

The Usefulness of an Accounting Information System for Effective Organizational Performance

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Abstract

The aim of this study is to investigate usefulness of accounting information system (AIS) for effective organizational performance. AIS is the whole of the related components that are working together to collect, store and disseminate data for the purpose of planning, control, coordination, analysis and decision making. Therefore, impact of AIS on elements of organizational performance such as: performance management and financial performance is examined. The results of this study show that although AIS is very useful and have effect on organizational performance to listed companies in Dubai financial market (DFM) but, there is no relationship between AIS and performance management.

Keywords: Accounting information system, Financial performance, Performance management, Organizational performance

1. Introduction

Accounting Information Systems (AIS) are a tool which, when incorporated into the field of Information and Technology systems (IT), are designed to help in the management and control of topics related to organization's economic-financial area. But the stunning advance in technology has opened up the possibility of generating and using accounting information from a strategic viewpoint (El Louadi, 1998). Accounting Information System (AIS) is vital to all organizations (Borthick and Clark, 1990; Curtis, 1995; Rahman *et al.*, 1988; Wilkinson, 1993; Wilkinson *et al.*, 2000) and perhaps, each organization either profit or non profit-oriented need to maintain the AISs (Wilkinson, 2000: 3-4). On the other hand, an AIS is the whole of the related components that are put together to collect information, raw data or ordinary data and transform them into financial data for the purpose of reporting them to decision makers (Mahdi Salehi, vahab rostami and Abdolkarim Mogadam, 2010). To better understand the term 'Accounting Information System', the three words constitute AIS would be elaborated separately. Firstly, literature documented that *accounting* could be identified into three components, namely information system, "language of business" and source of financial information (Wilkinson, 1993: 6-7). Secondly, *information* is a valuable data processing that provides a basis for making decisions, taking action and fulfilling legal obligation. Finally, *system* is an integrated entity, where the framework is focused on a set of objectives (Bhatt, 2001; Thomas and Kleiner, 1995).

Accounting literature argues that strategic success is considered an outcome of Accounting Information System's (AIS) design (Langfield-Smith, 1997). Several, studies have analyzed the role of AIS in strategic management, examining the attributes of AIS under different strategic priorities (Ittner and Larcker, 1997; Bouwens and Abernethy, 2000). It has also been analyzing the effect on performance of the interaction between certain types of strategies and different design of AIS (e.g. different techniques and information). The appropriate design of AIS supports business strategies in ways that increasing the organizational performance (Chenhall, 2003). Increasing AIS investment will be the leverage for achieving a stronger, more flexible corporate culture to face persistent changes in the environment. Innovation is the incentive with which a virtuous circle will be put in place, leading to better firm performance and a reduction in the financial and organizational obstacles, while making it possible to access capital markets. AIS are systems used to record the financial transactions of a business or organization. This system combines the methodologies, controls and accounting techniques with the technology of the IT industry to track transactions provide internal reporting data, external reporting data, financial statements, and trend analysis capabilities to affect on organizational performance (Elena Urquia Grande, Raquel Perez Estebanez and Clara Munoz Colomina, 2010).

In managing an organization and implementing an internal control system the role of accounting information system (AIS) is crucial. An important question in the field of accounting and management decision-making concerns the fit of AIS with organizational requirements for information communication and control (Nicolaou, 2000). Benefits of accounting information system can be evaluated by its impacts on improvement of decision-making process, quality of accounting information, performance evaluation, internal controls and facilitating company's transactions (H. Sajady, M. Dastgir and Hashem Nejad, 2008). Therefore, regarding the above five characteristics, the effectiveness of AIS is highly important for all the organization performance. According to Adrian Downes and Nick Barclay (2008) performance management is a quick maturing business discipline. Therefore, performance management has a key role to play in improving the overall value of an organization. Control efficacy of financial information reliability has affected operating performance (Ming-Hsien Yang, Wen-Shiu Lin and Tian-Lih Koo, 2011).

Prior researches have shown that accounting information system adoption does increased firm's performance, profitability and operations efficiency in Malaysia, Spain, Finland, Pakistan and Iran (S. Kharuddin, Z. Ashhari and Nassir, 2010; E. Grande, R. Estebanez and C. Colomina, 2010; Gullkvist, B., 2002; R. Kouser, A. Awan, G. Rana and F. Shahzad, 2011; H. Sajady, M. Dastgir and H. Hashem Nejad, 2008). In United Arab Emirates (UAE) information society and the new computer tools have allowed the companies to make better use of their accounting system in their relations with suppliers and customers. In the same way the development of the AIS and electronic banking allows the companies to save a lot of time in their transaction (www.ameinfo.com). Thus, the present study attempts to provide some clarification of the relationship between AIS design, organizational strategy and performance especially on financial performance and performance management.

