

The Effects of Process Quality Management and Information Technology to Product Quality Performance with Management Accounting System as Intervening (A Case Study of Manufacture Companies Listed on Indonesia Stock Exchange)

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Abstract

Phenomenon that occurs at this time related to the product is that the quality of the resulting product is not in accordance with established standards and have not been performed well, with the sense that the products produced are still many defects, reworked, waste products, and many complaints or even the claims of customers. Results of previous studies showed different results, namely that the Process Quality Management (PQM) does not affect the Products Quality Performance (PQP), due to the lack of involvement of Management Accounting Systems (MAS) in the link between PQM and PQP. In addition, research related to MAS which addresses the relationship between Information Technology (IT) and PQM to product quality is still lack. This research is going to empirically examine the effects of PQM and IT to PQP with MAS as intervening variable using path analysis. This research was conducted at the manufacture companies listed in Indonesia Stock Exchange in 2013 with the analysis unit employees who work associated with the production process. The results found that IT can directly affect PQP and also be affected indirectly, from IT to MAS (as intervening) and then to the PQP. From the path analysis can also be concluded that the presence of significant coefficients mediation, means that there is an influence of mediation. Test results concluded that the PQM and IT with MAS as intervening variable in overall/simultaneous significant gives effect on PQP manufacturing companies. However, it turns out to be partially IT variables with no significant effect on PQP. Nevertheless, the company's management should remain consistently to use and improve the IT, considering the results of previous trials that IT, both directly and through a MAS as an intervening variable effect on PQP, so the products can be well accepted by customers and exceeding customer expectations.

Keywords: Information Technology, Management Accounting System, Process Quality Management, Products Quality Performance

1. Introduction

The level of competition in today's business world is getting higher in the presence of a free trade agreement by APEC (Asia Pacific Economic Cooperation), which is a cooperation forum in the Asia-Pacific countries to promote economic growth, trade, and investment among member countries, agreement between countries of ASEAN cooperation aimed at creating a free trade area in the entire ASEAN region with the formation of the ASEAN Economic Community (AEC) by 2015, ACFTA (ASEAN-China Free Trade Area), which is a free trade cooperation between ASEAN countries and China, and so on.

The agreement essentially aims to enhance the competitive advantage in regional or interstate related measures eliminate import tariffs. This condition makes the company must have the right strategy in order to be able to produce products or services that compete at the regional level/world. Therefore, it required high productivity to obtain high quality products/services.

The quality of goods/services is a powerful strategic tool to compete in the market and ability to meet the needs/desires are consumer expectation. This is one of the phenomena that occur in the business world today. Quality is always a revelation that may change by the consumers to a product or services that meet or even exceed customer expectations. Obviously, this is very related to the process of creating a product or service. Therefore, it is necessary to process quality management. Some of the phenomenon that occur in the business world can be described as follows:

- a) Endang Gumira Said (2012), professor of Industrial Technology of Agriculture, IPB, Bogor – Indonesia said that the quality of eggs flour that produced in Indonesia is not good. Required construction of a eggs flour mill to produce flour with good quality. Construction of a eggs flour mill should be in the center of a national egg production. So, there is a guaranteed supply of raw materials.
- b) Dedy Rochimat (2012), President Director of PT Gema Graha Sarana Tbk said that to achieve vision, GGS will continue to build a world-class business organization that continues to grow based on employee

- competencies that gets updated, to innovate and to realize the quality of products and services according to the customer's criteria in the comfort, health (ergonomic), and environmentally friendly. In order to integrate all business processes in order to improve the effectiveness and efficiency of the company's performance, GGS implement SAP Business All-in-One software solution integrated ERP (Enterprise Resource Planning).
- c) Budiyanto Halim (2012), Chairman of Development Partners Member Pearl Farming Association said that the quality of Indonesian pearls are still inferior compared to other producing countries. The low quality triggered by the lack of proper location, severe environmental pollution, quality bloodstocks and bad seed pearl shell, and inadequate technicians.
 - d) Edy Putra Irawady (2011), Deputy Coordinating Minister for Economic Affairs Industry and Trade said that Indonesian cosmetics industry is still using the standard minimum BPOM (Drug and Food Agency of Republic of Indonesia) not use the standard ASEAN.
 - e) Karen Agustiawan (2010), President Director of PT Pertamina (Persero), said that Pertamina continues to improve its quality products and quality of care.

