

**A SURVEY OF THE RELATIONSHIP BETWEEN INFORMATION SHARING AND
FIRM PERFORMANCE AMONG LARGE MANUFACTURING FIRMS IN NAIROBI**

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**A Management Research Project For the Partial Fulfillment of the Requirement Of The
Degree Of Master Of Business Administration (MBA), School Of Business, University Of
Nairobi.**

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DECLARATION

This research project is my original work and has not been presented for an award of a degree in any other university

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Date

20/11/2009

This research project has been submitted for examination with my approval as the university supervisor.

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DEDICATION

To my husband, Yobesh Ontiria and our Children Tina, Diana, Tanya and Dexia, my
Staunch Critics, admirers and in the center of my life.

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To all of you THANK YOU

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ABSTRACT

Intensified competition and globalized markets have forced organizations to become increasingly dependent on information sharing for competitiveness and decision making. This study sought to determine the relationship between information sharing and firm performance. A sample survey was conducted on categorized large manufacturing firms in Nairobi.

The findings of the research revealed that information sharing is critical to the firms' competitiveness. Furthermore, information sharing was strongly related to performance objectives namely; market share, financials, effectiveness and efficiency and ability to change and innovate.

The study further found that a number of challenges influence information sharing. They comprise of; structural, cultural, individual as well as medium of transmission. The other finding was that, some manufacturing firms deliberately limit sharing of information and knowledge because of concerns about diverting or overloading employees' work-related attention, and a perception that their employees can become so powerful that the firm loses control of them.

The study concluded that information sharing should be encouraged for long term competitiveness and improved performance. Although many companies are reluctant to share information, this study recommends it since sharing information creates a sense of trust among employees which is likely to increase productivity.

Whereas this study was limited on sample size, the research findings concur with prescriptive literature, and recommends future research to investigate information sharing and organizational culture as well as challenges of information sharing and measures to overcome them.

CHAPTER ONE: INTRODUCTION

1.1 Background

Human Resource Management (HRM) response to environmental and business strategic change has been analyzed in terms of generic HRM practices (Walton, 1985). Employee commitment, work force flexibility, adoptability and high quality workforce are part of HRM practices that have responded to changes in the environment. Growth in flexible work systems is a reflection of change in labour market and an aspect of HRM strategy that is involving a greater ability by the employer to disperse certain workers when strictly essential to production process.

According to Thite (2004, today's environment is discontinuous and hypercompetitive. The past no longer guides the future and the only sustainable competitive advantage is the ability of the organization to continuously innovate successfully and swiftly, converting knowledge into commercial products and services. In this case, human resource practices need to involve the creation, sharing and utilization of knowledge which is central to sustainable competitive advantage. In discussing the approaches of HRM responses, the generic functions of HRM have provided the basis of formulating measurable criteria to which to assess human resource practices and processes in organizations.

1.1.1 Information Sharing

Information sharing refers to the mutual sharing of business and market information between exchange partners. Vlachos (2008) observes that information sharing is a key ingredient for organizations seeking to remain competitive. As customers demand faster, higher quality responses from companies, firms move towards information technology to make this possible. Information management is a major factor that contributes to organization objectives and goals. Without information, people cannot act responsibly and trust is built by sharing information. Furthermore, employees will take risk only in a culture of trust. According to Coffey *et al.* (1994) the manager who shares information, authority, resources and accountability within employees and treats them as partners is likely to get good performance results.

1.1.2 Performance

For years Human Resource (HR) professionals have yearned for evidence to show that people were really the most important asset a company had, and that HR practice delivered in terms of organizational performance. Studies done on 100 small manufacturing enterprises (SME's) by the Institute of Personnel and Development in the UK (IPD, 1998) on how people management is critical to business performance, found that effective people management accounted for 19 per cent of the variation in profitability. In similar studies done in America (Huselid, 1995), demonstrate that progressive HRM practices produced a significant amount of return. A one percent standard deviation increase in such practices is associated with a 7.05 per cent decrease in labour turnover and, on a per employee basis, \$27,044 more in sales and \$18,641 and \$3,814 more in market value and profits respectively. Huselid (1995) further notes that individual work practices have no effect on performance but the adoption of a coherent and integrated system of innovative practices, including flexible job definitions, flexible work systems and extensive labour-management communication, substantially improve productivity and quality outcomes.

1.1.3 Information Sharing and Performance

In the current information driven and technological based global economy, organizations are becoming increasingly dependent on the cumulative knowledge of their employees, suppliers, customers, and other stakeholders. An organization's ability to share this knowledge among organizational members is key to its competitive advantage. An important rationale for firms to join a business network is to share information and other complementary resources because the problem of information deficiency is considered to be an obstacle to enhancement of a firm's capabilities.

Information sharing has three key performance benefits. First, sharing information with business partners not only enhances a firm's capabilities but also improves its comparability with its partners. Enhanced capabilities put firms in much better positions to neutralize and defeat competitors in the market place. Gulati (1998) argued that rich information exchange in a business network could lead to greater cooperation and joint activities between the partners which translate into concrete performance benefits for firms that form such ties. Second,

information sharing between buyers and suppliers can help the latter to not only solve technical problems, but also to better fulfill the requirements of the former. Richer and more knowledge can be used to upgrade products and increase customer specifications.

Third, information sharing can reduce asymmetry and the potential for opportunism. This in turn reduces transaction costs. A high degree of information sharing reduces information asymmetries, thereby reducing contacting and monitoring costs because both parties are negotiating with similar information (Dyer, 1997). Organizations that encourage information sharing have been found to gain competitive advantage in the long term (Wagner, 1997). Knowledge has become an important foundation of competitive advantage and a primary driving force behind an organization's success.

Information sharing is not in isolation to the challenges of technology (Peters, 1992). Organizations deliberately limit sharing of information and knowledge because of the risks associated with industrial espionage and concerns about diverting or overloading employees' work-related attention. Individuals are also likely to withhold information from others if they perceive that sharing such information will lead to their loss of power, position or influence (Burt, 1992). Invisible barriers such as security, politics, regulations, and management decisions cripple seemingly simple act of sharing information in organizations.

