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The Perception of Knowledge Management System Implementation to Employee Performance is Measured With Balanced Scorecard at PT Vale Indonesia TBK

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THE PERCEPTION OF KNOWLEDGE MANAGEMENT SYSTEM IMPLEMENTATION TO EMPLOYEE PERFORMANCE IS MEASURED WITH BALANCED SCORECARD AT PT. VALE INDONESIA TBK

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Dean, Graduate School Date

I wish to dedicate this thesis to my father H. Muhammad Yani in heaven who will always be my role model for my entire life and my mother Hj. Resmiati. Thank you Mom, for your endless support, you always give me the strength to carry on. My biggest motivations are my lovely family who are always there for me. Thank you Kak Linda, A' Sigit, Bang Roni, Uni Rani, Bang Ricky, Kak Deasy, Gatfan, Caca, Dustin, Vio, and Keyza. I am very grateful to have you all in my life and thank you for your unstoppable love & supports for me.

I love you my family.

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Directed by: Dr. Daniel Jackson, Dr. John Khouryieh, Dr. LeAnne Coder.

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Knowledge Management System (KMS) is a necessary concept as knowledge possessed by each individual employee is an intellectual property asset that will provide benefits for any organization. In a company, in terms of KMS, employees' performance holds an important role in helping run the business of the company becoming sustainable and successful. Therefore, the measurement of employees' performance based on a balanced scorecard is needed to understand the current business situation. This research helped focus on the perception between the KMS and employee's performance based on a balanced scorecard (BSC) regarding a financial perspective, customer perspective, internal business process perspective, and learning & growth perspective. A survey was conducted at PT. Vale Indonesia Tbk (Vale) to ascertain these perspectives and perceptions of employees regarding performance based on a BSC. These perception data were analyzed, and conclusions were drawn regarding hypotheses. The findings section of this thesis shows the results in details. The results of the survey showed that the employees had a good perception of the value and benefits of KMS as measured with the BSC with the exception of the financial aspect. The interpretation of the results created recommendations to further implement KMS, and to improve employees' performance at Vale.

Chapter 1

Introduction

Knowledge is defined as the ability of an individual to connect and link any information with other concepts that are relevant to a specific area used in the decision making process (Debowski, 2006). Management of knowledge is implemented in a knowledge management system (KMS) (Debowski, 2006). A knowledge management system (KMS) is an intellectual asset beneficial in sharing and using the knowledge to improve the performance of an organization (Gourlay, 2001). Organizations, including companies, need to continuously improve the knowledge of each individual within the company to increase and promote the creativity of the organization. A KMS is applied so that existing knowledge can be utilized optimally (Debowski, 2006).

Companies applying KMS use three components to manage knowledge: people, process, and technology. KMS design and its implementation should be strategically customized for each company to facilitate the knowledge sharing process. An effective KMS will prepare employees to share their knowledge, and accept new ideas, as well as learn new ways of thinking to develop the knowledge, and skills owned by each employee (Debowski, 2006).

The purpose of applying a KMS is to improve the competence of individuals, which then leads to improvement in people, process, and technology. Individual competencies typically provide benefits for individuals and the company, as every employee has specific abilities and skills. With effective guidance, these individuals can improve their performance in these three areas (people, process, and technology)

(Davenport, Long, Beers, 1998). Competent employees support their companies in achieving optimum productivity. Periodical performance assessment helps companies to design roadmaps specific and activities that are necessary to enhance employees' skills and knowledge. Hence, periodical performance assessments give an indication of the level of competency of employees.

According to Kaplan and Norton (1992), a balanced scorecard (BSC) is a performance management measurement that uses four perspectives to assess performance in a company: financial, customer value, business process, and learning & growth (Kaplan & Norton, 1992). The BSC is an effective way to define and capture intangible assets that have value in organizations. The BSC helps in improving financial returns, increasing employee performance, focusing on target strategies, increasing collaboration, and aligning the overall goals of a company (Niven, 2006).

PT. Vale Indonesia Tbk (Vale) was chosen for the case study of this research. Vale is one of the biggest nickel mining companies in Indonesia. The business sectors of this company include mining, logistics, energy, and steelmaking. The company has 83 employees residing in Jakarta, and consists of 62 permanent employees and 21 outsourced employees. The employees work in 6 different departments, namely: finance, legal, logistics, information technology, general services, and human resources (Vale Annual Report, 2014). Approximately five years ago, Vale implemented a KMS application called Intranet consisting of few devices such as Office communicator, Community Portal, Vale Website, and Mailing List (Vale Human Resources, 2016)

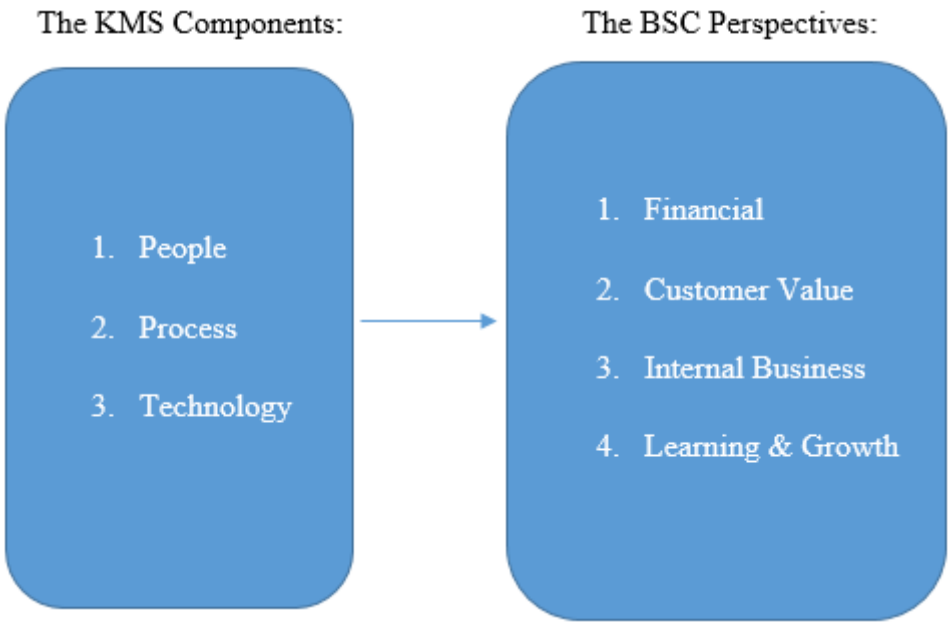

Figure 1. The KMS components (Debowski, 2006), and the BSC perspectives (Kaplan, 2010).

As shown in Figure 1, the research hypotheses linked the three components of KMS to the four perspectives of the BSC. This research provides an insight into the perception between KMS and employees' performance based on the BSC using Vale as a case study.

Problem Statement

In order to improve the performance of its employees, Vale implemented the KMS to facilitate the needs of employees to communicate about tasks more easily, to keep up to date with news and announcements at Vale, and as a forum to share information among employees (Vale Human Resource, 2016). The problem with their implementation plan was that they do not have an objective metric to assess the impact of their KMS.

Purpose of the Research

The purpose of this research was to ascertain employee perception of KMS implementation to increase employees' performance in Vale as measured from the four conceptual perspectives of BSC. This research determined whether this perception was negative, neutral, or positive. The interpretation of the results of this research created a framework to further implement KMS, and to improve employee performance at Vale.

Significance of the Research

The research was expected to have three significant effects for Vale and other similar companies. The first benefit is that it provides the human resource department with information on the quality of employees they have as well as the skills the company needs to be more effective or productive. The second is to reveal the value of KMS at Vale with further improvements in implementation of KMS. Thirdly, it gives an analysis on the perception of the application of KMS and employees' performance based on the BSC. This study can aid in decision making and planning strategies for the optimization and further implementation of KMS.

Hypothesis

The four hypotheses in this research were:

1. With the application of KMS at Vale regarding the *people* component, Vale employees will perceive an increase in employees' performance regarding the *financial* BSC perspective.
2. With the application of KMS at Vale regarding the *people* component, Vale employees will perceive an increase in employees' performance regarding the BSC perspective of *customer value*.

3. With the application of KMS at Vale regarding the *process* component, Vale employees will perceive an increase in employees' performance regarding the BSC perspective of *internal business process*.
4. With the application of KMS at Vale regarding the *technology* component, Vale employees' will perceive an increase in employees' performance regarding the BSC perspective of *learning & growth*.

Assumptions

The assumptions of the research were:

1. The implemented KMS at Vale was efficient and worked effectively.
2. The data obtained by the researcher was valid and correct.
3. The respondents to the questionnaire understood KMS, and the BSC concept as implemented at Vale.
4. The respondents answered the questionnaire correctly and honestly.

Limitations and Delimitations

There were three limitations in this research:

1. The research distributed 83 questionnaires to be answered by the respondents and the number of questionnaire returned was 33 questionnaires.
2. The respondents might not have answered the questionnaire honestly.
3. The questions in the questionnaire might seem to reveal sensitive information about the employees, such as their level of education, further limiting a candid response.

4. Since Vale did not have any metrics to assess the performance of KMS implementation, there were no baseline performance measures to compare with the BSC.

The two delimitations in this research were:

1. This research was focused only on the employees at headquarters office of Vale in Jakarta, Indonesia.
2. The questionnaire was for professional employees (member of board of director, director, and executive) at Vale in Jakarta.

Definition of Terms

1. Knowledge is the ability of an individual to connect and link any information with other concepts relevant to a specific area to be used in the decision making process (Debowski, 2006)
2. Knowledge management is a guidance to manage intangible knowledge or assets that has value in a company (Becerra-Fernandez & Sabherwal, 2010).
3. The knowledge management system is an information system based on knowledge that supports creation, control and dissemination of business knowledge to the workers and managers in the company (Turban & Aronson, 2001, p.26).
4. Tacit knowledge is knowledge from each person that develops based on experience. It is not easy to communicate and formulate tacit knowledge. It is knowledge gained from the employees' experience, and the ability to see and do the things rather than learning (Carillo et al, 2004).

5. Explicit knowledge is a way to share knowledge because it is documented in writing, so each employee in the company can learn independently (Carillo et al, 2004).
6. The balanced scorecard (BSC) is an effective way to define and capture intangible assets that have value in organizations. This benefit tool is to improve financial returns, employee performance, focus on target strategies, increase collaboration, and align the overall goals in the company. The BSC developed by Robert Kaplan and David Norton. The BSC has four perspectives: Financial, Customer, Internal process, and employee Learning and Growth (Niven, 2006).
7. Technology is the development of tools application that deals with engineering and applied sciences, and help human to solve problems with materials, machines, and processes (Oxford Dictionaries, 2015).
8. According to Oxford dictionaries (2015), information technology is a study using electronic equipment, especially a computer (including hardware and software), to store and analyzed the data, and distributes information in words, numbers, and pictures.
9. The Financial perspective in the BSC is a strategy to improve growth income and work productivities in a company. This perspective sees that employees are company assets whose utilization should be maximized and considered in order to avoid going over budget in certain things (Kaplan & Norton, 1992).

10. The customer perspective shows how the customer's satisfaction needs to be improved in order to increase the customer value viewed from the financial perspective (Kaplan & Norton, 1992).
11. The internal business process perspective is shows how processes in the company can meet the needs of the company and to support employees' overall performance (Kaplan & Norton, 1992).
12. Learning & Growth perspective is to show how the corporation can survive and be able to change according to external demands (Kaplan & Norton, 1992).
13. PT. Vale Indonesia Tbk is one of the biggest nickel mining companies in Indonesia. The business sector of this company is mining, logistic, energy, and steelmaking. The headquarters office is in Jakarta, Indonesia and the company operates open-pit nickel mines and a processing plant in Sorowako, on the island of Sulawesi in Indonesia (Vale Website, 2015).
14. Chief Executive Officer is a person with the highest position and appointed by the commissioners that lead the board of directors and responsible for the operations of a company (Oxford Dictionaries, 2015).
15. Chief Operating Officer (COO) is a corporate executive and operational director who is leading the company's division. For example, COO in manufacturing is responsible for smooth production and employees' productivity (Oxford Dictionaries, 2015).

Abbreviations

BSC (Balanced Scorecard)

CEO (Chief Executive Office)

COO (Chief Operating Officer)

KMS (Knowledge Management System)

IT (Information Technology)

ROI (Return of Investment)

SOP (Standard Operating Procedure)

SOW (Statement of Work)

USA (United States of America)

Vale (PT. Vale Indonesia Tbk)

Chapter 2

Review of Literature

Theoretical History

According to Johnson and Kaplan (1987), at the end of the 1980's, the BSC appeared in the USA as a familiar new management control tool. The function of the BSC was to adjust the control process in a company (as cited by Wegman, 2008). Previous research about knowledge management and the BSC was in a semi-public insurance company in France. In this research, Wegman (2008) was analyzing the relationship of the BSC as a necessary control approach and the knowledge management theory.

As stated by Wegman (2008), the BSC was well-known as an important control tool in the European countries and all around the world. An information system application was needed to help perform the BSC concept in the company. The theories of knowledge management and the BSC have effected deeply in management area in the semi-public insurance company (Wegman, 2008).

The research found the BSC concept was compatible with a knowledge management program in the company. The result of researcher's questionnaire was confirmed the interest in semi-public insurance company in France for the BSC which was understood as a relevant tool, able to formulate the plan activities, and the operational management (Wegman, 2008).

Knowledge Management

Knowledge management becomes a guideline for companies to manage intangible assets. It is a foundation in creating value such as a products, services, and solutions that

a company offers to customers. There are two ways to apply knowledge management (Carillo et al., 2004). The first is tacit knowledge. Tacit knowledge is developed through experience that is difficult to be formulated and communicated. Tacit knowledge is categorized as personal knowledge, or in other words, the knowledge gained by the individual. The experience obtained by each employee would vary based on circumstances that cannot be predicted. The process of acquiring knowledge or ability during certain periods allows people to see and do things rather than with learning (Carillo et al., 2004, p.46).

The second is explicit knowledge. Explicit knowledge is easy to communicate and share in a systematic way. Implementing explicit knowledge is easier because the knowledge is gained from documented statements each employee can learn independently. Explicit knowledge in this study includes work procedures and technology. The work procedure is the responsibility of the job, formal tasks, official order, or way of doing things. One concrete form of explicit knowledge is the Standard Operation Procedure (SOP). SOPs are made to maintain quality and work, where the tasks will be easier to do. Technology is one of the main elements contained in the knowledge management system and as media that facilitates the spread of explicit knowledge. One of the technologies currently used by many companies to process the spread of knowledge is an internal internet (intranet). Intranet is based on the need to access the knowledge, communication, and sharing of knowledge using online resources (Carillo et al., 2004, p.46-47).

Knowledge Management System

The knowledge management system (KMS) is an information system based on knowledge that supports creation, control and dissemination of business knowledge to the workers and managers in the company (Turban & Aronson, 2001, p.26). Meanwhile, according to Alavi & Leiner (2001), the KMS is created to facilitate the capture, storage, retrieval, transfer and reuse of knowledge. It is defined as information technology developed to increase creation, storage, and application of the organizational processes of knowledge.

The Components of Knowledge Management

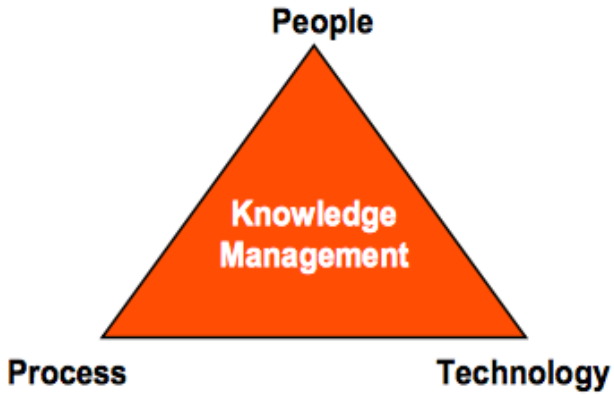

Figure 2. The three components of knowledge management (Bhatt, 2000).

Figure 2 shows the 3 components of knowledge management (Bhatt, 2000):

a. People

b. Process

c. Technology

The first component is people. People are one of the biggest challenges in knowledge sharing and collaboration. A key to succes in Knowledge Management requires changing traditional mindsets and organizational culture. Knowledge-sharing by

people in a company is to share between employees and creating a trustful atmosphere. To achieve a good knowledge-sharing by people it must have been through a combination of motivation, recognition and rewards, re-alignment of performance appraisal systems, and other measurement systems (Gunjal, 2005).

The second component is process. This component contains the standard processes to contribute the knowledge in company, methodology, the project implementation based on knowledge-reuse, etc. In order to get people or employees in the organization well understood the processes, all the process component must be clear and simple (Gunjal, 2005).

The third component is technology. The technology component provides knowledge portal on intranet to support knowledge-sharing, workflow, collaboration, and sharing document across the company. It is necessary to a company having user friendly technology because it is a key enabler to sharing the knowledge in a company (Gunjal, 2005).

The Importance of Assessment and Evaluation of Performance

According to Mahsun (2006), performance evaluations will provide an overview to the recipient information on the value of the performance achieved in the organization. There are three main objectives for the measurement and the evaluation of performance. The first is feedback. Feedback is the measurement of the achievement of performance as a basis for management in companies for improved performance in subsequent periods. In addition, these results can be used to give rewards and punishment for work performance in the company (Mahsun, 2006).

The second is the assessment of the organization's progress that is measured with an evaluation conducted in a certain period of time and it is useful to assess the progress that has been achieved in an organization. The criteria used to assess the progression of the organization is a goal that has been set by comparing the actual results achieved with the objectives of the organization which are conducted periodically (quarter, semester, and annual) to assess the organization's progress (Mahsun, 2006).

The third is the measurement and evaluation procedures provide very useful information about the quality of a company's performance. It will be a consideration for for company's management as well as stakeholders in making decisions. Decisions that are economical and strategic need the support of this performance information. Performance information also helps assess the success of the management or parties who were given the mandate to manage and take care of the organization (Mahsun, 2006).

The Balanced Scorecard

Kaplan and Norton (1992, p. 71-79) state that the essence of the implementation of the Balanced Scorecard (BSC) is not only to monitor each division, but also to help each division of the company link themselves with the vision, mission and company strategy. The advantage of the BSC is the identification of the structure or the existing framework in order to achieve the vision and mission of the company. Thus, this explanation asserts that before the BSC is introduced it has been widely known for a variety of measurement programs that lead to recovery, such as integration between functions, global scale, continuous improvement, and the responsibility of the team that replaces the role of the individual (Kaplan & Norton, 1992, p. 71-79).

As stated by Kaplan and Norton (1992, p.75 –78), the BSC has four perspectives including financial, customer, internal business process, and learning and growth. Each perspective is related to each other and has a "cause and effect relationship." The relationship can be explained as follows:

1. **Financial**. Financial status is a tool for shareholders to see if the company is performing well. A better financial status of the company would result in more favorable rates and the shareholders would like this since debt is often better for getting capital (Kaplan & Norton, 1992, p.75-78).
2. **Customer.** This perspective shows the company in the eyes of customers. Customers have the technical ability to see companies from all sides, such as time, quality, good performance and services, and the costs incurred by the customer to obtain services. Dimensions of customer needs will ultimately determine how the company is viewed by the customer. If customers perceive the company to be good, then the product has more value to them (Kaplan & Norton, 1992, p.75-78).
3. **Internal Business Process.** To understand internal business processes in a company, this perspective shows the production process to meet customers' needs. Giving priority to customers is necessary and the problem for management is how to prepare a competency that can meet the needs of customers (Kaplan & Norton, 1992, p. 75-78).
4. **Learning and Growth**. This perspective is to show how the corporation can survive and be able to change according to external demands (Kaplan & Norton, 1992, p. 75-78).

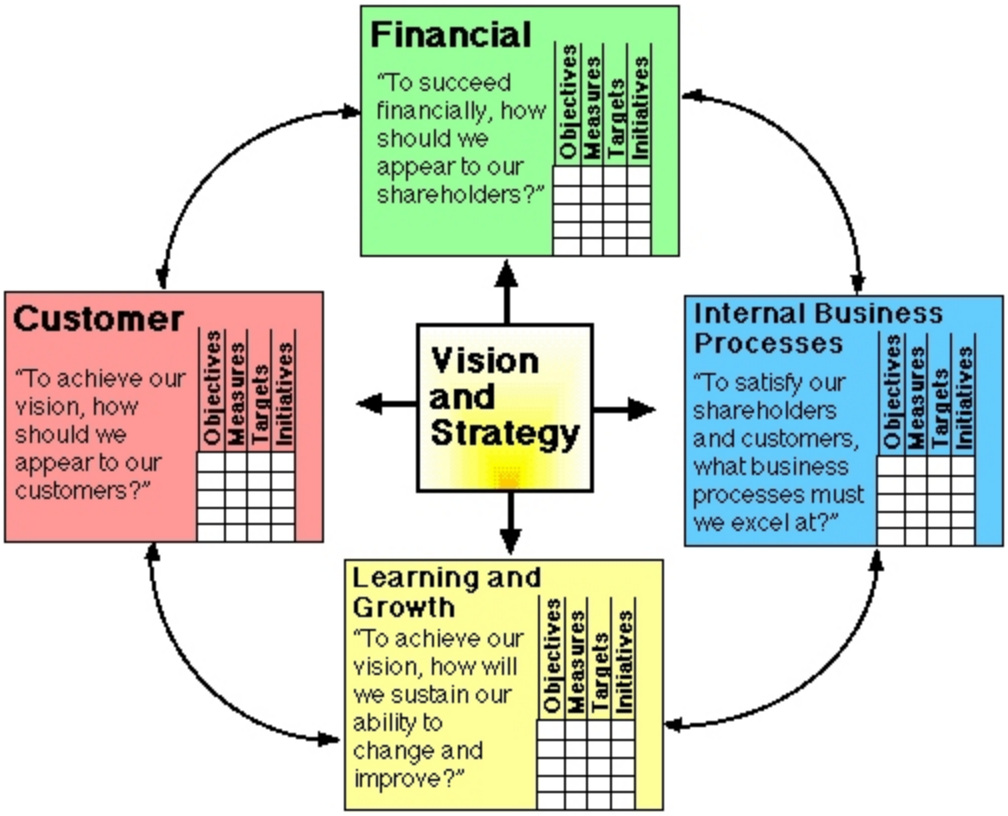

Figure 3. The Balanced Scorecard (Kaplan & Norton, 2015).

