

**KEY KNOWLEDGE SHARING FACTORS THAT AFFECT TEAM
PERFORMANCE IN THE IT FIELD**



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KEY KNOWLEDGE SHARING FACTORS THAT AFFECT TEAM PERFORMANCE IN THE IT FIELD

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ABSTRACT

This paper examines knowledge sharing based on the “Framework of Knowledge Work Analysis” developed by Efimova (2004) and analyses the key factors that affect team performance in the work place. This paper considers the case of the information technology department of Essilor manufacturing Thailand, in order to find the key knowledge sharing factors that affect team performance.

A qualitative research method was used to collect in-depth information from a small sample of interviewees. Interviews were conducted as the IT department, including 3 managers and 7 staff members. The interview results were interpreted and analyzed based on the framework of knowledge work analysis. The research findings showed several weaknesses in the knowledge sharing process in IT department, with recommendations for improvement.

KEY WORDS: Knowledge management / Knowledge sharing / Essilor Manufacturing / Information Technology

24 pages

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CHAPTER I

INTRODUCTION

1.1 Overview

In this paper will we address the topic “Key factors in knowledge sharing: How it affects team performance in the IT field”. We will use knowledge management model theories to analyze the problem. The knowledge management model consists of knowledge creation, knowledge transfer/ sharing, knowledge storage & retrieval, knowledge application and community of practice. In this research will mainly focus on knowledge transfer/sharing to identify the main factors which affects IT team performance. We will conduct a case study at Essilor Manufacturing Thailand, which is an international company in the Medical equipment business. This company has invested in IT system to drive their core business. Their IT team has more than 100 staff members that supports all systems around the world. To collect data, we will interviewed IT people on all levels from IT manager to junior staff and moreover we will have additional interviews from other department as well. After that, we will work on data analysis part to finding the interview result and explain by using related theories. And finally we will provide recommendations and conclusions.

Nowadays information technology (IT) has become one important part in organization by using for collect data, work in complex process instead of people to reduce the time and human error, moreover IT also plays in role of communication tools between internal or external organization. At Essilor Manufacturing, they use more IT systems and integrate system together that makes more complex to take care. They must have big amount of IT staffs rather than use only 1 or 2 IT staffs. Furthermore, it's not concern only size of team, they have to focus on staff skill and experience who can help to support and investigate system issue to be more efficiency that can help the business run smoothly in operation process, delivery product to customer on time that affect directly to company's benefit. When systems have problem, IT team have to take action by investigating and solving the problem immediately or finish on the limit

time, in general, big organization has standard rule to determine and measure IT support service quality that call “service level agreement (SLA)”.it can be helpful to show in global view for IT team’s performance and use for check and improve more quality of service as well. As we mention earlier, IT system in organization included with more complex process and each system has difference in process, to make good support productivity, the staff should have more experience this field and understand systems process clearly that may come from work with them for long time or learning from expertise.

Sharing the knowledge efficiently is not easy because there are several factors which have impact on sharing process. For example, a giver cannot explain the knowledge clearer or receiver doesn’t understand message from a giver, etc. and external environment is also one factors. All of this can make the lack of knowledge in team that will effect to team performance because if the knowledge and skill on each staff is not same, the time they use for investigate or troubleshoot issue would not same as well, they may not be able to deliver their work on time. Knowledge sharing doesn’t matter always come from senior staff but that may come from other staff who has good experience from past job and that can help improve working process to be more productivity.

Knowledge base management is important for organization to collect the knowledge on each department or role of work such as IT process, business process, standard process, etc. Before create knowledge management system, they have to plan by use knowledge management theory to apply to appropriate with their organization environment and staff that will make good organization performance and prevent problem with knowledge loss when old staff leave from organization. Knowledge management system cannot manage by one person; it has to collaborate from everyone in organization.

1.2 Research Questions:

In knowledge sharing, they are many factors that can impact the sharing process and that could have positive or negative impact, and that can eventually affect work performance of the team.

What are the key factors in knowledge sharing that affects team performance in IT field?