Organizational structure and individual positions within the organizations may be barriers to information sharing. Lack of equity among organizational members makes it difficult for the exchange of information to occur. The medium used in sharing information may also be a source of problems rather than the willingness to share information among organizational members. Burt and Furu (2008) explain that, information providers with higher levels of expertise are more likely to believe fewer others would provide the right information. At the same time, information seekers with less expertise are likely to believe that the information provided will solve their problems.

1.1.4 Manufacturing firms in Kenya

Kenya's manufacturing firms are diverse in terms of products that they are engaged in, as determined by the number of employees. These firms are small, medium, or large.

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1.1.4 Manufacturing firms in Kenya

Kenya's manufacturing firms are diverse in terms of products that they are engaged in and size as determined by the number of employees. These firms are small, medium, or large. Whereas

these firms engage in production of a wide range of products, food and beverage, metal, engineering and textile firms' account for 63% of manufacturing value added (GOK, 2007). The Kenya Association of Manufacturers(KAM) annual report (2006) notes that improved power supply, increased supply of agricultural products for agro processing, favorable tax reform and tax incentives, more vigorous export promotion and bilateral trade incentives, are factors to take advantage of in the expanded market outlets through African Growth Opportunity Act (AGOA), Common Market for East African Community (EAC), arrangements which have resulted in a modest expansion in the sector by 1.4% in 2006 compared to 1.2% in (GOK,2005). However, the raising levels of poverty and the unfavorable growth in the economy caused by the political chaos after the disputed December 2007 elections has continued to inhibit growth in the sector as effective demand continues to decline and investment in the sector falls.

1.2 Statement of the problem

Globalization, customer expectations, greater competitive pressures, shorter cycle times are signals to a need for organisations to work differently. For organisations to compete successfully they must understand the process of learning, behavioral change, and performance improvement. These processes have been shown to occur in organisations that facilitate and promote information sharing among and between their members (Senge, 1990; Wu, 2008). The ability to adapt quickly stems from the ability to learn. That is, the ability to stimulate new ideas and to transfer those ideas to action faster than a competitor. According to Armstrong (1992), it is necessary for organizations to develop flexible structures, climate and systems that enable them to respond rapidly to the change.

Drucker (1993) conducted a study on ways to attract, retain and motivate employees and found that an information society and knowledge workers constitute the primary means by which firms compete. As knowledge becomes more central to competitiveness, the ability of individuals and organizations to learn becomes the primary means of winning. A growing number of studies on firm performance and information sharing have been carried out in the developed countries. In a detailed review, Sahin and Robinson (2002) found that information sharing is often considered a generic cure for supply chain ailments. The reported benefits of information sharing include improved ordering, better inventory allocation and improved order fulfillment. In his study on

the effects of managements' information sharing with the union on firm performance in Japan, Morishima (1991) found that information sharing had a positive association with productivity and profitability, and a negative association with labour cost. Roberts (1995) studied how information sharing affects profits in 3000 businesses throughout the world and found that sharing information was related to increased profitability. In a study of Fortune 1000 largest manufacturing and service companies on high-performance practices, Lawler, Moham and Ledford (1995) found information sharing was correlated with performance but the results were inconclusive.

Researches in Kenya have specifically addressed flexible work systems. In a study on flexible work practices and organizational performance among advertising agencies, Mbutia (2006) found that there was a strong relationship; but it depended on ownership of the agency. Foreign owned agencies had a positive and stronger relationship, whereas in locally owned agencies, the relationship was not significant. Rimberia (2001) conducted a study on flexible work systems in manufacturing firms and found that information sharing was among the widely used flexible human resource practices. She recommended that a further research on the specific flexible work practices be undertaken. There are no studies done on information sharing and firm performance in Kenya. This is particularly important given that Kenya is classified as high power distance country (Hofstede, 1980), implying that interaction and communication between and among employees at different levels of organizational hierarchy is limited. None of the above studies carried out in Kenya, has addressed a direct link between information sharing and firm performance. This study therefore sought to bridge this gap by exploring the relationship between information sharing and firm performance among large manufacturing firms in Nairobi. Moreover, this study sought to identify the barriers these firms face in enhancing information sharing practice.

1.3 Research Objectives

- (i) To determine the relationship between information sharing and firm performance.
- (ii) To identify the barriers faced by large manufacturing firms in information sharing.

1.4 Importance of the study.

This study will be useful to policy makers in organizations. It will also be useful to researchers and scholars in stimulating further research into other flexible human resource practices.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Growth in flexible working patterns is a reflection of change in labor market (Mayne and Tregaskis, 1996) and an aspect of HRM strategy that is involving a greater ability by the employer to disperse certain workers when not strictly essential in the production process. According to Guest (1989), employee commitment, workforce flexibility, adoptability and high quality workforce are part of HRM practices that have responded to changes in the environment.

2.2 Workforce Flexibility

Brewster et al (2000) provide a detailed analysis of the application of flexibility concept in organisations. They identify various forms of work flexibility options such as financial, skill and functional. Atkinson (1984), cited in Legge (1995a), defines flexibility in terms of functional, numerical and financial flexibility. Functional flexibility refers to a firm's ability to deploy employees between activities and tasks to match changing workloads, production methods or technology. It is associated with multiskilling which can be achieved by training employees in a wide range of skills. Numerical flexibility is concerned with enhancing firms' ability to adjust the level of labour inputs to meet fluctuations in output. It thus covers such practices as the employment of part-time, temporary or contract workers. Financial flexibility on the other hand refers to a firm's ability to adjust employment costs to reflect the state of supply and demand in the external labor market in a way that is supportive of the objectives set, by functional and numerical flexibility. Brewster (1998) observes that flexible workforce is an employment strategy that has emerged as a response not only to economical and technological factors but also to competitive pressures faced by firms. Such pressures necessitate the use of part-time and temporary employees to cut costs. It appears, therefore, that flexible patterns of work are central to development of the competitive advantage, through the development and redeployment of HR.