This study has focused on 74 firms operating till the first quarter of 2011 as per listed companies at Dubai Financial Market (DFM) in Dubai, UAE (www.dfm.ae). In accordance with several authors, it is of great interest to analyze the usefulness of AIS on financial performance like economic and financial profitability indicators (Return on Assets (ROA) and Return on Equity (ROE)) of firms.

The structure of this article is as follows: Section 2 reviews the relevant literature and develops hypotheses about relationships between AIS, organizational strategy and performance. Section 3 describes the empirical methodology. Section 4 present results from the statistical analyses of hypotheses. Finally, section 5 presents the discussion and conclusion of this study, provides the limitations of the current study, and points out some directions for further research.

2. Literature Review

The main advantages of an optimal use of AIS in an organization are: better adaptation to a changing environment, better management of arm's length transactions and a high degree of competitiveness. There is also a boost to the dynamic nature of firms with a greater flow of information between different staff levels and the possibility of new business on the network and improved external relationships for the firm, mainly with foreign customers accessed through the firm's web (Elena Urquia Grande, Raquel Perez Estebanez and Clara Munoz Colomina, 2010).

For the first time in 1966, the American Institute of Certified Public Accountants (AICPA) stated that: "Accounting actually is information system and if we be more precise, accounting is the practice of general theories of information in the field of effective economic activities and consists of a major part of the information which is presented in the quantitative form".

In the above definition, accounting is a part of a general information system of an economic entity. Boochholdt (1999) defines accounting information systems as systems that operate functions of data gathering, processing, categorizing and reporting financial events with the aim of providing relevant information for the purpose of score keeping, attention directing and decision-making.

Recently several studies have asserted that AIS plays a proactive role in the strategy management, acting as a mechanism that enables organizational strategy (Chenhall, 2003; Gerdin and Greve, 2004). Strategy has been examined using different typologies, such as Porter (1985) or Miles and Snow (1978). The latter has been extensively used in management literature (Zajac and Pearce, 1990). In the present study it is assumed that the organizational performance is a function of the financial performance, performance management and the AIS. Fitness will exist in the combination of strategy and AIS that contribute to financial performance.

2.1 AIS and Financial Performance

The AIS design can be defined in terms of the information characteristics that it provides (Chenhall and Morris, 1986; Gul, 1991). Chenhall and Morris (1986) described AIS according to the perceived usefulness of four information attributes, namely scope, timeliness, level of aggregation, and integration. Scope refers to the measures being used and to the extension of AIS in time and space. Then information could focus on future vs. historical

events or external vs. internal events. Also the information could be quantified in monetary or non-monetary terms. Timeliness refers to the frequency, speed of reporting and the orientation of the information (e.g. short or long run). Aggregation refers to the way data is aggregated in time periods, functions or in accordance with decision models. Finally, integration refers to the need of providing information to reflect the interaction and coordination effects of several functions in the organization. These four attributes have been analyzed for comparing AIS and organizational strategies and performance (Gerdin and Greve, 2004). Only recently have studies begun to examine whether organizations systematically vary the AIS design to support their chosen strategy, recognizing that AIS have the potential to facilitate strategy management and enhance organizational performance (Gerdin and Greve, 2004).

Appropriate review between designing of AIS and performance of commercial units by analyzing strategies explains that high performance of commercial units depends on a wide range of accounting information systems (Boulianne, 2007). So many studies begun to examine whether organizations systematically vary the AIS design to support their chosen strategy, recognizing that AIS have the potential to facilitate strategy management and enhance organizational performance (Gerdin and Greve, 2004).

Existing literature offers scant evidence of the relationship between these AIS and financial performance; though it is important to highlight the study made by Elena Urquia Grande, Raquel Perez Estebanez and Clara Munoz Colomina (2010) which discovered a positive association between AIS design and organizational strategy and performance. The successful implementation of AIS could save shareholder's money and time. The information value generated by AIS to shareholders and stakeholders in making investment decisions (Zulkarnain Muhamad Sori, 2009).

Financial managers need the financial and accounting data provided by AIS to evaluate the firm's past performance and to map future plans. Therefore, the organizational performance is measured in terms of ROA (Return on Assets) and ROE (Return on Equity) these ratios are financial performance measuring ratios (Sadia Majeed, 2011).

