The Approaches to Use the Big Data for the Increasing Strategic Management Effectiveness of the Royal Thai Army

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Abstract

The objectives of this article were: 1) To find out the conditions and problems of the use of a Big Data system in the current active Army's strategic administration, 2) To find out the factors that affect the adoption of a Big Data system for enhancing the effectiveness of the Army's strategic administration, 3) To define approaches to using a Big Data. This research is ~~a~~ strategic research by reviewing relevant concepts, theories, and literature, so methodology research is documentary research. The research results were as follows: 1) the Army is a large unit, so several units are very complex and much data needs to be analyzed, 2) the factors that affect the adoption of a Big Data system for enhancing the effectiveness of the Army's strategic administration are factors 5V+1C, 3) the approaches to using a Big Data system to increase the effectiveness of the Army's strategic management include: accessibility, security, editable, online ability, ability to support a wide range of data formats and ready to use immediately. This research has suggested: that there should be a specific agency responsible for maintaining the central database and should encourage personnel with knowledge and expertise in the use of Big Data and the development of additional systems in the future.

Keywords: Big-Data, Strategic management, Effectiveness

Introduction

At present, Thailand has begun to awaken to the use of large databases for more organizational administration. Leading Thai companies use Big-Data to develop their products and services better. The fact that manufacturers can sell products directly to customers will help these brands to meet their needs and gain more access to customer needs. This is because entrepreneurs can utilize customer databases such as profiles and purchasing behaviors of consumers in each group then used to analyze the needs and develop products to better meet the needs of customers and to develop sales and marketing, including taking advantage of product improvements and services to meet the needs of modern consumers that are changing rapidly. (Sayamanon, 2020).

The Digital Government Development Agency (Public Organization) (DGA) has begun to use a large database in the development of the Department of Highway's traffic database management model by integrating data recorded with humans and is stored with electronic equipment that can carry these traffic data through the network Let's continue processing with a large processing system. This is the first government sector trying to develop large database technology and has made a memorandum of agreement; this large database management prototype was created between the DGA, the National Electronics and Computer Technology Center (NECTEC), and the Department of Highways. However, this operation was not as successful as it could have been due to the lack of skills in the large database of operators, including problems in database management systems in the form of integration of large database systems. (Saion, 2016). Puisungnoen (2020) has suggested that the large user database effectively must be a study of the components of the large data, which is called 5V+1C, which consists of 1) Volume, 2) Velocity, 3) Variety, 4) Veracity, 5) Variability 6) Complexity. (Puisungnoen, 2020).

From the 20-Year National Strategy (2018-2037) in the National Strategy, Issue 6: Rebalancing and developing a government management system has important development goals to change the government sector that adheres to the principle of public government people for the people and the common interest. The governmental sectors must have a size that is appropriate for its role and mission, differentiate the roles of government agencies in directing or providing services in a competitive economy with high performance, adhere to the principles of good governance, and adjust the work culture to focus on achievement and common interests, modern and ready to adapt to keep up with the changes of the world all the time. Especially bringing innovation Big Data technology, digital work system, cost-effective application, and performance comparable to international standards and being open-minded Connect with each other and allow all sectors to participate in meeting the needs of the people with ease, speed, and transparency. (Office of the Secretary of the National Strategy Board, 2021), including the master plan under the national strategy (7) Infrastructure issues Logistics and Digital Systems (2018-2037), Thailand has given importance to the development of transportation infrastructure, logistics systems, energy, and digital. In the Digital Infrastructure sub-plan, the country's digital infrastructure development has been identified, including information and communication technology. (Office of the National Economic and Social Development Council, 2020) The Army must develop a large database system to achieve the objectives according to the 20-year national strategy in issue 6. In addition, the master plan under the national strategy (20) issues public service and efficiency of the government sector (2018-2037), focusing on the development of the state management system to be modern, the government sector has a size suitable for the mission with high performance. The sub-plans of the master plan under the national strategy Public Service and Public Sector Efficiency to improve and enhance the efficiency of government services to be modern and keep up with the rapidly changing globalization, which able to meet the needs of the people and be able to solve existing problems step by step to lead to the development of efficiency of the government sector. (Office of the National Economic and Social Development Council, 2020) Therefore,

the development of Army Big-Data must be undertaken to respond to the needs of the people to be accepted and trusted by the Royal Thai Army and be part of driving the development of a large database system of the Royal Thai Army.

