THE IMPACT OF INTEGRATED AIS IMPLEMENTATION TO THE PURCHASING AND SALES BUSINESS PROCESSES IN ORDER TO IMPROVE EFFICIENCY AND EFFECTIVENESS: A CASE STUDY OF AN SME IN WEST JAKARTA

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ABSTRACT

This exploratory study of the impact of integrated AIS implementation throughout the purchasing and sales business processes in an SME in West Jakarta is aimed to illustrate the result of an implementation of automated AIS in a small business to improve company's efficiency and effectiveness. The study was conducted through the document review of prior implementation and observation of current business process, and interview. The measurement of efficiency and effectiveness is derived from the accounting basic principles of time and cost efficiency and effectiveness.

Keywords: business process, automation, integrated AIS, efficiency and effectiveness, SME.

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INTRODUCTION

Nowadays, the competitions between companies are very tight with the expansion of foreign products in the market, dominating with their low prices and fair quality. In order to survive in this competitive market, maintaining the quality of product with lower cost are required to ensure customer satisfaction and loyalty. Small businesses, which are an integral part of national business, have important role in realizing economic development goals in particular. They support the employment and provide economic services to society by playing their roles in the distribution process of increasing economic growth and creating economic stability. In Indonesia, small and medium enterprises (SMEs) are vital in driving the Gross Domestic Product (GDP), with the number of poorly educated workforce, diversity of natural resources, limited capital, under - developed rural development and uneven income distribution, which is a suitable environment to nurture more SMEs as business vehicles to contribute to GDP growth (McKague et al., 2011); (Tambunan, 2009). SMEs in Indonesia were growing from 54,114,821 business units in 2010 to 55,206,444 in 2011 (2.02% growth). They contributed to an approximate of 58. 05% of total national GDP of Rp. 7.4 trillion in 2011 and were able to absorb 97.2 percent of employment or 101.7 million workforces (*Kementerian Koperasi dan Usaha Kecil dan Menengah Republik Indonesia, 2011*).

However, compared to these growing rates, SMEs in Indonesia still have to face common obstacles in its internal management, such as lack of capital, difficulties in the procurement of materials, difficulties in marketing and distribution, and lack of technological capabilities to support access to relevant business information (Tambunan & Xiangfeng, 2006). The limitation of technological capabilities often followed with the lack of accounting and management knowledge which make the company have to face difficulties to maintain a sustainable business. Considering this fact, the existence of an efficient and effective Accounting Information Systems (AIS) is believed to be a significant tool for a company to be implemented, since the successful implementation of AIS could result in better companies' performance. Several studies of AIS adoption in developing countries show how it assists company in improving its

performance, profitability, and increased operational efficiency ((Grande, Estébanez, & Colomina, 2011); (Saira, Zariyawati, & Annuar, 2010); (Amidu, Effah, & Abor, 2011); (Haryani, 2012); (Ismail & King, 2005); (Salehi, Rostami, & Mogadam, 2010))

AIS also assists small scale companies to manage short term problems by providing information to support and control the business (Mitchell, Reid, & Smith, 2000). However, although AIS has a lot of potential and benefits to support SMEs, in Indonesia the development itself may not keep pace with the growth of SMEs. There are SMEs that keep running the business with traditional information system that are not integrated, providing limitation to real time information about the business, as the owner and management is not able to analyze business performance based on reliable and real time data (Hatane & Santoso, 2011). Considering the implementation of automated AIS requires resources and adaptation from the organization to the new implemented technology can be a very difficult task, this exploratory study is made to comprehend the impact of integrated AIS implementation to the purchasing and sales business processes in order to improve efficiency and effectiveness in an SME, which is a case study of an SME in West Jakarta.

COMPANY OVERVIEW

This spare parts business in West Jakarta is a family business managed by both founder and co-founder, who are relatives, acting as Director and Manager of the company. It was established in 2007, supplying its products which are used for motorcycles to the hardware shops. With the increasing demand, the business started to expand its market as a distributor in 2009, and currently supplying more than 20 outlets of customer. It distributes more than 30 types of spare part from more than 10 different brands of motorcycles' equipment; such as screw, start motor, cylinder, crankshaft, tall light, tank side cover. There are approximately 15,000 items of products are listed in the inventory database.