1.3 Research Objectives:

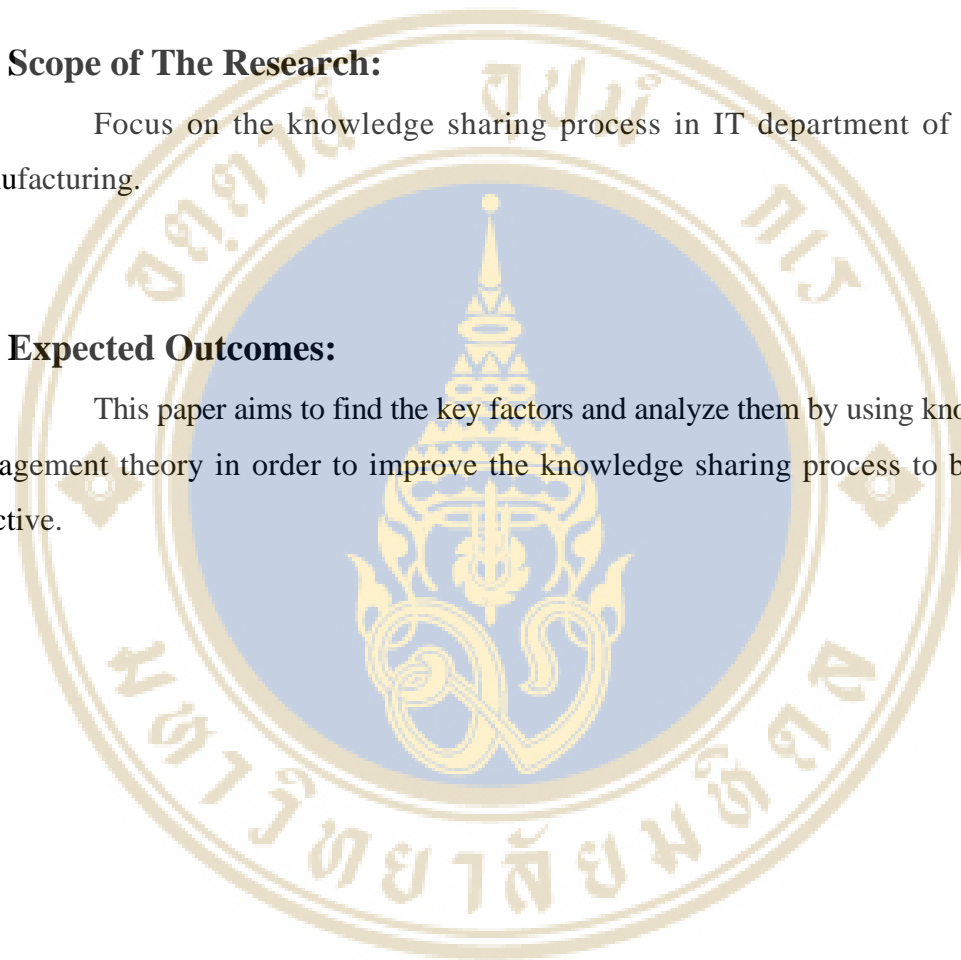
The objective of this paper is to find the key factors in the knowledge sharing process in the IT industry. Further, a second objective is to help better understand what is the good way to manage knowledge, as most of the knowledge in IT field is tacit knowledge that is not easy to share.

1.4 Scope of The Research:

Focus on the knowledge sharing process in IT department of Essilor Manufacturing.

1.5 Expected Outcomes:

This paper aims to find the key factors and analyze them by using knowledge management theory in order to improve the knowledge sharing process to be more effective.



CHAPTER II

LITERATURE REVIEW

This chapter provides the overview of knowledge management in terms of knowledge sharing in IT department at Essilor Manufacturing, which is more complex in operation process. The literature explains knowledge sharing that affects team's performance, related to the key factor which influences in knowledge sharing process. In addition, the level of staffs' experience is one factor that may influence the way to communicate between giver and receiver

The theoretical framework that is relevant to this research topic is following;

2.1 Knowledge Management

Knowledge management (KM) is the one of most important processes in an organization to prevent the knowledge loss and moreover, it can enhance effectiveness. As Davenport (1994) mentioned that, Knowledge Management (KM) is the process of capturing, developing, sharing, and effectively using organizational knowledge. In 1994, Nonaka defines knowledge management as follows: "Knowledge is a justified personal belief that increases an individual's capacity to take effective action".

