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Compute-Based Analysis in Decision-Making Process

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Abstract *- Information System Computer-based management means that computers play an important role in a management information system. Organizational success is closely related to technical competence, and organizational ability to carry out adaptions to the external and internal environment. Amid the rapid development of technology, the use of a Management Information System is the right choice for processing quality information resources. The role of management requires the dissemination and use of efficient sources to achieve a goal, thus helping the management function with the receipt of information quickly and precisely. Then a good management information system is needed to support organizational goals. Management Information Systems that are accurate and effective, in reality, are always related to the term computer-based or information processing based on computer. In each process, information is needed which is partly generated by the management information system. The information generated by the information systems with special analysis is very useful for organizational needs and decisions are taken at each level of management. Thus, the purpose of the establishment of a management information system (SIM) is that the organization provides data and information that useful in making management decisions, both concerning management and routine and strategic decisions.*

Keywords*: System, Information, Management, Decisions, Computers*

Introduction

Information in a company is very important to support the continuity of its development, so it is ensured that information is needed for a company. If you lack information, within a certain time the company will experience an inability to control resources, which in the end will suffer defeat in competing with the environment of its competitors. In addition, the information system that is owned often does not work properly. The main problem is that the information system is too much information that is not useful or meaningful (the system has too much data). Understanding the basic concept of information is very important or vital in designing an effective information system (effective business system). To be able to determine and make strategic decisions on what steps the company takes to be able to achieve company goals, of course, the company must have accurate and trustworthy sources of information by decision-making parties.

After the rapid development of information technology, more and more companies in Indonesia are implementing Management Information Systems (SIM). Because they are starting to realize that driver's licenses have enormous benefits for improving organizational performance. Companies that do not keep up with the development of information technology today will not be ahead of the competition. Many researchers recognize that SIM user satisfaction is an important indicator in determining success in designing and implementing a driver's license. However, actually the management information system (SIM) has existed before the development of information technology (computer technology), SIM has been used by the leaders of organizations or companies, in decision-making efforts although it is still limited. At that time, the decision-making process carried out was still very simple. Things are still running manually and are still slow because all the data stored is in the form of various archive sheets. Preparing steps or methods in providing quality information is the goal in designing a new system.

JISMA
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The emergence of computer-based systems that are directly adapted for use by decision-making executives makes it possible to conduct a test of how the decisions are. In addition, the development of hardware and software also greatly affects the quality of information generated by the management Information System.

Results and Discussion

Information plays an important role in every human life, as well as in every organization always needs information. The term SIM has been defined by management and computer experts with different perspectives. Apart from these different definitions, the term Management Information System (SIM) consists of three words, namely (1) system, (2) information, and (3) management.

Definition Of System - According to Azhar Susanto (2002:18) that, "A system is a collection or group of subsystems or any part or component both physical and non-physical that is interconnected with each other and cooperates harmoniously to achieve a specific goal".

Another opinion expressed by Ackof in effendi (1989:51) says that a system is any whole, conceptually or physically, consisting of parts in a state of interdependence with each other.

From the above definitions, it can be seen that each of them emphasizes that the system takes an approach to elements or components. That is, that the system must consist of various interconnected components/elements so as to form a whole whole.

A system has characteristics, Edhy Sutanta (2003:4-6), states the characteristics of a system, as follows:

1. Features components (components)

A system consisting of a number of interacting components, which means working together to form a unity. System components are everything that is part of the constituent of the system. System components can be real or abstract objects. System components are referred to as sub-systems, they can be people, things, things or events involved in the system.

2. Has a boundry

System boundaries are areas that delimit between one system and another.
System limits will provide a Scope limit of the review of the system.

3. Have environments

A system environment is everything that is outside the system. The system environment can be both beneficial and detrimental. Generally, a favorable environment will always be maintained to maintain the sustainability of the system. Meanwhile, adverse system environments will be sought to have the minimum possible influence, even if they may be eliminated.

