ACCOUNTING INFORMATION SYSTEM (AIS) ALIGNMENT &
NON-FINANCIAL PERFORMANCE ON SMALL
AND MEDIUM ENTERPRISES (SMES)

Tahun ke 1 dari rencana 1 tahun

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Accounting Information System (AIS) Alignment & Non-financial Performance
On Small and Medium Enterprises (SMEs)

Abstract

The objective of this research is to investigate the relationship between Accounting Information System (AIS) alignment on non-financial performance in SMEs. AIS alignment is influenced by several factors such as: organizational characteristic, owner commitment, organizational strategy that effect on SMEs performance. Relationship between AIS alignment on performance are explored using data collected from SMEs owners in Yogyakarta Special Administrative Region (DIY). The result of this research shows that AIS sophistication, owner commitment, and external IT expertise have significant effects on AIS alignment. AIS alignment also has significant effect on non-financial performance.

Keywords: accounting information system, alignment, non-financial performance, SMEs
PRAKATA

Puji syukur peneliti panjatkan kepada Allah SWT, karena berkat rahmat dan hidayahNya Penelitian Hibah Desertsasi Doktor (HDD) ini dapat berjalan sesuai dengan rencana yang diharapkan. Penelitian ini telah selesai dari keseluruhan tahapan dengan total biaya Rp 34.000.000. Pada saat ini penelitian telah melakukan publikasi internasional. Berdasarkan tahapan yang telah direncanakan, penelitian ini akhirnya dapat diselesaikan pada November tahun 2014.

Penelitian ini akan terus dilakukan penyempurnaan sehingga mencapai tahap akhir yaitu tersusun Disertasi Doktor. Peneliti mengucapkan terimakasih yang sebesar-besarnya kepada semua pihak yang telah membantu terlaksananya kegiatan ini sehingga dapat disusun hasilnya.
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PART 1. INTRODUCTION

Accounting systems play a critical role in the success of the business organization, as they provide information that supportive the efforts of the organization in achieving the expected goals (Amidu, John, and Joshua, 2011). It is asserted that Accounting Information Systems (AIS) produce useful information, in which they serve as a basis for the management for strategic decision making (Naranjo, 2004) and exercise control of organizational activities in order to achieve organizational objectives (Grande, Raquel, and Clara, 2011). Modern AIS, generate various types of information, including accounting and non-accounting information to assist the management to cope and integrate short term and long term strategic planning (Al Eqab and Noor AI, 2011).

AIS is part of information technology as it is based on information and communication technology (Amidu et al., 2011). According to the information processing theory, alignment of AIS is needed to have significant impact on the organization performance (Ismail and Malcolm, 2006). Fit between AIS strategy with firm strategy will provide managers with better information to make quality decision and increase efficiency to achieve organizational goals.

The objective of this study is to identify owner commitment, AIS sophisticated and external IT expertise that might lead to AIS alignment on performance in small firms (SMEs). Many studies have examined issues

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1 AIS is similar term to Management Information System (MIS) and Management Accounting System (MAS) (Abernethy & Guthrie 1994; Bouwens & Abernethy 2000; Naranjo 2004)
surrounding the provision and use of accounting information systems in the context of small and medium sized enterprises (SMEs). Sharma and Rajat (2006) aim to develop a framework for information system (IS) performance; Lee, Sang, Jinhan, Yeonog, and Sang (2008) examine the effect of information technology (IT) knowledge on process performance and financial performance; Dibrell, Peter, and Justin (2008) investigated the effect of IT investment on performance. In previous research, financial performance measures have many problems or shortcomings.

Financial performance evaluation systems tend to report historical short term performance (Kaplan, 1984), which could not predict future performance, lack relevance to advanced technologies, and are inconsistent with quality and flexibility strategy, but have now become important to a firm’s success (Coe, 2002). Financial performance, such as cost efficiency, may increase the pressure on managers to undertake moral hazard into maximizing short term results (Tangen, 2003). Therefore, Harrison and Poole (1997); Choe, 2002) proposed that non-financial performance information is required. Non-financial performance measurement systems are more appropriate than financial measurement systems (Abernethy and Lilis, 1995). Miller (1992) and Bledsoe (1997) suggested that non-financial performance provides various strategic benefits such as quality improvement and shorter delivery times. Non-financial performance can be measured by quality, cycle time, productivity, and customer satisfaction. It is describing the strategy and
is developing a unique set of performance measures that clearly communicate the strategy (Kaplan, 1992; Sousa, 2006).

Although research on the IS-performance is more abundant in large firms, it becomes particularly important in small firms to give competitive advantage (Grande et al., 2010). The use of AIS within small firms has been developing similar to that in large firms (Ismail and Malcolm, 2006). However, IS adoption, development in the large firm context, cannot be equally applied to small firms (Thong, 1999). The main problem faced by SMEs is the lack of capital and technology obsolescence (Malaranggeng, 2009); limited financial resources and little management information (Levy, Powel, and Philip, 2011); access to scale economies is more difficult and management attitude is not IT-oriented (Francelanci, Vincenzo, 2008; Marriott and Marriott, 2000); and a lack of funds to acquire skill (Delone, 1988).