As mentioned earlier, KM starts with capturing the process until transferring process to each other. In the big company who is willing to implement KM to be more effectives and more valuable. They should concerns on several dimension that are KM strategy, Organization culture, Organization process, Management & Leadership, Technology and Politics(Alan Forst M.Sc.,2010)

Nonaka and Takeuchi (1998, pp. 40–50) concluded with the difference between information and knowledge, "knowledge is about beliefs and commitment as it is a function of a particular perspective. Secondly, knowledge is about action, that is, knowledge achieves some end. Consequently, a distinction is made that knowledge is a more complex form of information".

2.1.1 SECI Model

The SECI model is a concept proposed by Nonaka and Takeuchi (YEAR) which is a model of knowledge creation, to link between tacit and explicit knowledge by using 4 core processes.

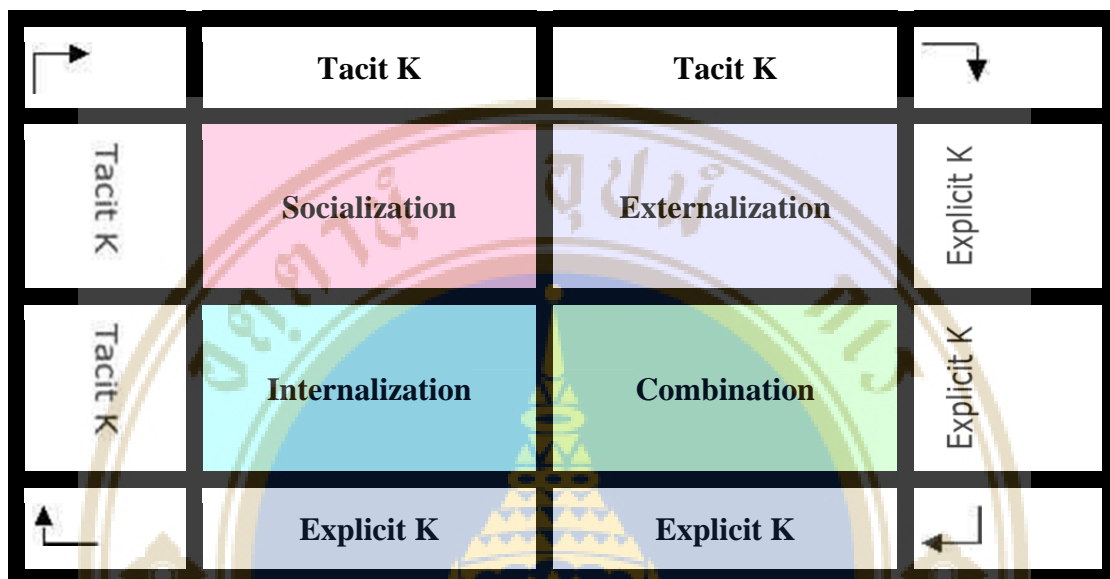


Figure 1.1 The Nonaka's SECI Model

The picture above show the processes of SECI model by socialization, externalization, combination and internalization, which can lead to new knowledge. They are including informal process that are used for tacit knowledge (unstructured knowledge) and formal process that are used for explicit knowledge (structural knowledge).

2.1.2 Tacit Knowledge

Polanyi (1966) mentioned, "Tacit knowledge is knowledge that guides one's behavior but is not readily available for introspection by oneself or others" (Von Krogh, Ichijo & Nonaka, 2000). Tacit knowledge comes from direct experience and is not easy to write down in the document or explain to another person.

2.1.3 Knowledge sharing

Argote & Ingram (2000) define knowledge sharing as "the process through which one unit (e.g., group, department, or division) is affected by the experience of another". (Argote & Ingram, 2000, p. 151). Knowledge sharing has several factors such as communication processes, method/channel use for transfer, level of experience of a giver and receiver, external environment, etc. Nonstructural and structural knowledge may be able to use sharing knowledge in same way, although other factors are the same.