Flexible workforce consists of (Brewster *et al*, 2000): Outsourcing; employee training and development; empowerment; organizational culture; and information sharing. The adoption of flexibility as part of HRM strategy has several implications for both employers and employees. While flexible work patterns may be advantageous, employees are likely to be affected by

unequal treatment in terms of pay and benefits, reduced career opportunities, limited training opportunities, breach of the psychological contract and increased job security. However, it is also argued that flexibility presents advantages to employees such as introduction of flex-time. Some employees will also achieve increased skills and enhanced job prospects through functional flexibility. Brewster (1998) challenges the notion of flexibility as being at odds and contradictory to the HRM concept, which encourages high commitment, high performance and high competence as desirable values. He wonders how an organization can develop high committed and enthusiastic workforce when organizations commitment to them is limited.

2.3 Information Sharing

The sharing of information is associated with managers being open to mutual influence. The manager who shares information, authority, resources and accountability with employees and treats them as partners is likely to get good performance (Coffey *et al*, 1994). The new organization paradigm (Brynjolfson, 1990) is indeed intertwined with the structure of the information systems. Under the old paradigm, firms were governed by a relatively rigid functional structure. This separation into distinct and well defined organizational units economizes on the information and communication requirements across functional units and reduces cost and complexity.

Miller (1987) foresaw the features of the new paradigm as a natural outcome of an informational error and the associated economy of choice. The new technologies will allow managers to handle more functions and widen their span of control. Pure management hierarchy will be required to enable companies to flatten the pyramid of their management structures. New information technologies will allow decentralization of decision making without loss of management awareness thus making it possible to encourage employees at all levels to be more creative and entrepreneurial.

Moberg *et al* (2002) observe that information sharing is a key ingredient for organizations seeking to remain competitive. The understanding and practice of information sharing is becoming increasingly essential for organizations to stay competitive and boost profitability. The free flow of information relates to the movement of information or data between members of an

organization. Most discussion of information sharing and knowledge management makes a distinction between data, information, and knowledge. Miller and Morris (1999) for instance, define knowledge as the intersection of information, experience and theory. This can be extended to include wisdom, which might be defined as successful application knowledge. This kind of knowledge is often tacit in nature. Cook and Brown (1999) distinguish organizational knowledge from organization knowing. They hold that knowledge is something that an individual possesses as epistemology of possession. Knowing is characterized as epistemology of practice.

2.4 Information sharing and Performance

Sharing information may have a dual effect. First, it conveys to employees the positive meaning that the company trusts them. Second, in order to make informed decisions, employees should have access to critical information. Communicating performance data on a routine basis throughout the year help employees to improve and develop. Employees presumably want to be good at their jobs, but if they never receive any performance feedback, they may perceive to have a satisfactory performance when in fact they do not. Furthermore, information sharing fosters organizational transparency which reduces turnover and forges synergistic working relationship among employees. Burgess (2005) studied employee motivations for knowledge transfer outside their work unit and found that employees who perceived greater organizational rewards for sharing knowledge go beyond their immediate work group. However, a significant percentage of employees perceived knowledge as a means of achieving upward organizational mobility.

Developing positive information sharing behaviors will lead to increased productivity among workers (Teece, 2000). An organization can speed up information flow, improve efficiency and effectiveness, and respond to customers' changing needs faster when information sharing is encouraged. Organizations that encourage information sharing have been found to gain competitive advantage in the long term (Wagner, 2006). Knowledge has become an important foundation of competitive advantage and a primary driving force behind an organization's success. Contextual factors such as industry type, organization size, and type of organizational structure may influence the quality of information being shared. For example, hierarchical

structures often result in information overload due to restrictions on acquisition of new information and rules that lead to bureaucratic red tape, causing delays in decision making.

Useful information and knowledge reside within individuals who create, recognize, achieve, access, and apply information in carrying out their tasks. The movement of information across individual and organizational boundaries into organizational routines and practices is dependent on employees' information sharing behaviors. Limited information sharing across an organization is most likely to result in information gaps. Information exchange within organizations generally involves networks of organizational members. Members with high intensity networks are more likely to access higher-quality information than those with lower-intensity networks. Information may be acquired from direct experience, the experiences of others, or organizational memory.

Increasingly what is required today, is initiative, flexibility and innovation; thus commitment based on identification and internalization, where employees understand the right to do issues and do them without formal control is necessary (O'Reilly, 1989). Employees need to be communicated to for a common purpose and comes, from genuine employee involvement and in creating the shared values of corporate culture. Empowerment from the perspective is, an act of building, developing an increasing power through cooperating, sharing and working together. Rothstein(1997) suggests that technological improvement in communications are key to employee empowerment and works best when there is an emphasis on organizational learning which incorporates the sharing of information. In an empowered organization, employees are able to fully participate as partners. They take initiative, work as a team as well as individuals and have the authority to make strategic decisions.

In a study on information sharing and firm performance in Japan, Morishima(1991) argues that firm profitability and labor's share is lowered if information sharing enables management to obtain cooperation from the union and the employees. This is especially likely when, by sharing information, management succeeds in aligning the goals of the union and the employees with those of the firms. When information is provided voluntarily by management, employees may develop greater trust in firm management, making cooperation with management likely. More importantly, if information provided by management can convince employees that good firm

performance is to their benefit, they are less likely to demand a share of the firm's profit large enough to jeopardize firm performance. Employees may also perceive that when wages are kept at the competitive level, the firm is more likely to remain competitive in the product market, which in turn makes it possible for the employees to maintain the level and quality of their current employment. This argument suggests a positive relationship between information sharing and profitability and a negative relationship with labor's share.

When information sharing leads to alignment of goals, employee productivity is also expected to be higher since employees are less likely to shirk and may be motivated to work harder. In addition, labor cost will be further reduced since firms may be able to spend less on monitoring employee behavior and motivating employees. When employees are aware that their shirking hurts firm performance and jeopardizes their own employment conditions, they are more likely to exercise self-supervision even in the absence of compensation premiums. Similarly, organizational researchers have argued that compensation can motivate employees and improve productivity (Lawler, 1981). When employees see that improvement in the quality of their employment as a function of firm performance; they may be motivated to improve firm performance even without the motivation provided by extra compensation

2.5 Barriers to Information Sharing

Some organizations deliberately limit sharing of information and knowledge because of the threats associated with industrial espionage and concerns about diverting or overloading employees' work-related attention (Morishima, 1999). Individuals are also likely to withhold information from others if they perceive that sharing such information will lead to their loss of power, position of influence, or promotion (Drake *et al.*, 2004). For organizations to compete successfully, they must understand the processes of learning behavioral change, and performance improvement. These processes have been shown to occur in organizations that facilitate and promote information sharing among and between their members (Senge, 1990) Information sharing is a three-stage process: information acquisition, information dissemination and interpretation of the information (Drake *et al.*, 2014).

