



## Leveraging Information Technology for Enhanced Information Quality and Managerial Performance

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### Abstract

This study aims to analyze and understand the contribution of information technology and its impact on information quality and management performance in the digital printing industry. The approach used in this study is causality between variables, while the sampling technique used is a census method, which means that the entire population is a target sample of 52 respondents who are business leaders. To measure the variables in this study, variable indicators consisting of a five-level Likert scale have been used, while the analysis method used to demonstrate the hypothesis is SmartPLS Software. The results of this study find that information technology has a positive contribution to improving information quality and management performance in the digital printing industry. The results show that improving information quality and management performance can be achieved by using new information technology and computer-based telecommunications. It was also found that the quality of information has a positive and significant effect on improving managerial performance. This implies that to improve the management performance of the digital printing industry, information quality support is required so that the decisions taken are effective and relevant to achieving management performance and maintaining business continuity.

**Keywords:** Information Technology, Information Quality, Managerial Performance

## 1.0 INTRODUCTION

In recent decades, many companies have invested in technology and adopted process technology and product technology to remain competitive in capturing markets and creating markets. The presence of information (Chandra, Renaldo, & Putra, 2018) technology has become a source of strength for companies to achieve competitive advantage. Madique and Patch (1988) argued that the presence of technology is a critical force in a competitive environment, while Stacey and Ashton (1990) stated that technological advances will play an important role in achieving long-term advantage. Then Higgins (1995) suggests that technology has been identified as a factor that contributes to the success of company operations, while Frohman (1985) states that technology affects company profitability, and the higher the technological capability, the company has a tendency to achieve higher profits (Clark and Wheelwright, 1992).

To achieve company goals, of course, a business operational controller, called a manager, is needed. The existence of a manager in a company is to run and control the company's operational activities so that company goals can be achieved effectively and efficiently. Company goals can be achieved well if company managers in making decisions require the support of data and information needed in making business operational decisions.

According to Anthony et al., 1990 that one of the functions of an information system (Renaldo, Suharti, Andi, Putri, & Cecilia, 2021) is to provide important information to help managers control (Renaldo, Sudarno, & Hutahuruk, 2020) their activities, as well as reduce environmental uncertainty, so it is expected to help companies achieve goals successfully, while Atkinson et al., (1995) state that, the information generated from information systems (Suharti & Shinta, 2021) can be used to measure the economic performance (Putra & Renaldo, 2020) of organizational units within the company.

The relationship between information technology and managerial performance has been observed by several previous researchers, and it was found that the use of technology has a positive and significant effect on individual performance (Rahmi, 2013), while Frestilia (2013) found that the use of technology has a positive effect on performance. But on the other hand, it was also found that the use of information technology did not affect performance.

In addition to the factor of utilizing information technology in processing data into information, and this information is used by managers in making managerial decisions, the information quality factor has a very important role in determining the quality of decisions taken by managers. Therefore, Taufiq (2013: 15) states that quality information is information that in general can be said to fulfill what is needed by users, while Jogiyanto (2007: 12) states that the quality of information measures the output quality of the information system. This means the use of information technology has relevance to the quality of information. Rahmi (2013) found that information technology has a positive and significant influence on the quality of information.

Based on the description above, it can also be obtained that the quality of information contributes to managerial performance. This has been proven by Widarsono (2007) that the quality of management information affects employee performance. Furthermore, it was also found that the quality of information has a positive effect on managerial performance (Samrotun, 2011). Thus, it can be said that technological factors have a bearing on the quality of information produced and the success of managers in carrying out their managerial activities and the quality of information produced by information technology is a determining factor for managers in making decisions related to managerial performance.

Relationship between the concept of information technology and information quality and managerial performance and relationship between the concept of information quality and managerial performance, I want to observe in order to find out how the model of the relationship between the three variables is in its application in the digital printing industry at the same time I want to know how big the relationship between the concepts is in forming the relationship model. Thus, specifically, this study is intended to analyze and find out the model of the relationship between these concepts, especially to find out the magnitude of the contribution of information technology to information quality and managerial performance, and want to know the contribution of information quality to managerial performance in the digital printing creative industry environment.

## 2.0 LITERATURE REVIEW

### Information Processing Theory (IPT)

From an information perspective, an organization is seen as a functional system of information processing. To achieve efficient information processing, a suitable internal structure is needed to accurately reflect the match between the organization's ability to handle information and the amount of information required. The IPT sheds light on how the design and organizational structure changes according to the requirements for processing certain volumes of information during its operations. Implementing green operations does not only focus on choosing the right practices within the company but also includes understanding interactions with wider external stakeholders such as supply chain parties, environment, community, government, etc. some information will be released during this process. High volumes of information can be a major challenge for companies with limited information processing capacity. A well-designed green information system (Sudarno et al., 2022) can overcome this problem by enabling efficient communication with various external stakeholders, as well as effective control and management of internal operations (Liu, Wang, & Li, 2018).