It can be seen from Figure 3 that the BSC is derived from vision and strategy. Each company has a different vision and mission. Implicitly, a clear vision and mission is a basic foundation to drive activities in a company, and it is an important element that supports success in business (Kaplan & Norton, 2015).

The Balanced Scorecard as an Assessment of Performance

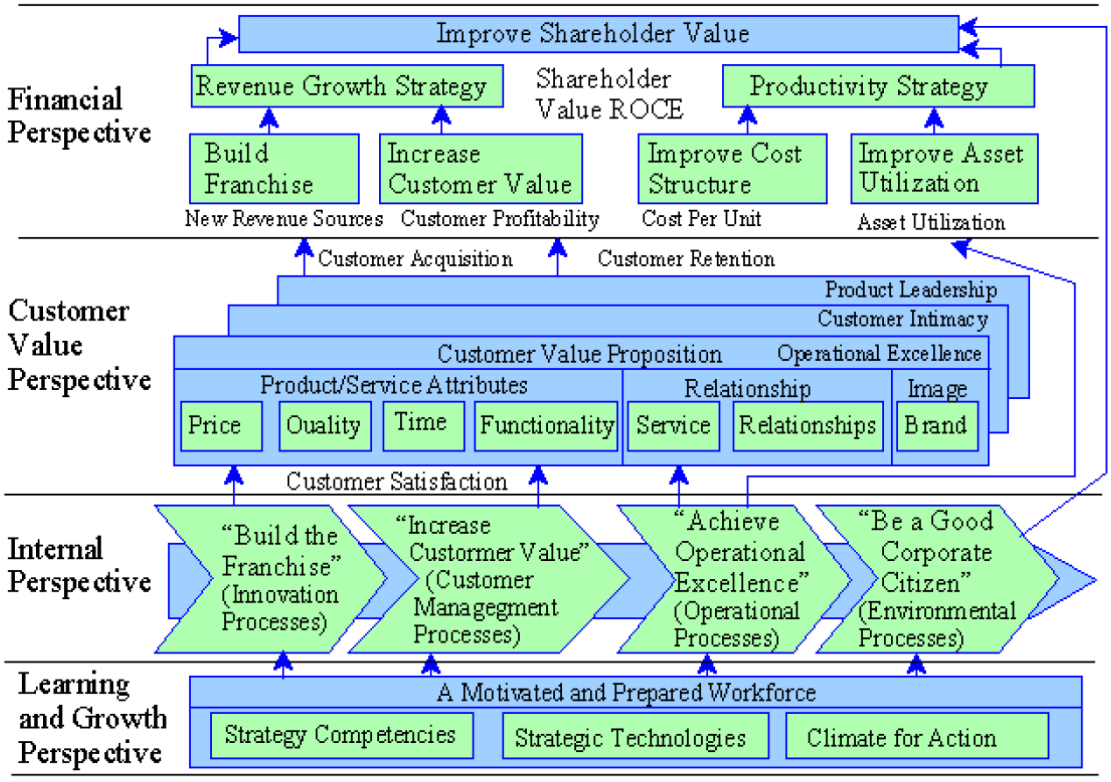

Figure 4. The Balanced Scorecard Generic Strategy Map (Norton & Kaplan, 2001, p.96).

Figure 4 is the BSC generic strategy map. The BSC concept, developed by Kaplan and Norton, is often used as a performance measurement method. The BSC is a modern performance measurement method that considers four perspectives. This is a translation strategy, and long term objectives of a company can be met through the BSC (Kaplan & Norton, 2001).

A good financial perspective does not guarantee that a company will be able to survive in the long term (which is the ultimate goal of an established company). If a company pays attention to the non-financial perspective, it can boost financial performance, which is the main desire of shareholders. In addition, a company must

develop strategies to take action, so performance assessment should also be more than just a financial assessment (Honeycutt, 2000).

The Relationship of Knowledge Management and Employee's Performance Based on the BSC

In order to receive high performance, a company needs a good system. This system not only includes regulations and standards of operation, but also human resources. Knowledge management is one of the systems that manages the intellectual asset and is measured by three components: people, processes, and technology. Knowledge management can be a guide to management as an intangible asset to create value in a company (Honeycutt, 2002). To improve employees' performance, a company needs to apply a KMS. Therefore, the employees' performance were measured through four perspectives of the BSC concept such as financial, customer, internal business process and learning & growth (Kaplan & Norton, 1992).

Financial. The financial perspective is a strategy to improve growth, income, and work productivity in a company. This perspective sees that employees are company assets whose utilization should be maximized, and considered in order to avoid going over budget (Kaplan & Norton, 1992).

Customer. The customer perspective shows how the customer's satisfaction needs to be improved in order to increase the customer value viewed from the financial perspective. Therefore, service and relationships become a highlighted part of a company. The role of employees are important as they are key to succeeding in providing a high quality service and establishing a good relationship with customers (Kaplan & Norton, 1992).

Internal Business Process. The internal business process shows how processes in the company can meet the needs of the company and support employees' overall performance. Generally considered by the company are operational processes and the company's work environment (Kaplan & Norton, 1992).

Learning and Growth. Learning and Growth shows how a company can survive and change through a process of learning and growth based on external demands. The company chooses to implement the technology strategic in KMS as a facility to support the learning and growth perspective (Kaplan & Norton, 1992).

Profile Company of PT. Vale Indonesia Tbk

Vale is a global mining company and the headquarters are in Brazil. Vale is divided into 5 major regions: South America, North America, Europe, Africa & the Middle East, and Asia & Oceania. The company has branches all over the world, which are located in 27 countries. One of these countries is Indonesia. PT. Vale Indonesia Tbk is a public company and one of the largest companies that produces nickel and iron ore in Indonesia. The vision of PT. Vale Indonesia Tbk is "To be the number one global natural resources company in creating long term value, through excellence and passion for people and the planet" and the mission is "To transform natural resources into prosperity and sustainable development". In 2014, PT. Vale Indonesia Tbk reached the highest production of nickel, which amounted to 78,726 tons (Vale website, 2015).

To operate the business, PT. Vale Indonesia Tbk (Vale) has 83 employees residing in Jakarta, and which consists of 62 permanent employees and 21 outsource employees divided into several divisions in company: finance, legal, logistics, asset

protection, information technology, general services, and human resource (Vale annual report, 2014).

There are some KMS devices, which are called Intranet that have been implemented in the company, for example:

1. Office Communicator:

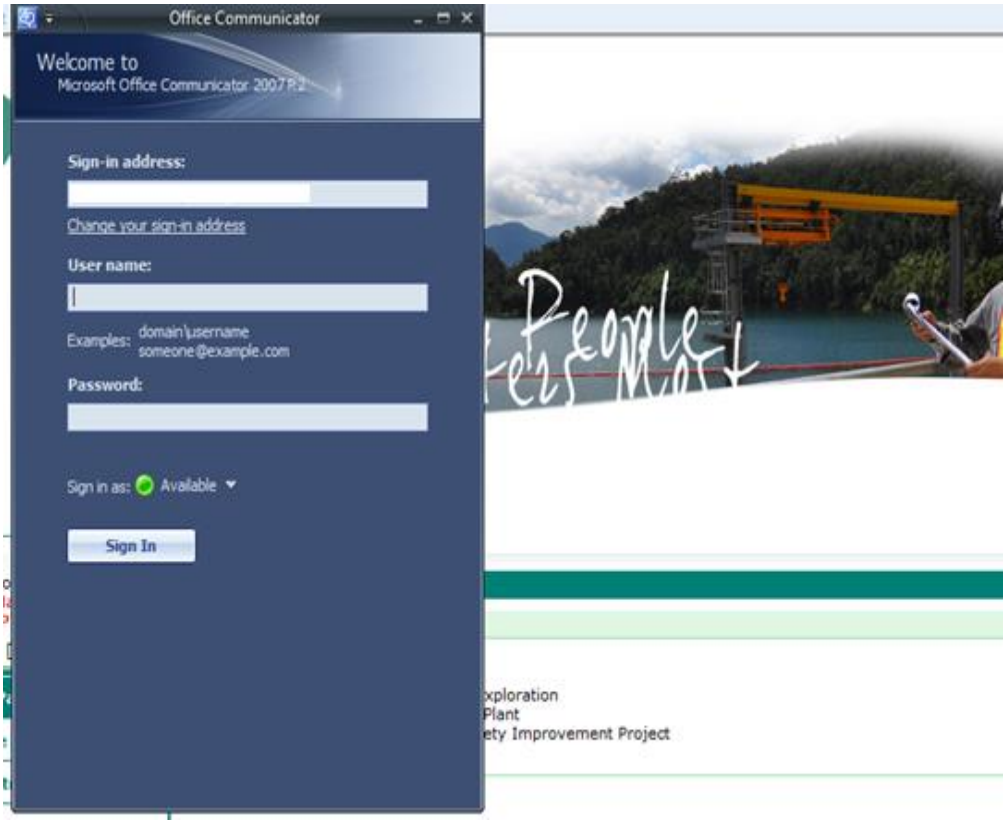

Figure 5. The Office Communicator at Vale (Vale company human resources, 2015).

Office communicator is a chat room application and created by the company's IT team. The function of this application is used for all employees who are currently working to get the information, ask questions which are related to work among employees, and connect all employees from various divisions (Vale company human resources, 2015).

2. Community Portal of PT. Vale Indonesia Tbk:

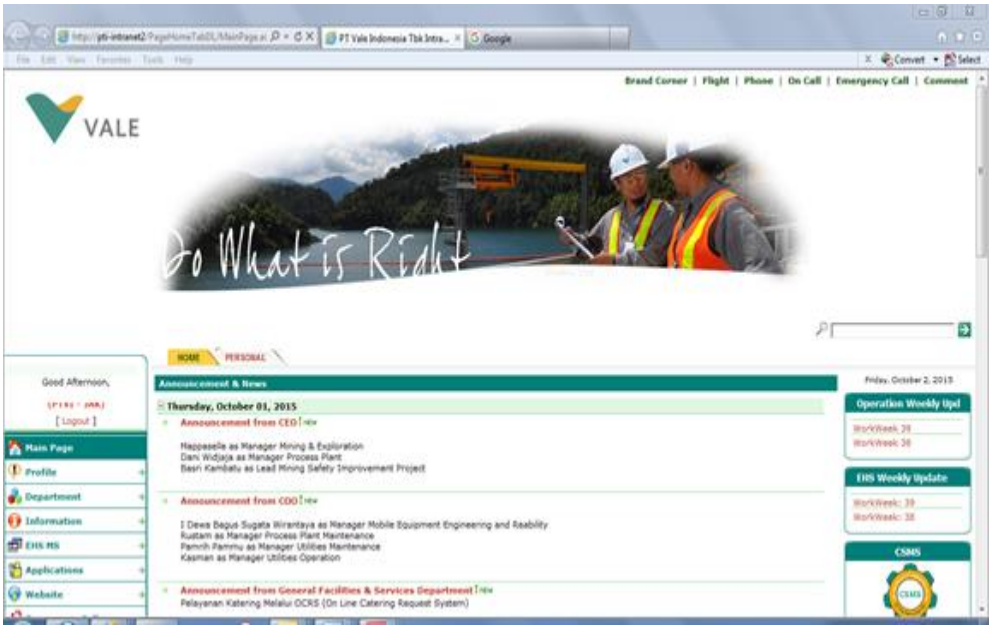

Figure 6. The Internal internet of Vale (Vale company human resources, 2015).

The function of Community Portal in Vale is to know the announcement and news from CEO, COO, various departments in the company, help employees to keep up to date, and facilitates more effective collaboration and networking of groups to learn what issues matter most in the company (Vale company human resources, 2015).

3. Vale Website

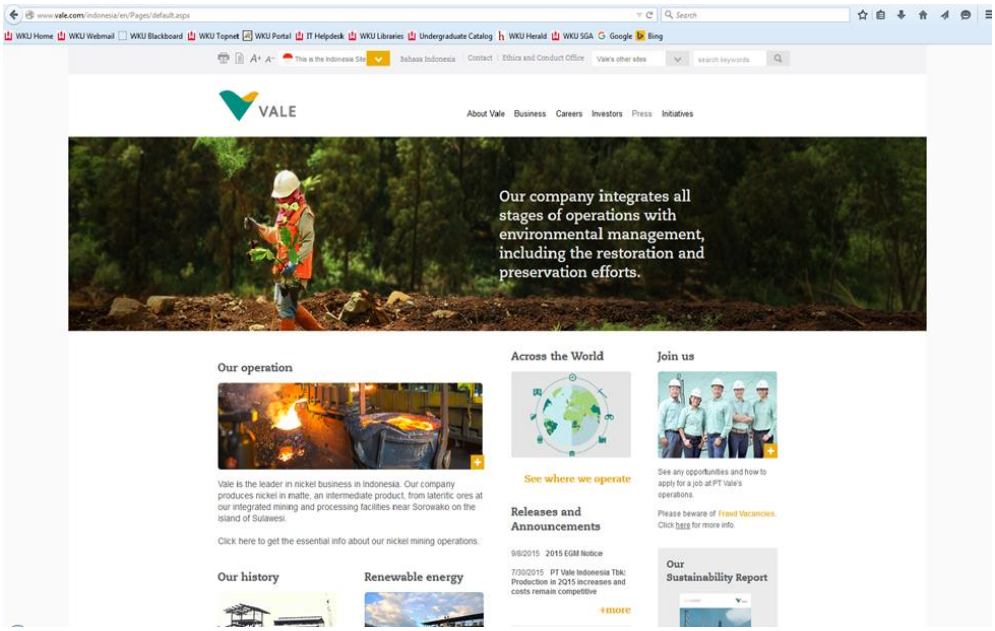

Figure 7. Vale Website (Vale website, 2015).

The Vale website is a portal about company profiles, businesses, careers, investors, etc. The website provides company information such as the vision, the mission, the sustainable report, the history of the company, job vacancies, etc (Vale website, 2015).

4. Mailing List.

The Vale's employees are the members of the Vale mailing list. This eliminates the need to send emails meant for a group individually as they can be sent as bulk messages. The mailing list is to facilitate discussion and spread of news that relates to the company (Vale company human resources, 2015).

With the KMS devices mentioned above, employees can easily access various informations about the company constituting implementation of KMS. The KMS devices at Vale were variations that existed took place. The condition of these devices was

adequate for helping employees complete their tasks. Most of the employees were already using the KMS to assist in work. The technology used was good enough and it was only allowed for internal network.

Chapter 3

Methodology

Design of Research

Survey questionnaire was used to obtain the primary data related to KMS and the BSC at Vale. The research began with a literature review to look for indicators of knowledge management, the BSC concept, and the KMS application in Vale. Based on the literature review, indicators were found, and these indicators formed the basis of the questionnaire.

The survey was conducted by distributing questionnaires to the employees who were in professional employees (member of board of director, directors, and executive staff) at Vale in Jakarta. After the data were collected, they were analyzed to determine the perception of KMS and the BSC at Vale. The results of the data analysis were compiled and used to formulate a recommendation plan, which could be used as a reference for further research, education, and implementation of KMS elsewhere.

Data Collection Methods

The questionnaire was emailed to a selected Vale employee acting as a facilitator to distribute these questionnaires to other managerial employees at Vale, Jakarta, Indonesia. After the questionnaires were completed, the facilitator sent the data to the researcher by email.

Population and Sample

The questionnaires were distributed to 83 employees as the population of this research. The questionnaires were intended for all professional career positions (member

of board of director, director, and executive staff) employees within the company in Jakarta, Indonesia.

Data Analysis Methods

The data was analyzed using Microsoft Excel. The questionnaire includes 34 questions based on a likert scale with a 1 through 5 continuums as shown in table 1 below.

Table 1.

The measurement scale for questions.

Category	Score
Strongly Disagree (SD)	1
Disagree (D)	2
Neutral (N)	3
Agree (A)	4
Strongly Agree (SA)	5

Each question was designed to rate the current perception of KMS performance at Vale based on the BSC concept (SD = very weak, D = weak, N = average, A = good, SA = very good). Each question was calculated based on this score. The mean score and percentage of each question was used to assess the hypothesis as conclusion. If the mean score was 3.51 to 5, it was considered positive. If the mean was 1 to 2.5, it was considered negative. If the mean was between 2.51 and 3.5, it was considered neutral or inconclusive. Graph of the percentages were used to further analyze the results.

Hypotheses

The four research hypotheses were:

1. With the application of KMS at Vale regarding the *people* component, Vale employees will perceive an increase in employees' performance regarding the *financial* BSC perspective.
2. With the application of KMS at Vale regarding the *people* component, Vale employees will perceive an increase in employees' performance regarding the BSC perspective of *customer value*.
3. With the application of KMS at Vale regarding the *process* component, Vale employees will perceive an increase in employees' performance regarding the BSC perspective of *internal business process*.
4. With the application of KMS at Vale regarding the *technology* component, Vale employees' will perceive an increase in employees' performance regarding the BSC perspective of *learning & growth*.

Questionnaire

The demographic questionnaire consists of age, gender, level of education, and how long they have worked at Vale. These questions were used to further ascertain the perception of KMS as it affects employees' performance at Vale based on the respondents' demographics.

The hypothesis questionnaire was designed following the three KMS components and the four BSC perspectives. The first questionnaire segment solicited responses regarding the *people component* of KMS and *financial perspective* of the BSC. The second questionnaire segment solicited responses regarding *people component* of KMS

and *customer perspective* of the BSC. The third questionnaire segment solicited responses regarding *process component* of KMS and *internal business process perspective* of the BSC. The fourth questionnaire segment solicited responses regarding *technology component* of KMS and *learning & growth perspective* of the BSC.

Below were demographic questionnaires and hypotheses questionnaire of the research:

Filing Guideline: give a mark (√) in one box according to your answer

1. What is your gender?

 Male Female

2. What is your age?

 18 – 29  60 +

 30 – 39

 40 – 49

 50 – 59

3. What is your highest level of education?

- ☐ High School Diploma or equivalent
- ☐ Associate Degree or other credential
- ☐ Bachelor Degree
- ☐ Master Degree
- ☐ Doctorate Degree

4. How many years have you been working at Vale?

- ☐ < 5 years
- ☐ 6 – 10 years
- ☐ 11 – 20 years
- ☐ > 20 years

For each one of the following statement, please indicate whether you agree or disagree on a scale of 1 to 5, where: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree.

Comparing before and after the implementation of the Intranet. Choose your level agreement on the following statement.

1. **The KMS regarding *People Component* and *Financial Perspective* of the BSC.**

Table 2.

The Questionnaire of Hypothesis 1.

No	Question	Choice of answer				
		SD	D	N	A	SA
1	Operating costs seem lower than the budget.	1	2	3	4	5
2	The percentages of funds invested in operations in the company seem less than the percentage of operations.	1	2	3	4	5
3	The use of operational funds seems more efficient and effective.	1	2	3	4	5
4	The use of investment funds (development) appears to be more efficient and effective.	1	2	3	4	5
5	The results of sales per year seem sufficient to cover the operational costs.	1	2	3	4	5

6	The results of sales per year appear to cover investment costs.	1	2	3	4	5
7	The sales results appear to increase every year.	1	2	3	4	5
8	The company seems to never have experienced difficulty in paying operational costs.	1	2	3	4	5
9	Return on Invesment (ROI) seems higher.	1	2	3	4	5

For each one of the following statement, please indicate whether you agree or disagree on a scale of 1 to 5, where: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree.

Comparing before and after the implementation of the Intranet. Choose your level agreement on the following statement.

2. The KMS regarding *People Component* and *Customer Perspective* of the BSC.

Table 3.

The Questionnaire of Hypothesis 2.

No	Question	SD	D	N	A	SA
1	Clients appear to be more satisfied with employees' performance.	1	2	3	4	5
2	Clients seem to be satisfied with the using services provided by the company.	1	2	3	4	5
3	The company seems able to start and end projects on time.	1	2	3	4	5
4	The company seems more able carry out projects according to the SOW (Statement of Work).	1	2	3	4	5
5	The employees seem to be better trained to express their opinions to clients.	1	2	3	4	5

6	Clients seem more satisfied with the services provided.	1	2	3	4	5

For each one of the following statement, please indicate whether you agree or disagree on a scale of 1 to 5, where: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree.

Comparing before and after the implementation of the Intranet. Choose your level agreement on the following statement.

3. **The KMS regarding *Process Component* and *Internal Business Process Perspective of the BSC.***

Table 4.

The Questionnaire of Hypothesis 3.

No	Question	SD	D	N	A	SA
1	New employees appear to be more qualified.	1	2	3	4	5
2	The level of mistakes made by employees at work appears to be relatively low.	1	2	3	4	5
3	All employees in the company appear to be actively engaged in learning.	1	2	3	4	5
4	Every employee has been equipped with a Standard Operating Procedure (SOP).	1	2	3	4	5
5	The company seems better able to apply quality assurance to improve	1	2	3	4	5

	product quality and employee performance.					
6	The company appears to be able to hire more qualified workers required by specific fields.	1	2	3	4	5
7	The company seems to have provided facilities to support employee learning.	1	2	3	4	5
8	All employees seemed to have improved competency skills in the field of after the implementation of Intranet.	1	2	3	4	5

For each one of the following statement, please indicate whether you agree or disagree on a scale of 1 to 5, where: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree.

Comparing before and after the implementation of the Intranet. Choose your level agreement on the following statement.

4. **The KMS regarding *Technology Component and Learning and Growth Perspective* of the BSC.**

Table 5.

The Questionnaire of Hypothesis 4.

