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The Effect of Information Technology Infrastructure and the Internet of Things on Defense Industry Management Information Systems

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Abstract: The article Literature Review the Effect of Information Technology Infrastructure and the Internet of Things on Defense Industry Management Information Systems is a literature review scientific article. The purpose of this article is to build a hypothesis of the influence or role between variables that will be used in future research, within the scope of management information systems science. The method of writing articles is a library research method, which is sourced from online media such as Google Scholar, Mendeley and other academic online media. The results of this article are: 1) Information technology infrastructure affects the defense industry management information system partially; 2) The Internet of things affects the defense industry management information system partially; and 3) Information technology infrastructure and the internet of things have a partial effect on the defense industry management information system. Apart from these 2 exogen variables that affect the endogenous variables of the defense industry driver's license, there are still other factors including employee capability, encryption and employee education.

Keyword: Management Information Systems, Information Technology Infrastructure, Internet of Things

INTRODUCTION

In today's digital era, the defense industry is a highly prioritized sector for almost all countries in the world. This is related to the development of technology and the increasingly advanced internet, making it easier for anyone to access and find out information related to the defense system used by each country. The defense industry is an industry that focuses on the development and production of a country's defense equipment, can be in the form of fighter aircraft, helicopters, ballistic missiles, hypersonic missiles and others. In this context, IT

infrastructure and the internet of things have an important role in management information systems in the defense industry to develop and have sophisticated, qualified and reliable defenses.

With reliable defense capabilities, making a country have a global power that cannot be underestimated by countries in the world. Apart from being an industry engaged in defense, Indonesia has one of the companies engaged in defense and focuses on producing defense equipment and weapons for national needs and even exported to several countries in ASEAN, namely PT Pindad. As a company engaged in defense, management information systems are very important to maintain. This is because, there is a risk of information leakage that can endanger the security of data, information and specifications of each product owned. In today's digital era, file security is becoming increasingly important due to the increasing number of cybercrimes that occur, such as hacking and data theft. The Internet of things is applied because it relates to a device that is integrated with technology and programs that have been developed before.

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Based on the background, problems can be formulated that will be discussed in order to build hypotheses for further research, namely:

1. Does the IT infrastructure affect the defense industry management information system partially?
2. Does the internet of things IT infrastructure affect the defense industry management information system partially?
3. Does IT infrastructure and the internet of things affect the defense industry's management information system simultaneously?

LITERATURE REVIEW

Management Information System

Management information systems are collections of interactions of information systems that have the right to collect and manage data to provide useful information for all levels of management in planning and control activities (Sari &; Ali, 2019). Management information systems are collections of hardware and software designed exclusively to be able to integrate data into one valid and useful digital information (Maisharoh &; Ali, 2022). Management information system is a management process in which there is a system with capabilities similar to computer brains which one of its capabilities is to ensure the availability of information data for users in the same need (F. Saputra &; Sumantyo, 2023).

Management information system is a structured system used to manage data computerized. In the management information system, there are several functions needed, namely searching, updating data presentation, and data storage (F. Saputra &; Sumantyo, 2023). Management information system is a computer-based system that makes information can be used by managers for the same needs. Information contained in management information systems usually contains

all forms of events within the company, which are events in the past, present, to predictions (Siregar, 2022). Management information system is an integrated system between humans and machines that can produce information in such a way as to support the course of operations, the course of management and decision-making functions in an organization (Tri Wahyu Widodo, Siti Ragil Handayani, 2013).

Management information system indicators include: 1) Accuracy; 2) Information must be timely; 3) Exactly where appropriate, the information provided must be as requested; and 4) Complete, meaning that the information provided must be complete. The dimensions inherent in management information systems include: 1) Psychology; 2) Economics; 3) Sociology; and 4) Operations Research (Shobirin &; Ali, 2019). Management information system is an integrated system between humans and machines that can produce information in such a way as to support the course of operations, the course of management and decision-making functions in an organization (Tri Wahyu Widodo, Siti Ragil Handayani, 2013).