### Information Technology

Information Technology is a combination of two words, namely technology and information. Technology is a useful tool to assist individuals in completing their work (Handayani, 2010), while information is data that has been arranged in such a way that it is useful and useful because it can be communicated to someone who will use it to make decisions. According to Wilkinson (1993:4) in Hakim (2010:3) information consists of data that has been transformed and made more valuable through processing. Thus ideally it can be said that information is meaningful and useful knowledge for achieving goals (Hakim 2010.4), while Miarso (2007:62) states that technology is a process that increases added value (Suyono, Renaldo, Sevendy, Putri, & Sitompul, 2021), the process uses or produces a product, product The products produced are inseparable from other existing products, and therefore become an integral part of a system.

Technology is a useful tool to assist individuals in completing work, while information is data that has been compiled in such a way that it is meaningful and useful because it can be communicated to someone who will use it to make decisions. So information technology is any form of information that is applied to process and transmit information in electronic form (Lucas (2000) in Hakim (2010:3)), while McKeown (2001) in Kadir and Triwahyuni (2015:2) states that information technology refers to all forms of technology used to create, store, transform, and to use information in all its forms.

Data and information have a relationship, where information is actually derived from data, then processed so that it benefits decision-making. Data that is processed into information are facts, in the form of numbers, text, documents, pictures, charts, sounds that represent certain verbal descriptions or codes, and the like. Wilkinson (1993:3) in Hakim (2010:3) state that data is facts, numbers, and even raw symbols.

As stated in the previous description, information is the result of data processing which has a higher meaning and usefulness because it can be used as a basis for decision-making. Processing data quickly and accurately can be used in computer-based technology, which is termed information technology. Information technology is any form of information that is applied to process and transmit information in electronic form Lucas (2000) in Hakim (2010:3). According to McKeown (2001) in Kadir and Triwahyuni (2015:2) that information

technology refers to all forms of technology used to create, store, modify, and to use information in all its forms, while Haag, Cummings, and Maeva (2009:14 ) state that, information technology is a computer-based device that people use to work with information and support the information and information processing needs of an organization. Then O'Brien (2008: 10) states that information technology is hardware, software, telecommunications equipment, database management, and other information processing technologies used in a computer-based information system.

Starting from the review above, it can be said that information technology is all computer-based technology devices that can be used to input, process data, store data and information, display data and information results, and communicate with users of information through telecommunications technology. This conclusion is in line with the view of Kadir and Triwahyuni (2005:2) that information technology, both implicitly and explicitly, is not just computer technology, but also includes telecommunications technology. In other words, information technology is a combination of computer technology and telecommunications technology.

Information technology, both related to computer technology and the result of a merger between computer technology and telecommunications technology, has accelerated the shift of human civilization towards an era of knowledge that can provide various benefits as stated by Sutarman (2009: 17) that the purpose of using information technology is to solve problems, open creativity and increase effectiveness and efficiency in doing work, with the principle of "High-Tech-High-Touch," that is, the more you depend on advanced technology, such as information technology, the more important it is to consider the "High-Touch" aspect, namely the human side, more than the functions of information technology are capturing, processing, producing, storing, retrieving, and transmitting.

The information technology component has developed in line with the development of science and technology. Experts in classifying information technology components show different views. According to Hakim (2010: 9) that information technology can be grouped into two parts, namely software related to instructions for managing hardware so that it works according to the objectives of these instructions, and hardware related to physical equipment, while Susanto (2010: 14), has divided information technology components into two parts, namely computer system components including hardware, software, and Brainware, then the second component is a computer-based information system including procedures, databases, and communication technology networks, all of which form a computer-based information system. Then there are those who argue that there are six groups of information technology components, namely input technology, processing technology, storage technology, output technology, software technology and telecommunications technology (Kadir and Triwahyuni, 2005: 5).

The concept of information technology components according to Kadir and Triwahyuni (2005:9) can be described as follows: (a) Input technology is technology related to equipment for entering data into a computer system. So this component becomes an input device for capturing data using manual or electronic methods and sending data to storage or memory via keyboard, mouse, and scanner (McLeod and Schell, 2009:120). Various input technology input devices such as keyboards; pointing devices (mouse, touchscreen, pen), scanners, optical data reader and optical character recognition reader, audio input (microphone); (b) Processing machine technology or CPU (Central Processing Unit), microprocessor, or processor. As the name implies, the CPU is part of the computer which is the data processing center by running programs that regulate data and information processing. The processing machine is the most important unit that controls all other computer system units and converts inputs into outputs and manipulates/moves data sources into a form that is more usable; (c) Storage technology is divided into two groups, namely internal memory and external memory. Internal memory serves as a temporary reminder of both data, programs, and information when the processing is carried out by the CPU, which consists of internal memory in the form of Read Only Memory or memory that can only be read, and Random Access Memory or memory whose contents can be updated. While external storage is a form of device that functions to store data permanently, such as hard disk, flash disk, or cd/DVD (Kadir and Triwahyuni 2005: 6); (d) Output technology is technology related to devices that function to present data and information on processing results, such as video displays, flat panels, printers, plotters, audio output (speakers), microfilm devices, and magnetic tape drives (Suharsono, 2008: 88); (e) Software or a series of instructions used to control (Renaldo, Sudarno, Hutahuruk, Suyono, & Suhardjo, 2021) a computer so that it can perform actions as desired, such as Microsoft Word, Adobe Photoshop; (f) Telecommunication technology, namely technology related to long-distance communication, included in this technology category are telephone, radio, television, and internet networks (Kadir and Triwahyuni 2005: 3).

