmers achieve their sustainable competitive advantage and have more products in the future. However, IT resources alone are insufficient in fully utilising the potential of IT resources in farming businesses. Constraints of RBV theory that do not explain how resources would grow over time and how to manage resources in an uncertain environment have led to the application of the DC perspective. In applying the DC perspective, IT resources will be processed through three phases: sensing, seizing and reconfiguration, and undertaking the resources with such routines to ensure all IT resources are fully optimised to achieve greater agricultural productivity. In this research, we will be able to discover any potential and existing capabilities of a farm that could be linked with RBV theory to fully utilise the existing IT resources used within the farm to perform significant changes in agriculture productivity. In conclusion, the adaption of RBV theory and DC perspectives in optimising IT resources of a farm, especially AIS and other IT resources in managing financial or non-financial farming procedures, can guarantee adequate food production to satisfy the food demand of the human population by the year 2050.

6. CONCLUSIONS

Despite the importance of farming businesses in a country, unfortunately, the agriculture sector has not been emphasised due to resource limitations and technology usage issues. This article has collectively outlined and pointed out the major issues and challenges of IT in the agriculture sector using three aspects: infrastructure, people, and organisation. The infrastructure section has shown that poor infrastructure in the farming area discourages implementing and applying IT to farming processes. The issue among people reviewed is that farmers' perspective and understanding of the needs of IT in the agriculture business is crucial to developing any IT skills for the farm. Finally, the organisation evaluates some management issues, such as financing within internal and external related parties and government policy development. This article has contributed to the identification and analysing of the barriers and limitations that should be overcome by farmer's society and any related parties in the agriculture sector. To meet the needs of the future as the human population is overgrowing, all farming businesses must be able and willing to adapt to new changes using advanced technology as the main element in their farming management.

In terms of the theory part, this conceptual paper has contributed to, i) expanding the RBV theory by utilising the DC perspective that could be explained through the processes of how the resources are being managed to achieve agriculture productivity and ii) adding to the literature of IS resources and agriculture field. In conclusion, issues in managing AIS and other IT resources in agriculture production can best be solved by adopting IT into food production and farm management processes and utilising the available human capabilities. Each leading key player should work together and play their role to ensure the sustainability of food production in the nation. This conceptual research will provide a broader range of literature that needs to be explored to gain an in-depth understanding of the farming sector to address the current agricultural concerns. RBV theory and DC perspectives will considerably impact the farming industry, particularly as a lesson learnt for farmers, government officials, and other interested parties to manage the IS resources, including AIS and other IT resources for agriculture productivity.

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