Invisible barriers such as security, politics, regulations, and management decisions cripple the seemingly simple act of sharing information in organizations. The global acceptance and success of the internet, for instance, has been due in part to the advantages of shared information. Government, business and society benefit from removing barriers that slow or prevent information exchange (Olivia, 2005). Several barriers have been shown to affect information sharing. Most of them are related to the use of organizational systems, the interest of organizations in knowledge sharing, relationships between organization members, and how information and knowledge are treated as assets (Drake *et al*, 2004; Olivia, 2005)

Organizational structure and individual positions within organizations may be barriers to information sharing. Lack of equity among organizational members makes it difficult for exchange of information to occur. Ibara and Andrews (1993) observed that, social network and information processing theory was developed to explain people's attitude, perceptions and beliefs concerning organizational phenomena. Attitudes and perceptions are socially constructed. According to this theory, the social environment provides cues that make certain dimensions of the workplace more desirable in furnishing information on other people's evaluations of those dimensions. Thus, the social environment determines in large part the effectiveness of information sharing among organization members.

Sharing information using databases is often viewed as mediated sharing, since the database acts as a medium from which people later retrieve information. This requires organization members to exhibit responsible behavior in all their communications in order to contribute to the information exchange process. Organizational social structure is very important to information sharing among organizations members. Users of information also need motivation to initiate a database search (Draker *et al*, 2004). The medium used in the sharing of information may also be a source of problems rather than the willingness to share information among organization members. Barua *et al* (2007) observed that people may be willing to share information, but the effort of using technology to do so may be too great. Information sharing also requires support by the organization in terms of requisite social structures.

Another problem of information sharing in organizations can be linked to what Tucker *et al* (1996) refer to as the 'lack of theoretical relationship between organizational communication and

process and the development of internal strategic capabilities'. They argue that, there are two levels of knowledge that reside within the organization: knowledge that resides within the individuals in the organization and knowledge that exists at the collective level is easily shared among and between organization members. Information at the individual level is more difficult to access, especially in organizations with rigid structures. Organizations that support both formal and informal communication systems encourage information sharing among their members. The opposite is true for organizations that are traditional and have tall organizational structures.

An individual difference in levels of knowledge is another barrier to information sharing among organization members. Hatalla and Lutta (2009) explain that information providers with higher levels of expertise are more likely to believe fewer others would provide the right information. At the same time, information seekers with less expertise are likely to believe that the information provided will solve their problems. People who are more knowledgeable also perceive that they personally own the knowledge, and their propensity to share is higher. Having more knowledge to share than others, knowledgeable people may feel less threatened by sharing since the knowledge supply is not greatly diminished by each act of sharing. Demographic factors such as diversity can also be barriers to information sharing in organizations.

Another factor that is likely to influence information sharing is copying. Sharing a copy leaves the originator in his or her original state less the cost of sharing, which can reduce, increase, or leave unchanged the value information. Not losing ones' own possession of information seems likely to lower the barrier to information sharing. It must also be recalled that people do not participate fully and/or equally in information sharing activities. Furthermore there are costs associated with sharing, such as loss of exclusivity to information and investment of time and effort for sharing. It is therefore important for organization members to be provided with some positive motivation beyond the barrier reduction to participate in information sharing.

Without information people cannot act responsively. Trust is built by sharing information. Furthermore, employees will take risks in a culture of trust (Randolph, 1995). Some managers fear losing their control if they share their information so they may take the language of empowerment but do not put into action. In addition, some employees seek to avoid decisions

when they realize that they will be held accountable. According to Agyres (1994), information is attitudinal. Some organizational members resort to defensive reasoning tactics in order to avoid vulnerability, risk embarrassing and appearance of incompetence. This can be attributed to the difference between what they speak and what they practice. Little do they realize that by sharing knowledge they become recognized people who have expertise in a particular area and make contributions?

White (2004) argues that, with competitive pressures organizations are realizing the importance of tacit knowledge hidden in the minds of individuals and try to tap it through delaying jobs, empowerment and team structures. Organizations should intervene by instilling new necessary skills and create conducive and motivating atmosphere for employees to fully share knowledge.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Research design

A sample survey research design was used in this study. Wilson (2003) has suggested sample surveys in studies of relationship among variables because they are appropriate in making comparisons across the elements of the population.

3.2 Target Population

The target population comprised of large manufacturing firms in Nairobi. As at 1997, there were 1027 manufacturing firms in Nairobi, of which 131 were large. Our target respondents were Human resource managers or their equivalents in these firms.

3.3 Sample size

A disproportionate stratified random sampling technique was used to select a sample size of 40, by dividing the size of the category by the total, obtaining the proportion and then multiplying by the sample size as described in Table 3.1. This was considered adequate in this study because 40 are well above 30 that have been recommended as the minimum sample size for surveys (Saunders *et al*, 2000). In similar studies (Mbutia, 2005; Rimberia, 2001) used sample sizes of 30 and 60 respectively. The classification and sample selection is presented in Table 3.1

Table 3.1 Sampling Procedures

Category	Total number	Proportion (%)	Sample size
Agro processing	25	19.0	8
Textiles	16	12.2	5
Wood and wood products	27	20.6	8
Industrial chemicals	23	17.6	7
Non-metallic mineral products	9	6.9	3
Machinery and equipment	25	19.1	8
Others	6	4.5	1
Total	131	100	40

(Source, KIRDI, 2007)

In determining the size of a firm, several different measures have been used. They include net assets value, turnover and number of employees in the firm, capital employed, volume of sales turnover, level and type of technology used. For the purpose of this study we shall use the number of employees to determine the firm's size. Large manufacturing firms are those employing more than 100 staff (KIRDI, 1997). The KIRDI directory provides the classification into a size class code and the number of employees as shown in Table 3.2 (Appendix II). This criterion will be used because the list (names) of the firms constituting the population of study is easily obtainable from the Kenyan Central Bureau of Statistics (CBS) library.