No	Question	SD	D	N	A	SA
1	The employees seem more responsive to the demands and needs of clients.	1	2	3	4	5
2	The employees' motivation seems high regarding finishing of tasks.	1	2	3	4	5
3	There seems to be an increase in employees' knowledge.	1	2	3	4	5
4	The turnover of potential employees seems lower.	1	2	3	4	5
5	The employees seem more focused on teamwork.	1	2	3	4	5

6	The employees' skills seem to have increased.	1	2	3	4	5
7	The company seems to involve employees more in the decision-making process.	1	2	3	4	5
8	The employees seem more motivated regarding creativity and initiative.	1	2	3	4	5
9	The retention rate of new technology seems higher.	1	2	3	4	5
10	The employees seem to better access needed information.	1	2	3	4	5
11	The company seems more committed to increasing employee performance in general.	1	2	3	4	5

Chapter 4

Finding Results

The data collection was done using the questionnaire presented in chapter 3. From the 83 questionnaires distributed, there were 33 questionnaires respondent data obtained. The data obtained was about 40% out of 100% from the total employees at Vale in Jakarta. The tables of the respondent demographics can be seen in the appendix. What follows are the graphic results of those respondents' data:

Respondent Demographics

1. **Gender:**

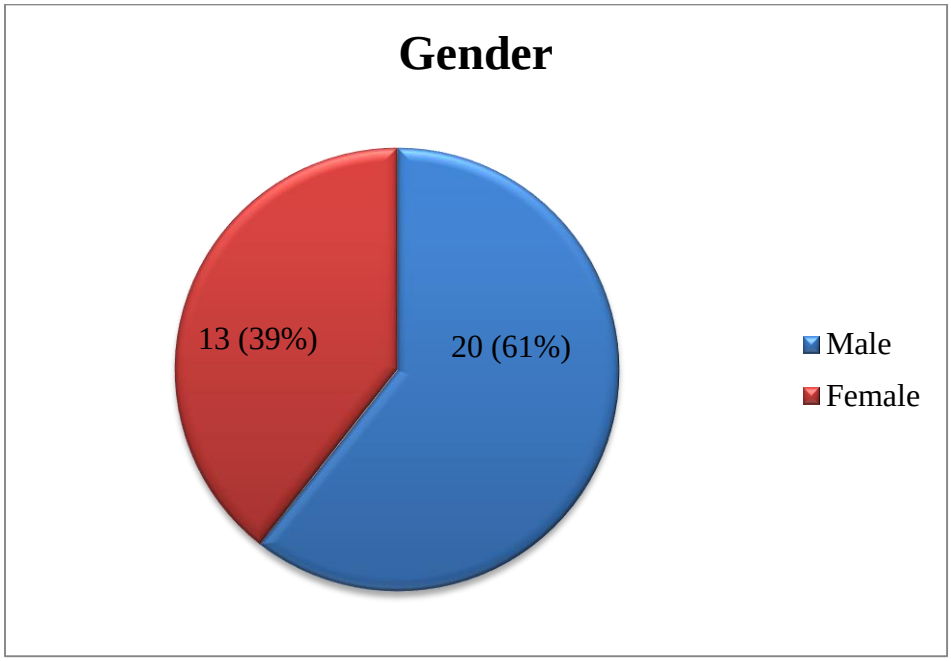

Figure 8. Gender of Respondents.

Based on Figure 8, it can be seen that there were 33 employees, out of which 20 were male employees (61%) and 13 female (39%).

2. **Age:**

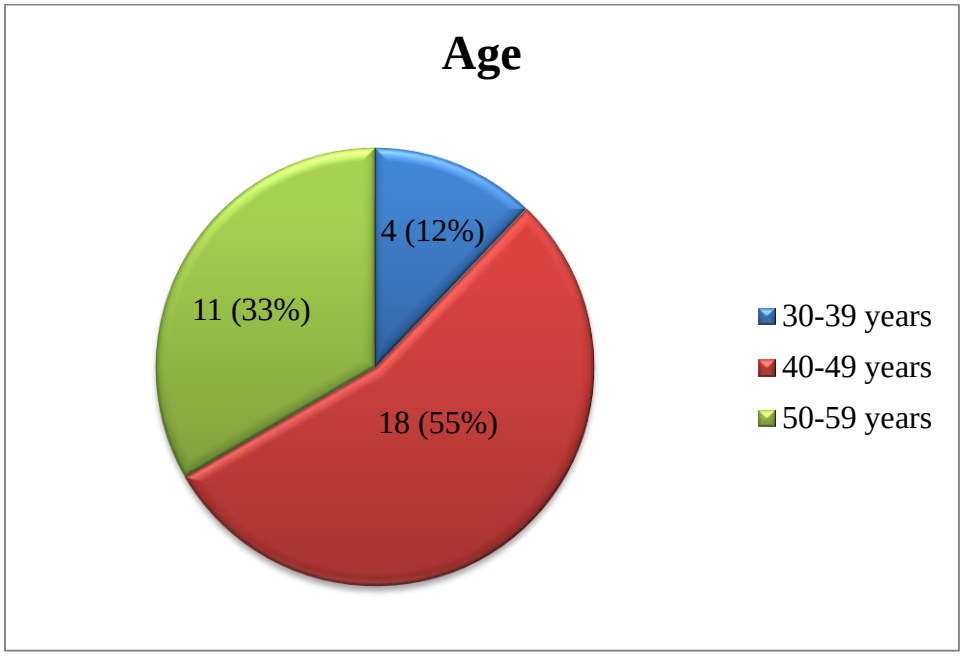

Figure 9. Age of Respondents.

Based on Figure 9, it can be seen that there were 3 age groups. The first group included 4 respondents (12%) of the age 30 through 39 years, the second group included 18 respondents (55%) of the age 40 through 49 years, and the third group included 11 respondents (33%) of the age 50 through 59 years.

3. **Level of Education:**

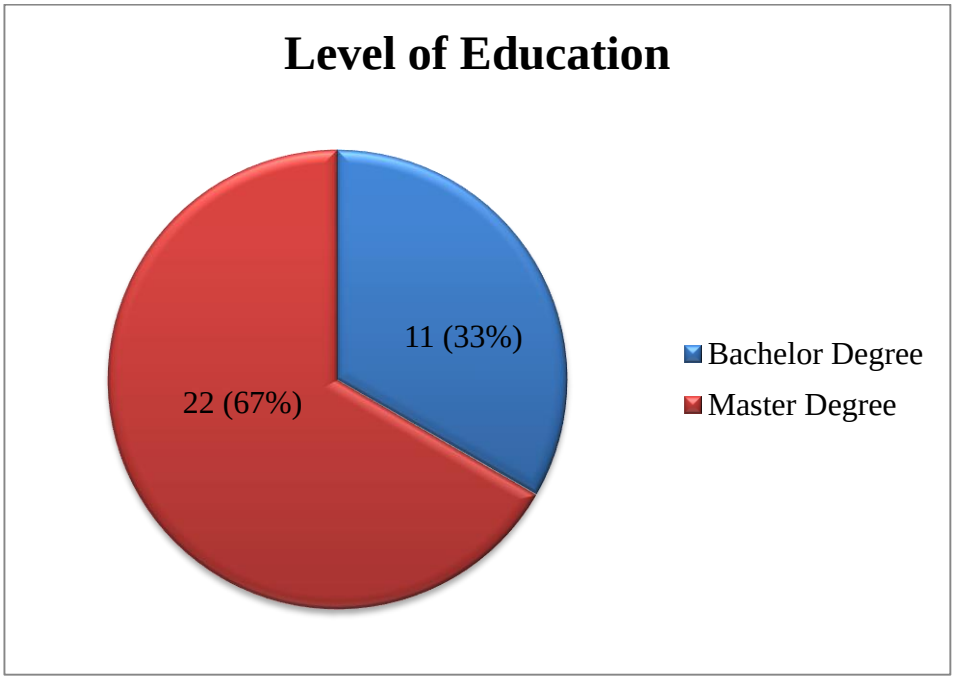

Figure 10. Level of Education.

Based on Figure 10, it can be seen that all of the respondents fell under only 2 out of 5 of the educational levels (high school diploma or equivalent, associate degree or other credential, bachelor degree, master degree, and doctorate degree). 11 respondents (33%) had bachelors degrees and 22 respondents (67%) had masters degrees.

4. Years of Working at Vale:

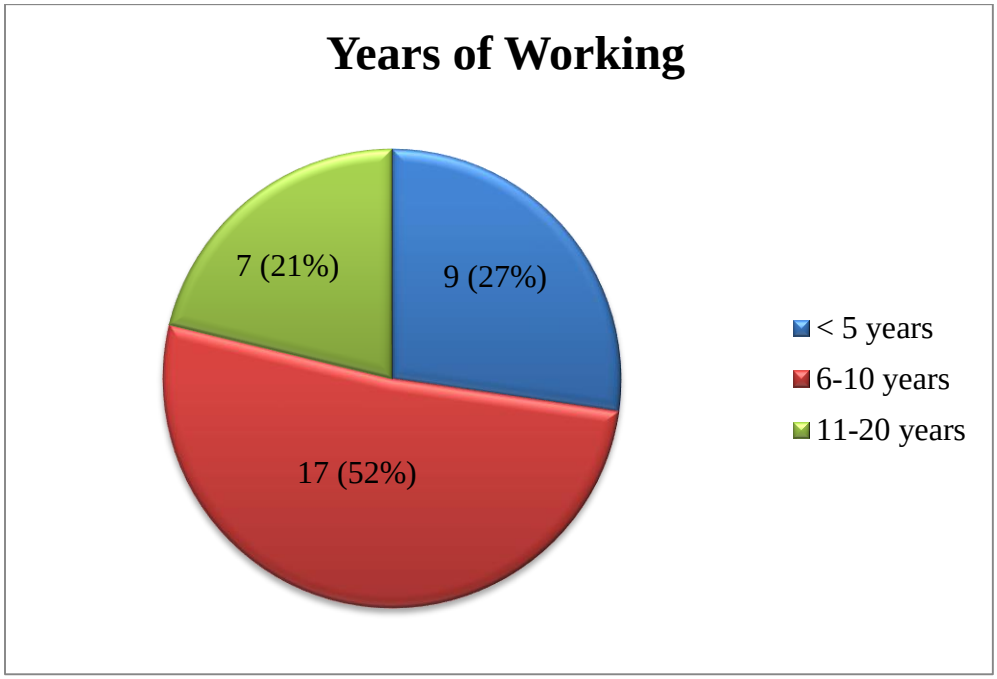

Figure 11. Years of Working at Vale.

Based on Figure 11, it can be seen that the respondents were in one of the three working groups based on how long they have worked in the company. The first group was < 5 years and included 9 respondents (27%). The second group was 6 – 10 years and included 17 respondents (52%). The third group was 11 – 20 years and included 7 respondents (21%).

Results of Hypothesis One

The questionnaire of hypothesis one solicited responses regarding the *people component* of KMS and *financial perspective* of the BSC. The nine questions were related to hypothesis one. The tables of the questionnaire hypothesis results can be seen in the appendix.

Hypothesis 1: With the application of KMS at Vale regarding the people component, Vale employees will perceive an increase in employees' performance regarding the financial BSC perspective.

Question 1: Operating costs seem lower than the budget.

Question 1 addressed the effect of using the Intranet on operating costs after applying the Intranet. From Figure 12, 70% of the respondents disagreed with the statement that operating costs seemed lower than the budget, 21% of the respondents chose neutral, 6% of the respondents chose agree, 3% of the respondents chose strongly disagree, the mean response on the likert scale was 2.30 (negative), and the standard deviation was 0.64. The standard deviation valued obtained shows that the responses of most of the employees were close to the mean value, hence most of them had a similar perception.

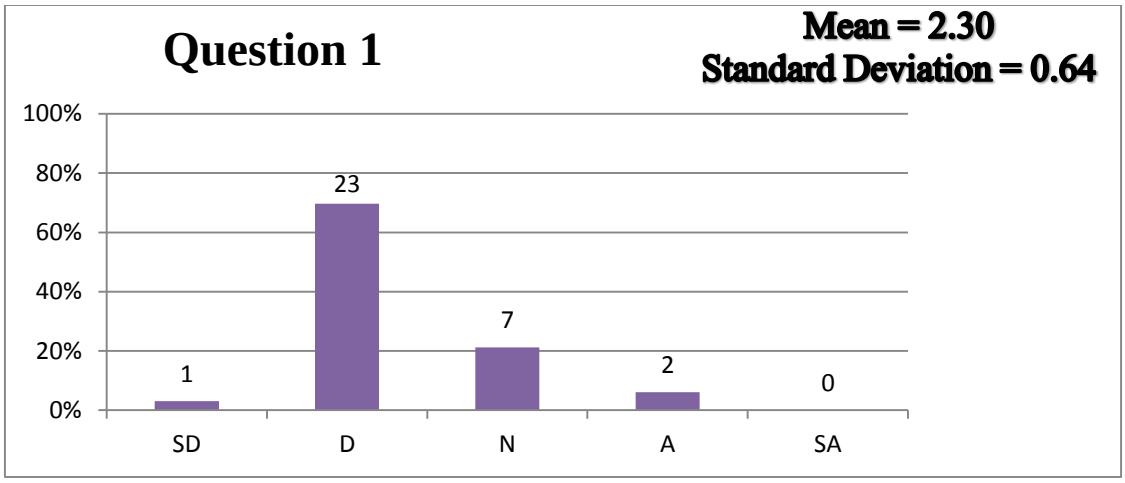

Figure 12. Graph Response to Question 1 of Hypothesis 1.

Question 2: The percentages of funds invested in operations in the company seem less than the percentage of operations.

From Figure 13, the results of the completed questionnaire showed that 64% of the respondents disagreed, 18% of the respondents chose neutral, 9% of the respondents chose strongly disagree, 6% of the respondent chose agree, 3% of the respondents chose strongly agree, the mean was 2.30 (negative), and the standard deviation was 0.85. Since the standard deviation was very low, it means the respondents had similar perceptions about the question.

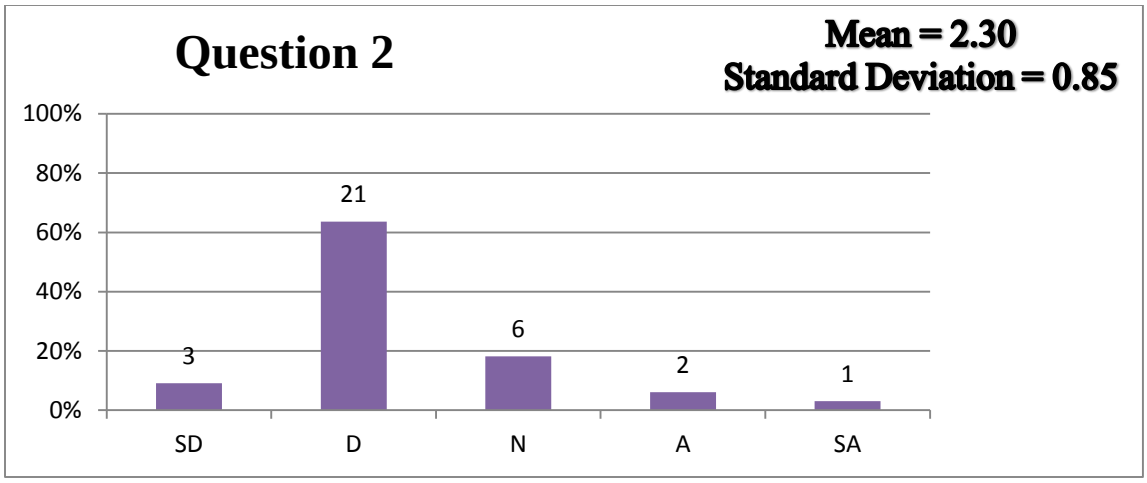

Figure 13. Graph Response to Question 2 of Hypothesis 1.

Question 3: The use of operational funds seems more efficient and effective.

From Figure 14, the results of the completed questionnaire were 67% of the respondents chose disagree, 15% of the respondents chose strongly disagree, 12% of the respondents chose neutral, 3% of respondents chose agree, 3% of the respondents chose strongly agree, the mean was 2.12 (negative), and the standard deviation was 0.82. A low standard deviation from the data obtained coupled with the negative mean value shows the employees did not agree with the statement that there was an effective and efficient use of operational funds after applying the Intranet.

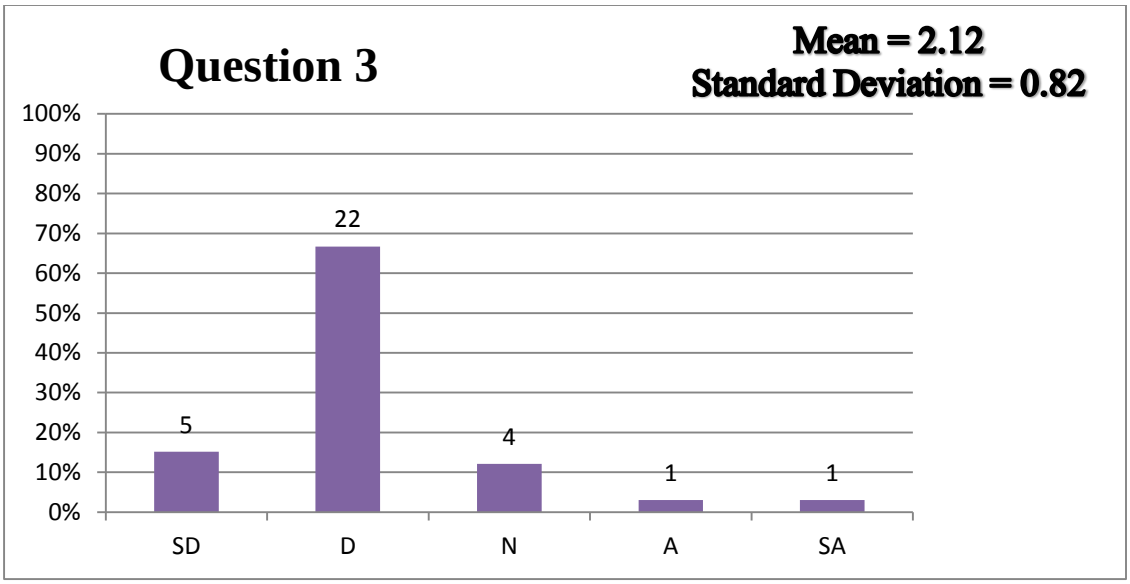

Figure 14. Graph Response to Question 3 of Hypothesis 1.

Question 4: The use of investment funds (development) appears to be more efficient and effective.

From Figure 15, the results of the completed questionnaire were 55% of the respondents chose disagree, 21% of the respondents chose neutral, 12% of the respondents chose strongly disagree, 12% of the respondents chose agree, 0% of strongly agree, the mean was 2.33 (negative), and the standard deviation was 0.85. The analysis of the data shows that most of the employees had a negative perception about question 4.

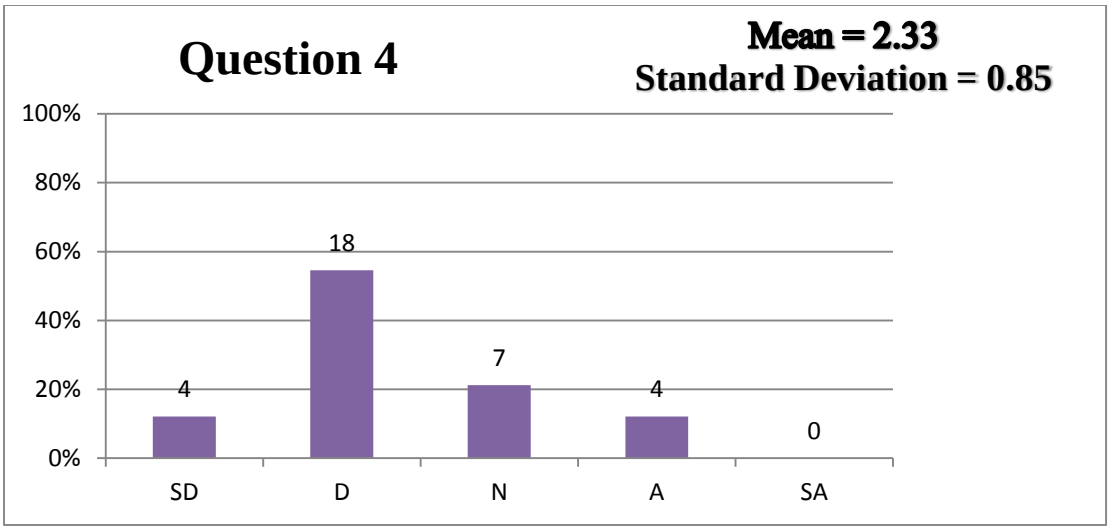

Figure 15. Graph Response to Question 4 of Hypothesis 1.

Question 5: The results of sales per year seem sufficient to cover the operational costs.

By applying the Intranet, the results of sales per year seemed sufficient to cover the operational costs. From Figure 16, the results of the completed questionnaire were 67% of the respondents chose disagree, 21% of the respondents chose neutral, 9% of the respondents chose strongly disagree, 3% of the respondents chose agree, 0% of strongly agree, the mean was 2.18 (negative), and the standard deviation was 0.64. Since 67% of the employees disagreed and the standard deviations was 0.64, it follows that more than half of the employees did not agree that the sales per year was sufficient to cover operational costs.

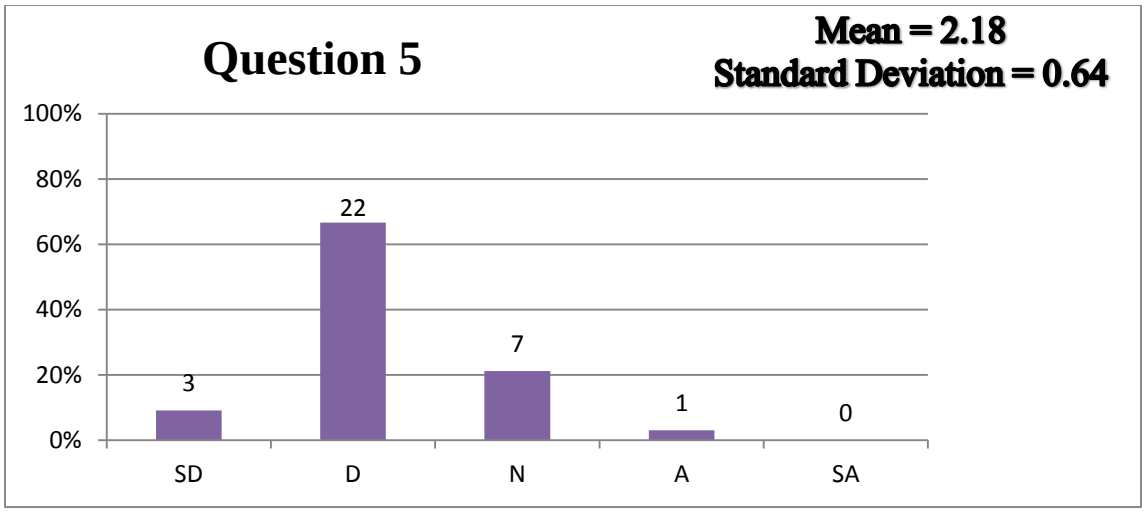

Figure 16. Graph Response to Question 5 of Hypothesis 1.

Question 6: The results of sales per year appear to cover investment costs.

From Figure 17, the results of the completed questionnaire were 73% of the respondents chose disagree, 12% of the respondents chose neutral, 9% of the respondents chose agree, 6% of the respondents chose strongly disagree, 0% of strongly agree, the mean was 2.24 (negative), and the standard deviation was 0.71. This indicates that most of the respondents chose strongly disagree that the results of sales per year appeared to cover investment costs.