IT Infrastructure

Information technology infrastructure is a long-term asset commonly referred to as value to generate value from an organization. Good system management can be done if it is in accordance with applicable standards in an organization (Zultaqawa et al., 2019). In management, there are often problems, especially problems in funding, therefore funding is a factor that greatly affects the continuity of information technology infrastructure. If funding can be managed properly from an organization, then information technology infrastructure can develop effectively and efficiently. Information technology infrastructure development requires funding in such a way as to facilitate all types of work so that work becomes more effective (Permadi et al., 2020).

Information technology infrastructure is very supportive in company management activities. With the existence of adequate information technology infrastructure, it will facilitate and accelerate the process of transferring data and information needed both in making a decision (Zahran &; Ali, 2020).

In management, there are often problems, especially problems in funding, therefore funding is a factor that greatly affects the continuity of information technology infrastructure. If funding can be managed properly from an organization, then information technology infrastructure can develop effectively and efficiently. Information technology infrastructure development requires funding in such a way as to facilitate all types of work so that work becomes more effective (Permadi et al., 2020).

IT infrastructure indicators include: 1) Hardware device platforms; 2) Software platform; 3) Data management and storage; 3) Network platform; 4) Internet platform; 5) System integration services and consulting; and 6) Operating system platform (Siagian &; Ikatrinasari, 2019).

Information technology infrastructure is very supportive in company management activities. With the existence of adequate information technology infrastructure, it will facilitate and accelerate the process of transferring data and information needed both in making a decision (Zahran &; Ali, 2020).

Internet of Things

Internet of Things is a new paradigm in the scope of Information Technology. The term Internet of Things or IoT is formed by two words, namely Internet and Things. The Internet is a computer network system that is globally interconnected using the Internet Protocol Suite (TCP / IP) standard to accommodate billions of users around the world. Internet Protocol Suite consists

of private, public, business, corporate, government and academic networks both local and international scope, which are connected to various kinds of existing electronic, wireless, and optical network technologies. Until now, there are more than 100 countries interconnected in the exchange of data, information, news and opinions on an internet (Nofrialdi et al., 2023).

The Internet of Things is growing and making the latest breakthroughs and becoming popular in the world of Information Technology. In recent decades, the Internet of Things has attracted a lot of user attention by presenting the purpose of global infrastructure of network physical objects, which allows connectivity anytime, anywhere and by anyone. The Internet of Things is also referred to as a global network that can communicate between humans and humans, humans to things and things to things, which exist in the world by providing unique detailed information from each object (Bimaruci et al., 2020).

The Internet of Things describes a world where anything can connect and communicate in an intelligent way like never before. Most of us think about "connected" in terms of electronic devices such as servers, computers, tablets, phones, and smart phones (Madakam et al., 2015). In the so-called Internet of Things, sensors and actuators embedded in physical objects, ranging from highways to pacemakers, are connected via wired and wireless networks, often using the same Internet IP that connects the Internet (Soesanto et al., 2023b). These networks generate large amounts of data that flow into computers for analysis. When objects can sense the environment and communicate, they become tools for understanding complexity and responding to it quickly (Chong & Ali, 2021).

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Internet of things indicators include: 1) Cloud; 2) Security system; 3) User interface; and 4) Analytics (Soesanto et al., 2023a).

Table 1: Relevant Previous Research

No	Author (year)	Previous Research Results	Similarities with this article	Differences with this article
1	(Nofrialdi et al., 2023)	Work effectiveness, individual behavior and supply chains are influenced by the internet of things	Discussing the internet of things	Discusses work effectiveness, individual behavior and supply chain
2	(Space et al., 2023)	Internet of Things and Experience affect the Revisit Intention of Aston Inn Jemursari Surabaya Hotel Guests	Discussing the internet of things	Discussing the Revisit Intention of Hotel Guests
3	(Vass et al., 2018)	The effect of "Internet of Things" on supply chain integration and performance: An organisational capability perspective	Discussing the internet of things	Discusses supply chain integration and performance
4	(Banica et al., 2017)	the Impact of Internet-of-Things in Higher Education	Discussing the Internet of things	Discussing higher education