3.4 Data collection

Data was collected through a structured questionnaire. The questionnaire was divided into two parts: Part I was used to collect information on the general profile of the firms and Part II targeted data on information sharing, performance, and barriers of information sharing. The questionnaire was first pilot tested on a small sample of 10 respondents to ensure its appropriateness. It was administered to Human resource managers or their equivalents using the 'drop and pick later' method after establishing contact on telephone. This method ensured a high proportion of usable response and high return rate (Muthia, 2005; Rumberia, 2001).

3.5 Data Analysis

Data was analyzed using descriptive and inferential statistics. In part 1, use of frequency and percentages was employed to establish the number and proportion of firms employing information sharing. A Chi-square (χ^2) test of independence at 5 % level of significance was used to establish if there was any relationship between information sharing and firm performance. Factor analysis was used to analyze data on barriers to information sharing. Results were presented in tables and charts. Open ended questions for qualitative data were analyzed using content analysis of the respondent narratives.

CHAPTER FOUR: DATA ANALYSIS AND FINDINGS

4.1 Introduction

This chapter gives a detailed analysis of the data collected and presents the findings. Data has been analyzed and presented in form of frequency tables, percentage, means and standard deviations. The first part presents a general understanding of the respondent firm in frequency tables and charts. The second part presents an analysis of information sharing and firm performance. Mean scores were used to determine the extent to which expanded aspects of information sharing were practiced. Barriers to information sharing were identified on a 5-point likert scale ranging from 'Not at all' (1) to 'Very great extent' (5) questions. Standard deviations were used to determine the varying degree of the specific information sharing practices. A chi-square test was used to determine the relationship between information sharing and firm performance.

4.2 Response rate

A total of 37 responses out of the 40 surveyed large manufacturing firms in Nairobi were received. This represented a response rate of 92.2%.

4.3 Profile of large manufacturing firms

This section analyses the type of large manufacturing firms surveyed, the number of years they have been in existence and their staffing levels. The data has been analyzed using the frequency tables. The findings are summarized in Table 4.1 and Table 4.2 respectively.

Table 4.1: Number of years in operation

Number of years of existence	Frequency	Percentage (%)
Less than 10 years	3	8.1
From 10 to 20 years	12	32.4
More than 20 years	22	59.5
Total	37	100

Table 4.1 shows that 59.5% of the firms have been in existence for over 20 years, 32.4% have been in existence from 10 to 20 years. Only 8.1% of the firms surveyed had been in operation in less than 10 years.

Table 4.2: Distribution of firms by number of employees

Number of employees	Frequency	Percentage (%)
Less than 100	15	40.5
From 101 to 200	10	27.0
From 201 to 500	4	10.8
Over 500	8	21.6
Total	37	100

Table 4.2 indicates that 40.5% of the surveyed firms had less than 100 employees, 27% of the firms had a number of employees ranging from 101 to 200 employees, 10.8% had from 201 to 500 employees, while 21.6% of the firms had employment levels in excess of 500.

4.4 Importance of Information sharing aspects.

A 5-Point likert scale was used to determine the extent to which information sharing aspects were practiced by the firms. Data was analyzed using mean scores and standard deviations. The findings are represented in Table 4.3

Table 4.3: Extent of practice of Information sharing by type of information

Type of information sharing	Mean	Standard deviation
Information Sharing	3.58	0.898
Sharing authority	3.35	0.789
Use of technology communications	3.84	0.834
Access to publications, conference proceedings & reports	3.41	1.14
Easy & quick flow of information organization wide	4.00	0.707

It is evident from table 4.3 that manufacturing firms to employed the use of technology communications to a larger extent to facilitate the flow of information across and along departments. Publications, meetings and conferences were used to a little extent (mean = 3.41) to access information. The results showed a significant variation in responses when using publications, meetings & conferences. The variation was insignificant with regard to other information sharing. This implied that, manufacturing firms significantly employ information sharing, which contradicted Morishima (1991) who argued that information sharing is not as widespread a human resource practice.

4.5 Importance of different aspects of Information Sharing

On a scale of 1 to 5, where 1=Not at all, 5=Most important, respondents were asked to rate the importance of information sharing practices. The findings are shown in Table 4.5

Table 4.4: Importance of information sharing aspects

Information sharing aspect	Mean	Standard deviation
Information Sharing	3.49	1.17
Sharing authority	3.38	0.893
Use of technology communications	3.73	1.04
Access to publications, conference proceedings& reports	3.51	1.12
Easy & quick flow of information organization wide	4.00	1.00

The results revealed that the sharing of authority (mean=3.38) and information sharing (mean=3.49) were lesser important practices. Employment of technology communications (mean=3.7), access to publications, conferences and meetings (mean=3.51), and the flow of information across and along departments (mean=4.00) were more important factors. There were greater variations among the responses as shown by the standard deviations with regard to information sharing (S.D=1.17), use of technology (S.D=1.04), and the flow of information organizational wide (S.D=1.00). The variation among in responses was insignificant in regard to sharing of authority (S.D=0.893).

4.6 Information Sharing and Firm Performance

Information sharing helps firms achieve some performance benefits. Respondents were asked to rate ability to change, financial goals, market share, efficiency and effectiveness as some of the objectives or outcomes that are result from information sharing. The results are presented in Table 4.5

Table 4.5: Information Sharing and Performance objectives

Performance objectives	Mean	Standard deviation
Ability to change and improve	3.92	0.862
Financial goals	3.82	1.10
Market share	3.65	1.12
Efficiency and effectiveness	3.86	1.00

The results indicate that information sharing helps firms to a greater extent to achieve objectives related to: ability to change and improve (mean=3.9), financial goals (mean=3.8), market share (mean=3.7), efficiency and effectiveness (mean=3.86) respectively. The variation among responses was greater for performance objectives related to market share, financials as well as efficiency and effectiveness

4.7: Measures of Performance

On a scale of 1 to 5, where 1=Not at all, 5=Very great extent, respondents identified the extent to which firms employ the performance measures related to ability to change and improve, financials, efficiency and effectiveness and market share. The findings are shown in Table(s) 4.6(a), 4.6(b), 4.8(c) and 4.6(d) respectively.