4. Has a connecting / interface between components

The link/interface is a component of the system, that is, everything that is in charge of interlocking the components in the system. Through this connector allows resources to flow from one subsystem to another. The interface is a means that allows each component to interact and communicate with each other in order to carry out the functions of each component. In the world of computers, a link/interface can be a wide variety of monitor screen dialog displays that allow one to easily operate the computer application system used.

5. Has input

Input is a component of the system, that is, everything that needs to be inserted into the system as material to be further processed to produce output that will be further processed to produce useful output. In Management Information Systems, input is referred to as data. Inputs can be in the form of maintenance input and signal input. Maintenance input is the energy that is put in so that the system can operate. Signal Input is the energy that is processed for output.

6. Has output

The output of the system is the result of energy being processed and classified into useful outputs and waste residues. Output is a system component in the form of various forms of output produced by processing components. In the Management Information system, output is information generated by the application program that will be used by users as decision-making material.

7. Has processing

Processing is a system component that has the main role of processing inputs in order to produce outputs that are useful for the user. In Management Information Systems, processing is in the form of a computer application

program developed for special purposes. The application program is able to receive input, process input and display processed results according to the needs of users.

8. Have objectives and goals

Every component in the system needs to be maintained to work together with the hope of being able to achieve the goals and objectives of the system. Goals are different from goals. The goal of the system is what the system wants to achieve for a relatively short period of time. While the goal is the condition or final result that the system wants to achieve for a long period of time. In this case, the goal is the result at each stage that supports the effort to achieve the goal.

9. Have control

Each component in the system needs to be kept working according to their respective roles and functions. This can be done there is a part that plays a role in guarding it, namely the control part. The control department has the main role of keeping the processes in the system can proceed normally according to the previously set limits. In the Management Information system, control can be in the form of process validation, as well as output validation that can be designed and developed programmatically.

10. Have feedback (feed back)

Feedback is needed by the control department of the system to check the occurrence of processes in the system and reverse them to normal conditions.

In connection with the foregoing, it can be concluded, that what is meant by a system is a series of activities that are interconnected with each other, in other words that the system is a single unit or a collection of sub-systems that interact with each other in order to achieve a certain goal.

Definition Of Information - The source of information is data. Data is a reality that describes an event, and a real unity. Events are things that happen at a certain moment. In the business world, events that often occur are transactions of changes in a value called a transaction. Real unity is in the form of a real object such as places, objects and people that really exist and happen. To produce wisdom and good decisions, it is necessary to process data into information that is relevant to the company's problems that are being faced. Thus the data is a raw material that must be processed first and then can be used.

Information technology is a technology used to generate information. Information technology consists of computer technology (computing technology) and communication technology (communication technology) which is used to process and disseminate information both financial and non-financial (Bodnar and Hopwood, 1995).

information should have value if the information may result in a change in the Action taken. This change is important to realize because data actually has no value for decision making, only information has value, in the sense that information will make it easier for managers to make decisions.

According to Atin Hafidiah and Dusan Sumartayaalam (2003:51-52), the value of information is based on the following ten properties:

1. Easily obtainable (accesbility). This property indicates the ease and speed with which information output is obtained, for example one minute versus twenty-four hours.
2. Its nature and breadth (comprehensive). This property shows that the completeness of the content of this information does not mean only about the volume, but also about the output.
3. Accuracy. This trait relates to the degree of freedom from error.
4. Appropriateness. The nature of pointing to how good the information outputs in relation to the user's request. The content of the information should have something to do with the problem at hand.
5. Timelessness. This property relates to shorter process/cycle times resulting in information.
6. Clarity (clarify). Pointing to the degree of freedom of obscure terms.
7. Flexibility (flexibility). Can be used not only on one decision, but more than one.
8. Variable. Can be tested by the user so as to come to the conclusion yang the same.
9. It contains no prejudice, no desire to produce or change information in order to obtain pre-considered or predetermined conclusions.
10. Measurable (measurement), the information is generated from formal and legal information systems. Although hearsay, hearsay, clonic and so on are often regarded as information, it is beyond the scope of the management information system conversation.