Return on equity is a key to provides useful information about the performance of debt in the capital structure that the general manager must try to influence in order to improve financial performance (Alan Miller, Michael Boehlje and and Craig Dobbins, 2001).

If AIS design can be linked to financial performance and financial performance is linked to organizational performance, then we can argue that AIS design can be expected to have positive effects on organizational performance through ROA and ROE. However, other researchers such as Ismael Younis Abu-Jarad, Davoud Nikbin and Nor Aini Yusof (2010) supported the use of Return on Assets (ROA), Return on Equity (ROE) as the most common measures of organizational performance. Therefore, we formulate the following hypotheses.

H₁: Use of an accounting information system (AIS) will lead to have better economic and financial performance.

H₂: There is a positive relationship between financial performance and organizational performance.

H₃: There is a positive relationship between AIS and organizational performance.

2.2 AIS and Performance Management

Existing literature offers scant evidence of the relationship between AIS and performance management. Accounting information systems are considered as important organizational mechanisms that are critical for effectiveness of decision management and control in organizations (H. Sajady, M. Dastgir and H. Hashem Nejad, 2008). Accounting Information System (AIS) as one of the most critical systems in the organization has also changed its way of capturing, processing, storing and distributing information. Nowadays, more and more digital and on-line information is utilized in the accounting information systems (Huang, Lee and Wang 1999, Clikeman 1999).

Performance management (PM) includes activities that ensure that goals are consistently being met in an effective and efficient manner. Performance management can focus on the performance of an organization (<http://en.wikipedia.org>). Accounting systems affect behavior and performance management and have affects across departments, organizations, and even countries (Noellette Conway, 2009).

Management is engaged with different types of activities which require good quality and reliable information. Quality information is one of the competitive advantages for an organization. In an accounting information system, the quality of the information provided is imperative to the success of the systems (Hongjiang Xu, 2010). Quality of information generated from AIS is very important for management (Essex and Magal, 1998). Business organizations often use accounting information systems to provide support for management decisions. Support usually includes financial analysis from company accountants. Analysis is often taken for the company's accounting information

system. Using business technology, this system can process copious amounts of documents electronically for owners and managers (Osmond Vitez, 2011).

Management compares information about current performance to budgets, forecasts, prior periods, or other benchmarks to measure the extent to which goals and objectives are being achieved and to identify unexpected results or unusual conditions that require follow-up. In the same way that managers are primarily responsible for identifying the financial and compliance risks for their operations, they also have line responsibility for designing, implementing and monitoring their internal control system (www.ucop.edu). Internal controls typically center around the company's accounting information system, which is the primary function for moving financial information through a company. Therefore, internal controls help managers to monitor and measure the effectiveness of their accounting operations on performance (Osmond Vitez, 2010).

Performance management has a key role to play in improving the overall value of an organization (Armstrong and Baron, 1998). Accounting systems are often the most important formal sources of information in industrial organizations. They are designed to provide all levels of management with timely and reasonably accurate information to effect on performance management and help them make decisions which are in agreement with their organization's goals (Anthony G, 2006). Organizational performance is one of the most important constructs in management research (Pierre J. Richard, Timothy M. Devinney and George S. Yip, 2008).

Thus, the relationship between AIS and organizational performance would be moderated by the performance management. According to the pervious argument we analyze the contingency fit between AIS, performance management and organizational performance using accounting data, decision making and internal control process. Therefore, we formulate the following hypotheses:

H₄: There is a positive relation between AIS and performance management acting through accounting data, decision making and internal control process.

H₅: there is positive relation between performance management and organizational performance.

The Fig.1 is developed on the basis of theoretical framework as mentioned above (appendix A).

3. Research Methodology

According to Jassim Al Shamsi (2007) the federal government of United Arab Emirates, led by the Ministry of Finance and Industry, has been introducing a number of initiatives aimed at modernizing public resources management and improving the efficiency and effectiveness of federal government spending in forty ministries and autonomous agencies. The initiatives include strengthening the strategic budgeting process and introducing performance based budgeting across the federal government, modernizing the accounting and information system used government financial management and improving efficiency in cash management. Therefore, data were collected through questionnaire from 74 firms as per listed companies at Dubai Financial Market (DFM) which is subset of one of the forty ministries and autonomous agencies that led by the federal government of United Arab Emirates (www.dfm.ae).

