Status of Knowledge Management In A Professional Services Firm To Address Turnaround Time and Quality of Service

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Abstract

Knowledge management is crucial for knowledge-intensive organizations, such as professional service providers. A study was conducted on a firm which specialized in survey, sampling and analysis for coal, marine and petrochemical commodities. The firm had issues in meeting turnaround time and facing poor quality of service from its surveyors and samplers, which increased customer complaints. The aim of this study was to find out the firm's current status in knowledge management (KM), possible barriers, and to provide recommendations. A qualitative method was used where nine heads of branches of the firm were interviewed using semi-structured open response questionnaire. The findings showed themes generated were the respondents supported and committed to KM, low KM management, lack of top management commitment and the firm's experts need training and development. This study confirmed that the status of KM was low and at infant stage and barriers were top management lacking commitment and inconsistent organizational practices. The recommendations provided were to move forward with KM, set up the business strategy and align it with KM strategy called Business-KM fit. Key employees were to be given training and development program.

Keywords: Knowledge Management, Professional Services Firm, Turnaround Time, Quality of Service, Indonesia.

1. INTRODUCTION

The ability to manage knowledge has become increasingly important in today's knowledge economy. Knowledge is considered a valuable commodity, embedded in products and in the tacit knowledge of highly mobile individual employees. The Cambridge Dictionary defines knowledge as "understanding of or information about a subject which a person gets by experience or study, and which is either in a person's mind or known by people generally" (Cambridge University Press, 2008). Knowledge does not only mean the know-how – to know how to, but also who knows, knows why and knows when. It does not relate to the wise books and best practices, but rather people – working communities that maintain knowledge about a topic and share what they know, build on it and adapt it for their own use. It is not a brief summary of what is known at a certain moment in time, but developing a body of knowledge maintained in its recent form by

people who use it regularly (Bencsik & Pawliczek, 2016; Drucker, 1999) concisely defined knowledge management as “the coordination and exploitation of organizations knowledge resources in order to create benefit and competitive advantage.”

Drucker (1999) stated that the basic economic resource was no longer capital, natural resources nor labor, as it is and would be knowledge. With that there was a pressing need for knowledge-intensive organization for knowledge to be well managed in order to cope with shortcomings arising from the common uneven distribution of knowledge. The main goal of knowledge management (KM) was to promote knowledge sharing and storing and emergence of new knowledge (Souza et al., 2013). Considering that knowledge is a critical resource for the company, it becomes interesting to understand how KM system, pushed by digital innovation, can accelerate the process of creating value in the long term, guiding the corporate strategy towards new, innovative business models (Friedrich et al., 2020). Previous studies were developed from the KM system approach to strategic innovation and the implementation of new business models revealing that KMS guiding role in implementation and corporate governance (Hock-Doepgen et al., 2020).

The findings suggest that external KM capabilities of acquiring new external knowledge, converting it to be ready for use, and finally applying it for commercialization, are essential KM capabilities that enable SMEs to innovate their business model. Internal KM capabilities, emphasizing internal knowledge exploitation and replication, showed no significant effect on BMI. This finding might be related to the holistic and often disruptive nature of BMI that requires knowledge that is not available insight to the firm or might even be hindered by relying on traditional organizational knowledge (Hock-Doepgen et al., 2021).

IT tools and systems such as data warehousing, brainstorming applications, decision support systems, document management systems and information retrieval engines are used to enhance knowledge management practices by easing access to information, creating, organizing and disseminating relevant knowledge and information within the organization, to enhance organizational performance (Al-Manssori et al., 2021).

KM had received little attention in professional service firms, however, it is paramount for firm providing services to have their employees equipped with knowledge and their organization mature in KM implementation. In addition, the assets of such firms were experience and knowledge of staff, rather than plant and equipment (Fong & Choi, 2009). Therefore, it is important to investigate what is the status of KM in such firms. A well-established professional service firm in Indonesia, whose mission was “to become a technical solutions provider and minimizing our clients’ risks by integrating technology with our services and delivering quality with integrity”, had recently faced operation challenges. There was lack of quality of work in the Operations Department, namely Turnaround Time (TAT) and Quality of Service (QoS), resulting in reduced performance and increased of customers complaints. The lack of enthusiasm and motivation among employees could be detected. While business was growing, the firm was overwhelmed with problems of delay of reports and drop in quality of work, in addition of data management found to be lesser comprehensive.

In view of dominance of professionals dominating surveying, sampling and analytical discipline, the intermingled relationship between knowledge and service providers, this study aimed to find out the status of KM of an established professional services firm in Indonesia, and to provide recommendations to the firm management and business practitioners in related fields. This research seeks to answer “what was the status of KM in the professional services firm in meeting the firm’s quality of work?” This study was aimed to align with organization and management theory reviews (Cristofaro et al., 2021).