The presence of information technology in the world of work has made it easy to process and provide information easily and quickly so that information users can make decisions effectively and efficiently. Madique and Patch (1988) argue that the presence of technology is a critical force in a competitive environment, while Morone (1989) states that technology is a source of competitive power, and technological (Renaldo, Sudarno, Hutahuruk, Junaedi, et al., 2021) progress will play an important role in achieving long-term advantage. (Stacey and Ashton, 1990). Information needed to support the achievement of competitive advantage is quality information. Taufiq (2013: 15) states that quality information is information that in general can be said to fulfill what is needed by users, while in general users need complete information, when needed it is always there, on time, and so on depending on the person, while Jogiyanto (2007:15) states that the quality of information measures the quality of the output of the information system.

Based on this description, it can be said that information technology has a correlation with the quality of information and managerial performance in making every decision related to the duties and functions of controlling business operations because, with the availability of information technology, managerial tasks become easy to carry out effectively and efficiently so that managers can work professionally and their managerial performance can be achieved properly. This concept has been studied by several previous researchers and succeeded in proving that, information technology has a positive and significant influence on the quality of information (Samrotun, 2011; Rahmi, 2013), and the use of information technology has positive and significant effect on individual performance (Laksaman and Muclichah, 2012), and Frestilia (2013) found that the use of technology has a positive effect on managerial performance.

Information technology elements according to Kadir and Triwahyuni (2005:9) include:

- a. Input Technology
- b. Processing Machine Technology,
- c. Storage Technology,
- d. Output Technology,
- e. Software,
- f. Telecommunications technology (Communication Technology).

The components of information technology are used in this study as forming factors of information technology. The use of information technology in the world of work including in business activities is aimed at solving problems, opening up creativity, and increasing effectiveness and efficiency in doing work (Sutarman, 2009:17). Morone (1989) stated that technology is a source of competitive power, and technology will play an important role in achieving long-term advantage (Stacey and Ashton, 1990).

Based on the description above, the first hypothesis can be formulated that information technology has a positive and significant contribution in improving the quality of digital printing creative industry information, and the second hypothesis is that information technology has a positive and significant contribution in improving the managerial performance of the creative industries digital printing.

### **Information Quality**

As stated in the previous description, information is the result of data processing that can be used to make decisions related to organizational activities. However, it should be considered that not all available information is suitable for use as a basis for making decisions. Therefore, it is necessary to consider the level of quality of information before making a decision. There are several things that must be fulfilled by information that is considered quality, including the availability of the information itself, easily understood by decision-makers, relevant to the problems faced, useful for the organization, timely when needed, and the truth is reliable and the information is accurate and consistent (Judge, 2010: 4).

According to Taufiq (2013: 15) that, quality information is information that in general can be said to fulfill what is needed by the user, while in general users need complete information, when needed it is always there, on time and others depending on the person, while Jogiyanto (2007:15) suggests that the quality of information measures the output quality of the information system.

Information is one of the important components needed by decision-makers. Therefore, before making a decision, it is necessary to select all available information. According to experts, there are several characteristics that must be owned by a piece of quality information. Romney (1997) suggests that the components of information quality are relevant, reliable, complete, timely, understandable, and verifiable, while Amsyah (2001: 316) states that the value of information is determined by five characteristics, namely accuracy, timeliness, completeness, brevity, and suitability. Then Jogiyanto (2005:10) states that the quality of information is determined by three main things, namely accuracy (accuracy), relevance (relevancy), and timeliness (timeliness), and McLeod and Schell (2009:43) group them into 4 namely; Relevant, Accurate, Timely and Complete.

The quality of information has become a factor that is always considered by managers in making decisions because every decision taken by managers contains risks. Therefore, to eliminate risks or errors in making decisions, quality information is absolutely necessary. The availability of quality information will provide convenience and high certainty for managers in making decisions related to their operational activities, so that organizational performance can be achieved properly, including managerial performance can also be achieved properly.

Taufiq (2013: 15) states that quality information is information that in general can be said to fulfill what is needed by the user, while in general users need complete information, when needed it is always there, on time, and so on depending on the person. According to McLeod and Schell (2009:43), quality information contains elements; Relevant, Accurate, Timely, and Complete. The components forming the quality of the information will be used in research as a factor forming the variable quality of information.

Information quality has become a factor that is always considered by managers in making decisions because every decision taken by managers contains risks. Therefore, to eliminate risks or errors in making decisions, quality information is absolutely necessary. The availability of quality information will provide convenience and high certainty for managers in making decisions related to their operational activities, so that organizational performance can be achieved properly, including managerial performance can also be achieved properly.

Based on this description, it is obtained that the quality of information contributes to improving managerial performance. The relationship between the concept of information quality and managerial performance has been observed by several previous researchers, and it was found that the quality of management information influences managerial performance (Widarsono, 2007). This finding is in line with the results of a study by Samrotun (2011) that information quality has a positive effect on managerial performance in manufacturing companies in the city of Surabaya. On the basis of the above review, the third hypothesis can be put forward that, the quality of information has a positive and significant contribution to improving the managerial performance of the digital printing creative industry.