Many previous studies have struggled to show a direct impact of AIS on financial performance. However, very little studies examined the relationship between AIS alignment and non-financial performance. Hussin, King, and Cagg (2002) studies on the alignment of business strategy and IT strategy. The study suggests that IT maturity and the level of the CEO’s software knowledge has an effect on the IT alignment, but external IT expertise doesn’t have a significant effect. Ismail and Malcolm (2006) suggest that aligning information improves a firm’s performance of SMEs in developing its economies. Financial performance and non-financial
performance has different measurement and there is little literature that combines AIS alignment and non-financial performance, so this is an open empirical question. This study is based on previous research, to explore the direct relationship between AIS sophistication, owner commitment to AIS, external AIS expertise on alignment of AIS and non-financial performance.

In a rapidly changing business environment, firms must develop new technologies to adapt with the new environment (Isobe, Shige and David, 2008). Investment in IT is one of the possibilities to achieve a stronger and more flexible business culture. In contrast, firms are not only using IT intensively for accounting issues but also very interested in more sophisticated IT (Estebanez, 2010). The IT sophistication embraces a wide landscape and has important implications for the management of organizations, create or revolutionize markets and demands (Burca, Brian and Teresa, 2006); supplied relevant information to managers (Boulianne, 2007; Al Eqab and Noor, 2011). Different types of application such as budget variance, production variance, and production planning will be integrated in large firms, according to Al Eqab (2011). Nevertheless, the lack of skill in small firms became a problem, so a sophisticated technology was needed.

Lim, Bruce, Vernon, and Rodney (2011) reveal that large firms have more budget to design, test, and implement new technology. The strength of financial resources in large firms with IT departments will accelerate the development of new technology. Therefore, IT knowledge of owner is unnecessary importance in large firm, that different from small firm. The
result of a lack of financial resources in small firms is that the implementation of technology depends on the owner. According to Delone (1998), the owner is a key to the implementation of IT. In a firm where the owner is familiar and involved with IT, the IT implementation is more successful. Thong (1999) shows that one of the main factors contributing to the adoption of technology is the IT knowledge of the owners. In order to survive, SMEs owners need updates, accurate, and timely accounting information for decision making purposes.

The adoption of accounting information would ensure proper accounting practices, as good accounting practices have several implication for SMEs manager’s (Lohman, 2000; Amidu et al., 2011). Chu (2009) reported that most family firms are SMEs that have more than 5% family shareholding and at least one family member on the board of directors, who plays a significant role on the technology innovation more than non-family firm. In small firms, the owners responsibility is more immediate in the development of information and technology to achieve organizational performance.

Lim et al. (2011) state that IT labor expenditure is part of the IT investment and requires to develop technology. Large firms can improve the human resources in technological ability by providing specialized training, which is difficult for small firms. The IT training for employees will reduce the dependence on technology implementation with external IT expertise. The main problem faced by small firms are less technical knowledge or skills and
oblivious to the benefits that IT can bring, because of the limitation of human resources they have. Hence, managers who have an aptitude for technology will take less help from external consultants, which makes the implementation of AIS quicker and less costly (Pulakanam and Theekshana, 2010). Thong (1995) argues that IT success was most likely to occur when external IT experts worked as a team with the senior manager to integrate information in the firm. This cooperation could improve business efficiency and increase a better return on investment and business performance (Woznica and Ken Healy (2009). Small firms in Ghana usually process financial information by chartered accountants to handle their accounting information (Amidu et al., 2011), hence, technical support, training, and a harmonious working relationship with consultants can reduce the risk of IT failure in small businesses. Another finding of his is that external expertise is not associated with IT success (Delone, 1998).

This research is developed based on information processing (IP) theory proposed by Galbraith (1973) it postulates that information processing capacity of on organization must match with information requirement Ismail and King (2007). This study is undertaken to examine AIS alignment in small firms, and investigate the determinants that influence the alignment. Other authors have used the term IT alignment with a variety of different aspects. Chenhall and Moris (1986); Ismail and Malcolm (2006) measured alignment by matching AIS requirements and AIS capacity. In this study, IT alignment refers to the fit of small firm IT strategies with a business strategy according
to the moderation model. The moderation model was less ambiguous and more widely applicable, compared with the matching. The moderation model could explain variations in performance by examining business strategies and IT strategies. IT alignment and business strategy are the main components that contribute towards growth among small firms, and their alignment with IT can be used as a strategic weapon to maintain their competitiveness (Hussin, King, and Cragg, 2002).

A recent study has pointed out that the challenges of successful development in the information system depend on the availability of technological infrastructure that could improve the business performance (Grande et al., 2011). According to several authors, it is of great interest to analyze the impact of AIS alignment on non-financial performance. This paper attempts to contribute to the accounting information literature in several ways. First, this research provides empirical evidence on how the alignment of AIS relates to performance. Second, this research provides evidence in favor of contingency approach, through a more integral explanation between AIS and performance, and the determinant of the alignment of AIS. Finally, previous researches suggest that IT maturity and the CEO software knowledge are determinant factors of AIS alignment (Hussin et al., 2002). The AIS alignment has an impact on the performance of a firm (Ismail and King 2005). This research directly tests the presence of the relationship between AIS alignment and determinant factors on small business performance.
PART II. THEORY AND HYPOTHESIS DEVELOPMENT

2.1. Theoretical Background

The importance of the concept of fit was first suggested by Galbraith (1973). Galbraith’s information processing (IP) theory postulates that organizational information systems processing capacity must match its information requirement to have a significant impact on performance (Ismail and Malcolm, 2006). In this research, information requirements are defined as AIS requirement and the information systems processing capacity are defined AIS capacity. Fit between AIS requirement and AIS capacity will be referred to AIS alignment.