2.2 Knowledge in IT field

In information technology (IT) field which has more complex process and tacit knowledge which come up from there staff's experience, working for long time in the same task so that is not easy to convert their knowledge to explicit knowledge and put it into knowledge base management system (KBS). Some big companies have a KM team who take care of collecting their staff knowledge into KM system. This can help the organization gain more availability of support team to resolve service disruptions quickly and increase client satisfaction.

Some research show that implementing information technology infrastructure library (ITIL) through knowledge management framework results in improving ITIL processes path and supporting the decision-making process. Moreover, it also contributes to tuning the operation between IT and business. (Mohamed, O'Sullivan, Mohamed, 2008).

In term of communication channel in knowledge sharing, refer to use knowledge sharing and information and communication channel (ICC) to develop the four-layered model for sharing knowledge in work teams, conclusion shows, staff still trust face-to-face communication, telephone and email for knowledge sharing rather than use ICC. On the other hand, they are several factors that motivate their staff to use ICC such as ease of use, reliability, convenience, and the channel to document communication.

Other aspect of knowledge sharing in IT field is trustfulness in giver or knowledge content, trust at workplace and knowledge-sharing behavior also, As Tsung-Hsien Kuo, (2013) concluded in paper, "Understanding communication channel choices in team knowledge sharing", the result show that trust at workplace most effect in

organizational knowledge-sharing behavior, moreover, the relation between expected personal benefit through sharing knowledge and development of trust at workplace are significant.

Zahran Al-Salti, Ray Hackney, (2011) have explained in "Factors impacting knowledge transfer success in information systems outsourcing" with the way to succeed knowledge transfer in IS outsourcing is determined by 4 set of factors that are knowledge-related, client-related, vendor-related and relationship-related. That means, it is not only internal factor that effects but other factor as well.

2.3 Framework for this research

We selected knowledge work analysis framework to use for the analysis. There are included 3 parts, which are Individual, Communities & networks and Idea. The framework starts starting with the individual to understand what is his/ her knowledge and how they use knowledge sharing to support their work and group, and lastly will be the idea or the way to use to transfer the knowledge. All the parts are embedded in the work environment, one factor that indirectly affects knowledge sharing.

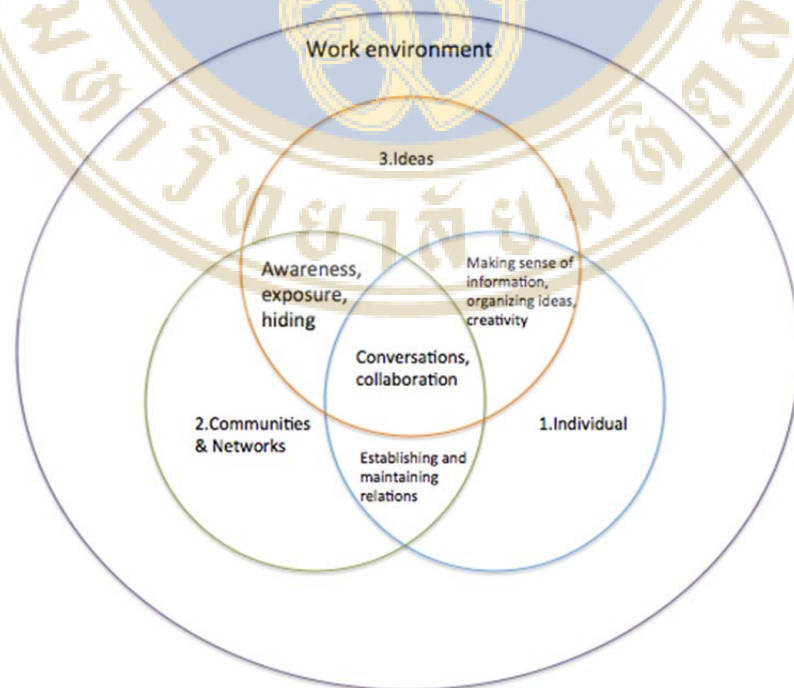


Figure 2.2 How related on each part with knowledge work analysis

CHAPTER III

RESEARCH METHODOLOGY

In this chapter we intend to describe the research methodology, explain the method of data collection and the data analysis plan.