3.1 Measures

The questions were on the five point Likert-type questions, with a choice of strongly agree to strongly disagree. Further the questionnaire consisted of 2 sections. The first section focused on demographics of the target audience. The second section covers main questions. The questionnaire consisted of twenty one questions, which were carefully designed to collect relevant data (See Appendix A). These companies are distributed along fifteen industries. Our sample has been randomly selected using sampling with no replacement process.

3.2 Data Collection

The method of data collection is a crucial aspect in any research because imprecision in the methods of data collections would adversely affect the result of the study and hence provide the result that are invalid. There are many types of data; the major types are primary and secondary data.

Totally 271 questions sent to concern responses were listed as the accountants, financial managers and direct managers of the firms sampled. A reminder was sent and non-respondents were followed up with two additional mailings. During the first questionnaire launching, 154 questionnaires were completed and returned. In the second and third mailings, a total of 82 more completed questionnaires were returned. Altogether 236 questionnaires were available for data analysis.

4. Empirical Results the Studies

4.1 Description the Demographic Profile of the Sample

In order to analyze the data, which was collected through questionnaires different statistical tools, were used. For that purpose, the information gathered was analyzed using the SPSS software version 17.0. According to the results of the demographic questionnaire, the following summary information about the profile of the sample is presented.

In terms of education, 16.1 percent of the samples were PhD, 38.1 percent were Masters and 45.8 percent were Bachelors (see Table 1). To conclude, majority of participants in this study had bachelor degrees. In terms of experience, 25.8 percent of the responses had less than 4 years, 51.3 percent had between 5 to 9 years and 22.9 percent had more than 10 years experience (see Table 2).

Refer to Tables 1 and 2 which show the respondents' demographic information there was significant difference for education and experience.

4.2 Measurement Variables and Testing Hypotheses

Construct validity is typically evaluated by looking at the patterns of correlations of the scale in question with a variety of other measures. Validity is measured in two contexts – first is content validity and second is construct validity. Content validity of our survey was established from the existing literature and adopting constructs validated by other researchers. Reliability analysis is the ability by which the same results can be obtained if I repeat the measure on the same object and under same conditions (Maria Teresa, Nadia Auriat, 2005). The statistical tool used for measuring reliability based on internal consistency is Cronbach's alpha. The Alpha Value greater than 0.6 it shows that the questionnaire is reliable (Fornell and Lacker, 1981). As shown in Table 3, our composite reliability values ranged from 0.610 to 0.712 which is showing above acceptable levels.

Apart from validity assessment of the measurement model, we performed a check for multicollinearity among the variables. A correlations' matrix was used for determining the relationship among all the variables. As Table 4 displays, the highest correlation 0.662 existed between AIS and financial performance and the lowest correlation 0.252 existed between financial performance and performance management. In total, these correlations indicate that multicollinearity.

To substantiate the findings of the research, ANOVA statistical approach was conducted. The objective of the test was to determine the relationship between independent and dependent variables. For the purposes of testing hypotheses the suitable test was adapted in this study. Regression analysis test was employed and the results of hypotheses are shown in Table 5.

According to Table 5 the hypothesis H_1 examines the link between AIS and financial performance. AIS is significantly related to the financial performance ($\beta = 0.393$; $P < 0.01$). Therefore, the first hypothesis is accepted. It means accounting information system cause to have better financial performance.

With reference to Table 5, the hypothesis H_2 also accepted because there is link between financial performance and organizational performance. The effect of financial performance is significant, as indicated by the path coefficient of 0.345 ($P < 0.01$). The path coefficient ($\beta = 0.456$) shows between AIS and organizational performance, there is also statistically significant ($P < 0.01$). Therefore, the hypothesis H_3 is supported.

With regard to Table 5, the hypothesis H_4 is rejected and null hypothesis is accepted, in other words, there isn't any relationship between AIS and performance management ($\beta = 0.075$; $P < 0.01$). It means, AIS does not provide suitable information on performance management to facilitate the effective delivery of strategic and operational goals.

As table 5 shows, the hypothesis H_5 is acceptable. It means that there is a positive relationship between performance management and organizational performance. As indicated by the path coefficient of 0.242 ($P < 0.01$) it is also significant.

5. Discussion and Conclusion

The object of this paper was to empirically analyze the relationship between AIS and organizational performance on listed companies in Dubai Financial Market (DFM). Also, in this study usefulness of accounting information system was examined on financial performance and performance management. An information system is an organized means of collecting, entering, and processing data and storing, managing, controlling, and reporting information so that an organization can achieve its objectives and goals (Romney et al., 1997:18). Accounting information systems of the past focused on the recording, summarizing and validating of data about business financial transactions.