2.1.1 Accounting Information Systems and SME Performance

Accounting Information System is an integrated system developed and adopted within department including the accounting systems, payment systems, investment and loans and financial management. Accounting Information System (AIS) provides management with financial information to examine, planning, evaluating and diagnose the impact of operating activities and identify the financial position of the organization (Mohd Shaari, 2008). Accounting information can help businesses, particularly small and medium sized enterprises (SMEs) to manage short term problems in areas such as costing, expenditure and cash flow, by providing information to support monitoring and control (Ismail and Malcolm 2005).
Performance measurement in SMEs is measure of the expected improvement in business activities by implementing information system. Moreover, implementation of information systems helps SMEs to improve the performance by integrating various functional areas of day to day business, both in terms of material and information flows (Sharma and Rajat 2003).

There are six components of AIS: 1) The people who use the systems; 2) The procedures and instructions used to collect, process and store data; 3) The data about the organization and its business activities; 4) The software used to process the data; 5) The information technology infrastructure, including the computers, peripheral devices, and network communication devices uses in the AIS; 6) The internal controls and security measures that safeguard AIS data. Romney and Paul (2012) state that a well design of AIS can add value to an organization by: 1) Improving the quality and reducing the cost of products or services; 2) Improving efficiency; 3) Sharing knowledge; 4) Improving the efficiency and effectiveness of its supply chain; 5) Improving the internal control structure; 6) Improving decision making

2.1.2. AIS sophistication

There has been relatively little study of strategic use of IT in small firm, with many studies indicating that the conditions are not ripe for IT to be used strategically in small firm. However, despite many limitations, information technology use in small firm has become more sophistication
(Hussin, 2002). In small firm, sophistication of IT can be used as strategic weapon to maintain their competitiveness.

2.1.3. Owner commitment

Prior study (Hussin, 2002; Setyo 2014) indicated that owner commitment have significant influence on IT alignment, because it plays critical role in planning and implementation strategy. The owner knowledge of software was greater in the aligned firm. Previous researches suggest that software knowledge could be important for IT alignment. Owner commitment in the form of participation in computerization project would also encourage users to develop positive attitude towards the IT project, and thus is more likely to result in the SMEs achieving alignment (Ismail and Malcolm, 2007)

2.1.4. External IT expertise

There are two factors related as many small firm owners rely on advice from consultants and a range of informal source. These factors will influence small firm IT strategy to reach IT alignment. The assistance offered by these experts enables SMEs to gain a broader perspective of both their information needs and information processing capacity, so that it is expected that SMEs engaging these external expert will achieve higher degrees of AIS alignment (Ismail and Malcolm (2007)

2.1.5. Non-financial performance

Under Small firm, the performance measure, can be utilized to motivate employees to think implementation strategy. Previous research suggest
that non-financial performance more appropriate than financial performance (Choe, 2002; Setyo 2014). Miller (1992) and Bledsoe (1997) suggested that non-financial performance such as quality improvement and shorter delivery times will provides more benefit to organization. Non-financial performance measure such as: quality, cycle time, productivity, and customer satisfaction can use as predict future performance.

2.2. **Research Model and hypotheses**

The conceptual and empirical research addressed on wide variety of accounting and IT issues in SMEs, however, there is lack of understanding of alignment in accounting information systems. To overcome this issue, this study will first, investigate an antecedent factor that influence of AIS alignment, than explore the fit between business strategy and AIS strategy as represented by AIS alignment, and finally examine the impact of AIS alignment on non-financial performance of SMES. The conceptual model of this research is depicted in fig. 1.

The previous research that examine the influence factor of AIS alignment was done by Hussin, (2002); Ismail and Malcolm (2006; 2007). The result of that
research show that AIS sophisticated, owner commitment, and external IT expertise have significant effect on AIS Alignment. The other research, Choe (2002) found that IT alignment in advance manufacturing technology have positive correlation on non-financial performance. This research examines the influence factors that effect AIS alignment and examining the relationship between AIS alignment on non-financial performance in SMEs that has not been done previous research. This research also try to found the direct relationship between AIS sophisticated, owner commitment, and external IT expertise on non-financial performance in SMEs.

2.3. Hypothesis development

2.3.1. AIS sophisticated and AIS alignment

IT sophisticated is moderating effect between strategy and performance, firm that face uncertainty market demand and complexity in the environmental need more sophisticated technology (Naranjo, 2004). A highly sophisticated of AIS design provides information which integrating among different organizational function to cope with the uncertainty and optimize the decision making (Gul, 1991). Other finding, (Woznica and Ken Healy 2009; Al Eqab and Noor AI, 2011) reveals the sophistication of internal IT infrastructure within SMEs will provide AIS sophisticated. When companies have technology, AIS will be designed by taking into consideration these technologies to achieve an organizational effectiveness.
IT sophistication embraces a wide landscape and has important implications for the management of organization. Firm needs to face up to a number of challenges in order to be categorized as technologically sophisticated; first, the business requires a strong scientific-technical base; secondly, new technology can quickly make existing technologies obsolete and thirdly as new technologies come on stream, their applications should create or revolutionize markets and demands (Burca et al. 2006).