Of the phenomena mentioned above, that the Process Quality Management is critical in creating a product or providing services that can meet or exceed the expectations of consumers/customers. Control over the processes which take place really should be done continuously by management so that any problems can be done corrective action. The impact of products or services produced will be in accordance with established standards and have added value.

From the previous description of the phenomena associated with product quality performance, it can be concluded that the quality of the product should be in accordance with established standards and performing well, with the sense that the resulting product is defective minimal, reworked (rework), trace, and minimal complaints or even the claims of customers.

Besides, Information Technology (IT) is used to conduct business companies (Wilkinson, 1991) and serve as the link that connects the company's business with suppliers, the company's business with customers, and between suppliers and customers. Related parties are related because of the value chain. Thus, IT a liaison between the business enterprise value chain, suppliers, and customers. IT trigger a value system. Therefore, an entity's information system can even become other entity information systems and ultimately improve efficiency.

In this research, the author wants to know whether the information technology and process quality management have a significant effects on product quality performance and where management accounting system as an intervening variable in the relationship between information technology to product quality performance in an enterprise. Hoque (2003) said, management accounting system has three functions of management, including plan, coordination, and control. The authors raised the issue in the field of control as an intervening variable in relation product quality performance and information technology. Maiga (2008) states that there are three components in the control of management accounting systems, namely quality goals, quality of feedback, and quality-related incentives are expected to create the conditions that can motivate employees to achieve outcomes.

2. Literature Review

Product quality Performance (Ahire and Dreyfus: 2000) which consists of an internal quality and external quality is that it can be influenced so the quality of the product/service depends on the variables that influence it. Process quality management has components that can affect the performance of the quality of products, among others, identifying the essential elements in the process. In this case it can be said that the process quality management is a series of processes in producing a quality product.

According Maiga (2008) the results of previous studies that claimed different results, the process quality management does not affect in producing products quality performance, due to the lack of involvement of management accounting systems in the link between process quality management and product quality performance. Maiga research (2008) resulted in a conclusion that the management accounting system and process quality management significant positive interaction effects on product quality performance, except for quality incentives does not affects the external quality.

However, research related to management accounting system which addresses the relationship between process quality management with the quality of the product is still lack. Drake et al. (1999) suggests that accounting and control systems that still seems to be a broad discussion for subsequent research and to contribute to alternative management options for the things that have not been well understood.

Management accounting system is often regarded as an important tool to provide information for decision makers, create and develop some kind of coaching in the company (Axelsson et al. 2002). This means that the management accounting system plays an important role in organizations and organizational behavior at large. Wruck and Jensen (1994) suggest to employees that will achieve quality performance products, such as management accounting system goals, feedback, and incentives should be used as a mechanism to motivate and influence behavior in getting the maximum welfare for both the organization and employees. Therefore,

employees should know what they are doing (feedback for learning) and they should know what they should be doing (goal directing information), and they should get a prize/reward for what they have achieved (Baker, 1988). Thus, management accounting is a very valuable tool for decision making and control in general. So, it is clear that the interactive effect between process quality management and management accounting systems on the quality of the product can be justified. Maiga and Jacob (2005) stated that the control system will affect the direction and level of effort shown by individuals or groups. It is expected to improve the performance quality of the product.

Management accounting system has three functions of management, including planner, coordinator, and controller. Maiga (2008) states that there are three components in the control of management accounting systems, namely quality of goals, quality of feedback, and quality-related incentives that are expected to create the conditions that can motivate employees to achieve outcomes. It can be said that this study is a replication of the study Maiga (2008), but the object of research is a manufacturing company in Indonesia, which is listed in the Indonesia Stock Exchange.

Some of the literature related to the strategy of manufacturing companies showed that the quality of the product as one of the main priorities of competition to gain competitive advantage (Hill, 1997). While Young and Selto (1991) states that companies in the United States respond to the competition by adopting a strategy that can produce a high quality product and make the product quality as the main objective .

Research conducted Flynn (1995) and Ahire (2000) about the influence of the process quality management on the performance quality of the product to a different outcome. The reason is the involvement of contextual variables that vary in application of the system in their respective companies. It is based on a contingency approach stating that the management accounting is based on the assumption that there is no proper accounting system that can be universally used by all organizations in a variety of circumstances. Proper accounting system depends on the specific circumstances in which the organization is located. Therefore, contingency theory must identify specific aspects of the company's accounting system in which the state can be defined with certainty and the system can be tested properly.