3.1 Research Methodology

We plan to use qualitative method because, collecting data by interviewing IT people, because we need to understand the motivation of interviewees and this method is working well with complex concepts. Moreover, we use interview technique with the open-end questions, which can help respondents to be able to answer the question clearly without limitation.

3.2 Data Collection

Before we start the data collection, we have to know to several factor that relate to the interview, so the plan important to cover all relevant subjects. In this interview we separate the question in 2 sets, that are the question for manager/team leader level and operation staff level, then we have to find the good respondents who has potential to provide good answer for us. During interview should note answers on each question or recording device would be helpful. Lastly, we will take approximately 30 minutes for each person.

We plan to interview 10 persons in IT department, 3 persons at the management level and 7 persons as the operation staff.

The five interviewees are as followings:

1. IT manager of ASIA operation
2. Technical support section manager
3. Technical support team leader

4. Technical support staff
6. Helpdesk support staff

3.3 Question Design

As mentioned earlier, we have two separate sets of the questions for manager level and staff level. We designed the questions based on the Framework of knowledge work analysis.

The questions used in the interview are provided as follows:

3.3.1 Questions for Manager/team leader

A critical strategy for organization to improve, share and sustain the knowledge in the organization. In IT department, knowledge is one of the key assets to achieve higher competitiveness but, nowadays, we still face constrains and obstacles to develop and implement the knowledge management.

The purpose of the interview is exploring the current status and problems of knowledge sharing in the IT department at Essilor.

1. Describe the knowledge sharing process in your team?
2. Do you think this kind of knowledge sharing process effective?
3. How do you plan for knowledge sharing process?
4. How do you prevent the knowledge loss from your team?
5. Do you share all the knowledge you have?
6. What is the effective way to share your tacit knowledge to receiver?
7. In case, if receiver doesn't understand your explanation what would you do?
8. How do you measure quality of knowledge sharing?
9. What is the weakness point of the knowledge sharing process in your team?
10. Do you think that knowledge management is important for your team?
11. Do you see any obstacles or difficulties for knowledge sharing in the team?

3.3.2 Questions for Staff

Introduction: The knowledge management is highly important as one of the critical strategies for organization to improve, share and sustain the knowledge in organization. In IT department, knowledge is the key assets to achieve higher competitiveness but, nowadays, we still face constrains and obstacles to develop and implement the knowledge management.

The purpose of interview is exploring the current status and problems of knowledge sharing in the IT department at Essilor.

1. Describe the knowledge sharing process in your team?
2. Do you think this kind of knowledge sharing process is effective?
3. What makes you trust the knowledge that you receive from giver?
4. If some information is not correct, what would you do?
5. After you received new knowledge, do you think is helpful for your job?
6. Do you think the knowledge management is important for your team?
7. Do you see any obstacles or difficulties for knowledge sharing in the team? Or do you have recommendations for improving knowledge sharing?

After we finished collecting data, we will combine both of them to analysis and see the result on each side.

3.4 Data Analysis

We use knowledge work analysis framework to analyze, identify, and classify the important points and show the result based on the answers from the respondents.

CHAPTER IV

DATA ANALYSIS

In this chapter I will present the result of the data analysis of the case study. The data was collected and processed based on interview questions. The findings show the key factors that are important for IT team performance in knowledge sharing.

The interview was conducted with 10 employees who are IT staff in Essilor. The interview session took approximately half an hour per person. The detail of interviewees' job position are 1 IT Manager of Asia operations, 1 Technical support section manager, 1 Technical support team leader, 3 Technical support staffs and 4 Helpdesk support staffs.

Based on the findings from the interviews, all interviewees are agreeing that knowledge management is the most important thing in IT team. Moreover, the quality of knowledge sharing affects team performance directly.

To explain the interviews' result in detail, we use the Framework of Knowledge Work Analysis developed by Efimova (2004) to express the most important evidence and how it's related to each part. Furthermore, each part will include two types of results, which are the result from giver and receiver.