Organization with more sophisticated IS tend to perform successful than those with less complex systems, the greatest alignment will improve efficiency to achieve highest performance (Levy et al., 2011). Al-Egab and Noor AI (2011) found positive relationship among AIS sophistication and AIS design. A direct linkage between IT sophisticated and IT alignment was established by (Hussin et al., 2002). That study suggest a relationship between alignment and aspects of both IT sophistication and IT management, through the variables type of technology. This provided evidence of the sophistication of AIS having greater effect on AIS alignment. Based upon the above arguments, the hypothesis 1 can be proposed as follows:

H₁: there are positive effect between AIS sophisticated on AIS alignment

2.3.2. Owner commitment and AIS alignment

In small business, the CEO is usually the owner-manager (Thong, 1999). Owner-manager interest enthusiasm being the prime of IS adoption
to support SMEs successful. The owner invested in information systems to control business expenses and revenue with word processing and accounting spreadsheet (Levy et al., 2011). Managers should increase their knowledge and understanding with IT to implement their firm’s strategies and must cognizant of the necessity to create systems and processes that most effectively optimize IT usage (Dibrell at al., 2008). In SMEs, characteristic of the owner are crucial in determining the technological innovation. Hence, small business changes depends not only on factors such as business size but also on the abilities of the owner on IT (Thong, 1999).

Ismail (2006) suggested that in many cases, the firms information systems processing capacities were insufficient to match their AIS requirement, which has important consequences for future investment in IT. This mismatch also indicates that managers in SMEs must clearly able to distinguish between AIS requirements and AIS capacity for the chosen information characteristic. It was important to assessing alignment of AIS. A direct linkage between owner commitment and IT alignment was established by Hussin et al. (2002). The study show a relationship between the owner commitment to IT and IT alignment. The owner knowledge of software would affect in firm technology alignment. The evidence suggest that software knowledge was important for IT alignment. Based upon the above arguments, the hypothesis can be proposed as follows:
H3: there are positive effect between owner commitment on AIS alignment

2.3.3. External IT expertise and AIS alignment

A direct linkage between external IT expertise and IT alignment was established by Hussin et al. (2002). Nevertheless, this study does not found the significant relationship between external IT expertise and IT alignment. Other research (Chang et al., 2012) show that the right choice of an external provider of IT has a positive impact on the productivity and performance. SMEs are more require external IT/IS service providers than large enterprises. Therefore, the search for SMEs IT outsourcing service should comply with their operational model demand. Firm should carefully when choosing external IT expertise with excellent service quality is crucial factor in making a successful selection.

Amidu et al. (2011) observe in Ghana found that SMEs use accounting information to generate their financial information. Ismail and Malcolm (2007) found positive relationship between external IT expertise and AIS alignment. The study revealed that almost all the SMEs sampled employ external accountants to handle their accounting information. This is done because SMEs have limited on human resources. Based upon the above arguments, the hypothesis can be proposed as follows:

H3: there are positive effect between external IT expertise on AIS alignment
2.3.4. AIS Alignment and performance

Firm performance will increase when there are synergies among the elements of a system. To achieve this, SMEs need an AIS requirement that is aligned to their AIS capacity. Alignment will be occurs when there is synergy between strategy, structure, management process, technology, and skill (Levy et al., 2011). Dibrell et al. (2008) suggest that owner who are able to integrate either a product or process oriented innovation strategy with investment IT/IS would enhance performance.

Ismail (2005) in their study of SMEs found that a significant proportion of Malaysian SMEs had achieved high AIS alignment. Furthermore, the group of SMEs with high AIS alignment had achieved better organizational performance than firm with low AIS alignment. Ismail (2006) suggest that aligning information processing capacity with perceived information requirement has contribute to improved firm performance of SMEs in developing economies.

Other finding, Choe, (2002) suggest that there are significant positive relationship between the level of information provided by AIS and non-financial performance. Through their theoretical examination, the authors argue that AIS alignment directly influences on firm performance. Based upon the above arguments, the hypothesis can be proposed as follows:

H4: there are positive effect between AIS alignment on non-financial Performance
PART 3. RESEARCH OBJECTIVE AND IMPLICATION

3.1. Research Objective

Accounting information can help SMEs to manage problem by providing information to support monitoring and control (Ismail and Malcolm 2006). The accounting information will useful for organization if there was alignment between accounting information requirement and accounting information processing capacity. Information Processing theory postulates that organizational information processing capacity must match organizational information requirement if it is to have a significant impact on performance (Ismail and Malcolm 2005). The objective of the research is to investigate the factors influencing the alignment of accounting information systems such as; AIS sophistication, owner commitment, and external IT expertise on non-financial performance.

3.2. Research Problem

Research on the information systems and performance is particularly important in small firms to give competitive advantage (Grande et al., 2010). However, adoption and development in the large firm context, cannot be equally applied to small firms (Thong, 1999). Several factors that effect on information system implementation in small firm such as; AIS sophistication, owner commitment, and external IT expertise (Ismail and Malcolm 2007). According with information theory suggested by Gilbert (1973) fit between information requirement and information capacity was needed to ensure that information is useful to organization and impact on performance. The question
are, do the information requirement match with information capacity and impact on non-financial performance?