According to Flynn (1992), the effectiveness of AIS can be received providing management information to assist concerned decisions with regard to the successfully managing of corporations.

In recent years, many organizations have attempted to manage organizational performance using the balanced scorecard methodology where performance is tracked and measured in multiple dimensions such as; financial performance, performance management, social responsibility and employee stewardship which were used in this study to evaluate usefulness of AIS on effective organizational performance.

From generalization of the results, measuring research questions based on the opinion of the respondents. First, AIS was found to be the variable that most impacts financial performance. This tells us that AIS is the most important factor in firms that are listed in DFM. Second, it was found that financial performance and performance management have effect on an organizational performance. This means that financial performance and performance management are effective in building an organizational performance. Third, AIS was found that an important factor in building an organizational performance through collection, storage and processing of financial and accounting data to be evaluated by its impacts on improvement of decision-making process, quality of accounting information, performance evaluation, internal controls and facilitating company's transactions. Forth, there isn't any relationship between AIS and performance management. It means that there are several barriers that lead to implementation of AIS on performance management on listed companies in DFM. In such a condition it seems that without solving these problems these companies do not enjoy advantages of AIS.

The general conclusion seems to be that the nature of the model used, which specifies the accounting information requirements are indeed useful on organizational performance.

Like all empirical studies, the present research also has its own limitations due to the methodology employed. Use of questionnaire to collect data always has also its own limitations, since responses could be biased because of the common method used for the collection of all data. Although extensive care has been taking when designing the questionnaire and the pilot study refined the questions, still the criticism of the survey method can never be completely ignored and should be taken into account. Despite the above limitations, this research has provided useful results in paving the way for future research in this area. Since in UAE, recently increasing demand for AIS, as an effective tool in managing the organizations, has prevailed, this research could provide a supportive evidence for the implementation of AIS. Therefore, avenues for future research could be the effects of user participation on the implement of AIS, analysis of effectiveness of AIS on performance and productivity and etc.

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Table 1. Education-Information

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	PhD (Doctorate)	38	16.1	16.1	16.1
	Masters	90	38.1	38.1	54.2
	Bachelors	108	45.8	45.8	100.0
	Total	236	100.0	100.0	

Table 2. Professional-Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 4 Years	61	25.8	25.8	25.8
	5 - 9 Years	121	51.3	51.3	77.1
	More than 10 Years	54	22.9	22.9	100.0
	Total	236	100.0	100.0	

Table 3. Reliability statistics

Measure	Cronbach's Alpha	N of Items
AIS	0.706	6
Financial performance	0.698	4
Performance management	0.610	5
Organizational performance	0.712	5

Table 4. Correlation matrix

Construct	AIS	Financial performance	Performance management	Organizational performance
AIS	1			
Financial performance	0.662**	1		
Performance management	0.267*	0.252*	1	
Organizational performance	0.656**	0.550**	0.481**	1

** . Correlation is significant at the 0.01 level

* . Correlation is significant at the 0.05 level

Table 5. Result of hypothesis testing

Hypothesis	path	coefficient	t-value	Result
H ₁	AIS → Financial performance	0.393	6.434	Accepted
H ₂	Financial performance → Organizational performance	0.345	2.420	Accepted
H ₃	AIS → Organizational performance	0.456	7.580	Accepted
H ₄	AIS → Performance management	0.075	1.094	Rejected
H ₅	Performance management → Organizational performance	0.242	3.812	Accepted