Table 4.6(a): Measures of change and Improvement

Indicators	Mean	Standard deviation
Employee turnover	4.00	1.00
Revenue per employee	3.54	0.96
Amount of new ideas	3.65	1.06
improvement suggestion on products	3.70	1.07

The respondents were in agreement that their organizations used the following measures related to ability to change and improve to a great extent. However the variation in response revealed by the standard deviation was greater with regard to amount of new ideas, improvement suggestions and employee turnover.

Table 4.6(b): Financial Measures/ goals

Measures	Mean	Standard deviation
Profits	3.92	0.954
Cost efficiency	3.94	0.924
Sales growth	4.02	0.971

The financial goal indicators were used to a great extent and the variation in the responses were insignificant as revealed by the standard deviation. Implying that, although their limitations, financial measures still remain reliable in performance measurement (Kaplan and Norton, 1992)

Table 4.6(c): Measures of Efficiency and Effectiveness

Measures	Mean	Standard deviation
% of sales from new products	3.78	0.97
% of manufacturing costs	3.86	1.00
Number of late deliveries	3.39	1.13
Average cost per order	3.46	0.80

Source:

It is evident from table 4.6(c) that, to a greater extent firms measured their efficiency and effectiveness using percentage of new products sales and percentage of manufacturing costs. To a lesser extent, did they use number of late deliveries and average costs per order in determining their efficiency and effectiveness? The variation in the responses was however greater with the number of late deliveries as a measure of efficiency and effectiveness.

Table 4.6(d): Measures of Market Share

Measures	Mean	Standard deviation
Number of customer complaints	3.35	1.11
Number of new customers	3.00	1.18
Customer retention levels	2.97	0.897
Repeat custom	3.32	1.00

Table 4.6(d) shows that to a lesser extent do firms use the number of customer complaints, number of new customers and repeat custom as measures of market share objectives. The variation in the responses was significant.

4.8 Relationship between Information Sharing and Firm performance

For a subset of dependent variables a grouping of measures were performed to test relationship between performance measures and information sharing. The findings are presented in Table 4.7

Table 4.7: Significance of performance measures in relation to information sharing

Measure	Chi-square	df	Asymp. Significance
Employee turnover	35.297	4	0.000
Revenue per employee	19.622	4	0.001
Amount of new ideas	15.297	4	0.004
Improvement suggestion on products	16.378	4	0.003
Profits	20.973	4	0.000
Cost efficiency	10.444	3	0.015
Sales growth	10.444	3	0.015
% of sales from new products	18.571	4	0.001
% of manufacturing costs	28.270	4	0.000
Number of late deliveries/production	8.444	4	0.077

Average cost per order	33.676	4	0.000
Number of customer complaints	9.351	4	0.053
Number of new customers	5.568	4	0.234
Customer retention	9.811	3	0.020
Repeat custom	18.00	4	0.001

The results of information sharing and firm performance show that information sharing is significantly related to performance measures objectives. Table 4.7 revealed p-values of greater than 0.05 in respect to the number of late deliveries, number of customer complaints and number of new customers whereas, the other measures had p-values of less than 0.05, implying a statistically significant relationship.

4.9 Barriers of Information Sharing

On a scale of 1 to 5, where 1=Not at all and 5=Very great extent, respondents identified a number of challenges to information sharing in their organizations. The findings are presented in Table 4.8

Table 4.8: Barriers to Information Sharing

Barriers	Mean	Standard deviation
Invisible barriers		
Security	2.92	1.04
Politics	2.81	0.98
Regulations	3.14	0.99
Organizational structures		
Positions	2.76	0.98

Inequity	2.70	1.02
Bureaucracy	2.68	0.944
Tall structures	2.58	1.07
Medium/ Platform used		
Notice boards	2.78	0.98
Letters	2.82	1.08
E-mails	2.72	1.08
Databases	2.76	0.796
Memos	2.94	0.924
Organizational communication support systems		
Formal i.e. at collective level	2.81	0.844
Informal i.e. individual	3.29	0.996
Individual differences		
Level of expertise	3.35	0.900
Demographic factors	2.95	1.05
Level of knowledge	3.60	0.946
Copying		
Loss of exclusivity to information	3.31	0.98
Lost time and effort	3.31	0.786
Management Control		

Fear of losing control	3.22	1.15
Loss of accountability	3.43	1.21
Risk of embarrassment	3.28	1.26
Risk of appearing incomplete	3.16	1.19

Table 4.8 shows that to a lesser extent information sharing influenced by invisible barriers, medium/platform used in communications, organizational communication systems and copying. Management of control factors to a lesser extent are barriers to information sharing. These findings are in congruence with Lawler *et al* (1995) argument that, although invisible barriers exist, they simply influence information sharing to a lesser extent. Many of the barriers of information sharing have been found related to the use of organizational systems. The interest of organizations in knowledge sharing as revealed by the level of expertise (mean=3.54) and level of knowledge applied (mean=3.6) infers that knowledge is treated as an asset. These findings are in congruent to Morishima (1991) argument that, the motivation for sharing information is more intrinsic and relies on subjective preference. Personal norms, organizational structure and individual motivation have been shown to influence information sharing to some extent.

CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the discussions, conclusions, recommendations, limitations and suggestions for further research. The chapter summarizes the findings of the study in relation to the objectives of the study. The first objective was to determine the relationship between information sharing and secondly, to identify the barriers faced by large manufacturing firms in information sharing.

5.2 Discussion

The discussions follow from the data analysis and conclusions are based on the research objectives. The study revealed that information sharing is a wide spread human resource practice among large manufacturing firms. Information sharing although widely regarded as one of the key benefits of social capital, it is also a significant antecedent of firm performance.

The study revealed that sharing information conveys to employees the positive meaning that the organization trusts them. Communicating performance data through all forums throughout the year helps employees improve and develop. As articulated by Wu (1999), employees presumably want to be good at their jobs but if they never receive any performance feedback, they are perceived to have a satisfactory performance when in fact they do not.