In this study the authors are interested in researching on the relationship of information technology to the management accounting system as has been done for example by Lokman Mia and Lanita Winata (2005), Akbar Allahyari and Morteza Ramazani (2011). In addition, it is also the link between information technology with the performance as did, among others, by Garsombke, TW, and DJ Garsombke (1989), Levy, M. and P. Powell (2000), Cragg, PB, M. King, and H. Hussin (2002) and finally the relationship between information technology on performance through a management accounting system as an intervening variable as it is done for example by Noor Azizi Ismail (2007), Adam S. Maiga (2012), Siti Zaleha Abdul Rasid (2013).

3. Definitions

3.1 Management Accounting System

Anthony and Govindarajan (2009) says that a system is a certain way to carry out an activity or series. The system used by management to control the activities of an organization called the management control system. Management control is the process in which a manager influence other members of the organization to implement the organization's strategy. Management control is facilitated by a formal system which is a repeated cycle of activity. Management Control System includes financial and nonfinancial performance measures.

Atkinson et al. (2012) said "A Management Accounting and Control Systems (MACS) generates and uses information that helps decision makers assess whether an organization is achieving its objectives. The term control in management accounting and control refers to the set of procedures, tools, performance measures, systems, and incentives that organizations use to guide and motivate all employees to achieve organizational objectives. A system is in control if it is on the path to achieving its strategic objectives, and deemed out of control otherwise."

In this study, there are three components of the control of management accounting systems, namely quality goals, quality of feedback, and quality incentives (Maiga, 2008). All three are expected to create conditions that can motivate employees to achieve the intended purpose. The goal can be seen as a target level of performance for individuals or organizations to achieve (Locke et al. 1981). Feedback is thought to fulfill several functions and usually refers to information regarding the level of performance and or the manner and efficiency/performance efficiency of the process that has been decided (Kluger and DeNisi, 1996). For example, 1). Directive, to provide explanations about the behavior to be performed, 2). Motivational, as stimuli for better business, 3). Error-correcting, providing information about the level of errors made (Cooper et al., 1994). Incentive is defined as a system of recognition and awards/rewards to recognize quality improvement/progress of the group or individual (Spreitzer and Mishra, 1999; Ittner and Larcker, 1995). Meanwhile, Paul M. Collier and Sam Agyei-Ampomah (2007) says that:

"Control may be carried out through: a system in which there is provision for corrective action applying either a feedback or feed forward process; or a system which includes no provision"

for corrective action, as no human action is involved. A control is a method of ensuring that targets are achieved and performance standards attained. Control as it is used in the context of a 'control system' is the power of directing or restraining; a means of regulation; a standard or comparison for checking".

Two other variables used in this study is a Process Quality Management and Product Quality Performance. Process quality management is the process of tracking and improve the quality of the production process (Ahire and Dreyfus, 2000). Two measurements of quality products used in this study are internal and external quality. Internal quality is the quality of the finished product is assessed before being shipped and according to the quality process/quality associated process (Reeves and Bednar, 1994; Ahire and Dreyfus, 2000). External quality is the quality of the finished product from the customer point of view (Ahire and Dreyfus, 2000).

3.2 Information Technology

According to Eric Deeson, Harper Collins Publishers, Dictionary of Information Technology, Glasgow, UK, 1991:

"Information Technology (IT) the handling of information by electric and electronic (and microelectronic) means." Here handling includes transfer, processing, storage and access, IT special concern being the use of hardware and software for these tasks for the benefit of individual people and society as a whole."

Generally, the technology refers to "how the organization of work processes operates (the way tasks transform inputs into outputs) and include hardware (such as machinery and equipment), materials, people, software and knowledge" (Chenhall, 2003).

3.3 Process Quality Management

Ahire (1996) says that the process quality management is one of the functions of the Total Quality Management (TQM). Process quality management is also a series of processes to produce high quality products. Excess organizations that have implemented a process quality management is able to develop the concept of quality with a comprehensive approach (holistic). In the concept of Total Quality Management, customers not just as a buyer but are intended as a further process that specify requirements and expects satisfaction. TQM emphasizes the operational aspects and social behavior on quality improvement. In TQM, there are five main programs are interrelated, namely 1). Focus on the customer, 2). Continuous improvement, 3). The development of the system, 4). Full participation, and 5). Performance measurement.

Ahire and Rana, 1984, says "Total quality management (TQM) has been perceived as a competitive strategy to continually improve the quality of products and processes. However, the initial stages of TQM implementation may encounter major problems owing to misplaced efforts. The extent to the which TQM is successful in an organization is determined by the initial impact of TQM efforts. Experts like Juran have suggested an incremental approach to the introduction of TQM, stressing pilot projects in some business units/areas of an organization. Presents a multiple-criteria decision-making (MCDM) models using the analytical hierarchy process (AH) technique to identify and select key TQM pilot project, and discusses the model development and implementation issues."