5	(Masrek & Jusoff, 2009)	The Effect of Information Technology Infrastructure Flexibility on Intranet Effectiveness	Discussing IT Infrastructure	Discusses Intranet Effectiveness
6	(Caroline et al., 2021)	The influence of employee perceptions of information technology infrastructure on interest in knowledge sharing	Discuss information technology infrastructure	Discusses employee perceptions and interests in various knowledge
7	(Maisharoh &; Ali, 2022)	Factors affecting information technology infrastructure: finance, IT flexibility, organizational performance	Discuss information technology infrastructure	Discusses finance, IT flexibility and organizational performance
8	(Fauzi, 2016)	Decision Support System in Determining IT Infrastructure Suppliers (Case Study: PT Cipta Karya Komputer)	Discuss IT infrastructure	There are differences in decision support system variables
9	(Tri Wahyu Widodo, Siti Ragil Handayani, 2013)	The Effect of Management Information System (SIM) Applications on Employee Performance (Case Study on Small and Medium Enterprises in Internet Cafe Business in Malang City)	Discuss management information systems	There are differences in employee performance variables
10	(Siregar, 2022)	The Influence of Management Information Systems and Public Services on the Performance of Revenue Recipient Employees in the Office of the One-Stop Manunggal Administration System (SAMSAT) Aek Kanopan	Discuss management information systems	There are differences in the variables of public services, employee performance and one-stop human administration systems

RESEARCH METHODS

This research uses descriptive qualitative methods and library research. By reviewing previous articles relevant to this study. The purpose of this study is to build hypotheses that are useful for future research. Literature review should be used consistently with the assumptions of qualitative research methodology. So as not to cause questions that researchers will later ask. One of the reasons for conducting qualitative research is because it is exploratory (Ali, H., &; Limakrisna, 2013). The data used in this study are previous articles with exogenous variables related to this study such as IT infrastructure and internet of things and endogenous variables, namely management information systems. Data is obtained from Google Scholar application sources and uses Mendeley as a reference tool and bibliography.

DISCUSSION

Based on literature review and relevant previous research, the discussion of this literature review article is as follows:

1. The Effect of IT Infrastructure on Defense Industry Management Information Systems partially

Information technology infrastructure is a long-term asset commonly referred to as value to generate value from an organization. Good system management can be done if it is in accordance

with applicable standards in an organization. If companies and governments are able to realize: 1) Hardware platforms: able to provide hardware capable of running and developing defense-related software; 2) Software platform: able to develop applications in the field of defense; 3) Data management and storage: able to provide storage related to data; 3) Network platform: able to provide network access; 4) Internet platform: able to provide access to the internet so that it can reach every side of the defense of a country or region; 5) System integration services and consulting: able to provide consultation on defense information systems; and 6) Operating system platform: where capable of providing an operating system platform.

If the company or government is able to realize: 1) Hardware platforms; 2) Software platform; 3) Data management and storage; 3) Network platform; 4) Internet platform; 5) System integration services and consulting; and 6) Operating system platform, it will affect the defense industry management information system which includes: 1) Accuracy; 2) Information must be timely; 3) Exactly where appropriate, the information provided must be as requested; and 4) Complete.

IT infrastructure affects the defense industry management information system, this is in line with research conducted by: (Caroline et al., 2021), (Maisharoh &; Ali, 2020), (Shobirin &; Ali, 2019).

2. The Effect of the Internet of Things on Defense Industry Management Information Systems Partially

Internet of Things is a new paradigm in the scope of Information Technology. The term Internet of Things or IoT is formed by two words, namely Internet and Things. The Internet is a computer network system that is globally interconnected using the Internet Protocol Suite (TCP / IP) standard to accommodate billions of users around the world. If the company or government is able to implement IoT which includes: 1) Storage (Cloud): where the company is able to provide intelligent storage of management information systems related to its defense; 2) Security system: meaning that the company or government must be able to maintain the security of its system; 3) User Interface : means the ability to attract buyers to defense industry products; and 4) Analytics: meaning that the company is capable of conducting analysis.

If the company can implement the internet of things which includes: 1) Storage (Cloud); 2) Security system; 3) User interface; and 4) Analytics, it will have an impact on management information systems which include: 1) Accuracy: meaning that with the application of IoT, it will make it easier for defense companies to develop and convey information that its possession accurately; 2) Timely delivery of information: where the use of IoT will make it easier for companies to convey information and arrange the time of delivery of information according to a specified schedule; and 3) Complete: this means that the application of IoT makes it easier for defense company management to obtain complete information.