2. LITERATURE BACKGROUND

2.1 Knowledge Management

Knowledge was a productive embodied intelligence obtained by "positive education and learning" through which the man - worker receives the amount of knowledge that allows them to orient themselves, formulate opinions, enrich their analytical and deduction skills, conclude to synthesis, fully within the meaning of the needs of the organization. This knowledge includes both explicit and implicit knowledge. Critical knowledge encompasses identifying and mapping strategic knowledge and high-level critical knowledge, such as areas of advanced expertise, intellectual property, and the relationships with customers, suppliers, and distributors are important in KM and making business model successful (Ihrig & MacMillan, 2015). Knowledge was increasingly regarded as a survival tool in a dynamic and competitive environment (Laudan & Laudon, 2000). Efficient knowledge flow was critical to enterprise performance (Nissen, 2004). Information and knowledge were a strategic tool for an organizational survival and success (Choo, 1996). Knowledge made organizations to remain competitive and became prosperous among its competitors (Azizi et al., 2016).

Organized and contextualized data became information through contextualization, categorization, calculus, correction and condensation (Davenport & Prusak, 1998). Types of knowledge had been reviewed and methodically categorized (Alavi & Leidner, 2001). Tacit knowledge could only be learnt through practice and experience and it was subjective (Buckley & Jakovljevic, 2013). To make knowledge available to others, since it was also ingrained in people's heads and attitudes, it was imperative to turn it explicit (Maravilhas & Martins, 2018). Explicit knowledge was objective and rational, with the mind related to theories (Nonaka & Takeuchi, 1995).

Numerous definitions of knowledge management (KM) had been documented; such as, Demarest (1997) defined KM as a systematic underpinning, observation, instrumentation and optimization of the firm's knowledge economies. KM was an emerging set of organizational design and operational principles, processes, organizational structures, applications and technologies that helped knowledge workers dramatically leverage their creativity and ability to deliver business value (Gurteen, 1998). Bencsik & Pawliczek (2016) summarized most concise definitions as KM could be defined e.g., as a systematic and inclusive process of management and coordination of a wide portfolio of the company activities, i.e., retrieving, creating, storing, sharing, merging, developing, evolving, and use of the knowledge of individuals and groups with the goal to achieve greater business efficiency. In a later definition, Dalkir (2017) stated KM was a deliberate and organized method ensuring full usage of the organizational knowledge along with the employee's skills, capabilities, opinions, ideas and innovation to produce more effective and efficient organization.

Davenport and Prusak (1998) identify four KM processes or stages: knowledge generation (knowledge creation and knowledge acquisition), knowledge codification (storing), knowledge transfer (sharing), and knowledge application. There was a positive direct relationship between knowledge creation and technological and administrative innovation and knowledge creation had a positive effect on organizational learning (Rezaei et al., 2018). The concept of four phases which were commonly cited are knowledge acquisition, knowledge storage, knowledge sharing and knowledge usage (Kumar & Kumar, 2015). Birkinshaw et al. (2003) presented the knowledge lifecycle as an S-curve with four stages: creation, mobilization, diffusion and commoditization, as well as their strategic implications to help companies navigating through each stage of the knowledge life cycle. According to Staab et al. (2001), the knowledge process has four steps: creation, capture, retrieval and access, and use. Ward and Aurum (2004) proposed a seven-stage model: knowledge creation, knowledge acquisition, knowledge identification, knowledge adaptation, knowledge organization, knowledge distribution and knowledge application.

Another popular framework was by Nonaka & Takeuchi (1995), where the process of generating and converting knowledge had four phases which were socialization, externalization, combination and internalization, known as the SECI knowledge creation cycle. The SECI had the following explanation: -

Socialization: the process of converting new tacit knowledge through experience sharing (interpersonal communication).

Externalization: The process of articulation of tacit knowledge into explicit knowledge (publication).

Combinations: The process of transformation of explicit knowledge into a comprehensive and systematic set of explicit knowledge (by IT software support).

Internalization: The process of the embodiment of explicit knowledge into tacit knowledge (providing of products or services).

Internal sources of KM were design, customer database, sales, engineering, marketing, manufacturing and research and development; while external sources of KM were professional bodies, publications, industry associations, websites, research institutions and so on (Kumar & Kumar, 2015). Within an organizational structure, the creation of new knowledge at a practical level was happening at the organization's operations level, not at the upper (top management) levels. The longer leaders, usually top management (termed Executive) have been distanced from the current actions the more they make assumptions about what was actually happening. The senior management and management carried the most knowledge of the operations (Shelley, 2018).