Following its expansion and the level of complication created from the numbers of transactions related to the inventory and on account transactions, the company gets to realize the importance of a system to specifically manage their various types of spare parts - inventories and consequently the on account transactions. Based on this initial

consideration, the company started to shift from manual systems into a computer based system using the Accurate software system.

Prior to the automation, there is no such official organizational structure in place. The daily operations were run without any standard operating procedures and ownership of the process or business functions. The employees were assigned the tasks based on given instructions from the owner of this business. By the time the automation was implemented, the organization structure was developed as per below:

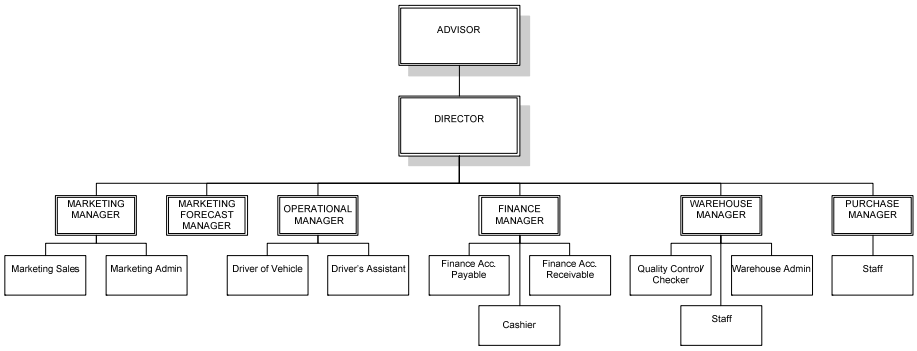

Figure 1. Organizational Structure

The organization structure is divided based on the ownership of each business process of the main cycles of revenue and expenditure. Each department has a limited access to the related module of Accurate software as explained in the next session.

DISCUSSION

(Soudani, 2012) suggests that AIS has positive impact to improve organizational and financial performance. This exploratory study of the impact of integrated AIS implementation in an SME in West Jakarta is aimed to illustrate the result of an implementation of automated AIS in a small business to improve company's efficiency and effectiveness. The study was conducted through the document review of prior implementation and observation of current business process, and interview. The measurement of efficiency and

effectiveness is derived from the accounting basic principles of time and cost efficiency and effectiveness.

The computerized AIS application

The use of the Accurate Accounting Software v.4 is optimized with the tasks allocation based on business function of the organization structure. The modules and features are allocated to the position in this organization by adopting the internal control activities.

Table 1. Computerized AIS Application

Module Name	Description of Module	Business Function in Organization Structure (Module Ownership)	Module Integration
Purchasing Module	Purchasing Module is used for tasks related to purchasing services, inventory items from suppliers (cash and credit), processing returns in relation to those purchases, and recording payments to suppliers on account.	Purchasing Department	This module is integrated with Sales, W&I, GL,CB,FA
Sales Module	Sales Module is used to arrange tasks of making sales of inventories or services to customers (cash and credit), recording returns and adjustments in relation to those sales, until receiving money from customer on account.	Marketing Department	This module is integrated with Purchasing, W&I, GL,CB,FA
Warehouse and Inventory (WI)	This module tracks the in and outflow of goods to ensure required inventory level is properly managed.	Warehouse Department	This module is integrated with Sales, Purchasing, GL,CB,FA
General Ledger (GL)	General Ledger contains summary data for every asset, liability, equity, revenue and expense accounts. It is the summary of all entries from all modules related to financial transaction.	Finance Department	This module is integrated with Sales, Purchasing, W&I, CB,FA
Cash and Bank (CB)	Cash and Banks Module records payment made by cash. It also provides a tool to do bank reconciliation.	Finance Department	This module is integrated with Sales, Purchasing, W&I, GL,FA
Fixed Asset (FA)	This module records transaction related to company fixed assets such as buying and selling asset, including recurring depreciation related transactions.	Finance Department	This module is integrated with GL,CB

With the available modules of Accurate software which is made aligned to the business functions reflected in company's organizational structure, the business process accordingly has also

been changed to adapt with new processes in place. The prior and after computerized implementation are illustrated below.