Meanwhile, Wruck and Jensen (1994), said "Total Quality Management (TQM) from an economic and organizational perspective. We find that TQM is a new organizing technology that is science-based, non-hierarchical, and non-market-oriented. It improves productivity by encouraging the use of science in decision-making and discouraging counter-productive defensive behavior. It also encourages effective creation and use of specific knowledge throughout the organization. Effective implementation of TQM generally requires major changes in all three components of the organizational rules of the game, namely systems for allocating decision rights, performance measurement systems, and reward and punishment systems". So it is said that the effectiveness of the application of TQM generally requires three components of major changes in the organization of the system of allocating rights to decide, performance measurement systems, and a system of "reward and punishment".

To measure the quality of the process required multiple dimensions of measurement. Juran and Godfrey (1999) says "There are three principal dimensions for measuring process quality: effectiveness, efficiency, and adaptability. The process is effective if the output meets customer needs. It is efficient when it is effective at the least cost. The process is adaptable when it remains effective and efficient in the face of the many changes that occur over time. A process orientation is vital if management is to meet customer needs and ensure organizational health". It can be concluded that the quality of the process used to measure the dimensions of effectiveness, efficiency, and adaptability. This process is very important for management to determine customer needs and assure the health of the organization.

3.4 Product Quality Performance

Hall (2007) said that two basic reasons why the quality is important for manufacturers worldwide. First, poor quality very expensive for the company. Secondly, the quality is world-class manufacturer of basic competition. Quality is no longer a charge neutralizer. Customers want quality and are looking for quality products at the lowest price. One way companies can increase quality is to place control points along the production process for identifying operations that are "out of control" when the operation occurred. The alternative is the final quality control procedures that traditional process. In this approach, the product will be studied after completion.

Horngren (2012) stated that "Performance evaluation systems provide top management with a framework for maintaining control over the entire organization once it is decentralized. Such management systems should help promote goal congruence, provide a tool for communications, motivate unit managers, provide feedback, and allow for benchmarking". These measures should not revolve around just financial performance measures, however.

Production efficiency (number of units produced per hour) and product quality (defect rate) also affect the price charged to the customer. To remain competitive, companies must be at least as good as the industry leader at those internal operations that are essential to their business. The balanced scorecard performance is one company may use a tool to not only measure how well the company is meeting its strategic goals, but also to identify areas where the company may improve overall performance. Continuous improvement is the goal. Each area in the which the company makes improvements to efficiency and effectiveness, no matter how small, improves the KPIs. Often this translates into learner, more efficient and more profitable companies".

Thus it can be said that quality from the perspective of the consumer/customer (external quality) is a reference/standard availability, characteristic, maintainability, reliability, and performance can be measured. While from the point of view of the manufacturer, the quality of the product is in compliance with established specifications (internal quality). Ahire and Dreyfus (2000) states that an internal quality assessment of the quality of the final product before delivering it to consumers/customers and their accompanying processes. While external quality is a quality product that is assessed from the point of view of the consumer for the purpose or benefit of such products.

4. Framework

4.1 Relations Process Quality Management, Management Accounting Systems and Product Quality Performance

Process quality management is the process of monitoring performed by management to ensure that the products are processed produce a quality product and in accordance with the standards or criteria/specifications that have been established. Quality has a very broad sense, not only from the point of view of the customer or the company, but can also be seen from the comparison of products, value, and interest rate. The elements which express the quality is the fulfillment or exceed customer expectations, including products, services, people, processes, and environment, and the quality is a condition that can always change with the times.

In addition it is also an effective quality management requires the suppliers to deliver products to the specifications/standards that have been agreed upon. The process quality management seeks to avoid any product defect/damage resulting from the operation of the company and will not continue to process the products are defective/damaged let alone to pass on to customers. It required monitoring/control over the quality of the process effective and efficient. Thus the process quality management have an influence or effect on the product quality performance.

Three control components or subsystems of Management Accounting System, the quality goals, quality of feedback, and quality incentives are expected to increase worker motivation to achieve the result (outcomes) that have been established organization. This is in accordance with the opinion Flamholtz (1996) and Maiga and Jacob (2005) which states that the control system will affect the direction and level of effort shown by the individual. The product quality can be tested through the customer experience using the product organization (Ahire and Dreyfus, 2000).