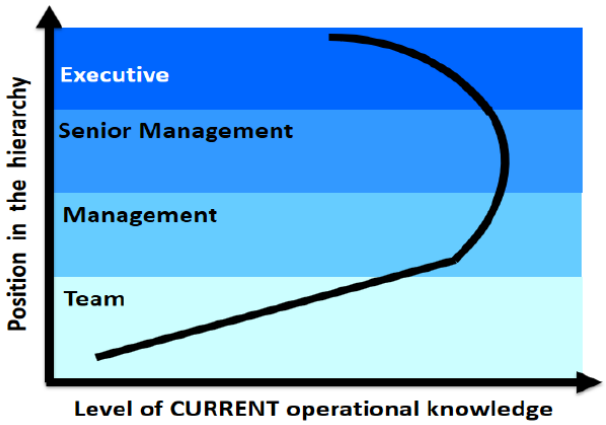

FIGURE 1: The distribution of current knowledge in organization (Shelley, 2018).

In Garcia-Holgado et al. (2015) study, the analysis of KM improvement was done using a Business Process Model Notation. It showed a possible evolution and enhancement of knowledge management processes using the Business Process Model and Notation diagrams, including the use of superior and better performing technological solutions to support knowledge management processes. This was important because knowledge encompassed not only documents, both printed and electronic, but also people, processes and supporting technologies.

There were many benefits of a well-designed KM in the organization, which included saving time and effort to get knowledge, so that all interested parties can use the organization's combined knowledge (Abdullah et al., 2005). Successful KM strengthen the core competencies of one

organization and lead to sustainable advantages making competitive edge more sustainable (Rahimli, 2012). Companies who used knowledge management in order to improve the efficiency of operational processes use databases and information systems to disseminate ‘‘best practices’’ independently from the ‘‘human knowledge carrier’’. It was not necessary to bring people together to share their knowledge directly and combine that knowledge by dialogue in order to create new knowledge. Thus, the codification strategy works best for this type of business strategy where knowledge was externalized, codified and stored in databases; making problems can be solved faster and skills and competency of the personnel can be improved (Greiner et al., 2017). For example, an internal audit department in a leading German transportation company used KM initiative to maintain the audit knowledge, reuse, and share it between the different locations. The knowledge necessary for the auditing process was determined, codified, stored in a database, and transferred in the form of ‘‘Best Practices’’, checklists, methods, etc. (Greiner et al., 2017).

Various tools of KM were physical and print document, public website, commercial productivity software, low-cost/no-cost cloud computing services, internal website, open-source content management software, low-cost/no-cost productivity software, enterprise management software and commercial cloud computing services (Rathi & Given, 2017). The list continued with authoring tools, templates, archiving, annotations, data mining, expert profiling, classification, blogs, taxonomies, metadata, mashups and folksonomies (Kaba & Ramaiah, 2017). Management tools were formalized for the performance of managerial functions could intermingle with KM in an enterprise, with the aim to build a creative environment in order to increase the efficiency of KM processes. Managerial techniques, tools, methods and systems for the area of management of service was Boston Consulting Group (BCG) growth share matrix, Pareto principle, CorSet Framwork, IT service management (ITSM), Service Oriented Enterprise Management (SOEM), Services management system ICT ISO 2000 (Bencsik & Pawliczek, 2016).

Fit as matching means that only theoretically defined combinations of variables led to a favorable outcome whereas the absence of match leads to an unfavorable outcome (Venkatraman, 1989). In a case study of 11 German and Swiss companies (all non-consultant companies), the matching relationship with innovation and personalization on the one side and efficiency and codification on the other side proven a successful KM strategy in business-KM strategy-fit. For repeated processes and reuse of knowledge, Greiner et al. (2007) suggested a KM initiative comprising efficiency and codification where efficiency was defined as externalization and re-use of knowledge, while codification meant collect, store, and disseminate explicit knowledge. The KM strategy could be joint with business strategy, forming a business-KM strategy-fit which will increase business performance (Greiner et al., 2007).

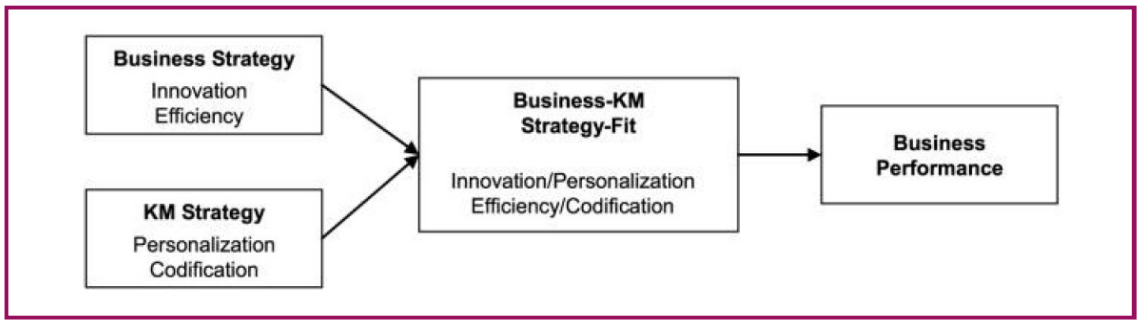

FIGURE 2: Business-KM strategy fit framework proposed by Greiner et al. (2007).