The Internet of things affects the defense industry management information system, this is in line with research conducted by: (Ben-Daya et al., 2019), (Chong &; Ali, 2021), (Puspitasari &; Nugroho, 2021).

3. The Influence of IT Infrastructure and *Internet of Things* on Defense Industry Management Information Systems

An IT infrastructure isa set of information technology components that are the basis of IT services; usually physical components, but also various software and network components. Internet of things is a concept where an object or object is implanted with technologies such as

sensors and software with the aim of communicating, controlling, connecting, and exchanging data through other devices while still connected to the internet.

The principles of IT Infrastructure from Indo Students reveal 6 principles of IT Infrastructure, namely: 1) There is a strategy in the development of information technology infrastructure; 2) Determine the design of information technology development; 3) Determine the deployment; 4) Determine the operation of the enterprise; 5) Determine the performance of the company or the performance of employees; and 6) Measuring the activities that have been carried out by the company and measuring the company's operational activities.

The principles of the internet of things from Hosteko reveal 5 principles of the internet of things, namely: 1) Big analog data: is a device obtained from various natural sources such as light, radio signals, vibration, temperature and so on; 2) Continuous connectivity connecting the device to the internet; 3) Real time for IoT does not start when data hits network switches or computer systems; 4) Immediacy Versus Depth: is the use of computers and IoT solutions in the digital age there will be a trade-off between speed and depth obtained.

IT infrastructure and the internet of things affect the defense industry management information system, this is in line with research conducted by: (F. Saputra et al., 2023), (Widjanarko et al., 2023), (Khaira et al., 2022).

Conceptual Framework

Based on the literature review and discussion above, the researcher determines the following frame of mind:

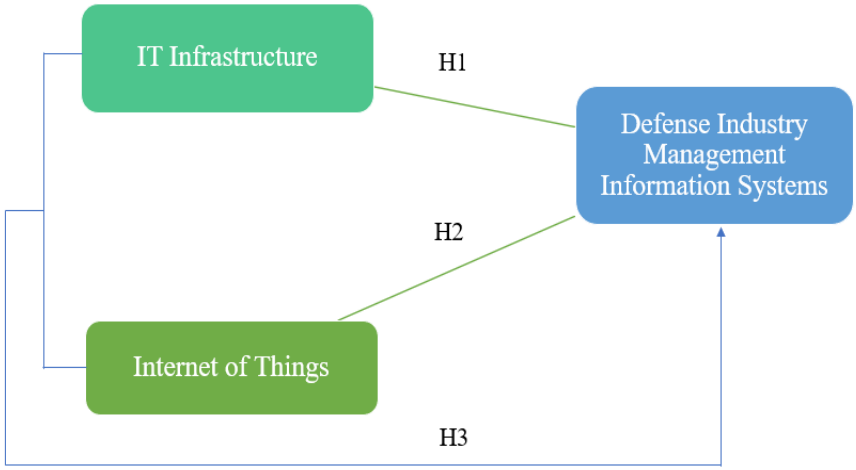

Figure 3. Conceptual framework

This study discusses the influence of IT infrastructure and internet of things on defense industry management information systems. There are other factors that contribute to the defense industry driver's license, including:

1) Employee capabilities: (Harahap &; Ali, 2020), (Putra et al., 2021), (Yandi &; Bimaruci Hazrati Havidz, 2022).
2) Encryption: (A. C. Saputra &; Saragih, 2020), (Hendrawaty et al., 2022), (Setiawan, 2021).
3) Employee education: (Kelejan et al., 2018), (Febriana Eka Wulandari, 2019), (Nofrialdi et al., 2023).

CONCLUSION AND ADVICE

Conclusion

Based on the literature review and discussion above, the researcher determined the following conclusions:

1. IT infrastructure affects the defense industry management information system partially.
2. The Internet of things affects the defense industry management information system partially.
3. IT infrastructure and the internet of things affect the defense industry management information system simultaneously.

Suggestion

Based on the conclusions above, suggestions are needed to build further research hypotheses. And can be used for readers, relevant companies in the field of defense. IT infrastructure needs to be developed massively and implemented quickly, to support SIM in the defense industry. In addition, the use of IoT is also needed in meeting the receipt of information in today's digital era.

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