### Managerial Performance

The increasingly competitive business competition requires business managers to carry out their business in a professional manner. Professional business management requires a good accountability system and relevant and reliable information for making decisions, planning, and controlling business for creative industries in the field of digital printing. To become a professional manager and be able to lead his business to be successful and highly competitive, managers who have the ability to manage the business well are needed. According to Robbins and Coulter (2012: 109), that ability directly affects the level of performance. Welsa (2006) states that business ability has a significant effect on business performance. Performance is the result of carrying out a job, both physical and non-physical (Nawawi, 2005:234). The results of this work can be realized well because there is support from managers who can provide guidance and instructions so that all activities in the business can work well.

According to Robbins and Coulter (2012: 5) that a manager is someone whose job is to coordinate and supervise the work of other parties so that organizational goals can be achieved. This means that organizational goals can be realized properly because of the work or work of managers in carrying out their duties and functions as business operational leaders. According to Rivai and Basri (2005: 14) that manager performance is a measure of how effectively and efficiently the manager has worked to achieve organizational goals, manager performance is the ability or work performance that has been achieved by personnel or a group people in an organization, to carry out their functions, duties, and responsibilities in carrying out company operations.

Managerial performance is how effective and efficient managers have worked to achieve organizational goals (Rivai and Basri, 2005:14), manager performance is the ability or work performance that has been achieved by personnel or a group of people in an organization, to carry out their functions, duties, and responsibilities in carrying out company operations. Widarsono (2007) states that the quality of management information influences managerial performance. This finding is in line with the results of a study by Samrotun (2011) that information quality has a positive effect on managerial performance in manufacturing companies in the city of Surabaya. On the basis of the above review, it can be put forward the third hypothesis that the quality of information has a positive and significant contribution to improving the managerial performance of the digital printing creative industry.

Manager performance can be measured based on the results of the implementation of all functions and duties in carrying out company operations, as stated by Riyadi (2000) in Muslimin (2007: 451) that managerial performance is the performance of managers in managerial activities which include: planning, investigation, coordination, evaluation, supervision, staffing, negotiation, and representation or representation. Manager performance can also be seen from the side of the role that has been carried out in controlling the company. The roles that can be carried out by managers include interpersonal roles, informational roles, and decision-making roles (Mintzberg in Robbins and Coulter, 2012: 11). Then several previous researchers measured the performance of managers based on the ability of managers to plan and organize, supervise, make decisions, monitor indicators, control, explain, coordinate, consult, administer (Hemphill (1959) and Mahoney, Jerdee, and Carroll, 1965) in Yukl, 2010:33).

### Research Framework

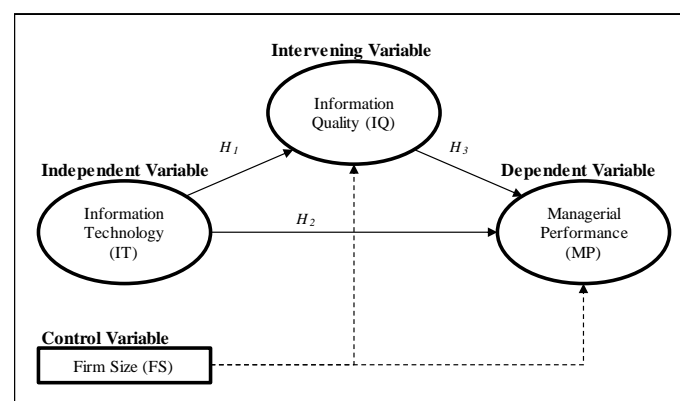


Figure 1. Research Framework

### 3.0 METHODOLOGY

This research is explanatory research, which aims to explain the position of the variables studied and the relationship and influence between one variable and another (Sugiyono, 2013: 4). This study analyzes the contribution of information technology to the quality of information and managerial performance as well as the contribution of information quality to the managerial performance of the digital printing creative industry in the Capital City of Southeast Sulawesi Province. The population in this study was all twenty-five digital printing creative industries, while the target analysis unit was the manager. Because the number of population is limited, the sampling technique used in this study is the census method. This means that all populations are taken at once as the target sample for observation.

The source of data used in this research is primary data obtained directly through a pre-designed questionnaire. The types of data obtained through questionnaires include respondent characteristics, respondent participation related to information technology variables, information quality, and managerial performance, which are obtained through closed questionnaires, and are submitted directly to each target respondent. All variables observed in the study were used as indicator variables which were measured using a five-level Likert scale. To answer all hypotheses, SEM-PLS analysis was used with SmartPLS 3.0 M3 Software.

This study examines the relationship between information technology variables to information quality and managerial performance as well as the contribution of information quality to managerial performance. Information technology which is formed by input technology, processing, storage, output, software, and telecommunication technology functions as an independent variable (exogenous), while the information quality variable which is formed by information relevance, accuracy, fixed time, and completeness of information functions as dependent variable (endogenous). ) including managerial performance variables.