In higher learning institution, Abdullah et al. (2005) presented four core features for KM framework which were infrastructure, relating to content and portal; collaboration and learning; social capital, relating to expertise and communities; and business intelligence, relating to

integration and measurement, to manage knowledge carefully and to save time and effort to get knowledge, so that all interested parties can use the organization's combined knowledge: knowledge is able to be used wherever and whenever it is needed, eliminating time wasting random distribution just-in-case people are interested. Yang's (2010) study of a high technology firm showed that KM strategy and performance connection was contingent on both performance-driven strategies and KM-based competencies, such as R&D from past projects, market intelligence and intraorganizational knowledge sharing. Hasanian et al. (2015) found that KM process, organizational infrastructure and technology were three predictors for effective customer relationship management process.

In Azizi et al. (2016) KM study in supply chain activities, KM would not affect the competitive advantage of the company by itself because taking advantage of the tools and knowledge management systems alone could not bring amazing results. In the first place it was necessary to apply the initial activities of implementation and knowledge application in the organization. The study suggested that management should identify and pursue the strengths and weaknesses of KM programs, and then accordance supply chain quality management system with KM system by the creation of mechanisms and processes of knowledge management in order for company to gain competitive position (Azizi et al., 2016). In an exploratory study, Mallmann et al. (2016) showed that most of the IT user respondents use collaborative systems and mobile devices unauthorized by the information technology department called (shadow systems) to share knowledge and communicate faster with their co-workers. The most common shadow systems cited are WhatsApp and Skype, as well as solutions to store and share content, like Google Drive. The authors believed that shadow information technology can facilitate knowledge sharing, especially when people are geographically distributed. In Kaba and Ramaiah (2017) study of education faculty members, PhD degree holders used more knowledge sharing tools compared to master's Degree, high school diploma and other degree holders and respondents with longer years of service used knowledge tools more frequently than those with shorter years of experience.

According to Fong and Choi (2009), examples of knowledge intensive organizations were accounting, engineering, legal firms, quantity surveying firms and laboratory testing firms, that provide expert advice and professional knowledge to clients. Because of the time-critical nature of most knowledge work in modern enterprise, KM should enable rapid and efficient flow of knowledge to help enterprise become more knowledge-based (Nissen, 2004). The issue of managing knowledge attracted much attention in quantity surveying firms, as only those that could best manage knowledge were able to preserve their competitive advantage (Hiebeler, 1996). The characteristics of the professional were requirement of an intellectual body of knowledge, a vocation concentrated on the application of knowledge and experience to provide an altruistic service to clients in a well-defined area of study, with suitable code of conduct (Lowendahl, 2000). A professional firm had more than 50 percent processional employees who were in charge of key decisions and activities and its services included high degree of discretionary effort and personal judgment (Lowendahl, 2000). There was also substantial interaction with client firm representative (Fong & Choi, 2009). A quantity surveyor firm demonstrated four essential characteristics were knowledge-intensive nature, advisory nature providing consultancy, competence governed by institutions and code of conduct government by the country's professional ethics regulation (Fong & Choi, 2009). The development of knowledge storage is not free of flaws and inevitably requires some protection. Explicit knowledge, which codifies the organizational wisdom, is famous for its susceptibility to malicious damage and pirating by rivals. Therefore, quantity surveying firms often impose restricted access to confidential/sensitive information (Fong & Choi, 2009).

In a study on quantity surveying firms, KM was found to benefit the firm in a discrete manner and highly intermingled relationship with the daily processes, therefore the scope of managing KM could be overlooked (Fong & Choi, 2009). This was true as the firm lacked assigned staff for

knowledge acquisition from external sources. The favorite modes of knowledge research were colleagues' experience and personal networks. The types of knowledge, cost data, contracts and standard methods of measurement attracted the most frequent visits by quantity surveyors in their searches. Hiring new recruits to bring in new surges of knowledge was a reluctant move. Job rotation or records by experienced or departing staff were underused. Despite this, they gained knowledge from reviews at the conclusion of projects. Knowledge was found to be arranged in systematic forms because the documents were selected and organized before stored. Some data were transformed into organization's routines. Paper documentation was made available to all staff. Mobilizing of knowledge was observed through mentoring ranks. Provision of remote access for organizational database was still rare (Fong & Choi, 2009).

The empiric research (primary and secondary) indicated that the knowledge of sophisticated management methods, tools and systems on management positions in small medium enterprises (SMEs) is very low. This knowledge, however, due to the increase of innovativeness and competitive advantages of enterprises has to be permanently created by tools of a learning organization and transferred, ensuring its continuity (Bencsik & Pawliczek, 2016). Similarly, in Malaysia, the studies collated by Wahab et al. (2021) on KM development in terms of implementation and effectiveness had been done on healthcare, customer services, manufacturing, construction and education and it showed KM was at a young age.