Thus, this test is done through internal reliability test is an assessment of the quality of the final product before it is sent to the consumer along with the quality of the process through. As for the performance of the products or called external quality will be assessed from the viewpoint of customers who use these products.

4.2 The effect of quality goals and process quality management on product quality

Based on the theory of goal-setting, goals will be effective for these goals indicates an acceptable level of performance (Locke and Latham, 1990). In experimental studies conducted Tuttle and Harrell (2001), using which students act as workers, workers in the rules, shows that the priority objectives to employees communicate can affect workers priority in achieving these goals.

Taylor (2004) said that a set of business objectives are clearly an important need in the process of rectifying the measurement of product performance with business objectives. The goals runs as a regulator of

human action by motivating the project development team (Linderman et al., 2006). With specific goals needed to straighten the performance measurement strategy, the quality goals set in the process quality management will have an impact on the quality of the product.

4.3 The effect of quality feedbacks and process quality management on product quality

The results of the study Renn and Fedor (2001) states that employees receive and use feedback as the subject of the inspection and control of current. While the results of research Kluger and DeNisi (1996), in relation to influencing the behavior of employees, motivation force feedback gain almost exclusively from the information provided about the employee's performance, which in turn increases the clarity of the task to be performed.

Sarkar (1997) showed that the improvement/process improvement in quality will be increased when the recommended information dissemination in the work location. Nagappan et al. (2005). The result indicate that a test quality feedback provide meaningful feedback on the quality of the testing effort and for added confidence that product quality will be high.

4.4 The effect of quality incentives and process quality management on product quality

Sprinkle (2000) found that reliance on incentive-based compensation schemes improve the performance of individuals to motivate them to improve both the duration and intensity of effort. He found also that the incentives not only motivate people to work longer, but also improves the quality of individual attention to devote to the task. Meanwhile Chong and Eggleton (2007) suggested that the fundamental purpose of incentive-based compensation schemes is to motivate individuals to strive to improve its performance.

Prize/Reward System binding process quality management that can be used as a mechanism to motivate employees, which should lead to higher operational performance. MacDuffie (1995), said further "Multiple skills and conceptual knowledge developed by the work force under the flexible production are of little use unless workers are motivated to Contribute mental as well as physical effort". Employees will only contribute to the effort to solve the problem if they believe that the interests of individuals and organizations aligned with the interests of the organization will invest in a mutual desire of the individual. In the absence of an equitable compensation system, employee morale can be decreased and the performance becomes "dangerous"/"be compromised". Thus, it is expected that the quality management process when combined with performance incentives should encourage higher quality.

4.5 The Effect of Information Technology on Management Accounting System

The funds are usually transferred between institutions through an electronic transfer system that handles a large amount of money and the financial system EDI is typically used to support the flow of information between agencies (Zhu, et al., 2004). Advances in technology have some implications on the type of information Management Accounting System (MAS) required by the company. A large amount of planning information and future-oriented trends information needed to address the frequent changes in technology (Nanni et al., 1992). Furthermore, a large amount of information control and coordination is also needed to cope with the increased integration and collaboration within and across business functions in line with the use of technology (Choe, 2004). Therefore, it is proposed that advances in information technology will affect the use of Management Accounting System.

4.6 The Effect of Management Accounting Systems on Product Quality Performance

Management Accounting System designed tend to provide information for managers to set appropriate performance targets, standards, and performance evaluation that leads to improvement of managerial performance (Mia, 1993; Stock and Watson, 1984; Moriarty, 1979) which in turn leads to increased organizational performance. The use of MAS information can improve the performance of organizations by providing feedback on the effectiveness of their decision making. Information feedback can help managers in the organization to improve performance because it allows them to identify and correct errors and reduce task uncertainty by providing relevant information. This argument is supported by Ferris and Haskins (1988) who suggested that the MAS in a form of organization providing information for managers to learn about the issues, about the outcome (i.e., feedback) and about the opportunities, leading to precise and accurate decisions in response, and the decision tends to result in increased organizational performance. MAS is expected that properly designed to meet the contextual requirements of an organization should promote effective managerial decision-making, leading to improved organizational performance. Provision of information required by MAS to help managers to improve the quality of the decisions they make , and consequently improve the performance of the organization (Chenhall, 2003; Mia and Chenhall, 1994, Mia, 1993; Chenhall and Morris, 1986; Gordon and Narayanan, 1984) .