The information system contains three basic activities in it, namely: input (input), processing (processing), and output (output) activities. These three basic activities generate the information an organization

JISMA
JOURNAL OF INFORMATION SYSTEMS AND MANAGEMENT
Vol. 02 No. 02 April 2023 https://jisma.org e-ISSN: 2829-6591

needs to make decisions, control operations, analyze problems, and create new products or services. Input plays a role in the collection of raw data, both obtained from within and from the environment around the organization.

Definition Of Management - Every human being in the course of his life will not be separated from the name of the organization, and in the organization is learned how to manage the organization professionally. This suggests management science is universal. Therefore, one of the branches of science that is currently very rapidly developing is management science. This science has intervened in various other fields of science, or at least has collaborated with other sciences in its development. We know there is human resource management, banking management, industrial management, financial management, marketing, production, urban management, government management, Education management, information system management and management information systems.

Terry's statement in Manullang (2005:1), management is the achievement of goals set in advance by using the activities of others. In contrast to the understanding according to the big Indonesian dictionary (KBBI), the leader who is responsible for the running of the company and organization. From the definitions mentioned above, there are three important things in these definitions. First, there is a goal to be achieved; second, the goal to be achieved requires/requires the energy of others; and third, the activities/activities of others must be guided and supervised or controlled.

Management Information System - In a SIM, management resources include three of these resources plus resources in the form of information. The management process can be carried out in three levels of management activities, namely: 1). strategic planning, 2). tactical planning and management control, and 3). operational planning and control.

Raymond McLeod Jr (1996:54) suggests that SIM is a computer-based system that provides information to several users with similar needs. Information output is used by managers and non-managers in the company to make decisions in solving problems. Meanwhile, according to Komaruddin in Effendy (1989: 111) SIM is an organized and planned approach to provide executives with information assistance that provides convenience to the management process.

According to O'Brien and Marakas (2009) the objectives of the management information system are: to provide information used in the calculation of the cost of goods for services, products, and iain goals desired by management; provide information used in planning, controlling, evaluating, and continuous improvement; providing information for decision making.

All three goals suggest that managers and other users need to have access to management accounting information and know how to use it. Management accounting information can help them identify a problem, solve problems, and evaluate performance (accounting information is needed and used in all stages of management, including planning, controlling and decision-making).

Computer - Computer comes from the Latin Computare which means to count. Due to the breadth of the field of computer science, experts and researchers differ slightly in defining computer terminology. According to Hamacher, a computer is an electronic counting machine that is fast and can receive digital input information, then process it according to the program stored in its memory, and produce an output in the form of information. Blissmer said that, a computer is an eiotonic device capable of performing some of the following tasks: receiving input, processing inputs according to its program, storing commands and the results of processing, providing outputs in the form of information. Meanwhile, Fuori argues that a computer is a data processor that can perform large calculations quickly, including arithmetic calculations and logical operations, without human intervention.

Basically, a computer is a tool that processes simboI—symbols in the form of numbers, letter codes, or combinations. Symbols are inserted by humans into a computer through input devices, which process them in a certain way, which can be distinguished into analog and digital ways. A computer system is a combination of hardware, software, communication, human resources and processing procedures. The five components cannot stand alone and work alone. Because hardware cannot process payroll, for example, in the absence of a software program, so too can software or computer programs that contain instructions needed by the hardware complete the tasks required.

Levels of Decision Making and Analyzing Decisions

Decisions are organizational behavior, based on individual behavior and in the description of this decision process relatively and it can be said that the notion of organizational behavior is more important than individual interests. One of the important management activities is to fully understand the system in order to take

JISMA
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Vol. 02 No. 02 April 2023 https://jisma.org e-ISSN: 2829-6591

the right decisions that will be able to improve the overall system results within certain limits. Thus decision making is a process of selecting various alternatives both qualitative and quantitative to get the best alternative to answer problems or resolve conflicts (conflicts).