Factors such as reward system process innovation and intra-organizational sharing can improve the effectiveness of KM, while market intelligence could hinder the positive impact (Yang, 2010). KM and organizational learning were related to one another. KM, especially knowledge creation, had a positive effect on organizational learning and a positive direct relationship between organizational learning, technology and administrative innovation (Razaei et al., 2018).

According to Ceptureanu et al. (2018), there were four categories to KM barriers which were related to organization, related to knowledge, related to people and use of technologies. In rotated factor matrix analysis, it was found that the most important barriers in creating knowledge were poor retention rate of highly skilled employees, followed by centralization, time constraints, poor targeting of knowledge, unsupportive organizational culture, high causal ambiguity (not knowing what the information was supposed to be used for) and inconsistent organizational practices; followed by insufficient top management support, poor leadership and lack of congruence (Ceptureanu et al., 2018).

Top management had to commit and willing to invest in expanding knowledge resources and KM in order to be a knowledge-based organization. KM initiatives should put resources into both the internal and external assets of the organization in order to fully utilize the proper knowledge (Wahab et al., 2021). Top management could provide employees with a sense of direction by setting the standards for justifying the value of the knowledge that was constantly being developed by the organization's members because deciding which efforts to support and develop was a highly strategic task (Nonaka, 2017).

2.2 Organizational Behavior and KM

There are five organizational constructs that support the KM process: human resources, team work, organizational culture, organizational structure and development and absorption of knowledge. These constructs were related to four phases of the KM process (acquisition, storage, distribution and use of knowledge) (Gonzalez & Martins, 2014). Gonzales and Martins (2014) study expounded KM as followed. In the knowledge acquisition process, training programs were important mechanisms and more rigid hierarchical structure reduced decision making and, as a result, the process of learning too. In knowledge storage process, individuals were responsible for storage of tacit knowledge, retained in the form of experience and skill, and the retention of knowledge required from the organization discipline in identifying new knowledge and encoding

them when possible. In knowledge distribution process, the development of skills enabled individual to absorb new knowledge and the skill level of individuals could support or restrict the process of distribution of knowledge; and the culture of knowledge must promote the dissemination of knowledge and a sense of trust. In knowledge utilization process, competence referred to the ability of individuals to use the acquired knowledge in practical situations in order to solve problems and systems for performance management and rewards should reinforce a proactive attitude of employees, aiming at problem solving and continuous improvement. The use also occurred through the rescue of explicit knowledge, encoded in an information system.

The economic and production level of a company relies more on its brainpower, human capital and invisible competences than its physical assets (Rahimli, 2012). The three players involved in KM were: persons, covering their skills, experiences, cognition and learning ability; the groups, which used the synergy between individuals to achieve goals; and the organization, that guided the actions of individuals and groups through the structure and culture established (Lystras & Poulodi, 2006). Organizational culture was responsible for the development of similar value and assumptions between individuals, to create a conducive environment to share and integrate knowledge (Gonzalez & Martins, 2014). Organizational structure defined the degree of autonomy granted to individuals and the division and formalization of work and functional integration (Gonzalez & Martins, 2014).

Among the human resources development initiatives that contributed to the KM process are employees selection, training and development (Chen & Huang, 2009). KM process required the organization to hire and train individuals to fit into company culture and primary knowledge capable to contribute to the organization knowledge (Cardoso et al., 2012). Organization must build a participatory internal context in which the employee was motivated to collaborate with a team (Chen & Huang, 2009). The lack of appreciation of individual or group initiatives to support organization's strategy may mean a reduction in process of new knowledge exploration (Lopez et al, 2006).

Human capital research focused on human engagement on the job (Weidner, 2018). Work being accomplished primarily by teams rather than individuals was significant for KM, because teams had become the unit of knowledge creation within organizations (Dixon, 2018). A team member offered others advice to address a problem or question and building on each other's ideas and incorporating diverse ideas into their work (Dixon, 2018). Team members could offer a range of feedback on the work of others, including inputs, agreement, appreciative comments, likes, etc. to keep project momentum going (Dixon, 2018). Teamwork was important to create people with common language and identity, encouraging the dissemination of knowledge (Gonzalez & Martins, 2014). Teamwork was responsible for distribution of knowledge as employees of different skill and experience level were put together (Gonzalez & Martins, 2014).

The 2016 Deloitte Human Capital Trends claimed that this structure of network of teams had shaken the foundation of organizational structure where humans would become the ultimate center of gravity for KM going forward, not technology (Weidner, 2018). Development and absorption of knowledge was related to the ability of individuals in building a common knowledge base, which favored the integration of new knowledge, internally and externally to the organization (Gonzalez & Martins, 2014).