Now a day, the use of large-scale information database systems of the Army is insufficient for the strategic administration of the Royal Thai Army and unable to access the information thoroughly. There is no good integration and exchange of information between agencies, and the data has not been processed into information to support the decision-making of the superiors effectively. An appropriate information system environment must also be set up to cover infrastructure, equipment, software, and security, including the availability of relevant personnel to facilitate the use of information systems to use a large information database system most effectively. Therefore, it is necessary to find a way to use a large information database system to be used as a tool to assist in effective strategic management. To support the country's development under the Thailand 4.0 policy, setting the approach and strategy to develop a large information database system that is correct is extremely important. (Sakulkaew, 2020).

The Army has analyzed of the Army's environment to lead to the determination of the vision and mission and the basic objectives of the Army, including the strategic issues of the Army. Each issue is classified into 6 topics and 20 development approaches. Topic 6 is related to information technology for managing large databases such as the Government Action Plan on the Development of Resource Management in National Defense. Development Approach 3 develops the management of equipment and budget. (Army, 2520).

From the strategic management problems of the Army as mentioned above caused the researcher to be interested in finding ways to use the Big Data in strategic management to increase the effectiveness of the Army's strategic management then the relevant agencies to use for further use.

This research aims to find what problems in the use of Big-Data in the Army's strategic management currently in use are, what factors affect the adoption of Big-Data for enhancing the effectiveness of the Army's strategic management are and what approaches to use a Big-Data to increase the effectiveness of the Army's strategic management are.

Methodology

This research is strategic research by reviewing relevant concepts, theories and literature, so methodology research is documentary research. Data collection is from secondary data by collecting information on concepts, theories, primary data and related literature with government policies and strategies problem information using a large database system, optimizing budget management and the approaches for the development of corporate information system from libraries and other sources, including official documents academic articles, and related websites, etc. The data are conducted data analysis by context analysis method to distinguish components and relationships between components using a strategic thinking framework as an approach. The results of studies in various subjects are compiled and synthesized to draw conclusions and find ways to solve problems.

Results and discussion

The results found that problems in using Big-Data in the Army's strategic management are currently in use.

Problems encountered in the strategic management of the Army are that the Army is a large unit several direct units are very complex and there is much data needs to be analyzed. Accurately analyzing the organizational environment and trends with a systematic approach is challenging to do due to many problems, such as

1) Data Access Problems, the user access to the information about the Army is complex, slow, and perhaps inaccurate.

2) The security system problem is that the information stored is not secure and unsafe to protect from reliable information espionage.

3) The problem of not being able to change the information to respond to the strategic management of the Army to keep up with the current situation.

4) Problems not being able to receive large data through online channels because large data transfer is still used through older systems such as CDs or flash drives, which has many limitations.

5) The problem of not being able to support a variety of data formats is that nowadays, there are data in many forms, including documents, images, sounds, animations, and other forms. The original database system of the Army is not supported.

6) Some Army data issues cannot be processed and readily available due to the inadequacy of the database system or the system of the Army itself in strategic planning; sometimes, information is needed to be processed quickly and immediately.

Factors affect the adoption of Big-Data for enhancing the effectiveness of the Army's strategic management.

Factors affecting the use of efficiently Big-Data, there must be a study of the elements of a Big-Data called 5V+1C, including

1) The amount of information is so vast that it is impossible to tell the exact amount.

2) Velocity, the information will change very quickly.

3) Variety, the information will be diverse. Not just biological diversity, but it can be in any form, whether it is the content, the way that information is disseminated, to store of that information and format for publishing, etc.