All the variables studied can be operationally defined as follows: Information Technology is all technological media used by managers in the digital printing industry in supporting managerial decision making including input technology, processing technology, storage technology, output technology, and software technology, telecommunications technology (Kadir and Triwahyuni, 2003:5). (1) Input Technology are all input devices used by managers in the digital printing industry to input and collect data into computer systems, as measured by indicators of availability of input technology facilities, quality of input technology, and technological sophistication input. (2) Processing technology is all processing technology devices used by managers in the digital printing industry in processing and manipulating data into information, as measured by indicators of availability of processing technology, speed of access power, and ease of processing data. (3) Storage Technology, namely devices that are available and can be used by managers of the digital printing industry to store data permanently so that it can be reused as information material in making decisions, with indicators of the availability of storage technology, capacity, and quality of storage technology. (4) Output Technology is all output technology devices that can be used by managers in the digital printing industry to display and produce information, with indicators of the availability of output technology devices, the speed of access power, and the ability/quality of printing power. (5) Software Technology is all application programs that can be used by managers in the digital printing industry to process and manipulate data into information that can be used in making decisions, with indicators of availability of software technology, speed of access power in processing data into information and quality software technology work. (6) Telecommunications Technology is all telecommunications technology devices that can be used in the digital printing industry to communicate, send or disseminate information to users, as measured by indicators of speed of access power, ability to communicate, and availability of telecommunication technology facilities.

Information Quality is the ability and advantage possessed by information in supporting decision-making according to the needs and expectations of the digital printing industry, including Relevant, Accurate, Timely, and Complete (McLeod and Schell, 2009:43). (1) Relevant, namely the information produced is always available in accordance with the required needs and the information can be used to make the right decisions. (2) Accurate, namely the information provided can be trusted and believed to be correct and not misleading when used by management and the information is appropriate for use in making decisions. (3) Timely, namely the information is always available in a timely manner according to their needs, and the quality of the information is as expected and suitable for making decisions effectively and efficiently. (4) Complete, namely the information available is presented in full and not lacking and the information is very clear and is used to make decisions effectively.

Manager performance is the result of the manager's work in carrying out all management functions and operational activities of the digital printing industry, which includes planning and organizing, supervising, making decisions, monitoring indicators, controlling, explaining, coordinating, consulting, and administering activities (Mahoney, Jerdee, and Carroll, 1965 in Yukl, 2010:33). (1) Planning and organizing are activities carried out by managers due to success in establishing activity plans and division of tasks and responsibilities as well as determining the optimal allocation and placement of company resources. (2) Supervision is the manager's success in increasing the knowledge and skills of employees as well as guidance in carrying out tasks effectively and efficiently. (3) Making Decisions is the success achieved in solving the problems faced and the ability to determine the right alternative decisions and speed in making decisions. (4) Monitoring Indicators are successful in monitoring and guiding the work activities of each section properly and the implementation of good work

processes and the implementation of harmonious and conducive work activities. (5) Control is an activity carried out by managers in controlling work activities, work processes, and work quality so that they remain in accordance with the required quality standards. (6) Giving an explanation is the workability possessed by a manager in promoting his business and the ability to negotiate as well as the ability to provide detailed explanations in the event of a conflict. (7) Coordinating is the manager's ability to build relationships with external parties and internal parties as well as the ability to mediate any conflicts. (8) Consultation is the manager's ability to solve problems and transfer the knowledge and expertise they have and can act as professionals. (9) Administering is successful in managing the administration system in a complete and clear manner and can provide convenience in making decisions effectively and efficiently.

All research variables are measured using indicator variables, and each indicator consists of three statement items. Then the research instrument was arranged in the form of a closed questionnaire. Before this questionnaire was distributed to all respondents, a validity test was first carried out using the Pearson product-moment correlation method, with the criterion that if the  $r$  obtained was  $> 0.30$  at a 95% confidence level then it was declared valid. Then do the internal consistency using the reliability coefficient (Cronbach Alpha). If the Cronbach Alpha coefficient value is said to be good when it has a coefficient  $> 0.60$  (Sakaran, 2007:287).

The results of the instrument validity test showed that all indicators used to measure research variables (information technology, information quality, and managerial performance) were declared valid because the validity coefficient value was greater than 0.30 ( $r > 0.30$ ). Then, the results of testing the reliability of research instruments with a confidence level of 95% or alpha 0.05, show that all indicator items used to measure each indicator variable have a coefficient score of  $> 0.60$ . This means the instruments used in collecting data are reliable at the 95% confidence level or alpha 0.05.

## 4.0 RESULTS AND DISCUSSION

### Description of the Characteristics of Research Respondents

The characteristics of the respondents who were also observed in this study included gender, age, marital status, education level, and business experience in the digital printing creative industry. Based on the results of data processing, information was obtained that most of the managers who managed the digital printing creative industry were male, as many as 93%, and the remaining 7% were female. In terms of age, in general, there are 57% in the industry managers aged between 26-45 years, while managers aged 25-35 are 27% and the remaining 20% are in age over 40 years.