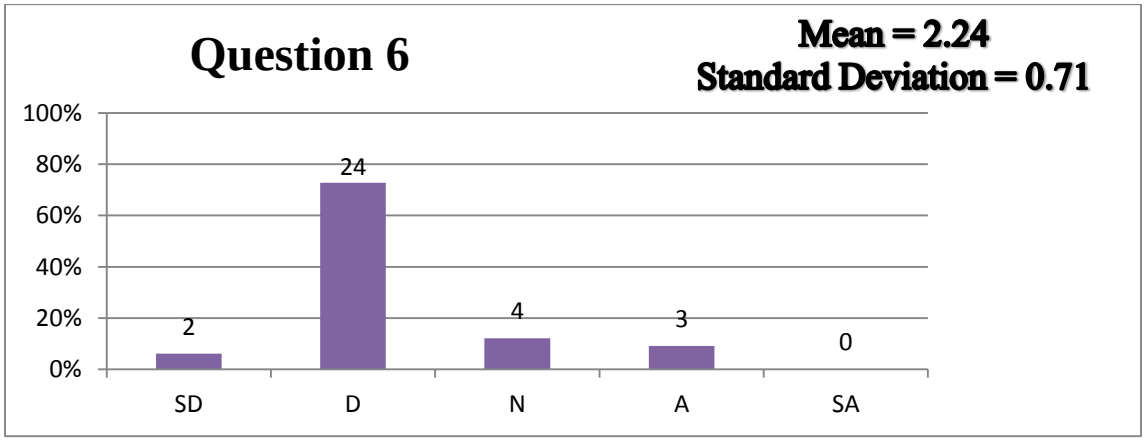

Figure 17. Graph Response to Question 6 of Hypothesis 1.

Question 7: The sales results appear to increase every year.

From Figure 18, the results of the completed questionnaire were 64% of the respondents chose disagree, 21% of the respondents chose strongly disagree, 9% of the respondents chose agree, 6% of the respondents chose neutral, 0% of strongly agree, the mean was 2.03 (negative), and the standard deviation was 0.81. The analysis of the results indicates that most of the respondents did not perceive increase in sales every year.

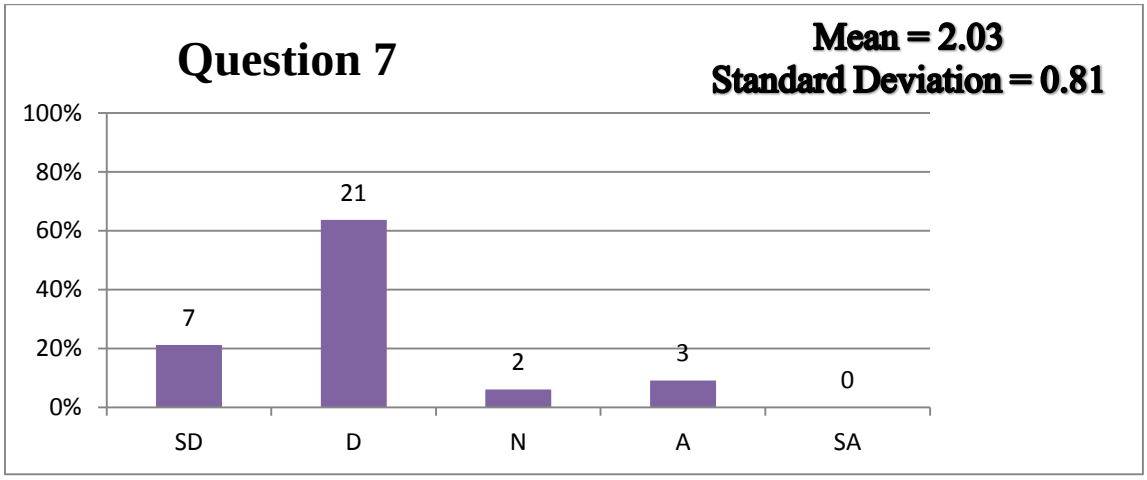

Figure 18. Graph Response to Question 7 of Hypothesis 1.

Question 8: The company seems to never have experienced difficulty in paying operational costs.

From Figure 19, the results of the completed questionnaire were 48% of the respondents chose disagree, 33% of the respondents chose neutral, 12% of the respondents chose strongly disagree, 6% of the respondents chose agree, 0% of strongly agree, the mean was 2.30 (negative), and the standard deviation was 0.78. 4. The analysis of the data shows that most of the employees had a negative perception about question 8.

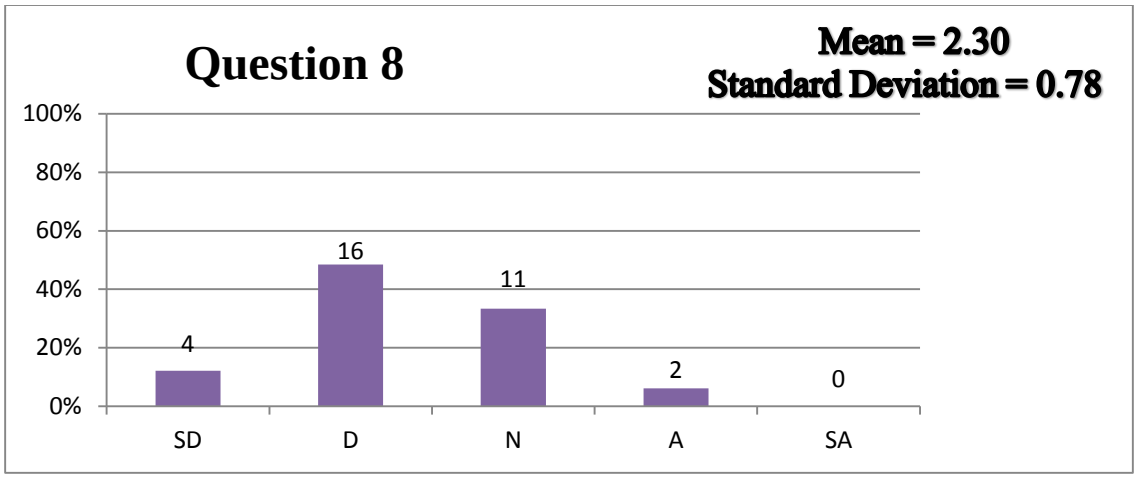

Figure 19. Graph Response to Question 8 of Hypothesis 1.

Question 9: Return on Invesment (ROI) seems higher.

From Figure 20, the results of the completed questionnaire were 55% of the respondents chose neutral, 33% of the respondents chose disagree, 6% of the respondents chose strongly disagree, 6% of the respondents chose agree, 0% of strongly agree, the mean was 2.30 (negative), and the standard deviation was 0.75. More than half of the respondents chose neutral. Perhaps this was because they did not know about Return on Investment (ROI) after the implementation of Intranet.

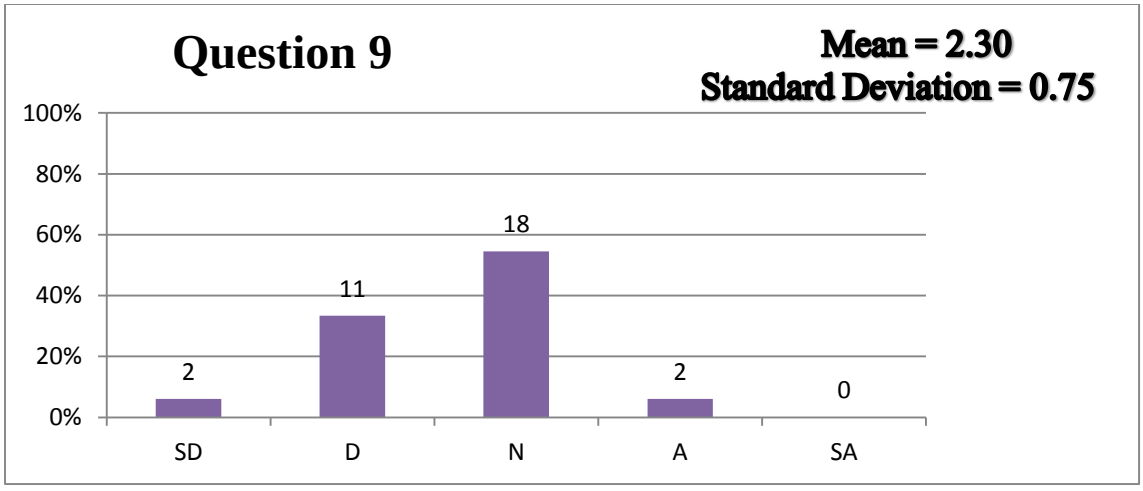

Figure 20. Graph Response to Question 9 of Hypothesis 1.

Results of Hypothesis Two

The questionnaire of hypothesis two solicited responses regarding the *people component* of KMS and *customer value perspective* of the BSC. The six questions were related to hypothesis two. The tables of the questionnaire hypothesis results can be seen in the appendix.

Hypothesis 2: With the application of KMS at Vale regarding the people component, Vale employees will perceive an increase in employees' performance regarding the BSC perspective of customer value.

Question 1: Clients appear to be more satisfied with employees' performance.

From Figure 21, the results of the completed questionnaire were 52% of the respondents chose agree, 21% of the respondents chose disagree, 15% of the respondents chose strongly agree, 9% of the respondents chose neutral, 3% of the respondents chose strongly disagree, the mean was 3.55 (positive), and the standard deviation was 1.09. The standard deviation value obtained shows that most of the respondents perceived clients' satisfaction with employees' performance as indicated by the mean value.

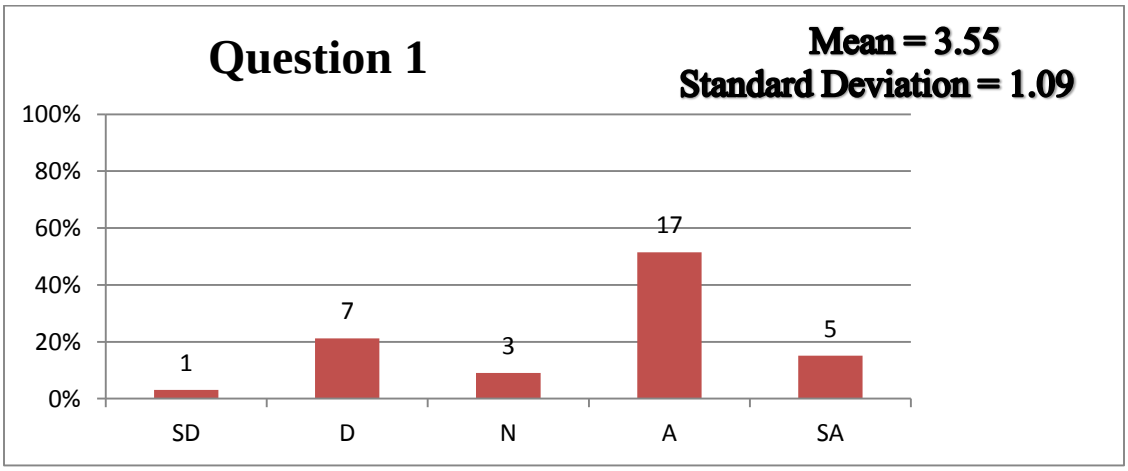

Figure 21. Graph Response to Question 1 of Hypothesis 2.

Question 2: Clients seem to be satisfied with the using services provided by the company.

From Figure 22, the results of the completed questionnaire were 48% of the respondents chose agree, 27% of the respondents chose strongly agree, 15% of the respondents chose neutral, 6% of the respondents chose disagree, 3% of the respondents chose strongly disagree, the mean was 3.91 (positive), and the standard deviation was 0.98. The results shows that the respondents perceived clients' satisfaction with the using services provided by the company as indicated by the mean value.

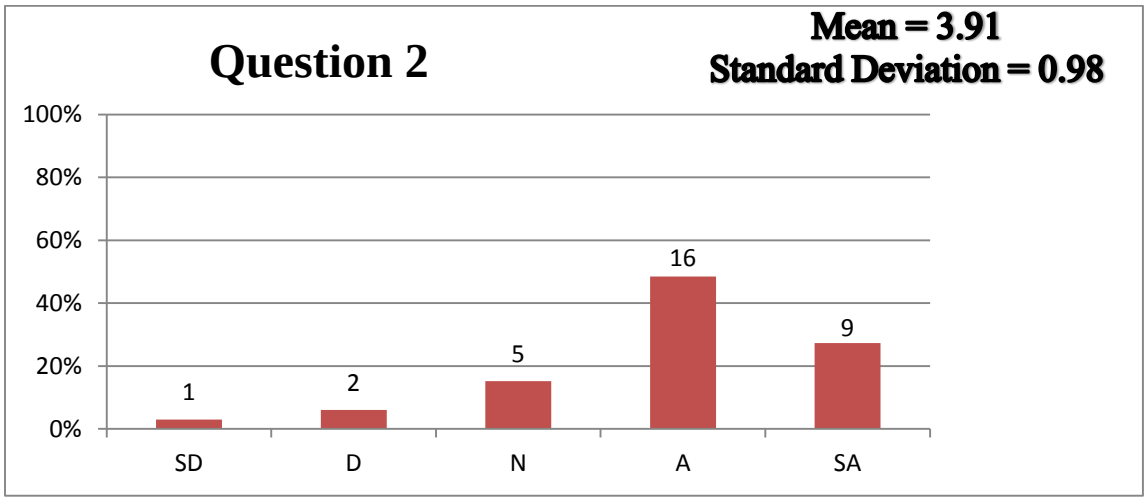

Figure 22. Graph Response to Question 2 of Hypothesis 2.

Question 3: The Company seems able to start and end projects on time.

From Figure 23, the results of the completed questionnaire were 48% of the respondents chose strongly agree, 27% of the respondents chose agree, 12% of the respondents chose neutral, 9% of the respondents chose disagree, 3% of the respondents chose strongly disagree, the mean was 4.09 (positive), and the standard deviation was

1.13. The analysis of the results shows that most of the employees strongly agree with the perception that the company starts and ends projects on time.

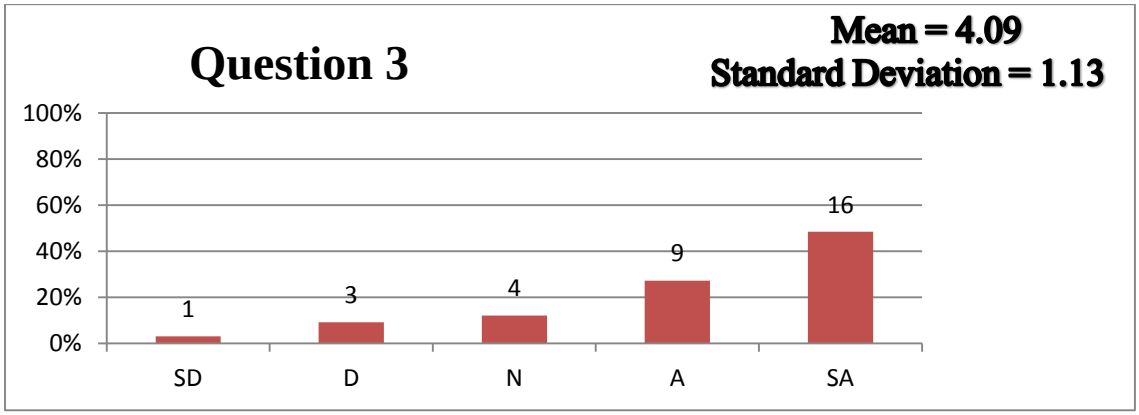

Figure 23. Graph Response to Question 3 of Hypothesis 2.

Question 4: The company seems more able carry out projects according to the SOW (Statement of Work).

From Figure 24, the results of the completed questionnaire were 45% of respondent chose strongly agree, 21% of the respondents chose neutral, 15% of the respondents chose disagree, 15% of the respondents chose agree, 3% of the respondents chose strongly disagree, the mean was 3.85 (positive), and the standard deviation was 1.25. This indicates that most of the respondents chose strongly agree to the question.

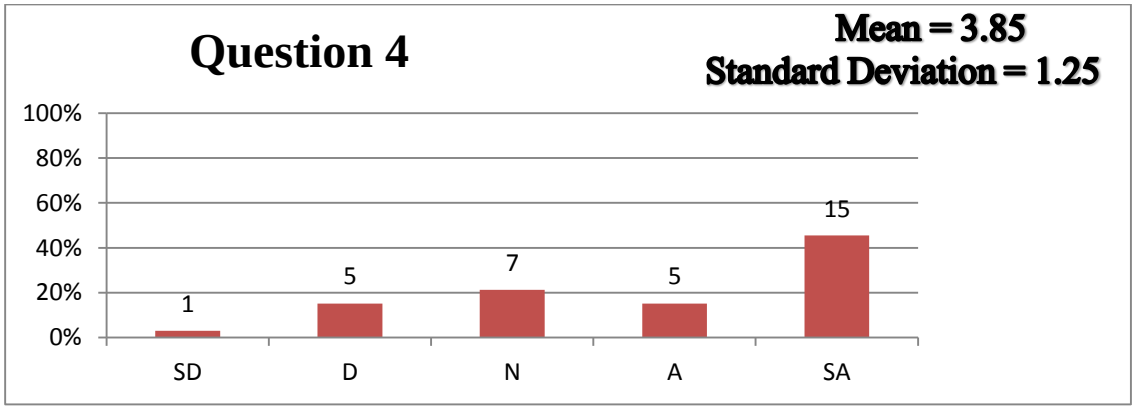

Figure 24. Graph Response to Question 4 of Hypothesis 2.

Question 5: The employees seem to be better trained to express their opinions to clients.

From Figure 25, the the results of the completed questionnaire were 42% of the respondents chose agree, 36% of the respondents chose strongly agree, 12% of the respondents chose neutral, 6% of the respondents chose disagree, 3% of the respondents chose strongly disagree, the mean was 4.03 (positive), and the standard deviation was 1.02. It means the respondents who had a positive perception about the employees seemed to be better trained to express their opinions to clients after the implementation of KMS.

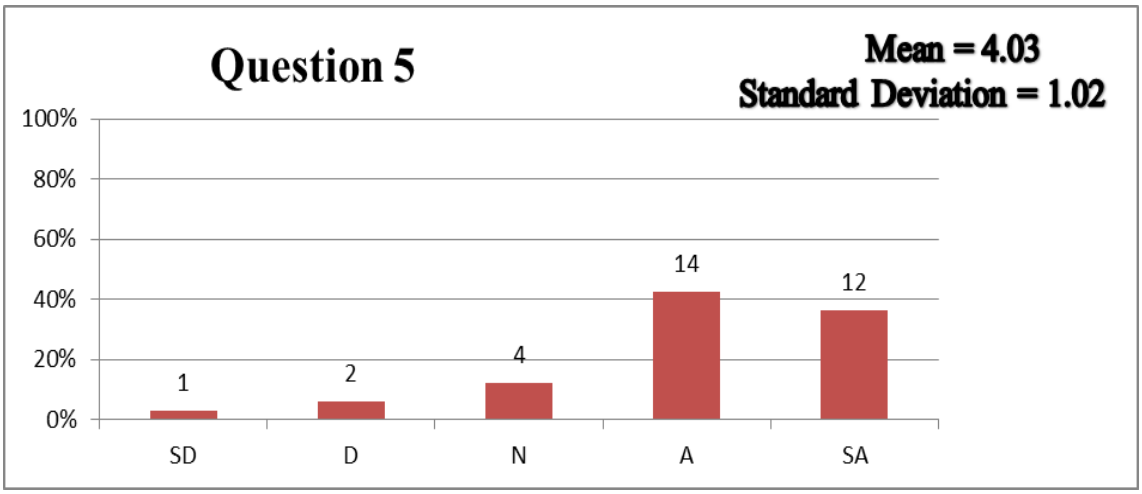

Figure 25. Graph Response to Question 5 of Hypothesis 2.

Question 6: Clients seem more satisfied with the services provided.

From Figure 26, the results of the completed questionnaire were 33% of the respondents chose strongly agree, 24% of the respondents chose agree, 21% of the respondents chose disagree, 15% of the respondents chose neutral, 6% of the respondents chose strongly disagree, the mean was 3.58 (positive), and the standard deviation was

1.32. The analysis of the data indicates that the results was positive after the implementation of Intranet, clients seemed more satisfied with the services provided.

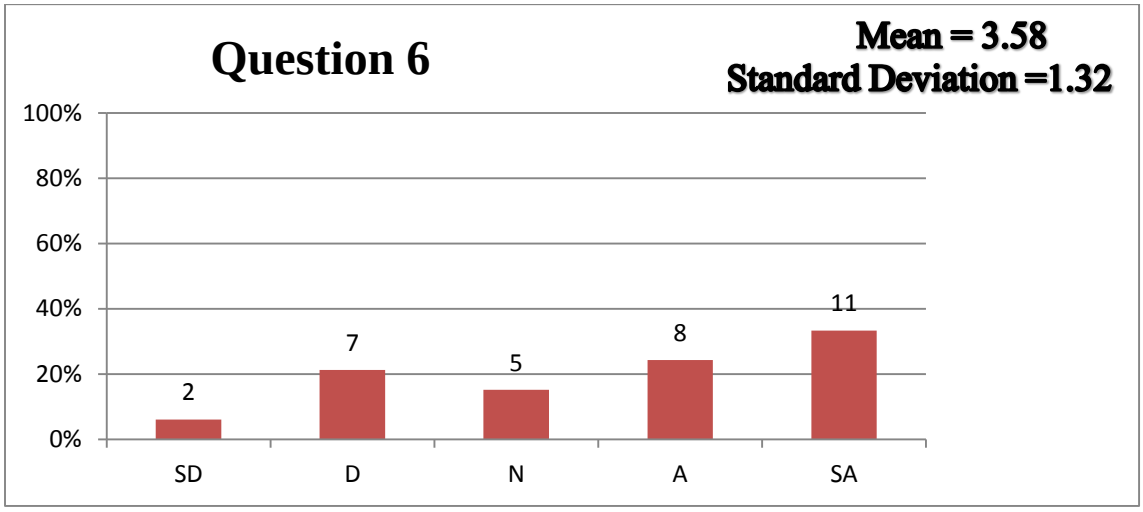

Figure 26. Graph Response to Question 6 of Hypothesis 2.