5. Hypotheses

From the description above formulation of the problem the authors are interested to find out in this study, which essentially can be formulated as follows :

H1: There is a positive influence of information technology on product quality performance.

H2: There is a positive influence of information technology on management accounting system.

H3: There is a positive influence of management accounting systems on product quality performance.

H4: There is a positive influence of information technology on product quality performance through management accounting system.

H5: There is a positive influence on process quality management on product quality performance

H6: There is a positive influence of process quality management, management accounting systems, and information technology on product quality performance.

From the above hypotheses, it is expected that the product quality performance will be improved when there is a match between the appropriate processes quality management, management accounting systems, and information technology. The synergy in the implementation of the organization and behavioral variables have a major impact on product quality performance.

6. Measures

The following figure illustrates the theoretical relationship between the independent variables and the dependent variable. In considering suitable/feasible "fit" of the Process Quality Management, Management Accounting Systems, and Information Technology with the identification process Milgrom and Roberts (1995) are used. It is expected that the combination of Process Quality Management, Management Accounting Systems, and Information Technology have an influence on Product Quality Performance for every hypothesis that has been presented above.

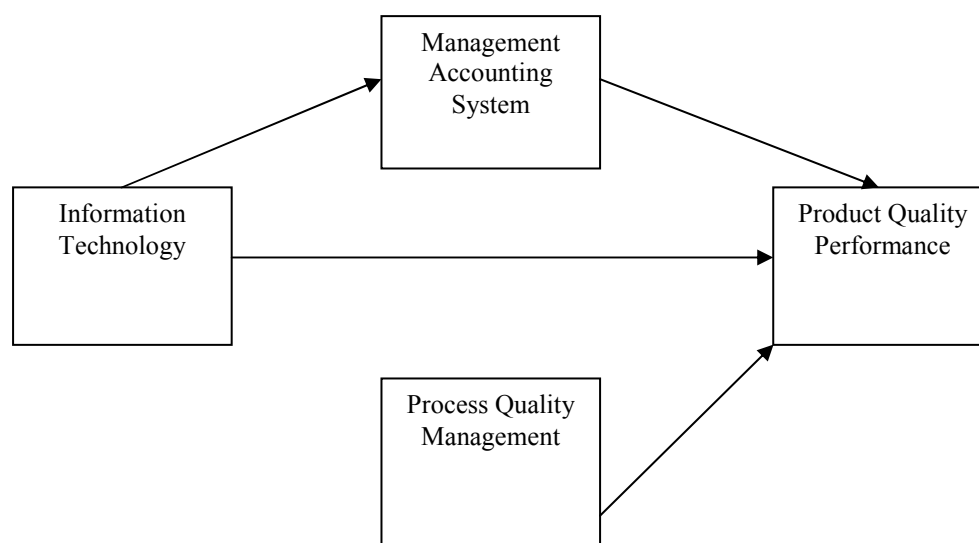


Figure 1: Theoretical Relations between Independent and Dependent Variables

This study aims to obtain empirical evidence about the effect of the interaction of the Process Quality Management and Information Technology, and Management Accounting System as intervening variable to the Product Quality Performance at the manufacturing companies listed in Indonesia Stock Exchange. The method used in this research is descriptive research. This descriptive study include the collection of data to test hypotheses or answer questions about the current status of research subjects. The purpose of descriptive studies is to give researchers a history or to describe relevant aspects of the phenomenon of someone's attention, organization, industry orientation, or other (Sekaran, 2009).

The unit of analysis in this study is the individual, the Director of Manufacturing, Head of the Department/Division of Manufacturing, Manufacturing Manager, and Senior Manufacturing Staff at a manufacturing company/industry listed in the Indonesia Stock Exchange.

7. Operationalisation of Variables

7.1 Information Technology

Information technology is a multi-dimensional variables. Different researchers use different measures to quantify tens of information technology variable. Raymond and Pare (1992) defines as a construct that refers to "nature",

complexity, and interdependence of the use of IT and management in organizations. The concept of integrated not only in IT but also aspects of the use of IT management (such as functional and managerial). Managerial dimensions of IT related to the mechanism applied for planning, control, and evaluation of current applications and future. In this study, IT was measured using the questions as did Raymond and Pare.