In addition to the factors of gender and age of managers observed in this study, marital status, level of education, and work experience were also observed. Based on the results of the study it was found that for most of the respondents who were asked for information, as many as 92% stated that they were married, while those who were not married were 8%. Of all the respondents observed, it was shown that 61% had undergraduate education, 15% had diploma education and others had high school level education. Then, judging from work experience, it appears that there are around 45% respondents who have worked in the creative industry in the field of digital printing, and as many as 9 people who have work experience between 3 to 5 years, and the remaining people who still have work experience under 2 years.

### Descriptive Research Variables

The information technology observed in this study is formed by several technologies, namely: input technology, processing technology, storage technology, output technology, software technology, and telecommunications technology. Of all the technological components used in the digital printing creative industry, it shows that the input technology used by the industry is still in the sufficient category, especially in terms of the availability of facilities, the quality of input devices, and in terms of being up to date, while telecommunications technology has occupied the best position is around 62.67%, especially in terms of access speed, communication ability, and availability of facilities. Then followed by processing technology with an average score of 60% and is in a good category, especially in terms of the availability of technological facilities, the speed of access power, and the ease of processing and storing data and information, while other technological devices are also in the good category.

Information quality in this study is formed by four dimensions, namely: relevant, accurate, timely, and complete. Based on the results of calculations on all the dimensions that make up the quality of information, it is obtained that the complete dimension has made the highest contribution in shaping the quality of information, especially in terms of the availability of information that is presented in full and not lacking and the information is very clear and is used to make decisions effectively and efficiently. The components forming the quality of information that are still in the sufficient category are accurate and timely, while in terms of relevance, they are in a good category.

The managerial performance observed in this study is shaped by the dimensions of planning and organizing, supervising, making decisions, monitoring indicators, controlling, explaining, coordinating, consulting,

and administering. Based on the results of gathering information in the field, it was obtained illustrated that the ability of managers to carry out consulting activities was still considered in the sufficient category because a small number of respondents stated that managers had the ability to solve problems and transfer their knowledge and expertise and could act as professionals by 56.67% (Good). Then the components that form a managerial performance that is in the good category and has a value of over 70% are the manager's ability to monitor and administrate, while the other components (planning and organizing, supervising, making decisions, controlling and explaining) are still considered in the good category but the value is only about 63.33% for supervision, providing explanations (64.67%), planning and organizing (64.67%), making decisions and controlling 68.67%.

### **Analysis Results**

This study aims to determine the contribution of information technology variables to information quality and managerial performance, as well as the contribution of information quality variables to managerial performance. Before arriving at the analysis, it is necessary to test the reliability and validity of these variables before being used for further testing variables that have been used in this study. In testing the outer model, the criteria of convergent validity, discriminate validity and composite reliability are used. The basis for assessing convergent validity from reflective indicators can be seen from the correlation between the indicator scores and the variable scores. If the outer loading value of the indicator is above 0.70 (Outer Loading > 0.05) then the indicator is considered reliable, while to test construct reliability, composite reliability and Cronbach's alpha criteria can be used. If the composite reliability and Cronbach's alpha values are above 0.60, then the indicators that make up the construct are declared reliable. Then to measure the contribution of the indicators to the latent variables, discriminant validity criteria can be used by looking at the AVE root value of each variable. If the AVE root value of each variable has a value of more than 0.5, then the construct is declared to have good discriminant validity.

### **Information Technology Construct**

Based on the results of the analysis of the outer loading model of the information technology variables formed by several variable indicators using the outer model criteria (convergent validity, composite reliability, and discriminant validity) based on the results of the convergent validity test on information technology latent variables it shows that all indicators that form a reflective relationship to latent variables have outer loading values above 0.70. Thus, it can be concluded that all indicators that makeup information technology variables have met the provisions of convergent validity. The strongest indicator in shaping the information technology variable is communication technology because it has the largest loading factor value (0.968). This means that communication technology indicators, especially those related to the speed of access power, ability to communicate, and the availability of telecommunication technology facilities, have a significant contribution in reflecting Information Technology variables.

After testing the reliability of the indicators, the next step is to test the construct using composite reliability criteria and Cronbach's alpha (> 0.60). Based on the test results, the output composite reliability is 0.934, and Cronbach's alpha is 0.900. This means that the information technology construct has a high level of reliability because the composite reliability and Cronbach's alpha values are > 0.60. Thus it can be said that the construct of information technology can really be understood and well understood by respondents so that they do not experience misunderstandings about the indicators used in forming these variables. Then after testing the discriminate validity it turns out that the results can be said to be good because the root value of AVE (average variance extracted) from information technology variables is 0.769 (AVE > 0.50). This means that the information technology construct meets the discriminate validity criteria.

### **Information Quality Construct**

The results of the analysis of the outer loading model of the information quality variable formed by relevant, accurate, timely, and complete indicators obtained the results of a convergent validity test on the information quality latent variable that all indicators that form a reflective relationship with latent variables have an outer loading value above 0.70. Thus, it can be concluded that all indicators that form the variable quality of information have met the provisions of convergent validity. The strongest indicator in forming the information quality variable is relevant because it has the largest loading factor value (0.956). This means that indicators of information quality, especially those related to the availability of information according to the needs needed and the information are appropriate and the information can be used to make the right decisions so that it has a meaningful contribution in reflecting the variable quality of information.