Results of Hypothesis Three

The questionnaire of hypothesis three solicited responses regarding *process component* of KMS and *internal business process perspective* of the BSC. The eight questions were related to hypothesis three. The tables of the questionnaire hypothesis results can be seen in the appendix.

Hypothesis 3: With the application of KMS at Vale regarding the process component, Vale employees will perceive an increase in employees' performance regarding the BSC perspective of internal business process.

Question 1: New employees appear to be more qualified.

From Figure 27, the results of the completed questionnaire were 36% of the respondents chose agree, 24% of the respondents chose neutral, 21% of the respondents chose strongly agree, 18% of the respondents chose disagree, 0% of strongly disagree, the mean was 3.60 (positive), and the standard deviation was 1.0. The mean value obtained above 3.51, it means with the implementation of Intranet, new employees were positively appeared to be more qualified after the implementation of Intranet.

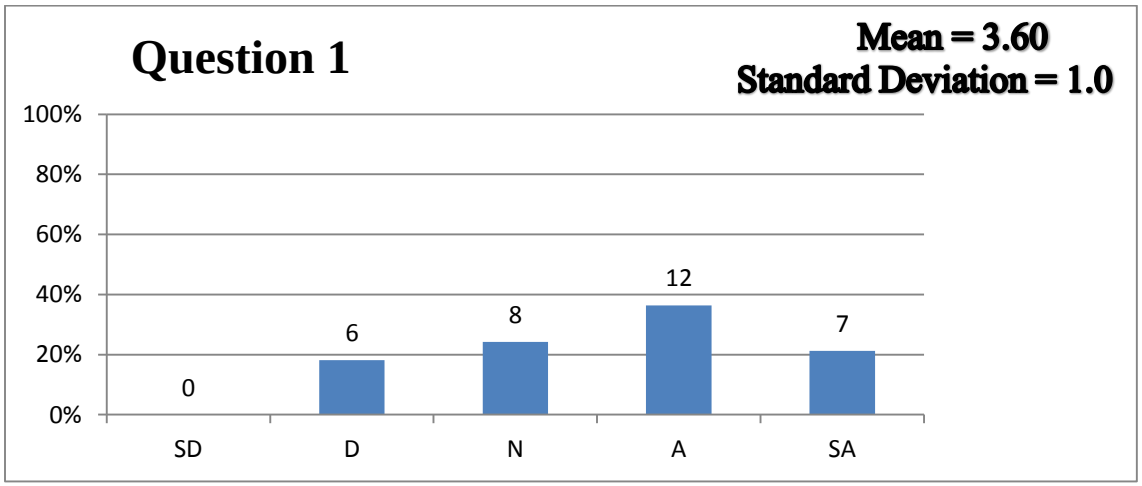

Figure 27. Graph Response to Question 1 of Hypothesis 3.

Question 2: The level of mistakes made by employees at work appears to be relatively low.

From Figure 28, the results of the completed questionnaire were 33% of the respondents chose strongly agree, 30% of the respondents chose neutral, 21% of the respondents chose agree, 15% of the respondents chose disagree, 0% of strongly disagree, the mean was 3.67 (positive), and the standard deviation was 1.1. It means the employees had a positive perception about the level of mistakes made by employees at work appeared to be relatively low after the implementation of Intranet.

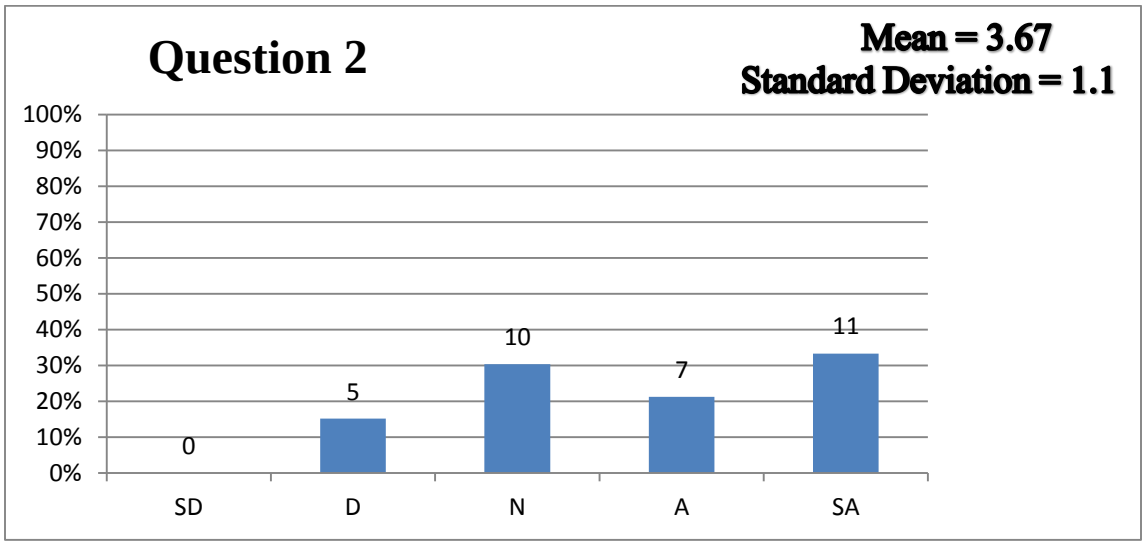

Figure 28. Graph Response to Question 2 of Hypothesis 3.

Question 3: All employees in the company appear to be actively engaged in learning.

From Figure 29, the results of the completed questionnaire were 39% of the respondents chose neutral, 33% of the respondents chose agree, 18% of the respondents chose strongly agree, 9% of the respondents chose disagree, 0% of strongly disagree, the mean was 3.61 (positive), and the standard deviation was 0.9. The analysis of the results

shows the perception was positive for all employees in the company appeared to be actively engaged in learning after the implementation of Intranet.

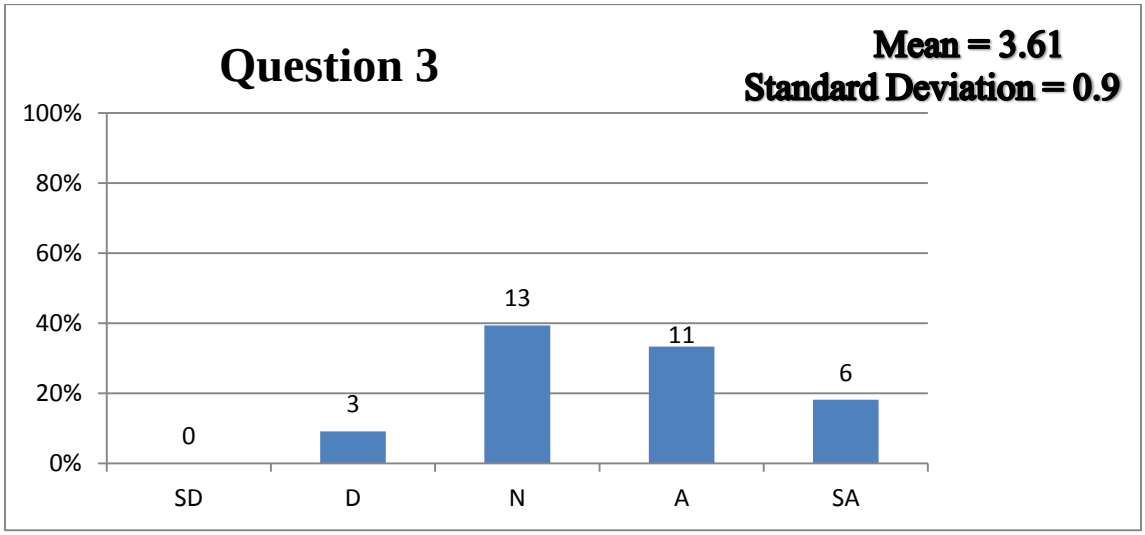

Figure 29. Graph Response to Question 3 of Hypothesis 3.

Question 4: Every employee has been equipped with a Standard Operating Procedure (SOP).

From Figure 30, the results of the completed questionnaire were 36% of the respondents chose agree, 30% of the respondents chose strongly agree, 24% of the respondents chose neutral, 6% of the respondents chose strongly disagree, 3% of the respondents chose disagree, the mean was 3.85 (positive), and the standard deviation was 1.0. The standard deviation value obtained shows that every employee had been equipped with a Standard Operating Procedure (SOP) with the implementation of Intranet.

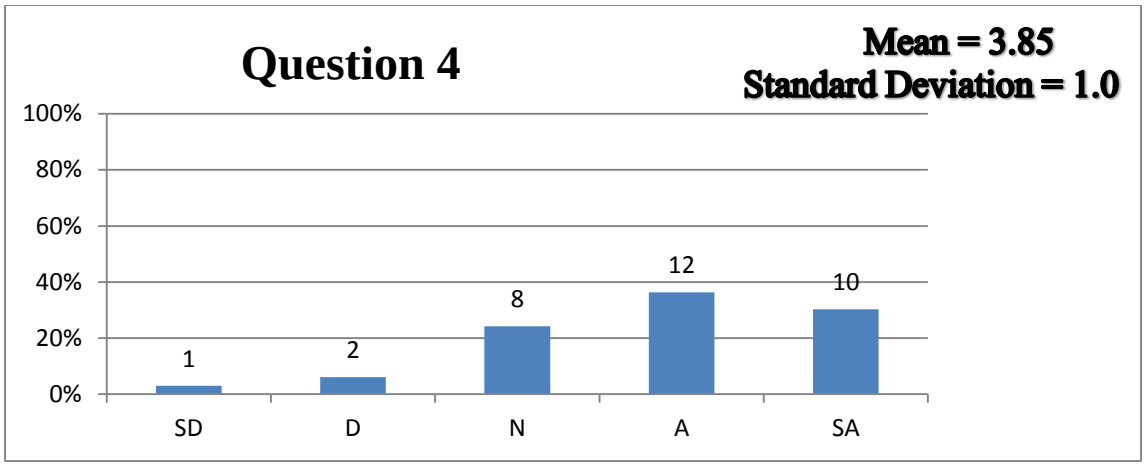

Figure 30. Graph Response to Question 4 of Hypothesis 3.

Question 5: The Company seems better able to apply quality assurance to improve product quality and employee performance.

From Figure 31, the results of the the completed questionnaire were 45% of the respondents chose agree, 24% of the respondents chose neutral, 15% of the respondents chose strongly agree, 15% of the respondents chose disagree, 0% of strongly disagree, the mean was 3.61 (positive), and the standard deviation was 0.9. The respondents had positive perception with the implementation of Intranet, the company seemed better able to apply quality assurance to improve product quality and employee performance.

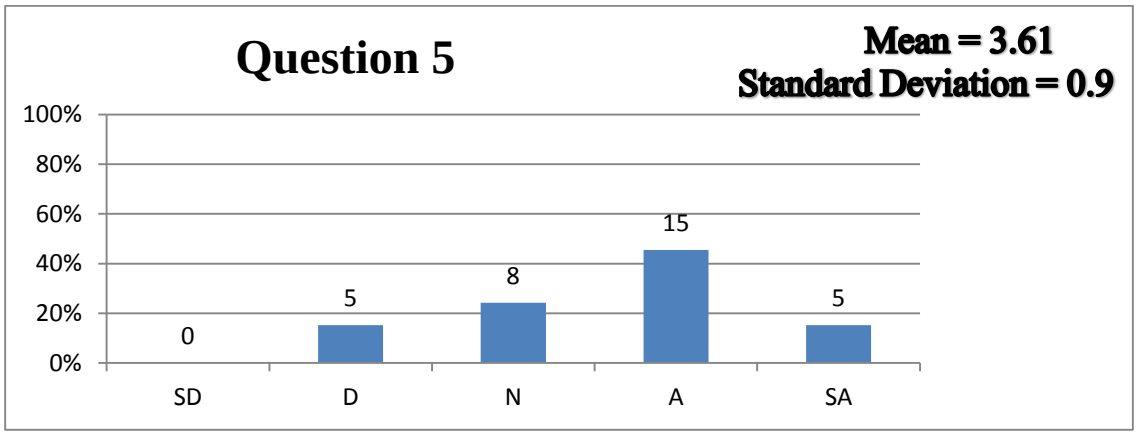

Figure 31. Graph Response to Question 5 of Hypothesis 3.

Question 6: The Company appears to be able to hire more qualified worker required by specific fields.

From Figure 32, the results of the completed questionnaire were 36% of respondent chose neutral, 27% of respondent chose strongly agree, 24% of respondent chose agree, 9% of respondent chose disagree, 3% of respondent chose strongly disagree, the mean was 3.64 (positive), and the standard deviation was 1.1. 36% of the respondents chose neutral. Perhaps this was because they did not know with the implementation of Intranet, the company appeared to be able to hire more qualified workers required by specific fields.

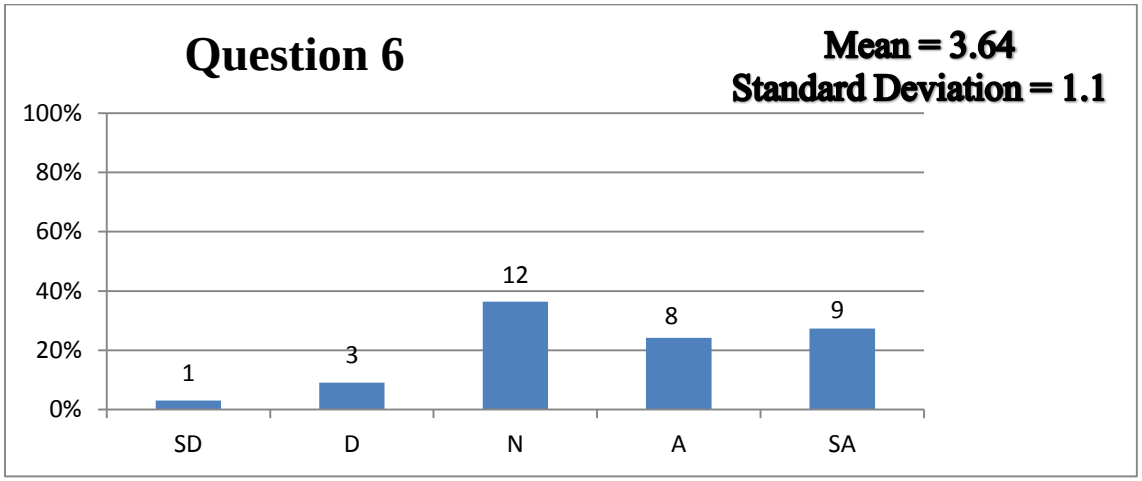

Figure 32. Graph Response to Question 6 of Hypothesis 3.

Question 7: The Company seems to have provided facilities to support employee learning.

From Figure 33, the results of the completed questionnaire were 61% of the respondents chose agree, 15% of the respondents chose neutral, 12% of the respondents chose disagree, 12% of the respondents chose strongly agree, 0% of strongly disagree, the mean was 3.64 (positive), and the standard deviation was 0.9. The analysis of the data

shows that most of the respondents were agree with the implementation of Intranet, the company seemed to have provided facilities to support employee learning.

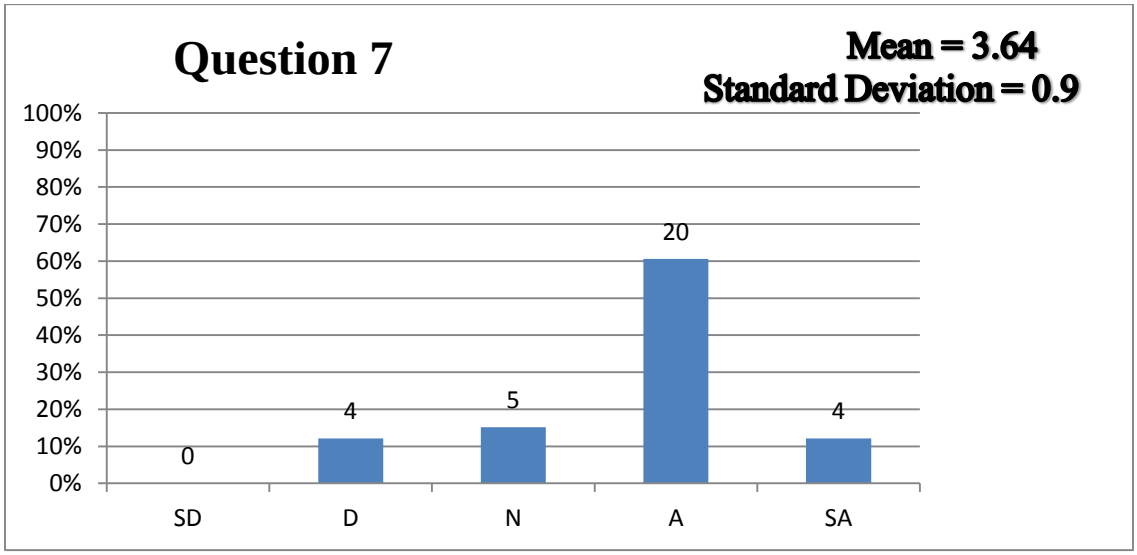

Figure 33. Graph Response to Question 7 of Hypothesis 3.

Question 8: All employees seemed to have improved competency skills in the field of after the implementation of Intranet.

From Figure 34, the results of the completed questionnaire were 55% of respondent chose agree, 18% of the respondents chose neutral, 15% of the respondents chose disagree, 12% of the respondents chose strongly agree, 0% of strongly disagree, the mean was 3.64 (positive), and the standard deviation was 0.9. 55% of the respondents agreed and the standard deviation was 0.9, it shows that more than half of the respondents did agree that after the implementation of Intranet, all employees seemed to have improved competency skills in the field after the implementation of Intranet.

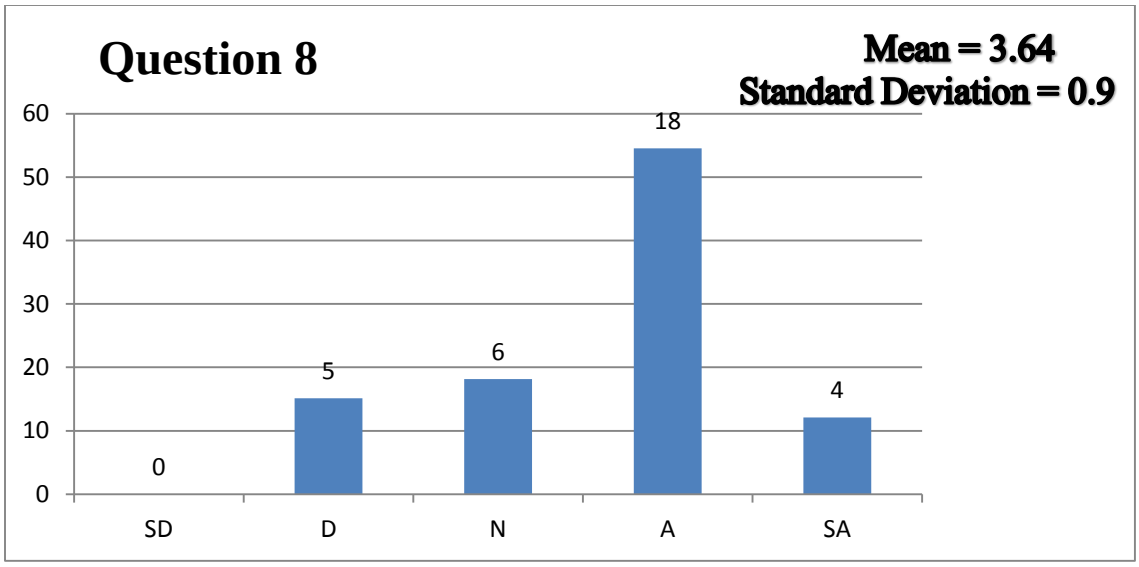

Figure 34. Graph Response to Question 8 of Hypothesis 3.

Results of Hypothesis 4

The questionnaire of hypothesis four solicited responses regarding *technology component* of KMS and *learning & growth perspective* of the BSC. The eleven questions were related to hypothesis four. The tables of the questionnaire hypothesis results can be seen in the appendix.

Hypothesis 4: With the application of KMS at Vale regarding the technology component, Vale employees' will perceive an increase in employees' performance regarding the BSC perspective of learning & growth.

Question 1: The employees seem more responsive to the demands and needs of clients.

From Figure 35, the results of the completed questionnaire were 36% of the respondents chose strongly agree, 27% of the respondents chose disagree, 18% of the respondents chose neutral, 18% of the respondents chose agree, 0% of strongly disagree, the mean was 3.64 (positive), and the standard deviation was 1.25. The analysis of the results indicates that the employees seemed more responsive to the demands and needs of clients by applying the technical component of the Intranet.

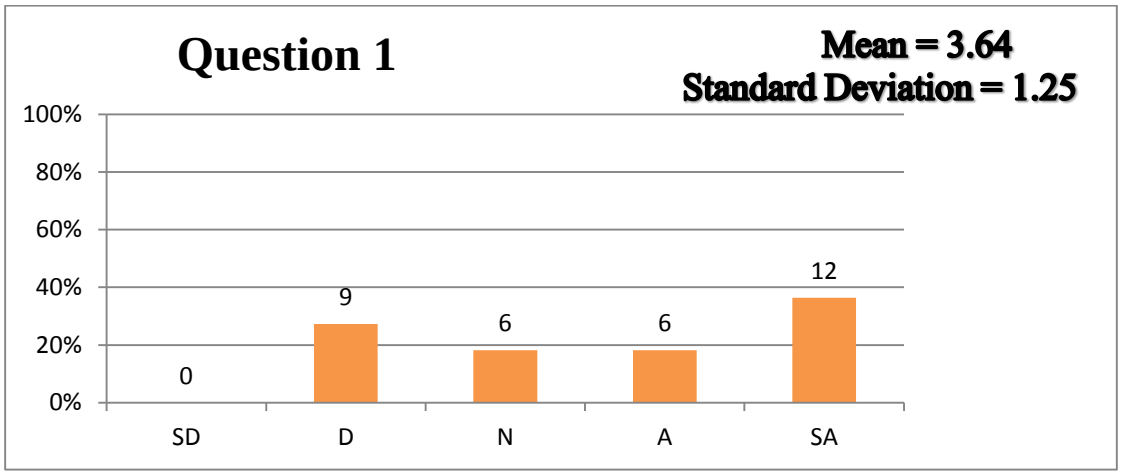

Figure 35. Graph Response to Question 1 of Hypothesis 4.

Question 2: The employees' motivation seems high regarding finishing of tasks.