4) Veracity, the information is accurate in itself. Whereas this fact means it is information that has appeared (Even if the information is true or false, it has already happened), whether it is quality and valuable information or not depends on how it will be used next.

5) Variability, the data variance must be high.

6) Complexity, the complexity of the data is constantly intertwined and inevitable.

Approaches to use a Big-Data to increase the effectiveness of the Army's strategic management.

This research can synthesize the characteristics of cognitive factors in a Big-Data come out as the most efficient use of a Big-Data is accessibility, security, editable, online ability, ability to support a wide range of data formats, and ready to use immediately.

Accessibility is for users to access information easily, quickly, and accurately. Access permissions are assigned based on user priority by level and function. There are sufficient points of access to information for the number of users. Making the right channel for each level of use, for example, the operational level can be accessed through the website or application management level can be accessed by the intranet system, Etc.

Security is the management of information security within the organization. Information stored must be secured to prevent reliable information espionage, clearly identifying and screening those who need access to information; the physical nature of the database must be kept intact, clearly separating the priorities of information and supporting a wide variety of data formats.

Editable, since the plans may have to change according to the situation, information needs to be organized, leading to data correction, and providing enough additional information. The stored data needs to be organized into sections and create a specific area to make it easy to update the information to respond to the current situation.

Online ability, on this day, large data transfer is carried out through external storage such as CDs or flash drives. Currently, there are limitations in IT security concerning external storage usage, making the old approach more difficult. The framing and technology selection must be considered in this regard in order to be able to transmit information through online channels.

Ability to support a wide range of data formats (documents, pictures, Etc.,). The technology selected in the new research framework must be more flexible in transferring and transmitting files than the current system. It is necessary to specify the type of file to be sent to the internal system. This creates a hassle in registering and sending files.

Ready to use immediately (Near Real-Time Processing), there is a need for the Army's strategic management related to in-depth analysis to study trends and risks arising in operations and can respond promptly, so factors in Near-Real-Time Data Processing are included.

Discussion

Problems encountered in the Army's strategic analysis, such as the lack of ability to analyze the corporate environment, officers do not commit to innovation, sticking to traditional forms and methods, lack of initiative and not all members of the organization participating, which is consistent with the research of Henith (2020) who have researched "The approaches to Integrating the Army's Large Database." The results found that the Army's information technology environment is uneven, system development and scattered databases, system redundancy, and large amounts of data. The big problem remains a considerable lack of knowledge of large databases. This affects the formulation of policies and guidelines as a whole.

Factors affecting the adoption of a Big-Data for increasing the Army's effectiveness's strategic management are the 5V + 1C, which are Volume, Velocity, Variety, Veracity, Variability and Complexity. This is consistent with Phuphatakij's (2018) research, "A study on the design of a framework for developing information systems to support big data, a case

study of the Bank of Thailand". The results found that the characteristics of a Big-data are divided into five areas: Value, Velocity, Volume, Variety, and Veracity.

They are increasing the effectiveness of the Army's strategic management by being able to use a Big-data with maximum efficiency, which must be taken into account, including the ability to access security systems, easily editable, able to receive large data through online channels, ability to support a wide range of data formats and ready to use immediately. This is consistent with Ekkittinan's (2020) research, which has researched the subject. "Developing the use of large databases to increase the efficiency of the Department of Highways". The results found that using a Big-Data consideration should be given to accessibility, security system, easily editable; the database has a relational nature. Moreover, it is consistent with the research of Phuphatakij (2018) who has researched "A study on the design of a framework for developing information systems to support big data, a case study of the Bank of Thailand". The results found that using and store a Big-Data consideration should be given to being able to receive large amounts of data through online channels, supports a wide variety of data formats, and some types of data need to be processed and ready for immediate use (Near Real-Time Processing), reduce Fixed-Report usage, increase automated process to reduce the workflow of analysts.