According to the framework, they are separated into 3 major parts that are idea, community & network and individual. Each part has the area to overlap together that show how there are related to other parts.

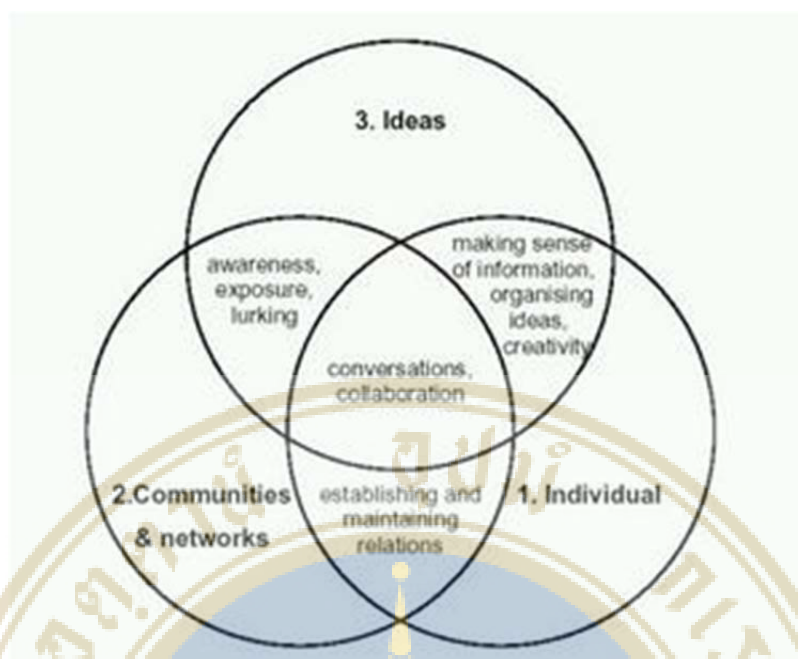


Figure 4.1 Knowledge work analysis framework

In this interview, we divided two kinds of questions depending on roles of staff level

1. Management level/team leader who take role in knowledge giver
2. Operational staff that take role of knowledge receiver

The result show that they are related to 3 major framework parts, as per following detail

4.1 Individual

In general, the knowledge comes from people who have graduated in higher degree or worked in the same area for long time, but it does not mean everyone has the same knowledge, it depends on their experience as well.

In the part of knowledge sharing, everyone cannot share their knowledge easily, it depends on the way they teach or explain to each other. On the other hand, the receiver, they should have enough skill or knowledge on that topic. Furthermore, they should be open to receive the knowledge as well.

From the interviews, the senior staff who have more knowledge and experience on their job, or tacit knowledge, mentioned about the way to share their knowledge to

team members. They use several methods to share knowledge which are: write proper document, organize training session, or teach on the job. And one of senior staff said, the most effective method is to teach on the job because the knowledge in IT involves more complicated processes which include technical and business terms. Moreover, they understand the topic in real situations rather than imagining it. Lastly, one of interviewees expressed more about the problem in knowledge sharing in the team, he said “ *I let him read the document before training but he didn’t so, that’s why he doesn’t understand what I am teaching in the training session*”. This is one of the reason why the receiver is not ready to receive the knowledge.

On the knowledge receiver side, most of people say, only 60% of the knowledge they receive are helpful for their daily job and three of interviewees said, “*It would be good if we can get a short brief and work on that job for a moment and then do the training deeply.*” Two interviewees comment on the knowledge givers that sometimes they are not ready to explain in detail, because they are busy or not willing to share the knowledge.

4.2 Community and Network

When discussing about work relationship in IT department, they is good relationships inside the team or across the team. Explained by one of manager, “ *we have monthly meeting to discuss all topics, and each team should do a presentation to summarize the result of the past month, if anyone has concerned topic, we can discuss together.*” We ask them also “Is the meeting effective?”He said, “*Yes, but it is not 100% perfect because in the meeting, we had many topic to discuss with limited of time so we will focus only important topic first, which are the topic that directly affect the production line or business. For the rest of the topics, we keep it for later, if we have time.*”

For the support team, we also asked them “Is the meeting effective and do you also talk about knowledge sharing?”