Information sharing fosters organizational transparency which increases turnover and forges synergistic working relationships among employees (Roberts, 1995). This study found that to a larger extent information sharing helps firms achieve objectives related to performance. Sharing information is considered a cure for performance ailments. The reported benefits of sharing information include: increased sales, efficiency and effectiveness, increased market share, increased employee retention ratios and better resource allocation

This study concurred with Cummings (2004) research, which reported that sharing information on either routine operations need or on customer needs is associated with higher manufacturer performance. This study revealed that sharing information is strongly associated with all performance perspectives

The study revealed that several barriers affect information sharing. Most of them are related to the use of organizational systems, organizational structure, and medium of communications, individual differences and management control. Although information sharing can lead to unexpected spillovers or leaks that work against expected performance, the study found that knowledge sharing in terms level of expertise and level of knowledge applied contributed to knowledge management. Consequently wide channels of communications and individual motivations of exchange helps to minimize the opportunistic invisible barriers and encourages information sharing which leads to improvement in firm competitiveness.

Andrews (1993) observed that information sharing was influenced by people's attitudes, perceptions and beliefs concerning organizational phenomena. This study found that to a lesser extent are demographic factor barriers and as part of individual differences do not confirm that information providers with higher levels of expertise are more likely to believe fewer others would provide the right information.

5.3 Conclusion and recommendations

For organizations to compete successfully, they must understand the process of learning behavioral change, and performance improvement. These processes have been shown to occur in organizations that facilitate and promote sharing of information among and between their members.

This study concludes that, organizations that encourage information sharing have been found to gain long term competitive advantage. Continuous dissemination of new information to key individuals within organizations is likely to lead to improved performance since timely and quality information helps top management in decision making.

The results of this study tend to support the prescriptive literatures (Morishima, 1991; Roberts, 1995), who have argued that, information sharing is related to performance in all perspectives. This study further concludes that although, many companies are reluctant to share critical information with their employees because they might become more powerful and may lose control of them, information sharing conveys to employees the positive meaning that the company trusts them and they can make informed decisions.

This Study further conclude that, information sharing needs and behaviors in an organization have been found to be driven by characteristics of the organizational culture and its subcultures as equally postulated by Hofstede (1980).

5.4 Limitations

The scope of the study was limited to large manufacturing firms in Nairobi. However because of the small sample size used for this study (N=40), the conclusions are therefore limited. The small sample size further limits generalizing the research findings.

5.5 Suggestions for further research

Because of the inadequacy of generalizability, a similar study on a larger scale should be conducted to enhance the validity of the findings. Future research can also examine the challenges of information sharing and measures to overcome it. Furthermore, further research can also examine the influences of organizational culture and subcultures on information sharing.

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APPENDICES

Appendix 1

Questionnaire

Please answer the following questions by placing a mark (✓) in the appropriate box or by giving the necessary details on the provided spaces. The information given will be strictly confidential and only used for the purpose of this research.

PART 1: RESPONDENT PROFILE

1. Name of the Company _____

2. Please indicate by ticking (✓) the sector classification of your firm.

Agro Processing	
Textiles	
Wood and Wood Products	
Industrial Chemicals	
Non-Metallic mineral Products	
Fabricated Metal Products	
Machinery and Equipment	
Others(Please specify)	

3 For how long has your firm been in existence?

Less than 10 years	
From 10 to 20 years	
More than 20 years	

4. Indicate the total number of employees in your firm (tick the appropriate row)

Less than 100 employees	
From 100 to 200	
From 201 to 500	
Over 500	

PART II: INFORMATION SHARING AND FIRM PERFORMANCE

5 On a scale of 1-5 where, 1=Not at all; 2=Very little extent; 3= Little extent; 4=Great extent;5= Very great extent, indicate the extent to which the following information sharing aspects are practiced in your organization.

Sharing of information	1	2	3	4	5
Sharing of authority	1	2	3	4	5
Employ the use of technology communications	1	2	3	4	5
Access to publications, conferences, meetings, projects and industry	1	2	3	4	5
Easy and quick flow of information across and along departments	1	2	3	4	5

6 On a scale of 1-5 where 1= Not at all; 2= Somewhat important; 3=Important; 4= important and 5=Most important, indicate the extent to which the following information practices are considered important in you organization.

Sharing of information	1	2	3	4	5
Sharing of authority	1	2	3	4	5
Employ the use of technology communications	1	2	3	4	5
Access to publications, conferences, meetings, projects and industry	1	2	3	4	5
Easy and quick flow of information across and along departments	1	2	3	4	5

7 On a scale of 1-5 where, 1=Not at all; 2=Very little extent; 3= Little extent; 4= Great extent; 5= Very great extent, indicate the extent to which information sharing in your firm help in achieving objectives related to the following.

Ability to change and improve	1	2	3	4	5
Financial goals	1	2	3	4	5
Market share	1	2	3	4	5
Efficiency and effectiveness	1	2	3	4	5

8 On a scale of 1-5 where, 1=Not at all; 2=Very little extent; 3= Little extent; 4= Great extent; 5= Very great extent, indicate the extent to which your firm uses each of the following measures of performance.

Ability to change and improve					
i) Employee turnover	1	2	3	4	5
ii) Revenue per employee	1	2	3	4	5
iii) Amount of new ideas	1	2	3	4	5
iv) improvements suggestion on products	1	2	3	4	5
Financial goals					
i) Profits	1	2	3	4	5
ii) cost efficiency	1	2	3	4	5
iii) Sales growth	1	2	3	4	5
Efficiency and effectiveness					
i) % of sales from new products	1	2	3	4	5
ii) % of manufacturing costs	1	2	3	4	5
iii) No. of late deliveries/ production	1	2	3	4	5
iv) Average cost per order	1	2	3	4	5
Market share					
i) Number of customer complaints	1	2	3	4	5

ii) Number of new customers	1	2	3	4	5
iii) customer retention	1	2	3	4	5
iv) Repeat custom	1	2	3	4	5

9 On a scale of 1-5 where, 1=Not at all; 2=Very little extent; 3= Little extent; 4=Great extent; 5=Very great extent, indicate the extent to which the following factors are barriers to information sharing in your organization.