Purchasing Cycle

Before computerized AIS implementation

- Purchasing Division prepares an order list after each month stocktaking and evaluation. The order list is sent to Finance Manager and then Director. After reviewed and approved, a purchase order (PO) will be released by finance.
- When goods are received, warehouse will update the stock using Excel file. This file will be compiled at each end of month for an evaluation before preparing a new order list. The information recorded in this excel file are serial number, product name and description, supplier name, net price, received stock, and available stock. Warehouse division checked received quantities and make a list for any defective goods, then forward the delivery slip to finance division for confirmation.
- At the same time goods are received, an invoice from supplier also received by finance division for further payment. Finance staff will record the billing into journal transactions, which later reconciled with General Ledger.

After computerized AIS implementation

- Based on the stock level data viewed from the inventory module and cross checking with physical inventories, warehouse staff will prepare a purchase requisition (PR) for restocking and send it to purchase division. Purchasing staff reviews the purchase requisition with inventory management module and input a PO transaction in the system. Four printed copies of PO is further reviewed and approved by Purchasing Manager, then 2 copies are forwarded to warehouse and Accounting & Finance, 1 copy filed in Purchasing and 1 is sent out to supplier.
- When the goods are received, using a new bar-coding system that aligned with inventory module, all goods will be registered and automatically will update the stock level. The information categories for the database are item codes, factory serial number, part description, model, product cost, and product status of (active or discontinued, supersede, etc).
- When the invoice is received by Account Payable (AP), the related open PO in the systems will be converted into bill and

updated with the amount written on received invoice and cross checked to previous filed copy of PO. This process will automatically create the AP journals and updated the inventory module. Gradually, the Account Payable staff will check the aging payable to see the due accounts and make related payment.

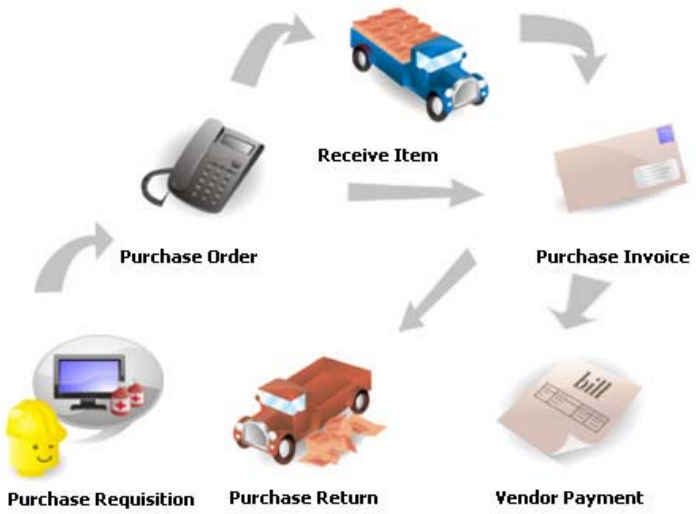

Figure 2. Activities of Accurate Purchase Module

Table 2. Analysis of before vs. after the Implementation of Integrated AIS

Using Computerized Accounting Software

No.	Before	After	Benefit
1	Stock List for inventory order is manually created	System capability to generate stock list real time and calculate the reorder point.	Real time inventory management. Ability to manage the economic order quantity (EOQ) to ensure stock forecast and availability.

2	PO is manually created and released by Finance division after manual data checking of inventory from the Excel file.	PO is triggered by a PR from warehouse upon EOQ and physical cross checking. The request can be traced through system and electronically converted into PO by Purchasing Department.	Better audit trails of purchasing transactions related to inventory procurement. Reduce time consumption when processing PO. Segregation of duties between inventory custodian who triggered PR (warehouse) with the purchasing department who approved the PO as well as Accounting and Finance, which later on will have the authorities of record keeping and financial taker of payment process
3	Inventory stock level is maintained using Microsoft Excel and not automatically updated.	Inventory stock level is automatically updated by the systems throughout purchase and sales business processes.	More accurate and detail information of approximately 15,000 items of inventory. Automated process using barcode also reduce time consumption throughout the process; reduce error-prone of incorrect inventory management, besides its real time stock update information. Stock forecasting for management strategic decision making is also easier to do.
4	Journal transactions involved manual input on each related accounting event.	In expenditure cycle, the journals are electronically created : 1) The physical related journal is created when the inventory received into the warehouse, which is automatically updating inventory module 2) The financial related journals are created when an invoice is	Database updates automatically and in real time. With data synchronization, company is able to prevent or reduce the information risk.