3.3. Implication

This study generates implications for future researches that the SMEs’ non-financial performance may complement the financial performance, thus both performance measurements are equally important and useful. Performance measurements, both financial and non-financial, are expected to contribute to better SMEs’ development. The results indicate that owners’ commitment to information technology sophistication has a significant influence on the proper use of accounting information system. Therefore, the development of SMEs necessitates the government role in providing the training on information technology for SME owners. Many past studies have tries to find the effect of AIS alignment on financial performance, so if a link between AIS alignment on non-financial performance it will suggest a gap for future study.

3.4. Research contribution

The result of this research is important to SMEs owner’s to planning accounting information requirement and select technology to find the matching AIS processing capacity. This study generates implications for future researches that the SMEs’ non-financial performance may complement the financial performance, thus financial and non-financial performance measurements are equally important and useful. Performance measurements, both financial and non-financial, are expected to contribute to better SMEs’
development. Many prior studies have tried to find the effect of AIS alignment on financial performance, so if a link between AIS alignment and non-financial performance it will suggest a gap for future study.
PART 4. METHOD

4.1. Research Model

A positivist view that adopted in this study based on its assumptions on particular social reality, such as attitudes of AIS used and their performance. Quantitative strategy adopted in the questionnaires is always associated with positivist research (Sharma, 2006). SMEs definition refers to criteria of the legislation (UU no 9/1995) with owned enterprises, maximum turnover of 1 billion rupiah, maximum net assets of 200 million rupiah, with a number of employees between 5 and 19 for small firms and 20-99 for medium firms.

4.2. Population and Sampling strategy

SMEs owners was chosen as target respondent on this survey; because the owners is responsible to develop of information and technology to achieve organizational performance. The population for this research can be defined as all SMEs owner who use information technology in Yogyakarta areas.

A non-probability (purposive) sampling technique was adopted in this study, the selection of the sample was based on the judgment about some appropriate characteristic required of the sample members. This technique suggested that this model allows the researcher to select a sample to serve a specific purpose, even this makes a sample less than fully representative (Zikmund, 1997).
4.3. Variable identification

The research model is described in five constructs; AIS sophisticated, owner commitment, external IT expertise, AIS alignment, and non-financial performance. AIS alignment will be described as a derived construct but each of the other to be measured directly, and they were operationalized on the research instrument as follow:

4.3.1. AIS requirement and AIS capacity

Since the business strategy was measured by using 10 items, and 10 matching items were used to measure AIS alignment, it was possible to explore how important a specific accounting information item was to a firm and how well this information was supported by their computer based information systems (Hussin, 2002). In this study, the responses for point ‘4’ and point ‘5’ of the five point scale for the business strategy and AIS strategy items are treated as one category called ‘strongly agree’. Similarly, point ‘1’ and point ‘2’ are treated as one category called ‘strongly disagree’. The point ‘3’ is called a ‘neutral’ category. The questionnaire developed by Ismail and Malcolm (2006) with 10 questions about: focus, orientation, time horizon, aggregation, timeliness, financial, non-financial, quantitative, and qualitative (Ismail and Malcolm 2007).

4.3.2. AIS sophisticated

AIS sophisticated are information systems utility to manage accounting transaction on organization. Naranjo (2004) states that organizations operating in uncertain environments, more than other organizations, will
need high information technology sophistication. AIS sophistication was measured by using questions proposed by Ismail and Malcolm (Ismail & Malcolm 2007). Using a 5 point scale (1= no sophistication; 5= high sophistication), respondents were asked to indicate their level of participation in the following 2 areas: office support system, and accounting application.

4.3.3. **Owner commitment**

Owner commitment is participation the owners in choice, plan, and implementation information technology. The owner is an entrepreneur figure who is crucial in determining the innovative attitude of SMEs (Thong, 1999). The owner commitment was measured by using questions proposed by Hussin (2002); Ismail and Malcolm (2005). Using a 5 point scale (1= no participation; 5 = high participation), respondents were asked to indicate their level of participation in the following four areas: definition of needs (information requirements), selection of hardware and software, implementation of systems, and planning for future IT development.

4.3.4. **External IT expertise**

External IT expertise is organizational dependent on consultant or IT vendors to implementation the information technology. Small firm would use external IT expertise, such as consultant and vendor (Thong, 1995). The questionnaire were asked to respondents to measure depend on external IT advice used by their firms Ismail and Malcolm (2006; 2007).
4.3.5. AIS alignment

The previous research shows that alignment can be examined from several approaches. Ismail and Malcolm (2006) measures accounting information requirements as processing requirement as represented by AIS requirement, and measure of accounting information systems processing capacity as represented by AIS capacity, fit between AIS requirement and the effect of AIS capacity on AIS alignment. Ismail and Malcolm (2007) explores AIS alignment using the matching approach, the fit between AIS requirement and AIS capacity referred to as AIS alignment. Hussin (2002) developed a survey to measure IT alignment, the fit between business strategy and IT strategy as represented by IT alignment.