Conclusions

An analysis of the problem of using an extensive database system in the Army's strategic management found that there are several problems, including the lack of ability to analyze the corporate environment, officers have no commitment to innovation, sticking to traditional forms and methods, lack of initiative and not all members of the organization participate. Factors affecting the adoption of a Big-Data for increasing the Army's strategic management effectiveness are the 5V + 1C, which are Volume, Velocity, Variety, Veracity, Variability, and Complexity increasing the effectiveness of the Army's strategic management by being able to use a Big-data with maximum efficiency, which must be taken into account, including the ability to access, security system, easily editable, able to receive large data through online channels, ability to support a wide range of data formats and ready to use immediately.

Acknowledgments

Able to apply the approaches for using a Big-Data in Strategic management to increase the Army's strategic management effectiveness, as shown in the figure.

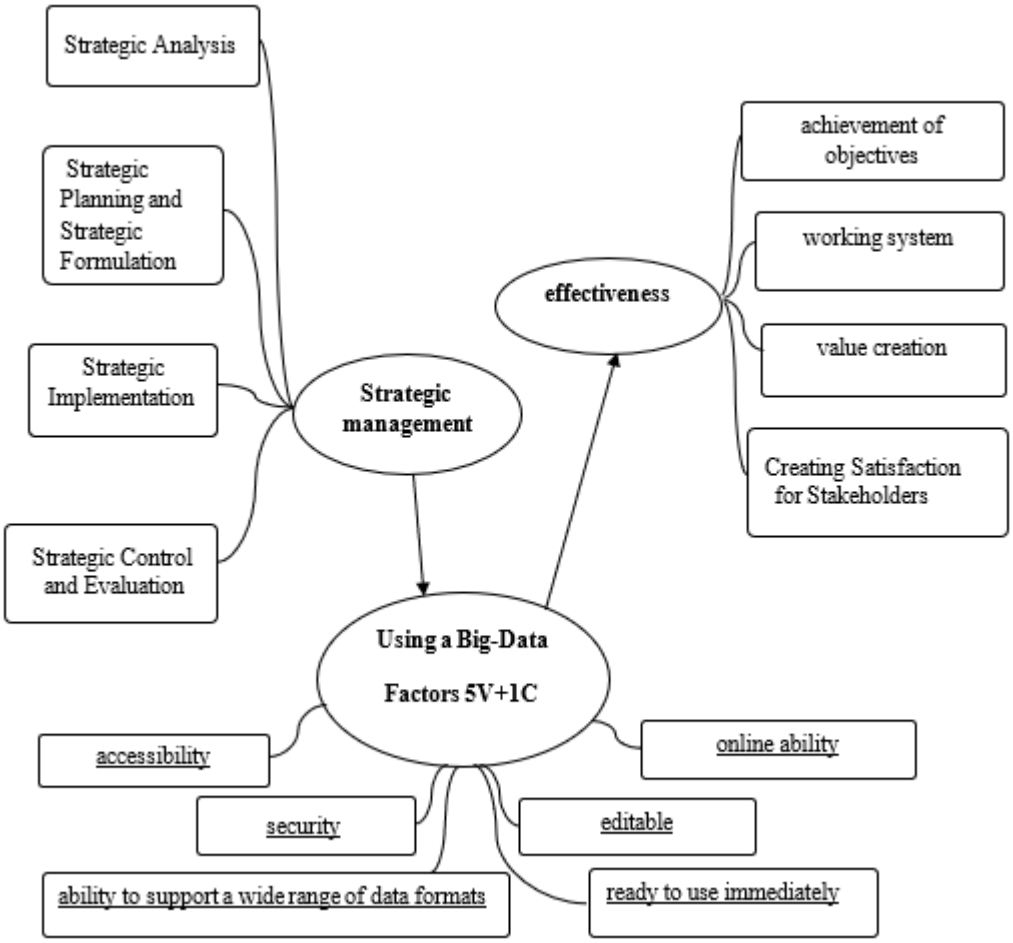

Figure 1 The approaches to use the Big Data for the increasing strategic management effectiveness of the Thai royal army

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