3. METHODOLOGY

3.1 Study Methodology

Drawing upon literature review on KM, and understanding of the business problems in the professional services firm earlier mentioned, a study was conducted to find out the status of KM of a professional services firm in meeting the TAT and QoS. To find the KM status was important to the organization because, while it could be at a good level in the Head Office, it may be at a

lesser level in the branches, and may vary from branch to branch. From here, the researchers would seek to provide KM recommendations to the firm.

This study adopted a qualitative method semi-structured interview and collection of related firm's data. The questions were pre-planned prior to the interview but the interviewer gave the interviewee the chance to elaborate and explain particular issues through the use of open-ended questions. This type was appropriate to researchers who have an overview of their topic so that they could ask questions. A structured format which may hinder the depth and richness of the responses therefore, it had been recommended that these open-ended questions be piloted in advance (Alsaawi, 2014). The persons selected for interview were the heads of branches and head of divisions because they had the highest knowledge of the operations (Shelley, 2018).

There was a total of nine respondents chosen: they were Heads of Branch and Heads of Divisions, with an average of seven years' service with the firm, aged between 35 to 50 years. All respondents held a Bachelor Degree in Engineering, except the Head of Division – Coal held Masters' Degree in Science; and had prior experience of at least five years in field survey and sampling. During the interview, conversations were recorded for both in person or by telephone due to far distances. The respondents comprised of six Head of Branch – two from West Java (coded as West Java 1 and 2), two from Sumatera (Sumatera 1 and 2) and two from Kalimantan (Kalimantan 1 and 2), and three Head of Division – Marine, Coal and Petrochemical. There were ten questions asked, of which seven of them could be summarized and tabled, and the remaining questions and additional responses would be reported in paragraphs. Qualitative interviews would be conducted where questions are about the respondents' level of understanding about KM, what are their opinions about the current operation and experts' performances, if KM could improve TAT and QoS, and if the firm supported KM. A thematic analysis was adopted to analyze the interview responses to identify common themes - topics, ideas and patterns of meaning that come up repeatedly, where interview excerpts were analyzed to create codes, followed by generating themes (Caulfied, 2019). Interview questions were listed in Appendix 2. Responses and answers to the interview would be tabled and discussed along with related company data. Responses would be reviewed and mentioned if in agreement with literature review conducted earlier. From the findings, recommendations would be made to the firm on aspects related to KM.

3.2 Company History and Background

A well-established and among the largest privately owned professional services firm in survey, sampling and laboratory analysis, was trying to keep up with market demands and customer trends. The firm had over 40 years' experience with 15 branches in Indonesia. They would like to find out what was the status of KM in their firm and were willing to volunteer and participate in this research. The company had five divisions: coal, agriculture, petrochemical, mineral and marine. The coal department held the largest revenue contribution with about 60% of total revenue, while agriculture had the most jobs in monthly at almost 600 jobs per month. The breakdown of the firm's revenue by division was Coal 42%, Agriculture 32%, Petrochemical 16% and Marine 10% in 2017. At the time of this study, mineral department had no revenue due to change in government regulation, therefore it was not included in this study. The firm fully attained required accreditations, which were ISO 9001: 2008, ISO 14001: 2004, ISO 17020, OHSAS 18001: 2007 and ISO 17025: 2005.

The operations department of the firm was headed by the Director of Operations. The team comprised of 50% of the workforce in the firm. The Director had three regional heads who were in charge of several branches per person, to cover all 15 branches. The division heads of Coal, Agriculture, Marine, Petrochemical and others reported to the director too. The head of branch then had operations leader and laboratory leader. The surveyor and the sampler reported to the head of operations and the preparator and analyst reported to the head of laboratory. Figure 3 shows the main section of the organization chart for operations department.

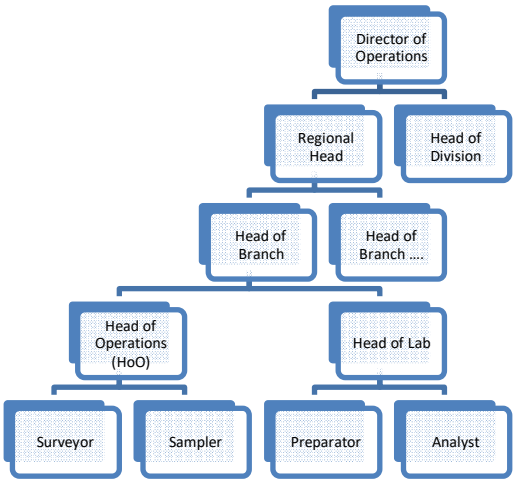

FIGURE 3: Main section of the organization chart of the operations department of the firm.

There were three main service scope of services where upon completion, results reports and certificates were generated for clients. The main types of survey for coal division were draught survey, sampling survey and regulatory survey; for agriculture division – supervision survey and sampling survey; for marine division – bunker survey, off-hire survey, supervision survey, draught survey and quantity and condition survey; and for petrochemical division – supervision survey, tank inspection survey, regulatory survey, verification survey and stock take survey.