From Figure 36, the results of the completed questionnaire were 42% of the respondents chose strongly agree, 36% of the respondents chose agree, 15% of the respondents chose neutral, 6% of the respondents chose disagree, 0% of strongly disagree, the mean was 4.15 (positive), and the standard deviation was 0.91. The respondents had positive perception about the employees' motivation seemed high regarding finishing of tasks after the implementation of Intranet.

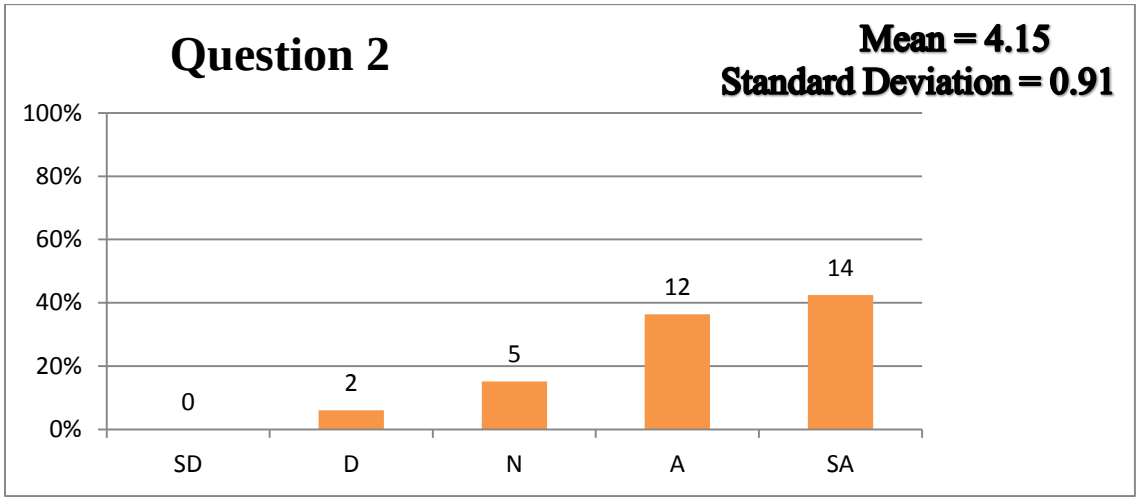

Figure 36. Graph Response to Question 2 of Hypothesis 4.

Question 3: There seems to be an increase in employees' knowledge.

From Figure 37, the results of the completed questionnaire were 39% of the respondents chose strongly agree, 30% of the respondents chose agree, 15% of the respondents chose neutral, 12% of the respondents chose disagree, 3% of the respondents chose strongly disagree, the mean was 3.91 (positive), and the standard deviation was 1.16. The mean value obtained shows that most of the respondents perceived increase in employees' knowledge after the implementation of Intranet.

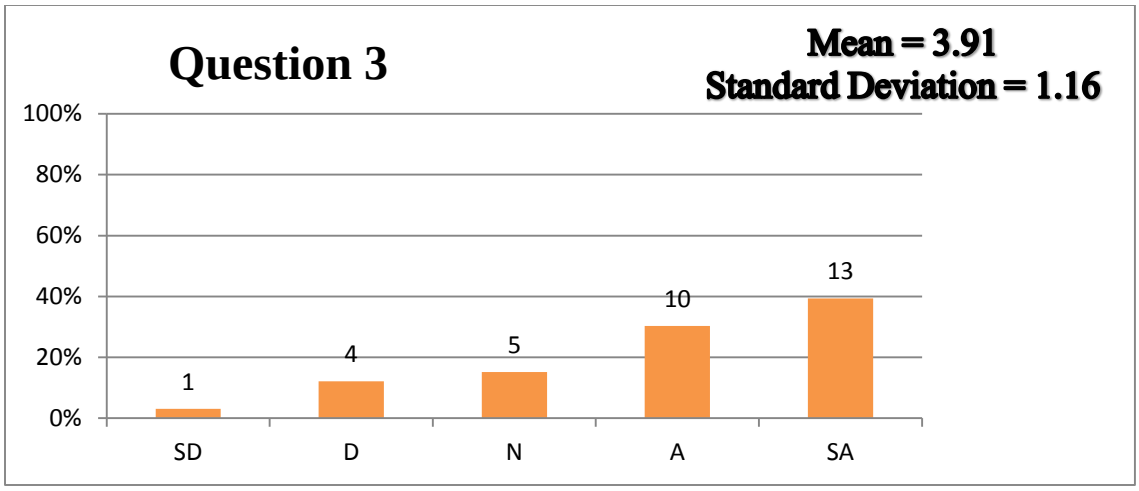

Figure 37. Graph Response to Question 3 of Hypothesis 4.

Question 4: The turnover of potential employees seems lower.

From Figure 38, the results of the completed questionnaire were 45% of the respondents chose strongly agree, 42% of the respondent chose agree, 6% of the respondents chose disagree, 6% of the respondents chose neutral, 0% for strongly disagree, the mean was 4.27 (positive), and the standard deviation was 0.84. Since the mean value was very high, it shows the respondents had positive perception about the question.

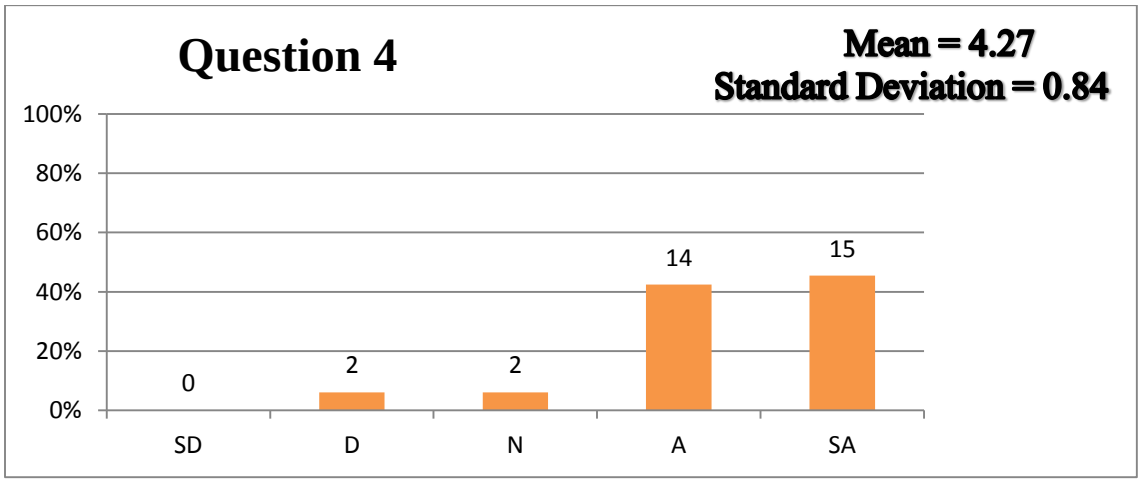

Figure 38. Graph Response to Question 4 of Hypothesis 4.

Question 5: The employees seem more focused on teamwork.

From Figure 39, the results of the completed questionnaire were 48% of the respondents chose agree, 27% of the respondents chose strongly agree, 15% of the respondents chose disagree, 9% of the respondents chose neutral, 0% of strongly disagree, the mean was 3.88 (positive), and the standard deviation was 0.99. More than half of the respondents focused on teamwork after the implementation of Intranet.

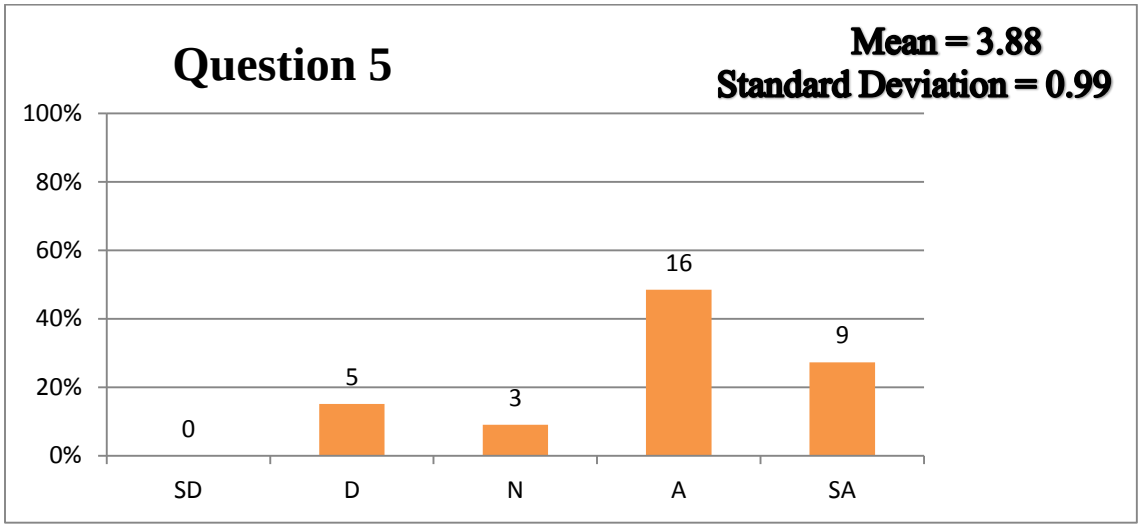

Figure 39. Graph Response to Question 5 of Hypothesis 4.

Question 6: The employees' skills seem to have increased.

From Figure 40, the results of the completed questionnaire were 52% of the respondents chose agree, 24% of the respondents chose strongly agree, 9% of the respondents chose disagree, 9% of the respondents chose neutral, 6% of the respondents chose strongly disagree, the mean was 3.79 (positive), and the standard deviation was 1.11. The analysis of the data shows that most of the respondents'skills perceived increase with the implementation of Intranet.

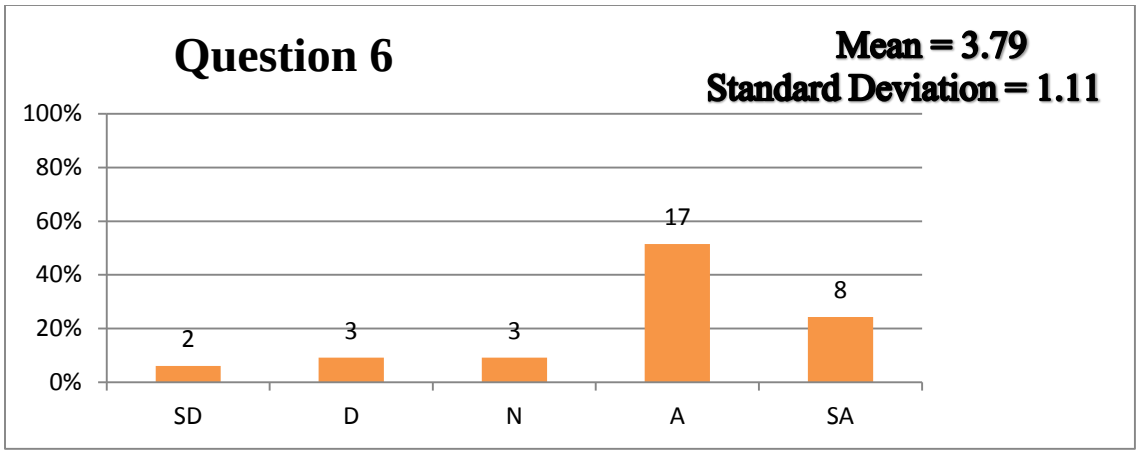

Figure 40. Graph Response to Question 6 of Hypothesis 4.

Question 7: The company seems to involve employees more in the decision-making process.

From Figure 41, the results of the completed questionnaire were 36% of respondent chose agree, 24% of the respondents chose strongly agree, 21% of the respondents chose disagree, 9% of the respondents chose neutral, 9% of the respondents chose strongly disagree, the mean was 3.45 (positive), and the standard deviation was 1.33. The mean value obtained shows that the result was inconclusive. They might not have known the answer to the factual question.

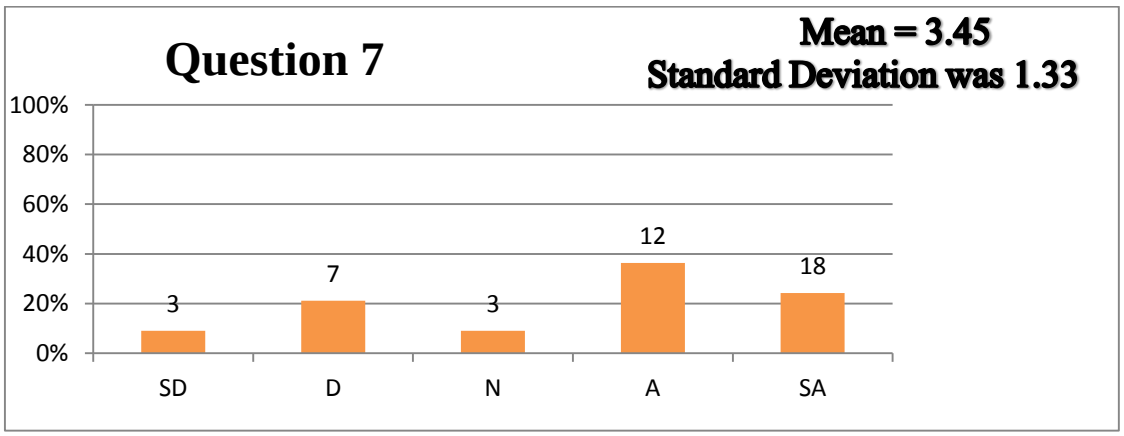

Figure 41. Graph Response to Question 7 of Hypothesis 4.

Question 8: The employees seem more motivated regarding creativity and initiative.

From Figure 42, the results of the completed questionnaire were 70% of the respondents chose agree, 15% of the respondents chose strongly agree, 9% of the respondents chose neutral, 3% of the respondents chose strongly disagree, 3% of the respondents chose disagree, the mean was 3.91 (positive), and the standard deviation was 0.80. The respondents had a positive perception about the employees who seemed more motivated regarding creativity and initiative after the implementation of Intranet.

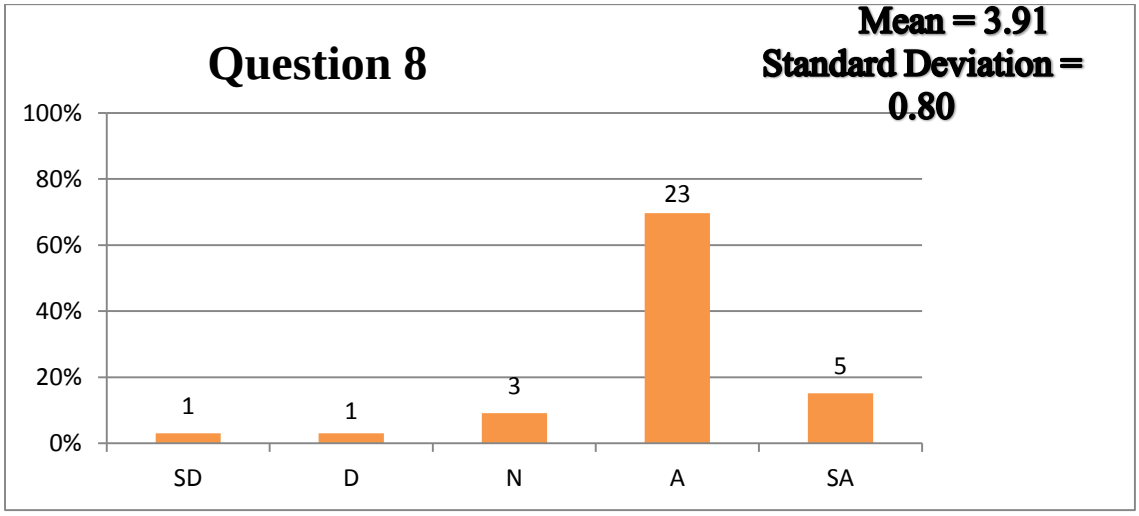

Figure 42. Graph Response to Question 8 of Hypothesis 4.

Question 9: The retention rate of new technology seems higher.

From Figure 43, the results of the completed questionnaire were 61% of the respondents chose agree, 21% of the respondents chose strongly agree, 9% of the respondents chose disagree, 9% of the respondents chose neutral, 0% for strongly disagree, the mean was 3.94 (positive), and the standard deviation was 0.83. 61% of the respondents were agreed that the retention rate of new technology seemed higher after applying the Intranet.

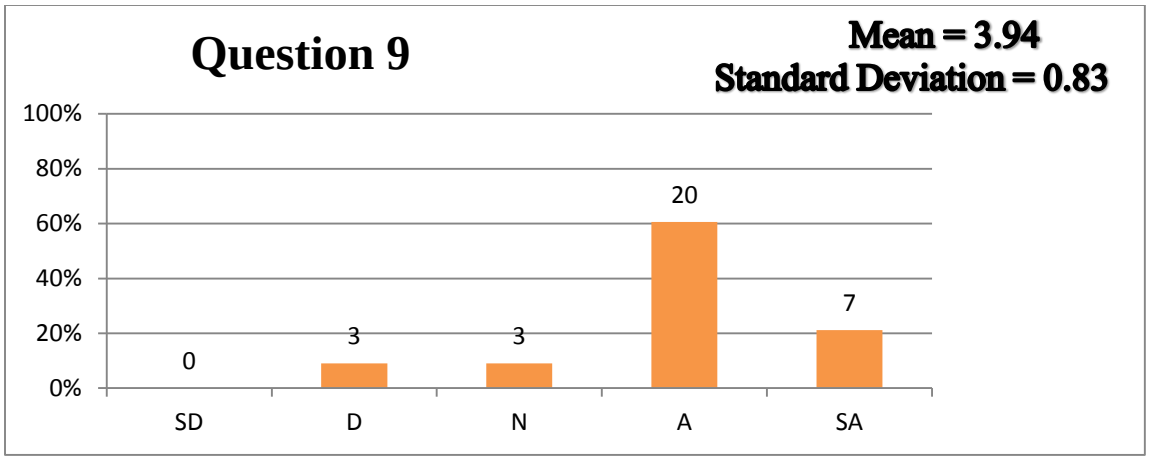

Figure 43. Graph Response to Question 9 of Hypothesis 4.

Question 10: The employees seem to better access needed information.

From Figure 44, the results of the completed questionnaire were 76% of the respondents chose agree, 15% of the respondents chose strongly agree, 6% of the respondents chose strongly disagree, 3% of the respondents chose neutral, 0% for disagree, the mean was 3.94 (positive), and the standard deviation was 0.86. Since 76% of the respondents agreed and the standard deviation was 0.86, it follows that more than half of the respondents did agree with the implementation of Intranet, the employees seemed to better access needed information.

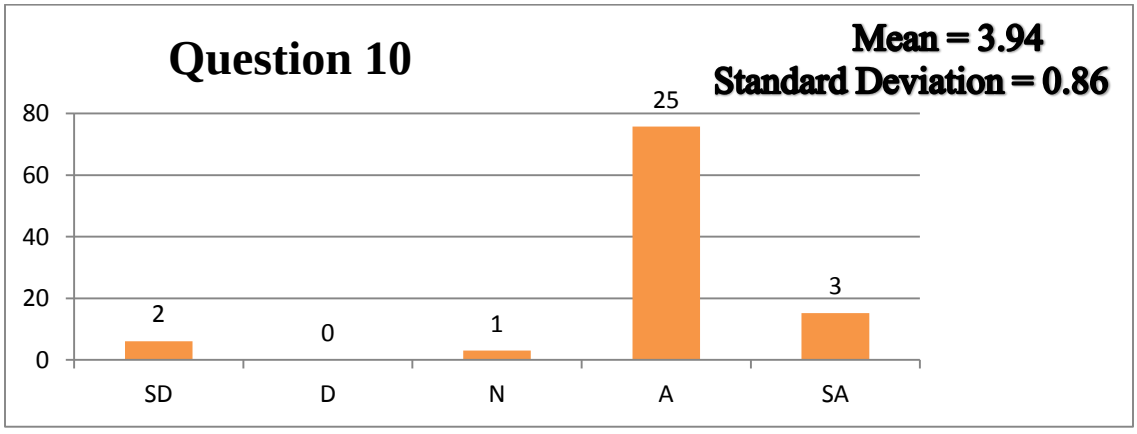

Figure 44. Graph Response to Question 10 of Hypothesis 4.

Question 11: The Company seems more committed to increasing employee performance in general.

From Figure 45, the results of the completed questionnaire were 55% of the respondents chose agree, 24% of the respondents chose strongly agree, 9% of the respondents chose disagree, 6% of the respondents chose strongly disagree, 6% of the respondents chose neutral, the mean was 3.70 (positive), and the standard deviation was 1.02. This indicates that most of the respondents agreed with the statement.

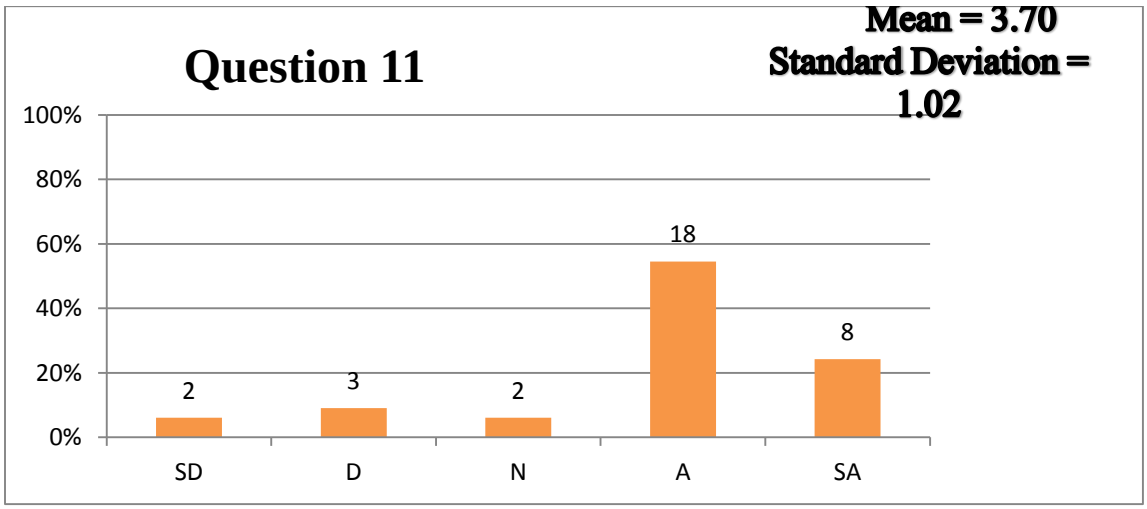

Figure 45. Graph Response to Question 11 of Hypothesis 4.