7.2 Management Accounting System

Is a way to implement something or a series of activities through the three components of the control of management accounting systems, namely quality objectives, quality of feedback, and quality incentives. All three are expected to create conditions that can motivate employees to achieve organizational goals that have been set. Feedback is thought to fulfill several functions and usually refers to information regarding the level of performance or efficiency in the performance of which has been decided upon, such as the directive, motivational, and error-correcting. Incentive is defined as a system of recognition and rewards to recognize quality improvement/progress of the group or individual. Operationalisation of the variable Management Accounting System are as follows: a.) Management Accounting System – Quality Goals is a level of performance that must be achieved by an individual or organization. b.) Management Accounting System – Quality Feedbacks is information that is used to evaluate the steps undertaken to implement a plan. c.) Management Accounting System – Quality Incentives is a system of recognition and reward system to recognize the improvement of the quality of an individual or group.

7.3 Process Quality Management

Is a set of processes to produce high quality products. Process Quality Management as a function of the Total Quality Management (TQM). Excess organizations that have implemented a process quality management is able to develop the concept of quality with a comprehensive approach (holistic).

7.4 Product Quality Performance

Quality from the perspective of the consumer/customer (external quality) is a reference/standard availability, characteristics, maintenance, reliability, and performance can be measured. While from the point of view of the manufacturer, the quality product means the product has been in accordance with predetermined specifications (internal quality). Internal quality is the rating of the quality of the final product before delivering it to consumers/customers and their accompanying processes. While external quality is a quality product that is assessed from the point of view of the consumer for the purpose or benefit of such products.

Sources of data used in this study is primary data. Primary data refers to information obtained from the first hand by researchers associated with the variable of interest for the specific purpose of study (Sekaran, 2009). The data source of this study is manufacturing companies listed in Indonesia Stock Exchange with the unit of analysis individuals working in production unit/production ranging from Production Director, Head of Department/Division of Production, Production Manager, and Production Supervisor, and Production Staff.

8. Data Collection Method

Primary data were obtained from the respondents as unit analysis (Director of Manufacturing, Head of Department/Fabrication Division, Manager, Supervisor, and Senior Production Staff of Manufacturing companies listed in Indonesia Stock Exchange) with the following data collection techniques:

- a. The questionnaire, which is a structured list of questions addressed to them.
- b. Interview, the questioning and asked questions directly to them. Interviews were conducted to complete a questionnaire relating to the process quality management, management accounting systems, and product quality performance.
- c. Observations, performed by direct observing and learn things related to that performed on the company that is the subject of research.

9. Population and Sample

The population in this study are all companies listed on the Indonesia Stock Exchange. In March 2014 the number of companies listed on the Indonesia Stock Exchange is 492 issuers/companies, including 138 manufacturing companies as a sample. While the unit of analysis in this study is that individuals who work in the production ranging from Production Director, Head of Department/Division of Production, Production Manager, Production Supervisors, and Production Staff.

10. Method of Testing Data

Primary data were collected through questionnaires need to be tested first, to see the seriousness of the respondents in answering the questions in the questionnaire. There are two kinds of tests were performed, namely test of validity and test of reliability.

In this study to measure the degree of validity by means of the correlation between the scores of the questions with a total score of constructs or variables. Significance test is done by comparing the value of r count r table for degree of freedom ($df = n-2$, where n is the number of samples. See the display output in the column Cronbach Alpha correlated item - total correlation, compare values correlated item - total correlation with the calculated r table, if r is bigger than r table and a positive value then the item or statement is declared invalid or indicator (Ghozali 2011).

Reliability is a tool to measure a questionnaire which is an indicator of the variables or constructs. A questionnaire said to be reliable or reliable if someone answers the statements are consistent or stable over time (Ghozali, 2011). In this study approach was used to test the reliability of one-shot or one-time measurement. The measurement only once and then the results were compared with another question or measure the correlation between the answers to questions. Analysis tools provide the facility to measure the statistical reliability with Cronbach Alpha test. A construct or variable said to be reliable if the Cronbach Alpha value > 0.70 (Nunnally in Ghozali, 2011).

In addition to the validity test and reliability test, normality test (by looking at the histogram graph), heteroscedasticity test (by looking at the graph plots between the predicted value of the dependent variable), and multicollinearity test (test whether the regression model found a correlation between the independent variables) are also conducted in this study.

11. Data Analysis

11.1 Descriptive Statistics

This analysis was conducted to get an overview of respondents' answers regarding the variables used in this study. Descriptive statistics provide a picture or description of the data that is seen from the average value (mean), standard deviation, variance, maximum, minimum, sum, range, kurtosis and skewness (Ghozali, 2011).

11.2 Analysis Path (Path Analysis)

Path analysis is the use of regression analysis to assess the causal relationship between variables (causal models) predetermined by the theory. A direct relationship occurs one variable affect other variables without third variable that mediates the (intervening) the relationship between the two variables. Indirect relationship is if there is a third variable that mediates the relationship between the two variables.