a) Invisible barriers					
i) Security	1	2	3	4	5
ii) Politics	1	2	3	4	5
iii) Regulations	1	2	3	4	5
b) Organizational structure					
i) Positions	1	2	3	4	5
ii) Inequity	1	2	3	4	5
iii) Bureaucracy	1	2	3	4	5
iv) Tall structures	1	2	3	4	5
c) Medium / platform used					
i) Notice boards	1	2	3	4	5
ii) Letters	1	2	3	4	5
iii) E- Mails	1	2	3	4	5
iv) Databases	1	2	3	4	5
v) Memos	1	2	3	4	5
d) Organizational communication support systems					
i) Formal i.e. at collective level	1	2	3	4	5

ii) Informal i.e. individual level	1	2	3	4	5
e) Individual differences					
i) level of expertise	1	2	3	4	5
ii) Demographic factors i.e. age, region, social group	1	2	3	4	5
iii) Level of knowledge	1	2	3	4	5
f) Copying					
i) Loss of exclusivity to information	1	2	3	4	5
ii) Lost time and effort	1	2	3	4	5
g) Management Control					
i) Fear of losing control	1	2	3	4	5
ii) Loss of accountability	1	2	3	4	5
iii) Risk of embarrassment	1	2	3	4	5
iv) Risk of appearing incomplete	1	2	3	4	5

10. State briefly your suggestions for improvements on information sharing within your organization.

Appendix II.

LIST AND CLASSIFICATION OF LARGE MANUFACTURING FIRMS IN NAIROBI

Table 3.2 Classification of large Manufacturing Firms

Size Class Code	Number of Employees
A	5-19
B	20-29
C	50-99
D	100-199
E	200-449
F	Over 500

Source: Kenya Directory of Manufacturing Industries. (KIRDI, 1997)

Cross checking of the firms still in operation will be done using the more recent Kenya Association of Manufactures Directory (2008) and a listing of manufacturing firms in Nairobi obtainable from the Central Bureau of statistics.

List of large Manufacturing Firms in Nairobi

1	Kenya Co-operative Creameries	2	Highland Canners
3	Micfoods Executive Industries (K) Ltd	4	Trufoods
5	Dubois Mills & Soap Manufacture Ltd	6	Pembe Flour Mills Ltd
7	Unga Maize Millers Ltd	8	Elliot's Bakery Ltd
9	House of Manji	10	Jambo Biscuits
11	Zahra Industries Ltd	12	Kenafic Industries Ltd
13	Brooke Bond (K) Ltd	14	Deepa Industries Ltd
15	Kenya Planters CO-Op Union	16	Nestle Foods (K) Ltd

17	Proctor and Allan Ltd	18	Unga Feeds Nairobi
19	Kenya Breweries	20	Kuguru Food Complex Ltd
21	Umoja Manufactures Ltd	22	Cadbury Schweppes(K) Ltd
23	Coca Cola (Mid Africa) Ltd	24	Nairobi Bottlers Ltd
25	East Africa Fine Spinners	26	Kenwood Enterprises Ltd
27	Kenya Toray Mills Ltd	28	Sunflag Textiles & Knitwear
29	Tigra Knit Ltd	30	United Textile Industries(K) Ltd
31	Bonar(EA) Ltd	32	Midco Textile (E.A) Ltd
33	Cordag,Rope & Twine Industries	34	Pleated Industries(K) Ltd
35	Premier Knitwear Ltd	36	United Manufacturers Ltd
37	Kamiti Tanners(K) Ltd	38	Orbits Sports Ltd
37	Afrolite Industries Ltd	39	Tiger Shoes Company Ltd
40	Timsales Ltd	41	Baumann Kenya Ltd
42	Panesar Industries	43	Project Furniture Ltd
44	SilentNight (K) Ltd	45	Tobina Ltd
46	Universal Metal Enterprises	47	VitalFoam Ltd
48	Madhupaper International Ltd	49	Amalgamated Industries Ltd
50	Carton Manufactures	51	East African Packaging Industries
52	Accounting Business Methods	53	Aerad Lithographic Printers
54	D.I.Patel Press (K) Ltd	55	English Press Ltd
56	General Printers Ltd	57	Kenya Litho Ltd
58	Kul Graphics	59	Printing & Packaging Corp. Ltd
60	Print Pak	61	Taws Ltd

62	The Standard (Newspaper) Ltd	63	The Kenya Times Ltd
64	Twiga Chemical Industries	65	Coaters Brothers (E.A) Ltd
66	Laboratory and Allied Ltd	67	Beta Health Care Products (K) Ltd
68	Hoerschst East Africa Ltd	69	Coopers Kenya Ltd
70	Macs Pharmaceutical Ltd	71	Colgate Palmolive(E.A)
72	Uniliver Ltd	73	Elephant Soap Industries
74	Esso Standard (K) Ltd	75	Shell Chemicals Industries
76	Avon Rubber & Co Industries	77	Car & General Ltd
78	Firestone (E.A) Ltd	79	Afro Plastics Ltd
80	Devani (Plastic) Ltd	81	Elson Plastics (K) Ltd
82	General Plastics Ltd	84	Kenpoly Manufacturers Ltd
85	SanPac Ltd	86	Sera Coatings Ltd
87	Ceramics Industries E.A Ltd	88	Ceramics Manufacturers Ltd
89	Francescon Marble & Granite	90	Central Glass Industries Ltd
91	Athi River Marble & Granite Ltd	92	Clay Works Ltd
93	Mabati Ltd	94	Morris & Co Ltd
95	Roll Mill Kenya Ltd	96	H.Young &Co (E.A)
97	Auto Spring Manufacturers	98	Steel Structures Ltd
99	Hughes Limited Equipment	100	East Africa Spectre Ltd
101	Wire Products	102	Knetshi Dharamshi &Co Ltd
103	Nalin Nail Works	104	Mackenzie (K) Ltd
105	Special Steel Mills	106	Ranger Industries Ltd
107	International Aerodio(E.A)	108	Associated Vehicle Assemblies

109	Sanyo Aruco	110	Bhachu Industries Ltd
111	Burno and Blanc (K) Ltd	112	Central Workshop Limited
113	C.M.C Aviation Ltd	114	Labh Singh Harnam Singh Ltd
115	Brush Manufacturers	116	Megh Cushion Industries
117	Prime Industries (K) Ltd	118	Sana Sana Industries Ltd
119	Sapra Studio	120	Zimmermann Ltd