Terry George (1977) and Barnard, I, Chester. (1992) explains that the process of decreasing a decision contains four elements:

1. Model: The model shows a quantitative or qualitative picture of a problem.
2. Criteria: The formulated criteria indicate the purpose of the decision taken. If there are several conflicting criteria, then decision-making must go through compromise (e.g. adding Iangganan services and reducing inventory, then which decision to make needs to compromise).
3. Limiter: Additional factors to consider in solving decision-making problems. For example, less available funds.
4. Optimization: If the decision problem has been outlined as clearly as possible, then the manager determines what is needed (criteria) and what is allowed (limiters). In this situation the decision maker is ready to choose the best or optimal solution.

Based on the explanation above, it can be concluded that decision making is a process of selecting alternative solutions to problems. In general, decision making is an attempt to solve a problem by choosing an alternative solution that exists. And decision-making ranges from highly routine and standard (programmatic) to complex (non-programmable). For classification purposes, then there are basically three levels of decision making.

1. Strategic-level decision making Strategic decision making is characterized by a large number of uncertainties and is oriented towards the future. These decisions establish a long-term plan that will affect the entire organization. Strategic level decision making such as factory expansion, production determination, merger, classification, capital expenditure and so on. Briefly, it can be said that the decided strategy relates to long-term planning and includes goal setting, wisdom determination, organization, and the achievement of the overall success of the organization.
2. Tactical level decision making. Tactical decision making relates to short-term activities and the determination of resources to achieve goals. This type of decision-making relates to areas such as budget formulation, analysis of fund flows, determination of factory layout, staffing issues, production improvements and research and development. Where strategic decision-making largely contains comprehensive planning activities, tactical decision-making requires a combination of planning and oversight activities. This type of decision has little potential to carry out programmatic decision making. For the most part the rules of decision in tactical decision-making are not composed and cannot be accounted for to daily habits and self-regulating regulations.
3. Technical level decision making. At the technical level, standards are defined and outputs are deterministic (their nature is decisive). Technical decision making is a process that can guarantee that specific tasks can be implemented in an effective and efficient manner. This level [emphasis] emphasized the Supervisory function and very little planning function. At this level programmatic decision-making can be implemented. Examples of this type of decision-making are the acceptance or rejection of credit, process control, timing, receiving, sending, inventory supervision and placement of employees. Different levels of decision-making require different types of information. Analysts should be aware of these types of decision-making in information systems to meet different needs, as the information to be generated depends on these needs. It should be noted and clearly understood that in practice among the various groups of decision-making these boundaries are often blurred and even often overlap. Although the dividing lines are not clear or blurred, as an analyst, you must be aware of these types of decision-making and how information systems can be designed to meet different needs, because the information generated by information systems will depend on these needs.

Decision Making Process

Simon (1960) proposed a model describing the decision-making process. This process consists of three phases, namely:

1. Intelligence

This stage is the process of tracing and detecting problems and the process of introducing problems. Input data is obtained, processed, and tested in order to identify the problem.

2. Design

JISMA
JOURNAL OF INFORMATION SYSTEMS AND MANAGEMENT
Vol. 02 No. 02 April 2023 https://jisma.org e-ISSN: 2829-6591

This stage is a process of finding, developing, and analyzing alternative actions that can be done. This stage includes the process of understanding the problem, deriving the solution, and testing the feasibility of the solution.

3. Choice

At this stage, a selection process is carried out between various possible alternative actions.

The results of the election are then implemented in the decision-making process.

Discussion

The Role of Computer-Based SIM in Decision Making

The value of information relates to decisions. Where the support of management information systems in decision making in an organization can be described according to three stages, the decision-making process, namely understanding, design (design), and selection. SIM support usually involves processing, computer or non-computer files.