Demographic and Hypotheses Questionnaire Results

Table 6

Demographic of Hypothesis 1.

		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Total Mean Scores
Gender	**Female**	2.31	2.31	2.00	2.38	2.08	2.15	2.08	2.08	*2.31	2.19
	Male	2.30	2.30	2.20	2.30	2.25	2.30	2.00	2.50	2.70	2.32
Age	**30-39 years**	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.75	2.50	2.14
	40-49 years	2.17	2.17	1.94	2.22	2.00	2.06	2.00	*2.00	*2.39	2.10
	50-59 years	*2.64	*2.64	2.45	*2.64	*2.55	*2.64	2.09	2.73	2.82	*2.58
Level of Education	**Bachelor Degree**	2.45	*2.64	2.36	2.27	2.45	2.27	2.18	2.45	2.55	2.40
	Master Degree	2.19	2.05	1.95	2.29	2.00	2.14	1.86	2.24	*2.52	2.14
Years of Working	**< 5 years**	2.00	2.25	1.88	2.13	2.13	2.00	1.75	2.38	2.25	2.08
	6-10 years	*2.59	2.47	2.29	*2.59	2.29	2.47	2.18	2.41	*2.59	2.43
	11-20 years	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.14	2.71	2.10

Notes.
Q = Question.
*Different mean score.

Mean Scores:

- 1 - 2.5 = Negative.
- 2.51 - 3.5 = Neutral or inconclusive.
- 3.51 – 5 = Positive.

From table 44, even though the perception of males and females about KMS' effect on return on investment (Q9) were both below 3.0, yet the males had a higher positive response as compared to the females (2.70:2.31). The mean for the male employees' perception was inconclusive (2.70), while the female employees' views were negative (2.31).

For age group of 50-59 years, question 1, 2, 4, 5, 6, and 9 had mean values from 2.55-2.82 (inconclusive), and for age group 30-39 years and 40-49 years, the means were below 2.50 (negative). Question 3 and 7, for all age groups were below 2.50 (negative). In the level of education demographics, employees with bachelors and masters degrees, both had mean values below 2.5 (negative) for questions 1, and 3-9.

For question 2, the mean value was 2.64 (inconclusive) for bachelors degree group, and 2.05 (negative) for masters degree group. For all years of working groups, based on question 2, 3, and 5-8, the mean values were below 2.5 (negative). Employees with 6-10 years of experience with the company from questions 1, 4, and 9 had mean score of 2.59 (inconclusive), and the mean score of employees with less than 5 years experience and 11-20 years experience with the company was below 2.50 (negative).

Hypothesis Two:

Table 7

Demographic of Hypothesis 2.

		Q1	Q2	Q3	Q4	Q5	Q6	Total Mean Score
Gender	**Female**	*3.62	3.69	3.77	3.85	4.00	*3.15	3.15
	Male	3.50	4.05	4.3	3.85	4.05	3.85	3.37
Age	**30-39 years**	*2.50	*3.50	4.25	4.00	3.75	*3.24	3.03
	40-49 years	3.94	3.94	4.06	3.94	4.17	4.00	3.44
	50-59 years	3.67	4.22	3.89	*3.33	4.00	3.56	3.24
Level of Education	**Bachelor Degree**	*3.82	4.09	4.09	4.00	3.91	3.55	3.35
	Master Degree	3.41	3.82	4.09	3.77	4.09	3.59	3.25
Years of Working	**< 5 years**	3.00	3.67	4.00	3.67	*3.33	2.78	2.92
	6-10 years	*3.88	4.18	4.06	3.88	4.24	*4.06	3.47
	11-20 years	3.43	3.57	4.29	4.00	4.43	3.43	3.31

Notes.
Q = Question.
*Different mean score.

Mean Scores:

- 1 - 2.5 = Negative.
- 2.51 - 3.5 = Neutral or inconclusive.
- 3.51 – 5 = Positive.

From hypothesis two, based on Table 45, question 1-5 both male and female revealed means above 3.505 (positive). For question 6, the revealed mean was 3.15 (inconclusive) for female, and 3.85 (positive) for male. For age groups, the revealed means of question 1 was 2.50 (negative) for age group of 30-39 years, and above 3.505 (positive) for age group 40-49 years and 50-59 years.

For question 2 and 6, the revealed mean of age group of 30-39 years was 3.50 (inconclusive), and the revealed means group of 40-49 years and group of 50-59 years were 3.505 (positive). For question 3, and 5, the revealed means were above 3.505 (positive) for all the age groups.

For question 4, the revealed mean of 50-59 years group was 3.33 (inconclusive), and the revealed means for group of 30-39 years and group of 40-49 years were above 3.505 (positive). For level of education groups (bachelor degree and master degree), the revealed means of question 1-6 were above 3.505 (positive). For question 1, 5, and 6, the revealed means were inconclusive for < 5 years of working group, and above 3.505 (positive) for group of 6-10 years and group of 11-20 years. For question 2, 3, and 4, the revealed means were above 3.505 (positive) for all years of working groups.

Hypothesis Three:

Table 8.

Demographic of Hypothesis 3

		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Total Mean Score
Gender	**F**	*4.23	3.62	*3.46	3.77	*3.77	*3.00	3.77	3.77	3.67
	M	3.20	3.70	3.70	3.90	3.50	4.05	3.55	3.55	3.64
Age	**30-39 years**	3.20	*1.80	*2.40	*2.60	*2.40	2.80	3.20	2.40	*2.60
	40-49 years	*3.72	3.61	3.72	3.83	3.67	3.50	*3.72	3.83	3.70
	50-59 years	3.27	4.27	3.64	4.09	3.73	3.91	3.36	3.55	3.73
Level of Education	**Bachelor Degree**	3.55	*3.18	3.82	3.73	3.64	*3.91	3.55	*3.36	3.59
	Master Degree	3.64	3.91	3.50	3.91	3.59	3.50	3.68	3.77	3.69
Years of Working	**< 5 years**	3.60	*2.90	*3.00	*3.00	2.80	*2.90	*2.90	*3.00	*3.01
	6-10 years	3.53	3.76	3.71	4.06	*3.94	3.71	3.76	3.88	3.79
	11-20 years	*3.29	4.00	3.71	4.00	3.43	4.00	3.86	3.43	3.71

Notes.
Q = Question.
*Different mean score.

Mean Scores:

- 1 - 2.5 = Negative.
- 2.51 - 3.5 = Neutral or inconclusive.
- 3.51 – 5 = Positive.

From hypothesis three, question 2, and 4-8, both male and female revealed means above 3.505 (positive). For question 1, the revealed mean was 4.23 (positive) for female, and 3.20 (inconclusive) for male. For question 3, the revealed mean was 3.46 (inconclusive) for female, and 3.70 (positive) for male. For age group of 30-39 years, question 1, 4, 6, and 7 the revealed means were inconclusive. Question 2, 3, 5, and 8 the revealed means were negative. The overall mean of questions was 2.60 (inconclusive) for age group of 30-39 years, 3.70 (positive) for age group of 40-49 years, 3.73 (positive) for age group of 50-59 years. For level of education, group of bachelor degree, the revealed mean for question 1 was 3.18 (inconclusive), and 3.91 (positive) for group of master degree. For years of working groups, the overall mean of group < 5 years was 3.01 (inconclusive), and above 3.505 (positive) for both group 6-10 years and 11-20 years.

Hypothesis Four:

Table 9

Demographic of Hypothesis 4.

		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Total Mean Score
Gender	**F**	3.85	4.08	3.69	4.31	3.62	3.77	3.77	3.69	3.85	3.77	4.00	3.85
	M	*3.50	4.20	4.05	4.25	4.05	3.80	*3.25	4.05	4.00	4.05	*3.50	3.88
Age	**30-39 years**	*2.25	4.75	4.25	3.75	3.75	4.50	3.25	4.25	4.25	4.00	3.75	3.89
	40-49 years	3.94	3.89	3.72	4.33	3.94	3.61	*3.67	3.61	4.00	3.89	3.94	3.87
	50-59 years	3.64	4.36	4.09	4.36	3.82	3.82	3.18	4.27	3.73	4.00	*3.27	3.87
Level of Education	**Bachelor Degree**	*3.45	4.18	4.18	4.36	4.09	3.91	*3.00	4.18	4.18	4.36	3.91	3.98
	Master Degree	3.73	4.14	3.77	4.23	3.77	3.73	3.68	3.77	3.82	3.73	3.59	3.81
Years of Working	**< 5 years**	*2.89	4.22	3.67	4.33	3.56	3.33	*2.78	3.67	3.67	3.44	3.56	3.56
	6-10 years	3.82	4.00	3.82	4.35	3.94	3.94	3.94	4.00	4.06	4.18	3.82	3.99
	11-20 years	4.14	4.43	4.43	4.00	4.14	4.00	3.14	4.00	4.00	4.00	3.57	3.99

Notes.
Q = Question.
*Different mean score.

Mean Scores:

- 1 - 2.5 = Negative.
- 2.51 - 3.5 = Neutral or inconclusive.
- 3.51 – 5 = Positive.

From hypothesis four, question 1, 7, and 11, the revealed means were above 3.505 (positive) for female, and inconclusive for male. For question 1, the revealed mean of age 30-39 years group was 2.25 (negative), and the reveal mean for 40-49 years group and 50-59 years group were above 3.505 (positive). For question 2-6, and 8-10, the revealed mean for all age groups were above 3.505 (positive). For question 7, the revealed mean of 40-49 years group was 3.67 (positive), for group of 30-39 years the revealed mean was 3.25 (inconclusive), and for group of 50-59 years, the revealed mean was 3.18 (inconclusive).

For levels of education groups, the revealed mean of question 1 was 3.45 (inconclusive) for bachelor degree group, and 3.73 (positive) for master degree group. For question 2-6, and 8-11, the revealed means were above 3.505 (positive) for both level of education groups. For years of working group, the overall mean of question 1 was 2.89 (inconclusive) for group < 5 years, and above 3,505 (positive) for group 6-10 years, and group 11-20 years. For question 2-6, and 8-11, the overall means were above 3.505 (positive) for all of years of working group. For question 7, the overall mean was 2.78 (inconclusive) for group < 5 years, and above 3.505 (positive) for group 6-10 years and group 11-20 years.

CHAPTER 5

Conclusions and Recommendations

The primary purpose of this research was to analyze the perception between employee performance based on KMS implementation and the four perspectives of the BSC. The results of this research can be used at Vale and perhaps other similar companies as a reference to optimize the use of KMS implementation in increasing employees' performance.

Hypothesis Conclusions

This study hypothesized the employees' perception of KMS implementation with the four perspective of the BSC at Vale. The conclusions were derived from the resulting analysis presented in the previous chapter as follows:

Hypothesis 1: With the application of KMS at Vale regarding the *people* component, Vale employees will perceive an increase in employees' performance regarding the *financial* BSC perspective.

From the result of the data, the overall mean of questions relating to hypothesis one was 2.27. The Vale professional employees had perception on KMS implementation to employee performance regarding the *financial* BSC perspective was negative. This may suggest, there was no perceived financial increase with the implementation of KMS in Vale.

Hypothesis 2: With the application of KMS at Vale regarding the *people* component, Vale employees will perceive an increase in employees' performance regarding the BSC perspective of *customer value*.

From the result of the data, the overall mean of questions relating to hypothesis two was 3.83. The Vale professional employees had perception on KMS implementation to employee performance regarding the customer value of the BSC perspective was positive. This may suggest, there was an increase in the customer value perspective with the implementation of KMS in Vale.

Hypothesis 3: With the application of KMS at Vale regarding the *process* component, Vale employees will perceive an increase in employees' performance regarding the BSC perspective of *internal business process*.

From the result of the data, the overall mean of questions relating hypothesis three was 3.66. The Vale professional employees had perception on KMS implementation to employee performance regarding the internal business process of the BSC perspective was positive. This may suggest, there was an increase in the internal business process perspective with the implementation of KMS in Vale.

Hypothesis 4: With the application of KMS at Vale regarding the *technology* component, Vale employees' will perceive an increase in employees' performance regarding the BSC perspective of *learning & growth*.

From the result of the data, the overall mean of questions relating hypothesis four was 3.87. The Vale professional employees had perception on KMS implementation to employee performance regarding the learning & growth of the BSC perspective was positive. This may suggest, there was an increase in the learning & growth perspective with the implementation of KMS in Vale.

Overall Hypothesis Conclusions

This research was to ascertain the perception of KMS implementation on employees' performance measured with the BSC at Vale. The overall mean score of the hypothesis questionnaire statements in the three perspectives of the BSC (customer value, internal business process, and learning & growth), was above 3.505 (positive). The results of three of those areas were different to the financial perspective of the BSC. The overall mean score of this area was 2.27 (negative).

The results of the data may suggest that the employees perceived improvements in three areas of the BSC perspectives (customer value, internal business process, and learning & growth). After the implementation of KMS, most of the employees (52%) agreed that the company perceived improvement in customer satisfaction (question 1 of hypothesis 2). With the implementation of Intranet, most employees agreed that every employee had been equipped with a Standard Operating Procedure (SOP) (question 4 hypothesis 3). 52% of employees agreed that the implementation of Intranet increased employees' skills (question 6 of hypothesis 4).

The results from those three areas were different in the financial perspective in the BSC. Most of the employees disagreed with questionnaire statements of hypothesis one and had a low perception of the improvement in this area eventhough Vale's 2015 annual report showed a higher income and revenue as compared to previous years (Vale annual report, 2015). There was a negative result for this hypothesis probably because most employees might not have been privy to the amount of money lost when knowledge acquired on the job is lost due to employee turnover. Since most of the employees cannot quantify acquired knowledge in financial terms, the employees might not know the

benefits KMS provides in terms of finances. Therefore, the company needs to improve on this area based on employees' perception results.

Demographic Conclusions

From the demographics results there were differences in employees' perception on the financial perspective from the BSC metric. The female employees had a mean of 2.31 (negative) and 2.70 (inconclusive) for male employees about return on investment after applying the Intranet. Vale employees who worked more than 5 years had a better perception on the level of customer satisfaction and services provided after the implementation of Intranet (question 6 of hypothesis 2). For levels of education, employees with masters degree had a mean score of 3.50 (inconclusive), where as employees with bachelor degrees had 3.91 (positive) about KMS' effectiveness in helping the human resource department in hiring highly qualified employees (question 6 of hypothesis 3). Employees between 30-39 years had a mean score of 2.25 (negative) regarding the KMS' effectiveness in getting clients' responses and demands, whereas employees from 40-59 years had a mean score above 3.505 (positive).

From the above discussions, it can be deduced that the demographics of employees affect their perception on the KMS implemented at Vale as measured on the BSC.

Recommendations

The recommendation addressed for Vale is:

1. To further implement KMS Vale needs to address the kind of issues making the perception in the financial perspective of the BSC low. This point of area needs to concentrate on improving the perception to increase financial improvement.

The recommendation addressed for Vale and perhaps other similar companies are:

1. The company needs to optimize the KMS implementation and to improve employees' competency skills in order to improve growth, income, and work productivity, to help the use of operational funds more efficiently and effectively in the company.
2. The company needs to provide more resources and procedures that are necessary to establish a culture of knowledge sharing through the KMS application.
3. The company needs to optimize the use of KMS implementation to store documents to make them accessible. This will facilitate employees' ability to solve problems, because implementation of KMS can help the company to deploy the tacit knowledge using well-organized information system to support knowledge transfer. This system will make it easier to create and develop new knowledge in the company.

The recommendations for further research to improve the limitations of this study are:

1. Further research can focus on all areas of Vale, including employees at multiple sites in the different provinces in Indonesia and not only focused on the headquarter office in Jakarta.
2. The number of questionnaire respondents can be increased by including similar companies in order to generalize the results of the research.

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Appendices – The Questionnaire Results

Appendix A

Table A1

The Questionnaire Data of the KMS Regarding People Component and Financial Perspective of the BSC (Hypothesis 1).

Question	SD	%	D	%	N	%	A	%	SA	%	Total of Respondents	Total %
1	1	3	23	70	7	21	2	6	0	0	33	100
2	3	9	21	64	6	18	2	6	1	3	33	100
3	5	15	22	67	4	12	1	3	1	3	33	100
4	4	12	18	55	7	21	4	12	0	0	33	100
5	3	9	22	67	7	21	1	3	0	0	33	100
6	2	6	24	73	4	12	3	9	0	0	33	100
7	7	21	21	64	2	6	3	9	0	0	33	100
8	4	12	16	48	11	33	2	6	0	0	33	100
9	2	6	11	33	18	55	2	6	0	0	33	100

Notes.
SD = Strongly Disagree
D = Disagree
N = Neutral
A = Agree
SA = Strongly Agree

Table A2

The Questionnaire Results of The KMS regarding People Component and Customer Perspective of the BSC (Hypothesis 2).

Question	SD	%	D	%	N	%	A	%	SA	%	Total of Respondents	Total %
1	1	3	7	21	3	9	17	52	5	15	33	100
2	1	3	2	6	5	15	16	48	9	27	33	100
3	1	3	3	9	4	12	9	27	16	48	33	100
4	1	3	5	15	7	21	5	15	15	45	33	100
5	1	3	2	6	4	12	14	42	12	36	33	100
6	2	6	7	21	5	15	8	24	11	33	33	100

Notes.
SD = Strongly Disagree
D = Disagree
N = Neutral
A = Agree
SA = Strongly Agree
% = Percentages

Table A3.

The Questionnaire Results of The KMS regarding Process Component and Internal Business Process Perspective of the BSC (Hypothesis 3).

Question	SD	%	D	%	N	%	A	%	SA	%	Total of Respondents	Total %
1	0	0	6	18	8	24	12	36	7	21	33	100
2	0	0	5	15	10	30	7	21	11	33	33	100
3	0	0	3	9	13	39	11	33	6	18	33	100
4	1	3	2	6	8	24	12	36	10	30	33	100
5	0	0	5	15	8	24	15	45	5	15	33	100
6	1	3	3	9	12	36	8	24	9	27	33	100
7	0	0	4	12	5	15	20	61	4	12	33	100
8	0	0	5	15	6	18	18	55	4	12	33	100

Notes.
SD = Strongly Disagree
D = Disagree
N = Neutral
A = Agree
SA = Strongly Agree
% = Percentages

Table A4.

The Questionnaire Results of The KMS regarding Technology Component and Learning and Growth Perspective of the BSC (Hypothesis 4).

Question	SD	%	D	%	N	%	A	%	SA	%	Total of Respondents	Total %
1	0	0	9	27	6	18	6	18	12	36	33	100
2	0	0	2	6	5	15	12	36	14	42	33	100
3	1	3	4	12	5	15	10	30	13	39	33	100
4	0	0	2	6	2	6	14	42	15	45	33	100
5	0	0	5	15	3	9	16	48	9	27	33	100
6	2	6	3	9	3	9	17	52	8	24	33	100
7	3	9	7	21	3	9	12	36	8	24	33	100
8	1	3	1	3	3	9	23	70	5	15	33	100
9	0	0	3	9	3	9	20	61	7	21	33	100
10	2	6	0	0	1	3	25	76	5	15	33	100
11	2	6	3	9	2	6	18	55	8	24	33	100

Notes.
SD = Strongly Disagree **N = Neutral** **SA = Strongly Agree**
D = Disagree **A = Agree** **% = Percentages**

Appendix B

Table B 1

Demographic of Hypothesis 1.

					Questionnaire of Hypothesis 1									
Gender	**Age**	**Level of Education**	**Years of Working**	**R**	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Total**
F	40-49 years	Master Degree	< 5 years	**R1**	2	3	2	3	2	2	2	2	3	
F	40-49 years	Master Degree	6-10 years	**R2**	4	3	2	4	3	3	4	2	2	
F	40-49 years	Master Degree	< 5 years	**R3**	2	2	1	2	2	2	1	2	1	
M	50-59 years	Master Degree	< 5 years	**R4**	2	3	2	3	3	2	2	2	2	
M	50-59 years	Bachelor Degree	6-10 years	**R5**	4	5	5	4	4	3	4	3	4	
M	50-59 years	Master Degree	6-10 years	**R6**	3	1	1	3	1	4	1	3	3	
M	50-59 years	Bachelor Degree	6-10 years	**R7**	3	4	3	4	3	3	3	4	3	
M	50-59 years	Bachelor Degree	6-10 years	**R8**	3	3	1	1	3	2	1	2	1	

F	50-59 years	Master Degree	6-10 years	**R9**	2	2	2	2	2	2	1	1	2
F	40-49 years	Master Degree	6-10 years	**R10**	2	1	1	1	1	1	1	1	2
F	40-49 years	Master Degree	6-10 years	**R11**	2	2	2	2	2	2	2	2	2
M	40-49 years	Master Degree	6-10 years	**R12**	2	2	2	2	2	2	2	2	2
M	40-49 years	Master Degree	6-10 years	**R13**	2	2	2	2	2	2	2	2	2
M	40-49 years	Master Degree	11-20 years	**R14**	2	2	2	2	2	2	2	2	2
M	40-49 years	Bachelor Degree	11-20 years	**R15**	2	2	2	2	2	2	2	2	3
M	40-49 years	Master Degree	11-20 years	**R16**	2	2	2	2	2	2	2	2	3
F	40-49 years	Master Degree	6-10 years	**R17**	3	3	3	3	2	2	2	3	3
F	30-39 years	Master Degree	< 5 years	**R18**	2	2	2	2	2	2	2	3	3
F	30-39 years	Bachelor Degree	< 5 years	**R19**	2	2	2	2	2	2	2	3	3
F	40-49 years	Bachelor Degree	11-20 years	**R20**	2	2	2	2	2	2	2	1	2
F	30-39 years	Bachelor Degree	< 5 years	**R21**	2	2	2	2	2	2	2	2	1
M	40-49 years	Master Degree	6-10 years	**R22**	1	1	1	1	1	1	1	1	2

M	40-49 years	Master Degree	6-10 years	**R23**	2	2	2	3	2	2	2	3	3	
M	30-39 years	Bachelor Degree	< 5 years	**R24**	2	2	2	2	2	2	2	3	3	
M	50-59 years	Master Degree	11-20 years	**R25**	2	2	2	2	2	2	2	3	3	
M	50-59 years	Master Degree	11-20 years	**R26**	2	2	2	2	2	2	2	3	3	
M	40-49 years	Bachelor Degree	6-10 years	**R27**	2	2	2	2	2	2	2	2	3	
M	50-59 years	Master Degree	11-20 years	**R28**	2	2	2	2	2	2	2	2	3	
F	40-49 years	Master Degree	< 5 years	**R29**	2	2	2	2	2	2	2	2	3	
M	50-59 years	Bachelor Degree	6-10 years	**R30**	3	3	3	3	3	3	3	3	3	
M	40-49 years	Bachelor Degree	< 5 years	**R31**	2	2	2	1	2	2	1	2	2	
M	50-59 years	Master Degree	6-10 years	**R32**	3	2	4	3	3	4	2	4	4	
F	40-49 years	Master Degree	6-10 years	**R33**	3	4	3	4	3	4	4	3	3	
				Total	76	76	70	77	72	74	67	77	84	673
				Mean	2.30	2.30	2.12	2.33	2.18	2.24	2.03	2.33	2.55	2.27
				%	11%	11**%**	10%	11%	11%	11%	10%	11%	12%	100%

Notes.