Furthermore, based on the test results, the output composite reliability is 0.945, and Cronbach's alpha is 0.972. This means that the information quality construct has a high level of reliability because the composite reliability and Cronbach's alpha values are above 0.60. Thus it can be said that the construct of information quality



can really be understood and well understood by respondents so that they do not experience misunderstandings about the indicators used in forming these variables. The results of the discriminate validity test were stated to be good because the root value of AVE (average variance extracted) from the information quality variable was 0.835 (AVE > 0.50). This means that the construct of information quality meets the criteria of discriminate validity.

### Managerial Performance Construct

Managerial performance is formed by nine indicators, and based on the results of the convergent validity test on these variables, it shows that all indicators that form a reflective relationship to managerial performance variables have an outer loading value above 0.70. Thus, it can be concluded that all indicators that form managerial performance variables have met the provisions of convergent validity. The most powerful indicator in forming managerial performance variables is administration because it has the largest loading factor value (0.901). This means that managerial performance indicators have a significant contribution in reflecting Information Technology variables. Then the results of the next test obtained an output composite reliability value of 0.989 and Cronbach's alpha of 0.945. This means that the managerial performance construct has a high level of reliability because the composite reliability and Cronbach's alpha values are > 0.60. Thus it can be said that the construct of managerial performance can really be understood and well understood by respondents so that they do not experience misunderstandings about the indicators used in forming these variables. Furthermore, testing of discriminate validity turned out to be good, because the root value of AVE (average variance extracted) from managerial performance variables was 0.846 (AVE > 0.50). This means that the managerial performance construct meets the discriminate validity criteria.

### Structural Model Testing (Inner Model)

The results of testing the structural model using the SmartPLS 3.0 software briefly can be seen from the results of the structural model analysis of the relationship between Information Technology variables and the Information Quality and Managerial Performance variables as well as the relationship between information quality and managerial performance as follows.

**Table 1. Structural Model Analysis Results**

Influence between Variable	Coef.	T count	P-Value	Result	R <sup>2</sup>
Information Technology > Information Quality	1.152	1.758	0.082	Significant	0.485
Firm Size > Information Quality	1.380	1.789	0.077	Significant	
Information Technology > Managerial Performance	0.119	2.435	0.017	Significant	0.707
Information Quality > Managerial Performance	0.366	3.558	0.001	Significant	
Firm Size > Managerial Performance	0.083	2.343	0.021	Significant	

Source: Processed data, 2021

Based on the results of the structural model test, it is known that the R-square (R<sup>2</sup>) value of the Information Quality variable is 0.485 (48.5%). This means that the Information Quality variable is influenced by the Information Technology and Firm Size variables by 48.5%, while the remaining is influenced by other variables that are not included in the research model. Then the R<sup>2</sup> value of the managerial performance variable obtained a value of 0.707 (70.7%). The results of this study imply that 70.7% of the managerial performance variable is influenced by Information Technology Variables, Information Quality, and Firm Size Variables, while the remaining is influenced by other factors not observed in this study.

### Information Technology Contribution to Information Quality

The results of the analysis of the relationship between the variables of Information Technology and Information Quality obtained a path coefficient value of 1.152, with a t-statistic value of 1.758 and a p-value of 0.082. The results of this study show that Information Technology has a positive and significant influence on improving the quality of information that can be used by creative industry managers in the field of digital printing. This finding at the same time proves that the hypothesis states that information technology has a positive and significant influence in improving the quality of information is acceptable.

The results of the model analysis found that information technology has a positive and significant influence on the quality of information. This means that to improve the quality of information, especially with regard to the relevance of information, the level of information accuracy, timeliness, and completeness of information, this is largely determined by the information technology used by digital printing companies. Information Technology needed to improve the quality of information includes: (a) input technology, especially

related to the completeness of facilities, the quality of input technology, and the sophistication of input technology; (b) Processing technology, especially related to the availability of processing technology, speed of access power and ease of processing data and information; (c) Storage technology, especially with regard to the availability of safe storage technology, carrying capacity and quality of storage technology; (d) Output technology is mainly related to the availability of output devices, the speed of access power and the ability to print; (e) Software technology mainly relates to the speed of access power and the quality of the software and the availability of the software; (f) Telecommunication technology is mainly related to the speed of access power, the ability to perform communication and the availability of facilities.

The results of this study can provide support for the concept put forward by Madique and Patch (1988) that the presence of technology is a critical force in a competitive environment. Technological advances will play an important role in achieving long-term excellence (Stacey and Ashton, 1990), Indrajit (2000:30) states that information technology includes hardware components (computers, infrastructure, communication tools, etc.) and software (applications, operating systems, databases, etc.) that must be available to generate information. And quality information is information in general that can fulfill what is needed by users, while in general users need complete information when needed it is always there, on time, and depending on the person (Taufiq, 2013: 15). This finding can at the same time strengthen the results of previous studies, which state that information technology has a positive and significant influence on the quality of information (Rahmi, 2013; Laksana and Muslichah, 2012; Samrotun, 2011).

### **Information Technology Contribution to Managerial Performance**

Based on the analysis results, information is obtained that the path coefficient value of the Information Technology variable with managerial performance shows a positive number with a path coefficient value of 0.119, a t-statistic value of 2.435, and a P-value of 0.017. The results of this study prove that information technology has a positive and significant influence on improving the managerial performance of the creative industries in the field of digital printing. This findings also proves the hypothesis that has been stated in the previous description.