The first service scope was site survey for issuance of Certificate of Weight (CoW) for the commodities, which were conducted by surveyors. The second service scope was sampling, which were done on coal and mineral samples, and the report from survey was called Certificate of Weight (CoW), while the report for samples result after analysis was called Certificate of Analysis (CoA). Sampling was not only done on board but could also be done at the stockpile, mining face, or inside haul truck, depending on client's location for sampling. Sampling was still categorized as a survey in accordance with the distribution of service scope survey. The third scope of laboratory analysis consists of preparation and analysis activities; which was a continuation from the sampling process in coal shipments with CoA as the final report; or the service was done only analyzing the drop of sample in which the report was named Run of Analysis (RoA). The marine survey contributed to 60% of the total business and the coal sampling contributed to 33% of the total service in the Coal division. The services of the firm were led by a group of "experts" defined by the firm, who were the head of operations, head of laboratories, senior surveyors and senior analysts at the branches. They were deemed of importance because they were the firm's representatives to the customers to carry out the professional services and had technical knowledge and experiences.

The operations in the firm started with each incoming purchase order/job received at the Head Office and being processed by Sales Monitoring Officer (SMO) to Sales Order (SO) and Job Order (SO). Then it was forwarded to Head of Operations (HoO) copied to Head of Branch to be executed. After the HoO received the job, he/she would appoint a senior surveyor (and sampler depending on the scope of service) to undertake the tasks. Any laboratory analysis service cope required would be channeled to the Head of Laboratory. HoO would be required to update of the status of experts handling the job. The surveyor then conducted the survey, made preliminary report and follow through until completion of report. The turnaround time (TAT) and quality of service (QoS) were measured at the branch level where jobs are executed. The Heads of Division, based at Head Office, did not undertake the jobs, but developed Standard Operating Procedures (SOP), supervised 'experts' compliance, developed quality control (QC) templates for

HoO, conducted the QC checks on reports and provided technical guidance to the sales department. The Head of Branch managed all the activities at the branch.

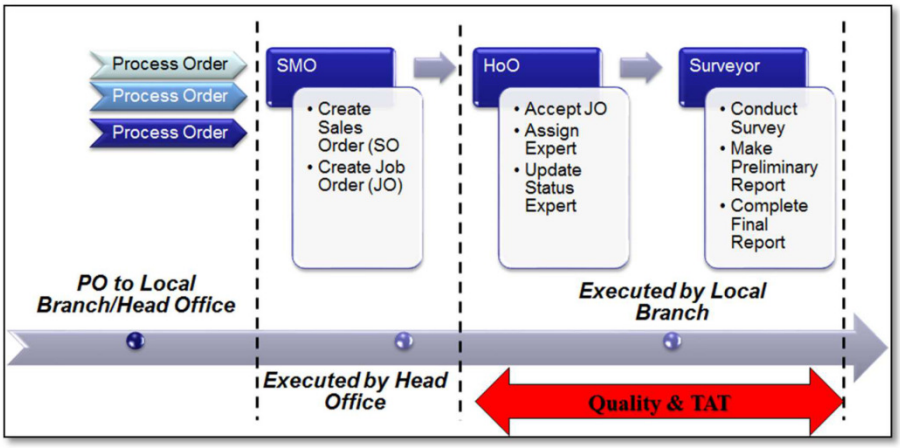

FIGURE 4: Job Order Process Flow of the Firm.

The firm defined Quality of Service (QoS) or compliance service as how true the surveys were conducted in accordance with standards, integrity, and being proficient in explaining the problems experienced by the client. The success indicator of maintaining survey quality was in the absence of complaint from customers and receiving good feedback. In this case the surveyors (and samplers) played an important role because they were handling with clients in the field, so it was very important to ensure the quality and competency of surveyors the firm sent. The quality of the service was directly related to the surveyor appointed when he/she was conducting the survey. As such, the selling point of the firm were tied to the quality of the surveyors.

The firm defined the concept of turnaround time (TAT) as how long it would take to complete the work in terms of completion of the certificate and report, approved by client and then loaded into the firm's reporting system. TAT consists of three stages, namely TAT 1, TAT 2 and TAT 3. TAT 1 was preliminary report or daily update in 1 to 2 days. TAT 2 comprised of complete loading data and final draft of report to be reviewed by client; requiring client approval; on day 3 onwards after TAT 1 was completed. TAT 2 would take another 2 to 3 days. TAT 3 was about the completed final report or certificate in soft copy and loading of its hardcopy in 1 to 2 days. The expected completed TAT was 7 days. The TAT scope of work was divided into two sections namely TAT for Survey only (Marine, Petrochemical, and Agriculture) and TAT for Survey Quality and Quantity (Coal and Mineral). Hence, the firm's Key Performance Indicators (KPIs) for all its branch offices were Turnaround Time (TAT) and Quality of Service (QoS) as identified by its top management, because all the services were carried out at the branches which were servicing its clients.