F = Female **Q = Question** **% = Percentages**

M = Male **R = Respondent**

Table B 2

Demographic of Hypothesis 2.

			Questionnaire of Hypothesis 2							
Gender	**Age**	**Level of Education**	**Years of Working**	**R**	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Total**
F	40-49 years	Master Degree	< 5 years	**R1**	4	2	3	3	5	2	
F	40-49 years	Master Degree	6-10 years	**R2**	4	4	4	4	4	5	
F	40-49 years	Master Degree	< 5 years	**R3**	2	4	2	5	1	5	
M	50-59 years	Master Degree	< 5 years	**R4**	2	4	5	3	3	2	
M	50-59 years	Bachelor Degree	6-10 years	**R5**	4	5	4	4	4	4	
M	50-59 years	Master Degree	6-10 years	**R6**	4	3	5	3	4	3	
M	50-59 years	Bachelor Degree	6-10 years	**R7**	4	5	5	4	4	4	
M	50-59 years	Bachelor Degree	6-10 years	**R8**	4	4	2	3	3	5	
F	50-59 years	Master Degree	6-10 years	**R9**	4	4	1	1	4	3	
F	40-49 years	Master Degree	6-10 years	**R10**	5	4	5	5	4	1	
F	40-49 years	Master Degree	6-10 years	**R11**	4	3	3	3	5	4	
M	40-49 years	Master Degree	6-10 years	**R12**	5	5	5	2	3	3	
M	40-49 years	Master Degree	6-10 years	**R13**	3	3	5	5	4	4	
M	40-49 years	Master Degree	11-20 years	**R14**	4	5	2	3	5	5	
M	40-49 years	Bachelor Degree	11-20 years	**R15**	5	3	4	3	5	4	
M	40-49 years	Master Degree	11-20 years	**R16**	5	4	5	2	4	3	
F	40-49 years	Master Degree	6-10 years	**R17**	4	5	3	5	4	4	
F	30-39 years	Master Degree	< 5 years	**R18**	2	2	5	5	4	2	
F	30-39 years	Bachelor Degree	< 5 years	**R19**	2	4	4	5	5	2	
F	40-49 years	Bachelor Degree	11-20 years	**R20**	4	3	5	5	5	3	

F	30-39 years	Bachelor Degree	< 5 years	**R21**	4	4	5	2	2	1	
M	40-49 years	Master Degree	6-10 years	**R22**	3	4	4	5	5	5	
M	40-49 years	Master Degree	6-10 years	**R23**	2	4	5	5	5	5	
M	30-39 years	Bachelor Degree	< 5 years	**R24**	2	4	3	4	4	2	
M	50-59 years	Master Degree	11-20 years	**R25**	1	1	5	5	3	5	
M	50-59 years	Master Degree	11-20 years	**R26**	2	5	5	5	4	2	
M	40-49 years	Bachelor Degree	6-10 years	**R27**	4	5	5	5	5	5	
M	50-59 years	Master Degree	11-20 years	**R28**	3	4	4	5	5	2	
F	40-49 years	Master Degree	< 5 years	**R29**	4	5	5	2	4	4	
M	50-59 years	Bachelor Degree	6-10 years	**R30**	4	4	4	5	4	4	
M	40-49 years	Bachelor Degree	< 5 years	**R31**	5	4	4	4	2	5	
M	50-59 years	Master Degree	6-10 years	**R32**	4	5	5	2	5	5	
F	40-49 years	Master Degree	6-10 years	**R33**	4	4	4	5	5	5	
				Total	117	129	135	127	133	118	759
				Mean	3.55	3.91	4.09	3.85	4.03	3.58	3.83
				%	15%	17%	18%	17%	18%	16%	100%

Notes.
F = Female
M = Male
Q = Question
R = Respondent
% = Percentages

Table B 3

Demographic of Hypothesis 3.

					Questionnaire of Hypothesis 3								
Gender	**Age**	**Level of Education**	**Years of Working**	**R**	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Total**
F	40-49 years	Master Degree	< 5 years	**R1**	4	3	4	5	4	2	3	4	
F	40-49 years	Master Degree	6-10 years	**R2**	4	3	2	4	3	3	4	4	
F	40-49 years	Master Degree	< 5 years	**R3**	5	5	2	1	2	1	2	5	
M	50-59 years	Master Degree	< 5 years	**R4**	2	5	3	4	3	4	2	3	
M	50-59 years	Bachelor Degree	6-10 years	**R5**	4	5	5	4	5	4	4	4	
M	50-59 years	Master Degree	6-10 years	**R6**	4	3	3	3	5	4	3	4	
M	50-59 years	Bachelor Degree	6-10 years	**R7**	4	4	4	5	4	5	4	4	
M	50-59 years	Bachelor Degree	6-10 years	**R8**	2	4	5	4	3	4	2	2	
F	50-59 years	Master Degree	6-10 years	**R9**	5	5	3	4	4	3	4	4	

F	40-49 years	Master Degree	6-10 years	**R10**	3	3	5	5	4	5	4	3
F	40-49 years	Master Degree	6-10 years	**R11**	5	5	4	3	5	3	4	4
M	40-49 years	Master Degree	6-10 years	**R12**	3	3	4	5	4	4	5	4
M	40-49 years	Master Degree	6-10 years	**R13**	4	4	3	2	4	3	4	5
M	40-49 years	Master Degree	11-20 years	**R14**	3	5	4	3	4	5	4	4
M	40-49 years	Bachelor Degree	11-20 years	**R15**	3	3	3	3	3	3	3	3
M	40-49 years	Master Degree	11-20 years	**R16**	5	5	4	5	4	5	4	4
F	40-49 years	Master Degree	6-10 years	**R17**	3	3	3	3	5	3	4	4
F	30-39 years	Master Degree	< 5 years	**R18**	5	2	3	4	2	2	3	2
F	30-39 years	Bachelor Degree	< 5 years	**R19**	4	2	3	3	3	2	5	5
F	40-49 years	Bachelor Degree	11-20 years	**R20**	3	3	4	5	4	3	4	4
F	30-39 years	Bachelor Degree	< 5 years	**R21**	5	3	3	3	5	5	4	3
M	40-49 years	Master Degree	6-10 years	**R22**	3	3	4	4	3	3	4	4
M	40-49 years	Master Degree	6-10 years	**R23**	2	2	4	5	2	5	5	4

M	30-39 years	Bachelor Degree	< 5 years	**R24**	2	2	3	3	2	5	4	2	
M	50-59 years	Master Degree	11-20 years	**R25**	4	4	3	4	4	5	4	2	
M	50-59 years	Master Degree	11-20 years	**R26**	2	5	3	4	2	4	4	4	
M	40-49 years	Bachelor Degree	6-10 years	**R27**	4	3	3	5	4	3	3	4	
M	50-59 years	Master Degree	11-20 years	**R28**	3	3	5	4	3	3	4	3	
F	40-49 years	Master Degree	< 5 years	**R29**	5	5	4	5	4	3	4	4	
M	50-59 years	Bachelor Degree	6-10 years	**R30**	4	4	4	4	4	4	4	4	
M	40-49 years	Bachelor Degree	< 5 years	**R31**	4	2	5	2	3	5	2	2	
M	50-59 years	Master Degree	6-10 years	**R32**	2	5	2	5	4	3	2	5	
F	40-49 years	Master Degree	6-10 years	**R33**	4	5	5	4	4	4	4	3	
				Total	119	121	119	127	119	120	120	120	965
				Mean	3.6	3.67	3.61	3.85	3.61	3.64	3.64	3.64	3.66
				%	12%	13%	12%	13%	12%	12%	12%	12%	100%

Notes.
F = Female **R = Respondent** **% = Percentages**
M = Male **Q = Question**

Table B 4

Demographic of Hypothesis 4.

					Questionnaire of Hypothesis 4											
Gender	**Age**	**LoE**	**YoW**	**R**	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**	**Q11**	**Total**
F	40-49 years	MD	< 5 years	**R1**	2	5	4	5	3	2	4	4	3	4	2	
F	40-49 years	MD	6-10 years	**R2**	4	4	4	5	4	1	5	1	4	4	4	
F	40-49 years	MD	< 5 years	**R3**	2	3	1	4	2	3	1	2	2	1	5	
M	50-59 years	MD	< 5 years	**R4**	3	4	2	5	3	1	2	3	2	1	2	
M	50-59 years	BD	6-10 years	**R5**	4	4	5	5	4	4	4	5	4	4	4	
M	50-59 years	MD	6-10 years	**R6**	4	4	5	4	4	5	5	5	4	3	3	
M	50-59 years	BD	6-10 years	**R7**	4	4	4	5	4	5	4	4	4	5	5	
M	50-59 years	BD	6-10 years	**R8**	2	5	2	4	2	3	1	4	2	5	5	
F	50-59 years	MD	6-10 years	**R9**	5	3	3	5	4	4	4	4	4	4	4	

F	40-49 years	MD	6-10 years	**R10**	5	5	4	5	4	4	5	4	4	4	4
F	40-49 years	MD	6-10 years	**R11**	5	3	3	4	3	5	5	4	4	4	4
M	40-49 years	MD	6-10 years	**R12**	5	4	4	5	5	4	4	4	4	4	4
M	40-49 years	MD	6-10 years	**R13**	3	3	5	4	5	3	4	4	4	4	4
M	40-49 years	MD	11-20 years	**R14**	5	4	5	3	4	4	4	4	4	4	4
M	40-49 years	BD	11-20 years	**R15**	5	3	5	4	4	4	4	4	4	4	4
M	40-49 years	MD	11-20 years	**R16**	3	4	3	5	5	4	3	4	4	4	4
F	40-49 years	MD	6-10 years	**R17**	5	2	5	4	4	4	5	4	4	4	4
F	30-39 years	MD	< 5 years	**R18**	2	5	3	2	2	5	2	4	3	4	5
F	30-39 years	BD	< 5 years	**R19**	2	5	5	5	4	4	2	4	4	4	4
F	40-49 years	BD	11-20 years	**R20**	5	5	4	4	4	4	3	4	4	4	4
F	30-39 years	BD	< 5 years	**R21**	3	4	4	4	4	4	4	5	5	4	4
M	40-49 years	MDegree	6-10 years	**R22**	2	5	2	5	4	4	5	4	4	4	4
M	40-49 years	MD	6-10 years	**R23**	2	5	3	3	2	4	2	3	5	4	4

M	30-39 years	BD	< 5 years	**R24**	2	5	5	4	5	5	5	4	5	4	2	
M	50-59 years	MD	11-20 years	**R25**	4	5	5	5	5	2	2	4	3	4	1	
M	50-59 years	MD	11-20 years	**R26**	2	5	5	5	2	5	2	4	5	4	4	
M	40-49 years	BD	6-10 years	**R27**	3	4	2	4	4	4	2	4	4	4	4	
M	50-59 years	MD	11-20 years	**R28**	5	5	4	2	5	5	4	4	4	4	4	
F	40-49 years	MD	< 5 years	**R29**	5	5	4	5	4	4	4	4	4	4	4	
M	50-59 years	BD	6-10 years	**R30**	3	5	5	4	5	4	3	5	5	5	3	
M	40-49 years	BD	< 5 years	**R31**	5	2	5	5	5	2	1	3	5	5	4	
M	50-59 years	MD	6-10 years	**R32**	4	4	5	4	4	4	4	5	4	5	1	
F	40-49 years	MD	6-10 years	**R33**	5	4	4	4	5	5	5	4	5	4	4	
				Total	120	137	129	141	128	125	114	129	130	130	122	1405
				Mean	3.64	4.15	3.91	4.27	3.88	3.79	3.45	3.91	3.94	3.94	3.70	3.87
				%	9%	10%	9%	10%	9%	9%	8%	9%	9%	9%	9%	100

Notes.

F = Female Q = Question % = Percentages YoW = Years of Working BD = Bachelor Degree

M = Male R = Respondent LoE = Level of Education MD = Master Degree

Appendix C

Table C 1

Results of Question 1 of Hypothesis 1.

Likert Scale	Number of Responses	Percentages
SD	1	3%
D	23	70%
N	7	21%
A	2	6%
SA	0	0%
Total	33	100%
Mean	2.30	
Standard Deviation	0.64	

Table C 2

Results of Question 2 of Hypothesis 1.

Likert Scale	Number of Responses	Percentages
SD	3	9%
D	21	64%
N	6	18%
A	2	6%
SA	1	3%
Total	33	100%
Mean	2.30	
Standard Deviation	0.85	

Table C 3

Results of Question 3 of Hypothesis 1.

Likert Scale	Number of Responses	Percentages
SD	5	15%
D	22	67%
N	4	12%
A	1	3%
SA	1	3%
Total	33	100%
Mean	2.12	
Standard Deviation	0.82	

Table C 4

Results of Question 4 of Hypothesis 1.

Likert Scale	Number of Responses	Percentages
SD	4	12%
D	18	55%
N	7	21%
A	4	12%
SA	0	0%
Total	33	100%
Mean	2.33	
Standard Deviation	0.85	

Table C 5

Results of Question 5 of Hypothesis 1.

Likert Scale	Number of Responses	Percentages
SD	3	9%
D	22	67%
N	7	21%
A	1	3%
SA	0	0%
Total	33	100%
Mean	2.18	
Standard Deviation	0.64	

Table C 6

Results of Question 6 of Hypothesis 1.

Likert Scale	Number of Responses	Percentages
SD	2	6%
D	24	73%
N	4	12%
A	3	9%
SA	0	0%
Total	33	100%
Mean	2.24	
Standard Deviation	0.71	

Table C 7

Results of Question 7 of Hypothesis 1.

Likert Scale	Number of Responses	Percentages
SD	7	21%
D	21	64%
N	2	6%
A	3	9%
SA	0	0%
Total	33	100%
Mean	2.03	
Standard Deviation	0.81	

Table C 8

Results of Question 8 of Hypothesis 1.

Likert Scale	Number of Responses	Percentages
SD	4	12%
D	16	48%
N	11	33%
A	2	6%
SA	0	0%
Total	33	100%
Mean	2.30	
Standard Deviation	0.78	

Table C 9

Results of Question 9 of Hypothesis 1.

Likert Scale	Number of Responses	Percentages
SD	2	6%
D	11	33%
N	18	55%
A	2	6%
SA	0	0%
Total	33	100%
Mean	2.30	
Standard Deviation	0.75	

Appendix D

Table D 1

Results of Question 1 of Hypothesis 2.

Likert Scale	Number of Responses	Percentages
SD	1	3%
D	7	21%
N	3	9%
A	17	52%
SA	5	15%
Total	33	100%
Mean	3.55	
Standard Deviation	1.09	

Table D 2

Results of Question 2 of Hypothesis 2.

Likert Scale	Number of Responses	Percentages
SD	1	3%
D	2	6%
N	5	15%
A	16	48%
SA	9	27%
Total	33	100%
Mean	3.91	
Standard Deviation	0.98	

Table D 3

Results of Question 3 of Hypothesis 2.

Likert Scale	Number of Responses	Percentages
SD	1	3%
D	3	9%
N	4	12%
A	9	27%
SA	16	48%
Total	33	100%
Mean	4.09	
Standard Deviation	1.13	

Table D 4

Results of Question 4 of Hypothesis 2.

Likert Scale	Number of Responses	Percentages
SD	1	3%
D	5	15%
N	7	21%
A	5	15%
SA	15	45%
Total	33	100%
Mean	3.85	
Standard Deviation	1.25	

Table D 5

Results of Question 5 of Hypothesis 2.

Likert Scale	Number of Responses	Percentages
SD	1	3%
D	2	6%
N	4	12%
A	14	42%
SA	12	36%
Total	33	100%
Mean	4.03	
Standard Deviation	1.02	

Table D 6

Results of Question 6 of Hypothesis 2.

Likert Scale	Number of Responses	Percentages
SD	2	6%
D	7	21%
N	5	15%
A	8	24%
SA	11	33%
Total	33	100%
Mean	3.58	
Standard Deviation	1.32	

Appendix E

Table E 1

Results of Question 1 of Hypothesis 3.

Likert Scale	Number of Responses	Percentages
SD	0	0%
D	6	18%
N	8	24%
A	12	36%
SA	7	21%
Total	33	100%
Mean	3.60	
Standard Deviation	1.0	

Table E 2

Results of Question 2 of Hypothesis 3.

Likert Scale	Number of Responses	Percentages
SD	0	0%
D	5	15%
N	10	30%
A	7	21%
SA	11	33%
Total	33	100%
Mean	3.67	
Standard Deviation	1.1	

Table E 3

Results of Question 3 of Hypothesis 3.

Likert Scale	Number of Responses	Percentages
SD	0	0%
D	3	9%
N	13	39%
A	11	33%
SA	6	18%
Total	33	100%
Mean	3.61	
Standard Deviation	0.9	

Table E 4

Results of Question 4 of Hypothesis 3.

Likert Scale	Number of Responses	Percentages
SD	1	3%
D	2	6%
N	8	24%
A	12	36%
SA	10	30%
Total	33	100%
Mean	3.85	
Standard Deviation	1.0	

Table E 5

Results of Question 5 of Hypothesis 3.

Likert Scale	Number of Response	Percentages
SD	0	0%
D	5	15%
N	8	24%
A	15	45%
SA	5	15%
Total	33	100%
Mean	3.61	
Standard Deviation	0.9	

Table E 6

Results of Question 6 of Hypothesis 3.

Likert Scale	Number of Responses	Percentages
SD	1	3%
D	3	9%
N	12	36%
A	8	24%
SA	9	27%
Total	33	100%
Mean	3.64	
Standard Deviation	1.1	

Table E 7

Results of Question 7 of Hypothesis 3.

Likert Scale	Number of Responses	Percentages
SD	0	0%
D	4	12%
N	5	15%
A	20	61%
SA	4	12%
Total	33	100%
Mean	3.64	
Standard Deviation	0.9	

Table E 8

Results of Question 8 of Hypothesis 3.

Likert Scale	Number of Responses	Percentages
SD	0	0%
D	5	15%
N	6	18%
A	18	55%
SA	4	12%
Total	33	100%
Mean	3.64	
Standard Deviation	0.9	

Appendix F

Table F 1

Results of Question 1 of Hypothesis 4.

Likert Scale	Number of Response	Percentages
SD	0	0%
D	9	27%
N	6	18%
A	6	18%
SA	12	36%
Total	33	100%
Mean	3.64	
Standard Deviation	1.25	

Table F 2

Results of Question 2 of Hypothesis 4.

Likert Scale	Number of Responses	Percentages
SD	0	0%
D	2	6%
N	5	15%
A	12	36%
SA	14	42%
Total	33	100%
Mean	4.15	
Standard Deviation	0.91	

Table F 3

Results of Question 3 of Hypothesis 4.

Likert Scale	Number of Responses	Percentages
SD	1	3%
D	4	12%
N	5	15%
A	10	30%
SA	13	39%
Total	33	100%
Mean	3.91	
Standard Deviation	1.16	

Table F 4

Results of Question 4 of Hypothesis 4.

Likert Scale	Number of Responses	Percentages
SD	0	0%
D	2	6%
N	2	6%
A	14	42%
SA	15	45%
Total	33	100%
Mean	4.27	
Standard Deviation	0.84	

Table F 5

Results of Question 5 of Hypothesis 4.

Likert Scale	Number of Responses	Percentages
SD	0	0%
D	5	15%
N	3	9%
A	16	48%
SA	9	27%
Total	33	100%
Mean	3.88	
Standard Deviation	0.99	

Table F 6

Results of Question 6 of Hypothesis 4.

Likert Scale	Number of Responses	Percentages
SD	2	6%
D	3	9%
N	3	9%
A	17	52%
SA	8	24%
Total	33	100%
Mean	3.79	
Standard Deviation	1.11	

Table F 7

Results of Question 7 of Hypothesis 4.

Likert Scale	Number of Responses	Percentages
SD	3	9%
D	7	21%
N	3	9%
A	12	36%
SA	8	24%
Total	33	100%
Mean	3.45	
Standard Deviation	1.33	

Table F 8

Results of Question 8 of Hypothesis 4.

Likert Scale	Number of Responses	Percentages
SD	1	3%
D	1	3%
N	3	9%
A	23	70%
SA	5	15%
Total	33	100%
Mean	3.91	
Standard Deviation	0.80	

Table F 9

Results of Question 9 of Hypothesis 4.

Likert Scale	Number of Responses	Percentages
SD	0	0%
D	3	9%
N	3	9%
A	20	61%
SA	7	21%
Total	33	100%
Mean	3.94	
Standard Deviations	0.83	

Table F 10

Results of Question 10 of Hypothesis 4.

Likert Scale	Number of Responses	Percentages
SD	2	6%
D	0	0%
N	1	3%
A	25	76%
SA	5	15%
Total	33	100%
Mean	3.94	
Standard Deviation	0.86	

Table F 11

Results of Question 11 of Hypothesis 4.

Likert Scale	Number of Responses	Percentages
SD	2	6%
D	3	9%
N	2	6%
A	18	55%
SA	8	24%
Total	33	100%
Mean	3.70	
Standard Deviation	1.02	

Appendix G

Table G 1

Gender of Respondents.

Gender	Number of Respondents	Percentages
Male	20	61%
Female	13	39%
Total	33	100%

Table G 2

Age of Respondents.

Age	Number of Respondents	Percentages
30-39 years	4	12%
40-49 years	18	55%
50-59 years	11	33%
Total	33	100%

Table G 3

Level of Education.

Level of Education	Number of Respondents	Percentages
Bachelor Degree	11	33%
Master Degree	22	67%
Total	33	100%

Table G 4

Years of Working.

Years of Working	Number of Respondents	Percentages
< 5 years	9	27%
6-10 years	17	52%
11-20 years	7	21%
Total	33	100%