Based on the results of hypothesis testing it was found that information technology has a positive and significant influence on improving managerial performance. This finding implies that to improve managerial performance in the creative industry in the field of digital printing, it is necessary to have information technology support that can provide fast and quality information so that it can assist company management in making good and quality decisions. The results of this study also provide support for the concept put forward by Hasan (2002:15) that, one of the factors that influence decision-making is the availability of the necessary information. This finding can also provide support for the concept put forward by Hakim (2010: 227) that information technology is absolutely necessary to help management create quality products where ensuring the quality of a product is one of the duties and responsibilities of the manager.

However, the results of this study have provided support to previous researchers, who stated that information technology has a positive and significant influence on managerial performance (Kinarwanto, 2012); Laksana and Muslichah, 2012; Rajakumaran, 2014; Frestilia, 2013). This finding at the same time rejects the findings of previous researchers that information technology has no effect on performance (Nasir and Oktari, 2012).

### **Information Quality Contribution to Managerial Performance**

Starting from the recapitulation of the results of the research analysis, information is obtained that the quality of information has a positive and significant influence on improving managerial performance. This can be seen from the path coefficient value obtained of 0.366, with a t-statistic value greater than the t-table 3.558 and a P-value of 0.001. This finding implies that improving the managerial performance of creative industries in the field of digital printing is largely determined by the quality of information. The results of these findings can at the same time prove the hypothesis which states that the quality of information has a significant influence in improving the managerial performance of the creative industries in the field of digital printing.

The results of this study found that the quality of information has a positive and significant influence on improving the performance of digital printing creative industry managers. This implies that the information quality factor is mainly related to the level of relevance of the information available must be in accordance with the needs, and the information can be used to make decisions. In addition, the information must be accurate, meaning that the information provided must be correct and not misleading, then it must be timely when needed and the information must be available in full. By fulfilling these conditions, it means that the available information is of good quality so that it can improve managerial performance in planning and organizing its business activities, can supervise properly, can make decisions effectively, and can easily monitor all indicators which can determine

business success and facilitate control, provide explanations, coordination and consultation as well as be able to carry out administrative activities in a professional manner for the sake of business continuity in the future.

The results of this study can provide support for the view of Zainal, et al., (2013: 341) that the quality of information depends on things, namely information must be accurate, timely, and relevant, while Martin in McLeod (1995: 98) describes that the quality software as on time, within budget (Napitupulu, Sudarno, & Junaedi, 2021), and meets user requirements. According to Hasan (2002:15) that one of the factors that influence decision-making is the availability of the necessary information. The information needed must be complete and have certain characteristics, so that the resulting decision can be of good quality. It is further said that the properties of information are accurate, meaning that information must reflect or be in accordance with actual conditions; up to date, meaning that the information must be timely; comprehensive, meaning that information must be representative; relevant, meaning that the information must have something to do with the problem to be solved; has a small standard error, meaning that the information has a small error. Ward et al., (1995) stated that quality improvement is one way for organizations to improve business performance. Then Chase et al., (2001) stated that one of the areas of emphasis is the quality of technology applications because it can improve product quality, and innovation by minimizing the level of product damage and eliminating wasted resources.

This finding also provides support for the concept put forward by Atkinson et.al. (1995) that information generated from information systems (Angelyn & Putri, 2021) can be used to measure the economic performance of organizational units within a company. Likewise, Romney et al, (1992: 14), stated that the main benefits of information are reducing uncertainty, supporting decisions, and encouraging better planning and scheduling of work activities. The results of this study can add to a collection of previous findings, as found by Samrotun (2011) and Frestilia (2013) that information quality has a positive and significant influence on manager performance.

## 5.0 CONCLUSION

### Conclusion

Starting from this description, several conclusions can be drawn, that: (a) the structural model of the relationship of information technology to information quality and managerial performance and the relationship of information quality to the managerial performance of the digital printing creative industry can be said to be good. (b) information technology formed by input technology, processing machine technology, storage technology, output technology, software technology, and telecommunication technology has a positive and significant influence in improving information quality performance (relevant, accurate, timely, and complete). (c) Information technology has a positive and significant impact on improving the managerial performance of the digital printing creative industry. (d) The quality of information has a positive and significant influence on improving managerial performance which is formed by the indicator variables of planning and organizing, supervising, making decisions, monitoring control indicators, providing explanations, coordinating, consulting, and administering. (e) The results of these findings imply that, in order to improve the managerial performance of the digital printing creative industry in carrying out its operational activities, information technology support and information quality are very much needed. Likewise, if you want to improve the quality of information, good information technology support is also needed.

### Recommendation

This study found several things that need attention from digital printing creative industry managers if they want to improve the quality of information and managerial performance, namely the need for additional input information technology and the best quality as well as being up to date. The quality of information needs to be improved especially in the level of accuracy and timeliness in providing information. This research can also include green factors as supporting managerial performance research (Renaldo, Suhardjo, Putri, Juventia, & Nur, 2021).

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