		received and payment is made and updated into the system.	
5	Repetition of purchase order manually created by purchase staff.	PO is easily converted from PR or through recurring PO transaction.	Improve time efficiency of processing by reducing redundancy of manual check and data entry process. Improve cost saving by reducing number of created hardcopies whilst processing PO.

Sales Cycle

Before computerized AIS implementation

Direct Order (Cash Sales)

- Customer visits company outlet to make an order, and the staff will go to warehouse to confirm the availability. When items are available, cashier will handwrite the receipt and compiled all direct sales at the end of the trading hours.

Indirect Order (Credit Sales)

- When a customer order received, the sales request will be confirmed a day after, in order for the company to check the availability of products requested.
- Sales order, delivery order and invoice are manually created by Finance department
- The goods to be delivered to customer will queue until delivery arrangement for the day is settled. This sometimes creates hassles because of all manual checking and processing.
- Manual reminders need to be created when customers' receivable are due for collection.
- Each of the accounting related events need to have manual entries of journal transactions.

After computerized AIS implementation

Direct Order (Cash Sales)

- Customer visits company outlet to make an order, stock availability will be screen viewed from inventory module. When products are available, the transaction will be proceed by cashier using barcode which automatically will update the physical

inventory level and financially recorded in cash register's tape. By the end of the trading hour, the magnetic tape of all sales transactions will be balanced with the cash drawer by sales cashier's supervisor and prepared for next day bank deposit.

Indirect Order (Credit Sales)

- When a customer order received by marketing staff, the stocks availability will be directly checked with a view accessed from inventory database. If stocks were available, the marketing staff will proceed with sales order and notify Finance department for approval of sales order.
- The Finance department will do a credit check of customer's credit profile to ensure customer is still complying with the credit limit and term of payment.
- After credit checking, Finance department will release delivery order (DO) together with approved SO and forward it to marketing for cross checking. Marketing will print out the DO and send to warehouse to proceed for delivery.
- After the goods are picked and packed from warehouse, Operation department will check and confirm the entire items to be delivered for the day by cross checking with invoice prepared by Finance department. Finance department will provide the invoice hard copy to be attached with goods to be sent out to customer.
- Gradually, AR Finance will check the aging report provided by the system to remind the almost due receivable and collect the payment from customer.

Figure 3. Activities of Accurate Sales Module

Besides the above mentioned benefits related to procedural improvement, the company is able to reduce stationeries expense related to papers usage by 59% of its cost. The implementation transforms some manual procedures into computerized process which in the same time reduces duplicated copies of printed documents. Furthermore, the inventory turnover is increased by 20% with the reduction of 39 days in average days to sell inventory (from average of 230 to 191 days). The implementation also helps the company to reduce the unnecessary restock, excessive inventories and further contributes to the reduction of obsolete goods caused by negligence workers, not updating the inventory control. The warehouse staff can review item status from inventory module to check the storing period and prioritize the physical flow to reduce possibility of spare parts become tarnished and obsolete. Regularly, the physical stock opname can be completed with lesser time spent and more accurate result.

Accordingly, with the system automation and integration, the sales order processing is speed up and consequently increase the number of processed SOs. Before the implementation, staffs confirm and prepare sales orders, a day after checking the availability of items. After the implementation, staff can check items availability and customer credit

limit in the same day of receiving customer order. This contributes to the 44% (direct sales) and 68% (credit sales) increased in numbers of processed customer orders.