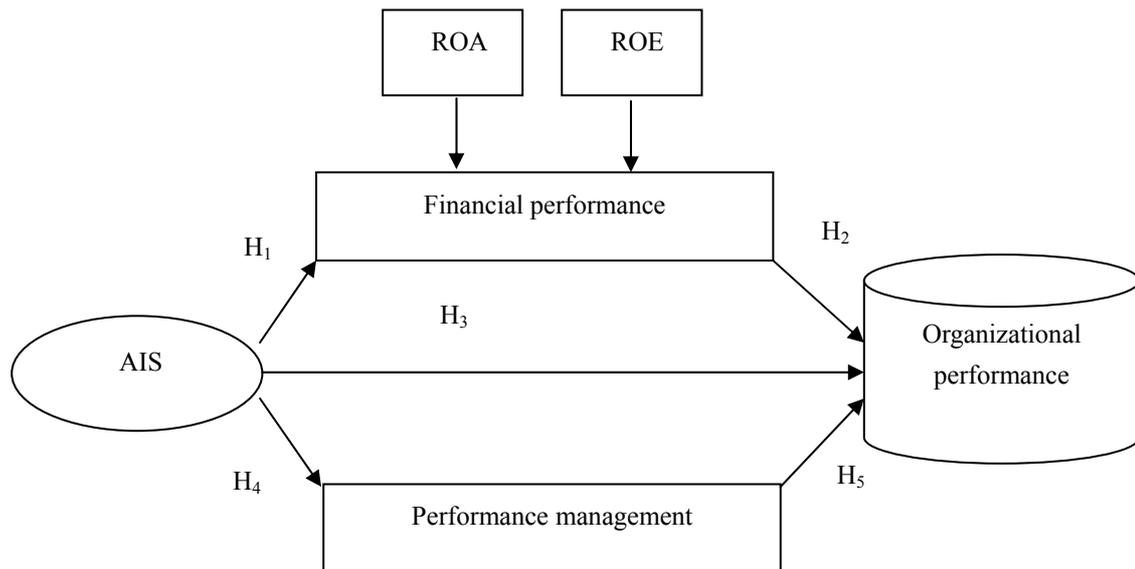


Figure 1. Research model for the study

Questionnaire

Latent Variables	Measurement	Sources
AIS	<p>1 The Data storage contributes to the integrity of the financial reporting process</p> <p>2 The Data storage in sufficient details to accurately and fairly reflect company asset</p> <p>3 The implementation of Data collection could save shareholder's money and time</p> <p>4 Data processing has capable of making a difference in a decision by helping managers to form predictions about the outcomes of past, present, and future events to evaluate financial performance in organization.</p> <p>5 Data processing caused the improvement of the quality of the financial reports and facilitated the process of the company's transactions</p> <p>6 The automated data collection speed up the process to generate financial statements and overcome human weaknesses in data processing</p>	<p>Marshall R and Paul steinbart, 2006</p> <p>Zulkarnain Muhamad Sori, 2009</p> <p>H. Sajady, H. Sajady and H. Hashem Nejad, 2008</p> <p>Zulkarnain Muhamad Sori, 2009</p>
Financial performance	<p>1 The satisfaction of various stakeholder groups is instrumental for organization</p> <p>2 Return on asset measures that assess profitability, size, and growth rates are essential to monitor overall organizational performance and progress</p> <p>3 Return on equity is a key to provides useful information about the performance of debt in the capital structure that the general manager must try to influence in order to improve financial performance</p> <p>4 Operating margin is a measurement of what proportion of a company's revenue is left over, before taxes and other indirect costs, after paying for variable costs of production as wages, raw materials, etc</p>	<p>Marc Orlitzky, Frank L. Schmidt and Sara L. Rynes, 2003</p> <p>Alan Miller, Michael Boehlje and Craig Dobbins, 2001</p> <p>Wikipedia.org</p>
performance management	<p>1 Labor is the largest controllable expense item in your organization. Successful practices to improve performance can lower your labor cost</p> <p>2 An effective measurement and reporting process can improve performance and lower costs</p> <p>3 Employee engagement is critical to any organization that seeks to retain valued employees</p> <p>4 Employee engagement emphasizes the importance of employee communication on the success of a business. An organization should thus recognize employees, more than any other variable, as powerful contributors to a company's competitive position</p> <p>5 Interactive control systems help managers integrate new data and learning into the decision-making process</p>	<p>F.Crutis barry & company, 2008</p> <p>Nitin vazirani, 2008</p> <p>Vince Kellen, 2008</p>
Organizational performance	<p>1 Effective inventory management is the single most important tool to improve customer service</p> <p>2 Successful organizations show respect for each employee's qualities and contribution – regardless of their job level</p> <p>3 Social responsibility of business refers to all such duties and obligations of business directed towards the welfare of society. These duties can be a part of the routine functions of carrying on business activity or they may be an additional function of carrying out welfare activity.</p> <p>4 Social responsibility is a voluntary effort on the part of business to take various steps to satisfy the expectation of the different interest groups.</p> <p>5 Employee stewardship is an opportunity exists for ensuring high employee morale and customer satisfaction, an increase in employee and customer retention rates, and a positive long-term outlook for the company's successful performance.</p>	<p>F.Crutis barry & company, 2008</p> <p>Nitin vazirani, 2008</p> <p>Milton friedman, 1970</p> <p>Barbara J. Fretwell,2002</p>