The Senior answered in the same way as the other manager but expressed more detail, mainly focusing on critical issues rather than other topics. For the knowledge sharing they said, they always organize the session around 1–2 times a year to help the team rehearse learn and teach each other on each topic. He reviews and assigns topic

to each staff to learn the selected topic which they did not understand clearly. The way to select the topic, he reviews on the summary report and looks who takes more time or do many mistake on that topic. Moreover, at the last 5-minute in the meeting they open the discussion for anyone who wants to share or discuss any topic, but the result is the most of the time nobody shares anything.

One of the support team members said, he feels like there is a lack of communication between co-workers sometimes. When he found that someone did mistake and try to explain to them, they will ignore his explanation, he tells to the leader but as he has a lot of work to manage, he doesn't have the time to come and discuss. Furthermore, everyone thinks they agree in the same way about the same topic, but they actually understand in different ways.

4.3 Idea

Each team shares their knowledge but it has no formal standard it depends on leader of each team, accepted by one of manager. They separate the knowledge sharing in two types, which are 1. Knowledge sharing for new system, 2. Knowledge sharing for newcomer. Both of them will follow the training topic that are provided by the project team who implement the system. After training, they will do a small workshop to make sure they understand that topic. The training will take around half a day for 2–3 month in average.

The Team leader commented on the training session, that does not cover all of the knowledge to use in daily job at the beginning the topic listed by project team is too basic topic to the real situation. Many times he had to update more topic into the list and wrote the instruction. However, he does not have enough time to manage it because he has to focus on the client's support that it is first priority.

When discussing about the way to prevent the knowledge loss from the team, one of the managers showed his vision to each team that they should have a backup person, all the topics have to write down into documents and put onto a shared drive for everyone who should know how to use this information. Additionally, the Technical support manager assigned the team leader to force their team to write the document.

When talking about sharing all the knowledge they have, all the manager expressed in the same way, they could not give all because some topic are hard to explain.

About the weakness of knowledge sharing process, we found the different aspects from each interviewee. Main concerns that there are no real processes to measure the quality of knowledge, short period of time to do trainings, the receiver does not practice enough the knowledge that they receive and the document in the shared is not up to date. On the other hand, learning skill and experience of receiver is also the main factor.

According to evidence from 3 major parts on knowledge work analysis framework, we found out more about the relationship between each part are as follows:

4.4 Individual and Community

About relationship between staff in the team, we can say they have good relation between co-worker and with the leader. Sometimes they may have problem with different idea or attitude. Team leader will come to manage it without emotion, to resolve their difference. They always have good relationships across the team as they always share interesting topic. They do not have much emotionat work that because all the team leaders work together for a long time so, they are friends.

4.5 Community and Idea

As mentioned, they have meeting to discuss about work problem but they don't have enough time to focus on knowledge sharing because of time limits and high daily workload.

4.6 Idea and Individual

Currently, they still do not have the formal standard for knowledge sharing process, the sharing process depends on each team and still do not have the good measurement tools. Section manager cannot force staff to share their knowledge directly

because they do not have enough timework on this topic. Some topics are not understood if the knowledge receiver does not have the background on that topic.

4.7 External Factors

According to the IT team, in order they have a lot of work to support the business to run smoothly and prevent the stoppage of operation so they cannot focus on knowledge sharing. Also, infrastructure, resources and facilities are other factors that can relate indirectly to knowledge sharing.



CHAPTER V

CONCLUSION AND RECOMMENDATION

The objective of this paper focuses on the key factors of knowledge sharing that can affect team performance. They consist of personal attitude, organization culture, communication methods, knowledge sharing process or management concern, etc. Correctly implementing the knowledge sharing can enhance a team performance by improving quality of service, reduce the defect rate and moreover, to prevent the knowledge loss from the team.