CONCLUSION AND RECOMMENDATIONS

After the implementation of computerized AIS, in overall the company is benefited by the improvements throughout time and cost efficiency which in the same time has contributed to company's better operational performance. The imposed of centralized data using computerized AIS has assisted users to have better work performance of less error, less manual and overlapping - work processing time, more streamline and in order process, easy access and check to shared information, real time update, and reduce of paper wasted. The computerized process has also obviously changed the flow and nature of business process which enforce the company to implement a segregation of duties as well as adequate supervision in their current business function of company's organization structure. Considering the detail attributes of spare part - inventories managed by the company, a preventive and detective internal control level are very significant for fraud protection, especially from potential employee theft scheme. Since company has a limited number of employees to achieve an adequate segregation of functions, it must rely on supervision as a form of compensating control. At the most, the inventory module enables better control in reducing unnecessary restock and preventing excess inventory; whilst also useful in determining the EOQ and managing lead time to achieve effective purchasing process. Accordingly, this adds value to the sales process in ensuring stocks availability.

With the highlighted improvement achieved by the company, there is still room for better operational performance to ensure sustainability of these implemented computerized AIS. The awareness of internal control as a media to assist company in monitor and audit trailing its process has to be significantly understood by the users despite the fact that this SME is a family owned business. The authority to access specific module by specific user should not be ignored when the user is unavailable. It is not supposed to be replaced and be given to other unauthorized user. Upon the absent of specific user, the supervisor is

the one to take control of the process with an additional level of approval that might also required when the amount is significant. Without disregarding the fact that a system has to be reasonable in cost vs. benefit, a backup process has also need to be gradually maintained to ensure long term objective of system sustainability, in which preventing data lost and destruction.

REFERENCES

Amidu, M., Effah, J., & Abor, J. (2011). E-accounting practices among small and medium enterprises in Ghana. *Journal of Management Policy and Practice, 12*(4), 146–155.

Grande, E. U., Estébanez, R. P., & Colomina, C. I. M. (2011). The impact of accounting information systems (AIS) on performance measures: empirical evidence in Spanish SMEs. *The international journal of digital accounting research, 11*(17), 25–43.

Haryani, E. (2012). Accounting System For Small Business In Indonesia (Case Study Convection Business In Tingkir Lor Village). *Researchers World, 3*(2), 104.

Hatane, S. E., & Santoso, L. W. (2011). *Developing a web-based information system for publishing and printing enterprise*. Petra Christian University. Retrieved from http://repository.petra.ac.id/id/eprint/16059

Ismail, N. A., & King, M. (2005). Firm performance and AIS alignment in Malaysian SMEs. *International Journal of Accounting Information Systems, 6*(4), 241–259.

Kementerian Koperasi dan Usaha Kecil dan Menengah Republik Indonesia. Perkembangan Data Usaha Mikro, Kecil, Menengah (UMKM) dan Usaha Besar (UB) Tahun 2010 - 2011. Retrieved from http://www.depkop.go.id/index.php?option=com_phocadownload&view=file&id=393:perkembangan-data-usaha-mikro-kecil-menengah-umkm-dan-usaha-besar-ub-tahun-2010 2011&Itemid=9**3**

McKague, K., Wheeler, D., Cash, C., Comeault, J., Ray, E., & Tahi Hamonangan Tambunan, T. (2011). Development of small and medium enterprises in a developing country: The Indonesian

case. *Journal of Enterprising Communities: People and Places in the Global Economy*, *5*(1), 68–82.

Mitchell, F., Reid, G. C., & Smith, J. (2000). *Information system development in the small firm: The use of management accounting*. Chartered Institute of Management Accountants.

Saira, K., Zariyawati, M. A., & Annuar, M. N. (2010). Information system and firms' performance: the case of Malaysian small medium enterprises. *International business research*, *3*(4), p28.

Salehi, M., Rostami, V., & Mogadam, A. (2010). Usefulness of accounting information system in emerging economy: Empirical evidence of Iran. *International Journal of Economics and Finance*, *2*(2), p186.

Soudani, S. N. (2012). The usefulness of an accounting information system for effective organizational performance. *International Journal of Economics and Finance*, *4*(5), p136.

Tambunan, T. (2009). *UMKM di Indonesia*. Ghalia Indonesia.