The matching and moderation perspectives have been used by a number of researchers, and other perspectives are still in their exploratory stages and require further development (Ismail and Malcolm, 2007). In this research, the moderation perspective of measuring fit was adopted to measure the alignment between AIS requirement and AIS capacity. The AIS alignment using the moderation approach was measured by multiplying the rating for AIS requirement items with the corresponding AIS capacity items. In this case, high alignment results from high ratings for an AIS requirement and high rating for AIS capacity. Low alignment scores result from low rating AIS requirements and low AIS capacity items.
4.3.6. **Non-financial performance**

Non-financial performance is organizational performance with non-financial approach. Based on previous research Choe (2002) four non-financial performance of information produced by AIS were specifically selected. They are; incidences of product defects, improvement of product quality, number of product return, and rate of material scrap loss. Respondents were asked to indicate on five point Likert scale, anchored on ‘no amount of information’ and ‘very large information’.

### 4.4. Test of validity & Reliability

Validity is defined as the extent to which the instrument measures what it purports to measure. In this research, a test of validity was measured by p value on path diagram, instrument as valid if has p value < 0.05. Reliability is defined as the extent to which a questionnaire, test, observation or any measurement procedure produces the same results on repeated trials. In short, it is the stability or consistency of scores over time. In this research test of reliability was measured by composite reliability. Instrument has reliable if composite reliability value over 0.6 (Hair et al., 2010).

### 4.5. Hypothesis Testing

4.5.1. **Regression Model**

Multiple regression analysis was used to analyze the data, as it is based on correlation. Multiple regression analysis is the appropriate method of analysis when the research problem involves in single metric dependent variable presumed to be related to two or more metric independent
variables. The objective of multiple regression analysis is to predict the changes in the dependent variable in the response to changes in the independent variables (Hair et al., 2010). The regression model analysis shows as follow:

\[ Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + e \] (1)

\[ Z = \alpha + \beta_4Y + e \] (2)

Where

- \( Y \) = AIS alignment,
- \( X_1 \) = AIS sophistication,
- \( X_2 \) = Owner commitment,
- \( X_3 \) = External IT expertise,
- \( Z \) = Non-financial Performance,
- \( \alpha \) = constant, and
- \( \beta \) = regression coefficient.

4.5.2. Partial F (or t) Value

The partial F-test is simply a statistical test for the additional contribution to predict accuracy of a variable above that of the variables already in the equation. When a variable (x) is added to a regression equation after other variable are already in the equation, its contribution may be small even though it has a high correlation with the dependent variable. The reason is that (x) is highly correlated with the variables already in the equation. The partial F value is calculated for all variables by simply pretending that each, in turn, is the last to enter the equation. It is gives the additional
contribution of each variable above all other in the equation. A low or significant partial F value for variable not in the equation indicates its low or insignificant contribution to the model as already specified. A t value may be calculated instead of F value in all instances, with the t value being approximately the square root of the F value (Hair et al, 2010)

4.5.3. **Determination Coefficient**

The most commonly used measure of predictive accuracy for the regression model is the coefficient of determination ($R^2$). Coefficient determination were Calculated as the squared correlation between the actual and predicted values of the dependent variable, it represents the combined effect of the entire variable (one or more independent variables plus the intercept) in predicting the dependent variable. It range from 1,0 (perfect prediction) to 0,0 (no prediction). Because it is the squared correlation of the actual and predicted values, it also represents the mount of variance in the dependent variable explained by the dependent variables.
PART 5. RESULT

5.1. Data Collection

The data collection in this study employed a purposive sampling technique where the author selects particular elements using particular criteria. The criteria are as follows: 1) the objects of the study are SMEs located in Yogyakarta; 2) the respondents are owners/managers of SMEs. The survey conducted generates 86 returning questionnaires. Of the 86, only 53 questionnaires can be further analyzed, since the remaining 33 are incomplete.

5.2. Respondent Demography

The analysis generated the following respondent demography: 4 (7.5%) enterprises have been in operation for less than 3 years; 20 (37.7%) enterprises for 3-5 years; 29 (54.8%) enterprises for more than 5 years; 22 (41%) enterprises have less than 10 employees; 31 (59%) enterprises have 10-20 employees. The majority of enterprises (70.2%) are in the initiation level, 18.3% in diffusion level, and the remaining 11.5% are in the integration level.

5.3. Validity and Reliability Testing

Validity testing in this study was conducted using product-moment correlation at the 5% probability level. The results indicate that all questionnaire items were valid with p < 0.05 (see the table in Attachment 1). Reliability testing in this study used Cronbachs Alpha with a minimum acceptable limit of 0.6. The results of validity testing demonstrated the Cronbachs Alpha value of 0.730 for AIS sophistication variable; 0.621 for
owner commitment; 0.638 for external IT expertise; 0.790 for AIS requirement; 0.881 for AIS capacity; and 0.715 for non-financial performance. Those results indicate that all variables have a reliability above the predetermined value.