At the stage of understanding its relationship with the driver's license is in the investigation process which includes checking the data both in a predetermined way and in a special way. The driver's license must provide both ways. The Information System itself must scrutinize all the data and submit a request to be tested regarding situations that clearly demand attention. Both the driver's license and the organization must provide a communication channel for clearly known issues to be conveyed to the top-level organization so that those issues can be addressed. At this stage it is also necessary to establish the possibilities. SIM support requires a data base with community, rival and internal data plus methods for tracing and finding problems.

At the design stage, the relationship with SIM is to make decision models to be processed based on existing data and initiate alternative solutions. The available models should help analyze alternatives. SIM support consists of statistical software as well as other model building software. This involves a structured approach, model manipulation, and a data base retrieval system.

At the election stage, a driver's license becomes most effective when the design results are presented in a form that encourages decision-making. If a selection has been made, then the role of the SIM changes to data collection for feedback and later assessment. Sim support at the election stage is to select various decision models conducting sensitivity analysis (sensitivity analysis) as well as determining the selection procedure. SIM support for decision making consists of a complete database, database re-search capabilities, statistical and other analytical software, and a basic model containing decision modeling software.

This means that when there is no choice or decision, the information becomes unnecessary. Decisions can range from simple repetitive decisions to long-term strategic decisions. Meanwhile, the parameters for measuring the value of information according to Agus Mulyanto (2016zl), are determined from two main things, namely benefits and costs. A piece of information is said to be valuable when its benefits are more effective than the cost of obtaining it and most information cannot be precisely estimated at its profit by units of value for money, but it can be estimated for its effectiveness. It can also be said that measuring the value of information will be more appropriate if you use cost effectiveness or cost benefit analysis.

Conclusion and Suggestion

Information technology is a technology used to obtain information both internally and externally caused by globalization that continues to develop. Organization is an open system so that the flow of development will freely enter an organization. The application of existing technology in the organization must be adjusted to the characteristics of the organization itself so that there is no conflict.

The existence of information technology can provide a significant role, be it to work efficiency or the culture of cooperation between members, between units, or overall intuition in the organization, so that technology and the organization have a relationship and influence each other. Based on the description that has been vented above, it is very clear that the presence of computer technology has made a very positive contribution to management information systems and SIM is also very much needed by leaders in an organization or company for accountable decision making. The more complex the activities and the development of units, units departments in an organization, the more difficult it is to coordinate and communicate if a system is not created.

For managers, the presence of a computer in a driver's license not only makes a positive contribution, furthermore, the decision-making process becomes easier and accountable.

References

Purwanto, A. (2022). WHAT IS THE ROLE OF CUSTOMER BEHAVIOR FOR ELECTRONIC E-COMMERCE AND MODERN MARKET VISIT INTENTION?. Journal of Information Systems and Management (JISMA), 1(6), 46-57.

Hermansyah, R., & Asbari, M. (2022). Edifying In The Industrial Revolution 4.0 With The Role Of Islamic Education. Journal of Information Systems and Management (JISMA), 1(5), 7-11.

Novitasari, D. (2022). Hospital Quality Service and Patient Satisfaction: How The Role of Service Excellent and Service Quality?. Journal of Information Systems and Management (JISMA), 1(1), 29-36.

Jasin, M. (2022). How The Role of online and viral marketing and competitiveness ability on business performance of SMEs. Journal of Information Systems and Management (JISMA), 1(2), 28-35.

Novitasari, D. (2022). SMEs E-commerce Buying Intention: How the Effect of Perceived Value, Service Quality, Online Customer Review, Digital Marketing and Influencer Marketing. Journal of Information Systems and Management (JISMA), 1(5), 61-69.

Jasin, M. (2022). The Role of Social Media Marketing and Electronic Word of Mouth on Brand Image and Purchase Intention of SMEs Product. Journal of Information Systems and Management (JISMA), 1(4), 54-62.

Indra, F., Juliana, J., Hubner, I., & Sitorus, N. B. (2022). Development Of Gastronomic Tourism Potential In Pontianak West Kalimantan. Journal of Information Systems and Management (JISMA), 1(5), 28-42.