11.3 Assessing Goodness of Fit of a Regression Model

In regression analysis, in addition to measuring the strength of the relationship between the two variables or more, also shows the direction of the relationship between the dependent variable and the independent variables, where the dependent variable is assumed to be random/stochastic, which means it has a probabilistic distribution and independent variables assumed to have a fixed value (in repeated sampling). The way used to see the goal is to see the value of R^2 essentially measures how far the model's ability to explain variation in the dependent variable. The coefficient of determination is between zero and 1. In this study to evaluate the use of regression models adjusted R^2 values, Simultaneous Significance Testing (Test Statistic F), and Significant parameters Individual Test (Test Statistic t).

12. Results and Discussion

The number of companies or issuers listed on the Indonesia Stock Exchange in July 2013 totaled 478 companies include 138 companies are manufacturing companies. The manufacturing companies is compose of: Basic Industry and Chemical Sector, Various Industry Sectors, and Consumer Goods Industry Sector.

In this research, questionnaires through visits to the companies and also via email through the corporate secretary. Each company was given five sets of questionnaires filled in by the hopes of five people who work associated with the production process such as Production Director, Head of Production, Production Manager, Production Supervisor, and Production Staff. Used in this research the validity test, reliability test, normality test, heteroscedasticity test, multicollinearity test, and descriptive test. From the descriptive test it can be seen descriptions of each of the variables studied, which consists of a Information Technology, Management Accounting System (Quality Goals, Quality Feedbacks, and Quality Incentives), Process Quality Management and Products Quality Performance (Quality Internal and External Quality).

From all respondents from manufacture companies listed in Indonesia Stock Exchange (138 companies), 18 companies responded to the number of respondents were 100 people who filled out questionnaires and were accepted. Results of statistical analysis shows that the process of the frequency distribution of respondents for each variable, named the variable of Information Technology, Management Accounting System consisting of Quality Goals, Quality Feedback, and Quality Incentives, Process Quality Management and Products Quality Performance consisting of Quality Internal and External Quality indicates whether a variable is important.

The test results showed the frequency distribution of scores produce a minimum score of 86%, which indicates that the respondents in manufacturing firms understand how important variables Information Technology, Management Accounting System, Process Quality Management, and Products Quality Performance as a whole to be implemented in the company.

13. Hypothesis Testing

The first hypothesis stated interaction Process Quality Management, Information Technology, and Management Accounting System as intervening variable has influence on Product Quality Performance. The results of the regression test and path analysis was performed using statistical analysis software obtained the following results:

Table. Result of Regression and Path Analysis

Hypothesis	Variable	Adjusted R ²	t value, significancy probability (sp)	Result (t value > 2)
1	Information Technology on Product Quality Performance	0.147	4.254, sp: 0.000	Positive influence
2	Information Technology on Management Accounting System	0.153	4.339, sp: 0.000	Positive influence
3	Management Accounting System on Product Quality Performance	0.334	7.116, sp: 0.000	Positive influence
4	Path Analysis: Information Technology and Management Accounting System (as intervening) on Product Quality Performance	0.358	3.434, sp: 0.05	Direct effect: 0.572 Indirectly effect: 0.608 (mediation effect)
5	Process Quality Management on Product Quality Performance	0.318	6.875, sp: 0.000	Positive influence
6	Information Technology, Management Accounting System, and Process Quality Management on Product Quality Performance	0.390	1.620, sp: 0.108 2.992, sp: 0.004 2.440, sp: 0.017	Not influence Positif influence Positive influence

14. Conclusion

- The purpose of this study is to empirically examine the influence of Process Quality Management and Information Technology on Product Quality Performance in Management Accounting System as intervening variables to using regression analysis and path analysis.
- Simultaneously, Information Technology, Management Accounting Systems and Process Quality Management gives positive and significant effect on Product Quality Performance. Improved product performance / reliability of the product (before sending), in this case means the internal quality really a concern and certainly this is also related to a decrease in the total number of customer complaints (external quality).
- The use of information technology in the enterprise can influence management accounting system and improve the quality performance of product.
- From the results of path analysis showed that information technology can directly affect product quality performance and can also be affected indirectly, from Information Technology to Management Accounting System (as intervening) and to product quality performance of the pathway analysis results are also obtained significant coefficient mediation so that means there is mediation effect.
- The existence of process quality management also influence the product quality performance.

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