5.4. Hypothesis Testing

Hypotheses testing in the current study employed two regression models. Model 1 is used to test hypothesis 1, 2, and 3, and model 2 for hypothesis 4. The results of hypothesis tests are presented in the table below:

<table>
<thead>
<tr>
<th>Relationship</th>
<th>T value</th>
<th>P value</th>
<th>R2</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIS sophistication → AIS alignment</td>
<td>3.315</td>
<td>0.003</td>
<td>0.374</td>
</tr>
<tr>
<td>Owner commitment → AIS alignment</td>
<td>2.687</td>
<td>0.010</td>
<td></td>
</tr>
<tr>
<td>External IT expertise → AIS alignment</td>
<td>2.166</td>
<td>0.035</td>
<td></td>
</tr>
<tr>
<td>AIS alignment → non-financial performance</td>
<td>15.079</td>
<td>0.000</td>
<td>0.813</td>
</tr>
</tbody>
</table>

**TABLE 1**: Results of Hypothesis Testing.

Based on Table 1 above, AIS sophistication was found to have a positive and significant effect on AIS alignment with p value of 0.003 (hypothesis 1 is supported). The results of this study confirm the previous studies by Hussin, King, Cranh, (2002); Al-Egab & Noor AI (2011). Owner commitment has a positive and significant effect on AIS alignment with a p value of 0.010 (hypothesis 2 is supported). The results also corroborate other works by Hussin et al (2002); Ismail & King (2005); Lee et al (2009). IT expertise, the external variable in this study, has significant effect on AIS alignment, with p value of 0.035 (hypothesis 3 is supported). While the results confirm the study of Hussin et al (2002). AIS alignment have a
positive and significant effect on non-financial performance with p value of 0.000 (hypothesis 4 is supported). The results confirm previous works by Choe (2002); Ismail & Malcolm (2006). They indicate that the average AIS requirement by 3.65 and AIS capacity by 3.77 are in the same interval. This indicates that there is a correspondence between needs and capacities of the SMEs’ AIS.

PART 6. CONCLUSION

6.1. Discussion

The results demonstrate that hypothesis 1 is supported; that AIS sophistication has a positive and significant effect on AIS alignment. The results also indicate that SMEs have been using AIS either for daily transactions (sales and receivables) or monthly transaction (employees’ salary and inventory calculations). Both daily and monthly capacities of accounting information capacity have been in conformity with the information requirement. Based in the developing countries, this research consistent with similar result about the IT sophistication and alignment of AIS Hussin (2002); Al Eqab and Noor Al (2011) it argue that IT sophistication has significant effect on AIS alignment.

The results indicate that hypothesis 2 is supported; that is, owner commitment has a positive and significant effect on AIS alignment. Owner commitment to technological sophistication greatly influences the development of SMEs in terms of technological implementation, particularly

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[2] Five-point scale measurement (1-1.8=poor; 1.81-2.6=fair; 2.61-3.4=good; 3.41-4.2= very good; 4.2-5=excellent)
that of AIS. SME owners who are familiar with technology can perform the planning and evaluation of the usefulness of technology to pave the way to the technological implementation in their enterprises. SMEs owners need more fit information to support the decision with higher uncertainties, Ismail and Malcolm (2005) the right information that selected by the owners can reduce uncertainty and expenses of the organization. Owner participation in the problem solving stage was found to be significantly greater in the aligned firm (Ismail and King, 2006). The result also supports the findings of Hussin, (2002) where an appreciations of the owner influence with IT alignment.

The test of hypothesis 3 indicates that external IT expertise has significant influence on AIS alignment. The results provide the evidence that the use of AIS remains highly dependent on the owner’s will, sophistication & IT consultant. Some of the SME owners stated that the AIS (or the technology) they have bought can be properly used for a relatively long period. External IT expertise will be used in case of disruption. Importantly, at the development stage of IT, the use of IT consultants is still needed, nevertheless the development of information system (technology) still not optimal. The owners assume that the technology they are using still run well with having to upgrade the software by external IT expertise. Ismail and King (2006) for example, argued that gaining expert advice and assistance from relevant government agencies and accounting firm can help SMEs achieve better alignment. But, this result did not support Hussin (2002) argument that external It expertise have little influence on IT alignment.
The test of hypothesis 4 demonstrates that AIS alignment has a positive and significant influence on the non-financial performance. AIS compliance could be realized with the fit between the capacity and the information required. Available information on the products manufactured will be related to the information on the sales, production level, and the profit obtained. Information on the supply will be related to the information on the defected raw materials. Those interrelated information may improve the SMEs’ non-financial performance. The result of this research consistent with Ismail and Malcolm (2005); Ismail and King (2006) argue that Malaysian SMEs with high AIS alignment had achieved better organizational performance. Other relevant result is Choe, (2002) which proves that management information systems can improve the non-financial performance, even though the studies was conducted in large organization, but the result can be uses as SMEs research references.

6.2. Limitation

Some of limitations of this study can be seen as fruitful feedbacks for future researchers: 1) this study did not divide the SMEs’ business types. The results would be much better if the study classified SMEs into service, manufacture, and trade categories because the type of business affects the use of information technology; 2) the majority of SMEs are in the initiation level, which means that their planning and control of accounting systems are lacking. For future researches, it would be better if they assess each of the level (initiation, diffusion, integration) to determine the effect they have on
AIS compliance; 3) this study did not analyze the size of enterprise. The larger the enterprise, the easier is the use of information technology; and 4) this study did not examine the frequency of technology replacement (upgrading), and therefore is undecided as to whether they are using the latest technology or the obsolete one.

REFERENCES


KUESIONER
Nama Perusahaan:
Tahun Berdiri Perusahaan:
Jumlah karyawan:
Omzet/bulan:
Sistem akuntansi yang digunakan: myob, DEA, lain-lain……………..