Effendi, M. R., & Saputra, J. (2022). Design and Build an Employee Leave Application System. Journal of Information Systems and Management (JISMA), 1(4), 42-53.

Patmawati, S., Dewi, V. M., & Asbari, M. (2023). THE EFFECT OF SHORT-TERM AND LONG-TERM LEARNING IN QUALITY MANAGEMENT AND INNOVATION. Journal of Information Systems and Management (JISMA), 2(1), 21-26.

Basrowi, Suwandi. (2008). Understanding Qualitative Research.Jakarta: Rineka Cipta.

Cahyadi, I. F. (2019). The Role of Accounting Information Systems and the Challenges of the Accountant Profession in the Era of the Industrial Revolution 4.0 (A Phenomenological Study). AKTSAR: Journal of Sharia Accounting, 2(1), 69-82.

Frey, C. B., & Osborne, M. (2016). The Future of Employment: How Susceptible Are Jobs to Computerisation?

Iswanto, Alek Candra and Wahjono. (2019). The Influence of the Industrial Revolution 4.0 on the Science of Esai Accounting. INFOKAM, Number I Th. XV/MARCH/2019.

Schwab, Klaus & Samans, Richard, (2016), The Future of Jobs : Employment, Skills, and Workforce Strategy for the 4th Industrial Revolution.

Suwardana, H. (2017). Industrial Revolution 4.0 Based on Mental Revolution . Unique Teak , 102-110.

Wilkinson, Joseph, W.; Michael, J. Cerullo; Vasant, Raval; Bernard WongOn-Wing. (2000). Accounting Information Systems: Essential Concepts and Applications. Fourth Edition. New York: John Willey and Sons, Inc.

Adhi Suprobo, Revelation. 2014. *Effect of Management Control System (SPM) on Employee Performance in Micro, Small and Medium Enterprises (MSMEs) in the Culinary Sector of Banyuwangi Region.* Jember : University of Jember. Retrieved 2022.

Anthony dan Govindarajan. 2012. *Management Control System*. Jakarta : Salemba Empat Bisbe, J., and Otley, D. 2004. *The Effect of The Interactive Use of Management Control System On Product Innovation*

(Pengaruh Interaktif Penggunaan SPM pada Inovasi Produk). Accounting, Organizations, and Society, 26: 709-737. Diakses pada tahun 2022.

Davila, A, G. Foster, and D. Oyos. 2009. *Accounting and Control of The Entrepreneurship and Innovation: Venturing into New Research Opportunities. (Accounting and Control over Entrepreneurship and Innovation: Starting New Research Opportunities).* European Accounting Review, 18:281-311. Retrieved 2022.

Ghazali, Imam. Hengky Latan. 2012. *Partial least square concepts, techniques and applications of smartPLS 2.0 M3.* Semarang : Diponegoro University Research Agency. Retrieved 2022

.

Ghozali, Imam. 2011. *Application of multivariate analysis with SPSS programs.* Semarang: BP Diponegoro University. Retrieved 2022.

Liana. 2009. Use of MRA with Spss to Test the Effect of Moderating Variables on the Relationship between Independent Variables and Dependent Variables. *Journal of Information and Technology Dynamics, 17(2), pp. 90-97*. Retrieved 2022.

Siagian. 2015. *Management Control System.* SCRIBD. E-Book. Retrieved 2022.

Sugiyono. 2011. *Business Research Methods : Quantitative, Qualitative and R&D Methods.* Retrieved 2022.

Yesi. 2012. The Effect of Managerial Performance in Pekanbaru City Banking Companies with Clarity of Role and Innovation as Intervening Variables. Pekanbaru: Riau University. Retrieved 2022.

Tambun,Sihar. 2013. Data Management Techniques and Interpretation of Research Results using the SPSS Program for Moderating Variables. Workshop on Quantitative Research Methods. Retrieved 2022.

Wirawan. 2009. *Human Resource Performance Evaluation : Application Theory and Research*. Jakarta: Salemba Empat. Retrieved 2022.