The key results of this research are as follows:

5.1 Main Conclusions

In the IT department there are 5 majors teams with more than 100 staff in total, while each team works together in different functions. Some parts they have to know the same information and the same meaning because they still do not have the real standard of knowledge management to collect data following the same pattern and process. As of today, the IT team has knowledge sharing but cannot guarantee the quality of the sharing process, because it depends on senior employees who are the knowledge givers. As they are willing to share their knowledge the knowledge receivers may not be ready to receive the knowledge. They are a variety of factors to lead to unwillingness for giver and unreadiness for receiver, for example: if the giver has a lot of work to manage, they will focus less and take a short time on sharing the knowledge to receivers. On the other hand; the receiver may not understand that topic because they have a lack of skills or experience on that part and did not prepare in advance.

In the document center where they stored and shared all the documents, nobody has reviewed or validated it, and some documents may have been there for a long time and not up to date.

Lastly, we can conclude that the knowledge in the IT department is still with the senior people, while new staff members do not receive all the knowledge from them. This can lead to a lack of support for the team because if the senior people are not available to work on the topic or assigned other staff to work on a project, others will take more time than necessary to work on it, or might not be able to complete it.

We can see many factors influencing the knowledge sharing in the IT team and we can say they still have a lot of weaknesses needed to improve.

5.2 Recommendation and Suggestion

Based on my interpretation of the research findings, the team can improve knowledge management as follows:

1. Establish the knowledge management team to take care and control the process, data and quality of knowledge management.
2. Organize the session for everyone who is willing to share interesting topics, not only related to the work. This can help to build sharing behavior in the team.
3. Establish the policy for everyone to share topics that are assigned from the line manager into the document center.
4. Plan and allocate longer time to use for knowledge sharing.
5. Everyone should understand about the standard knowledge management process.

5.3 Limitations

There are several limitations in this research paper. Firstly, we have only two weeks, but some interviewees do not have much time available for interview, but they can provide data with good quality for us at the end. Lastly, the communication skills of interviewees is a limitation. Regarding the nature of IT people they are persons that cannot explain well to make others understand easily, so for some questions the researcher had to rewrite the answer more than one time.

5.4 Future Research

The scope of this research paper is focused only the Essilor IT department. In fact the knowledge sharing should be collaborated from other departments, which are the HR department or training & development team, or the board of management for example. Future research can target how other departments can help make the knowledge sharing process in the IT team more effective. Moreover, Essilor is the international company and located around the world, we should consider cross-cultural issues that influence directly the knowledge sharing style of each nationality.



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Appendix A: Question Interviews

Questions for Manager/ team leader

Introduction: The knowledge management is highly important as one of the critical strategy for organization to improve, share and sustain the knowledge in organization. In IT department, knowledge is the key assets to achieve higher competitiveness but, nowadays, we still face constrains and obstacles to develop and implement the knowledge management.

The purpose of interview is exploring the current status and problems of knowledge sharing in IT department at Essilor.

1. Describe the knowledge sharing process in your team?
2. Do you think this kind of knowledge sharing process effective?
3. How do you plan for knowledge sharing process?
4. How do you prevent the knowledge loss from your team?
5. Do you share all the knowledge you have?
6. What is the effective way to share your tacit knowledge to receiver?
7. In case, if receiver doesn't understand your explanation what would you do?
8. How do you measure quality of knowledge sharing?
9. What is the weakness point of the knowledge sharing process in your team?
10. Do you think that knowledge management is important for your team?
11. Do you see any obstacles or difficulties for knowledge sharing in the team?

Questions for Staff

Introduction: The knowledge management is highly important as one of the critical strategy for organization to improve, share and sustain the knowledge in organization. In IT department, knowledge is the key assets to achieve higher competitiveness but, nowadays, we still face constrains and obstacles to develop and implement the knowledge management.

The purpose of interview is exploring the current status and problems of knowledge sharing in IT department at Essilor.

1. Describe the knowledge sharing process in your team?
2. Do you think this kind of knowledge sharing process is effective?
3. What makes you trust the knowledge that you receive from giver?
4. If some information is not correct, what would you do?
5. After you received new knowledge, do you think is helpful for your job?
6. Do you think the knowledge management is important for your team?
7. Do you see any obstacles or difficulties for knowledge sharing in the team? Or do you have recommendations for improving knowledge sharing?