Pertanyaan-pertanyaan dibawah ini berkaitan dengan pemanfaatan teknologi informasi (IT) terutama penggunaan software (computer) yang behubungan dengan pengeluaran penerimaan kas/ piutang/persediaan/ penggajian dan lain-lain.
Pilihlah salah satu pernyataan berikut yang menyatakan level pengadopsian teknologi di perusahaan:

1. Initiation
   Pengguna IT masih sedikit, pengguna memiliki otoritas yang berlebihan, perencanaan dan pengendalian sistem akuntansi sangat kurang.
2. Diffusion
   Pengguna IT lebih banyak, banyak pengeluaran untuk belanja IT, sudah ada perencanaan dan pengendalian sistem meskipun formalitas
3. Integration
   Sistem akuntansi sudah diaplikasikan, perencanaan dan pengendalian terhadap sistem akuntansi berjalan dengan baik.

<table>
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<tr>
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<th>sering</th>
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<tr>
<td></td>
<td>1 2 3 4 5</td>
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</tr>
<tr>
<td>1 Penggunaan sistem untuk transaksi termasuk akuntansi piutang</td>
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<td>2 Penggunaan sistem untuk transaksi termasuk penggajian</td>
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<tr>
<td>3 Penggunaan sistem akuntansi untuk mengetahui persediaan</td>
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<tr>
<td>4 Penggunaan sistem untuk transaksi penjualan</td>
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<thead>
<tr>
<th>Owner commitment</th>
<th>Partisipasi rendah</th>
<th>Partisipasi tinggi</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td>1 Kebutuhan terhadap informasi</td>
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<td></td>
</tr>
<tr>
<td>2 Pemilihan software &amp; hardware</td>
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<td></td>
</tr>
<tr>
<td>3 Penerapan sistem (IT)</td>
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<td>4 Perencanaan IT dimasa dating</td>
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<tr>
<td></td>
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<td>Sangat penting</td>
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<tr>
<td>1</td>
<td></td>
<td>Informasi yang berkaitan arus kas</td>
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<td>2</td>
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<td>Informasi eksternal seperti perubahan teknologi</td>
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<td>Informasi non-keuangan yang berhubungan dengan produksi seperti kerusakan persediaan</td>
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<td>Informasi non finansial yang berhubungan dengan pertumbuhan penjualan</td>
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<td>Informasi berupa penjualan, produksi, keuntungan,</td>
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<td>6</td>
<td></td>
<td>Informasi yang dihasilkan tahunan, bulanan, mingguan</td>
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<td>7</td>
<td></td>
<td>Informasi yang mempengaruhi pengambilan keputusan seperti, berapa jumlah barang yang harus diproduksi/ dijual/ dibeli</td>
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<tr>
<td>8</td>
<td></td>
<td>Informasi yang menunjukkan laporan biaya dan pendapatan</td>
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<td>Informasi penentuan harga jual</td>
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<th>Sangat penting</th>
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<tr>
<td>3</td>
<td></td>
<td>Pemeliharaan sistem akuntansi oleh konsultan</td>
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<td>4</td>
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<td>Merumuskan rancangan IT oleh konsultan</td>
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<td>4</td>
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</tbody>
</table>
SURAT PERNYATAAN KETUA PENELITI/PELAKSANA

Yang bertanda tangan di bawah ini:
Nama : Dekeng Setyo Budiarto, SE, MSi, AK
NIDN : 0514087402
Pangkat/Golongan : Penata Tk I/IIb
Jabatan Fungsional : Lektor

Dengan ini menyatakan bahwa Laporan Akhir Pelaksanaan Hibah penelitian kami dengan judul “Accounting Information System (Ais) Alignment & Non-Financial Performance On Small And Medium Enterprises (Smes),” telah kami buat dan telah diserahkan kepada Kepala LPPM UPY pada tanggal 10 Nopember 2014

Yogyakarta, 10 Nopember 2014
Yang menyatakan,

[Signature]
Dekeng Setyo B, SE, MSi, AK
NIS 1974082142006071002
BERITA ACARA SERAH TERIMA
LAPORAN AKHIR PELAKSANAAN KEGIATAN HIBAH PENELITIAN
Nomor: 034/LPPM BAP/XI/2014

Pada hari ini Senin tanggal sepluh bulan Nopember tahun dua ribu empat belas, yang bertanda tangan dibawah ini:

1. Nama: Dra. Suharni, M.Pd  
   Jabatan: Kepala LPPM Universitas PGRI Yogyakarta  
   Alamat: Jl. PGRI I Sonosewu No. 117 Yogyakarta

Dalam hal ini bertindak untuk dan atas nama LPPM Universitas PGRI Yogyakarta, dalam Berita Acara Serah Terima Laporan Pelaksanaan Hibah Penelitian ini selanjutnya disebut sebagai Pihak Pertama

2. Nama: Dekeng Setyo Budiarto, SE, MSi, Ak  
   Jabatan: Dosen Tetap Universitas Yogyakarta  
   Alamat: Jl Gurnami No 42 A Sorosutan Umbulharjo Yogyakarta


Sesuai perjanjian Pihak Kedua telah menyerahkan Laporan Pelaksanaan Kegiatan Hibah Penelitian yang telah dilaksanakannya dan Pihak Pertama telah menerima Laporan tersebut.

Berita Acara ini dibuat rangkap 3 (tiga) untuk dipergunakan sesuai dengan keperluan.

Yogyakarta, 10 Nopember 2014
Pihak Kedua

Dekeng Setyo B, SE, MSi, Ak  
NIS 197408142006071002