In 2017, the firm reported 117 complaints received where 68% of the complaints were related to issues of QoS, work quality and/or competence experts and TAT. These incoming complaints were received by email and verbal communications. There were some complaints that were not directly channeled to the firm but via third parties. The increased number of jobs received were in direct proportion to the increasing number of complaints. The firm viewed complaint as valuable feedback to improve company performance. The firm understood that the delay, or lack of responsiveness to resolve the complaint would bring adverse effects. Arising from this, the firm was pointed out that to reduce complaints were to look into the QoS and TAT.

The firm had an online operations management system called "MAYA", which integrated all activities from purchase orders, job orders, branch/business segment and expert assigned,

service scope, job status, issues in field, expenses report and TAT tracking. Client reports and certificates were uploaded into the system. The data could be used to perform analysis, decision making, and job process tracking if any complaints were entered. The firm had several KM tools, namely: best practices sharing, customer complaints sharing, focus group discussion and an online Standard Operating Procedure (SOP) system, to facilitate retrieving processes in job activities, results conformity checking, and for audit purposes. The online SOP had another function which was for knowledge transfer when there were new employees in the induction process. All employees were also given Internet access.

4. RESULTS

At the start of interview, all the respondents agreed that TAT and QoS were the firm's operation performance and Key Performance Indicators (KPIs), created firm's value and reputation, and affect customers' satisfaction. TAT and QoS were also related to company ability and employees' ability.

The first question was on the level of understanding of KM, the majority of respondents had high understanding of KM rated as "high", while two had average understanding rated as "medium" and one did not have much knowledge rated as "low" in relation to literature review conducted. Among the "high" responses, answers are KM was about managing knowledge in an organized way; with knowledge sharing, and then stored, distributed (knowledge transfer) and used. This was the KM processes answers, as mentioned in Davenport and Prusak (1998), and Kumar and Kumar (2015). The respondents whose answers were "high" and "medium" rating stated that KM was tied to performance, agreeing with Yang (2010); and could benefit the organization by increasing performance and competitive edge (Rahimli, 2012).

In the second question about whether implementing KM improve TAT and QoS, all respondents except one (who had low knowledge of KM) agreed that KM would help to improve TAT and QoS. The respondents stated that KM was related to data management and data made available would help in justifications of decisions and currently accuracy in decision was needed to have better TAT and QoS, which could only be achieved by making knowledge and experience available. Using KM allowed some form of standardization of report making, and with that following the same standards across branches. TAT and QoS could be monitored in daily basis, reported, and escalated if any issue arose. By using KM, the existence of managing of knowledge would contribute to increase of knowledge among the 'experts' and other employees. This made knowledge and experience sharing, and the firm's best practices could be easily accessed and allow transfer of knowledge. KM helped the employees to rely on system for information and not rely on individuals anymore. This was in accordance with Greiner et al. (2017). KM would only be successful on improving TAT and QoS, if its initiatives were implemented consistently, with commitment and made into part of the company culture. In this question, needs were also identified as priority scale for to prioritize jobs, better manpower distribution and training and development to improve employees' competency. Proper training was required so that 'experts' could be more confident.

For Question 3 about what the respondents think about current operation performance, of TAT and QoS, two respondents replied the current operation were good. Kalimantan 2 responded they had top management resources and support probably because they were the biggest branch and handling major account customers. The Head Office also put high scores for milestone on them so extra effort was needed to achieve management expectation. Petrochemical responded their TAT measured up to preliminary report and agreed by client. It was average for West Java 1, Sumatera 2, Marine and Coal. Responses were middle level performance, not outstanding and similar to competitors. Some area of improvements was needed; because for example Marine's KPI achievement was 90%, and for Coal, they had increased of job orders therefore extra monitoring needed in TAT and QoS. It was not satisfactory for Sumatera 1 and Kalimantan 1.

West Java 2 had constraints. Sumatera 1 did not have a dedicated HoO who could supervise the experts. Kalimantan 1 was experiencing lack of experts. For West Java 2, current performance in TAT of laboratory analysis had constraints due to non-availability of consumables, incompleteness of laboratory analysis, and sometimes equipment breakdown. If KM tools could be expanded, inventories on laboratory consumables could be stored and reviewed resulting in prompt replenishing of stocks.

In Question 4 about was there any improvement effort to increase operational performance of TAT and QoS, majority respondents (Kalimantan 1, Sumatera 2, Kalimantan 2, Marine & Petrochemical) viewed the improvements in their branch or office as partial and not optimized. They stated there should be focus and specific attention was required to resolve issues in their branches, and there should be some form of standardization of certification and dealing with internal business processes to resolve TAT issues. West Java 1 respondent stated there was lack of effort in their branch, while the improvement was concentrated in Head Office, which should not be the case because the 'engines' that drove the firm were the experts at branches. West Java 1 further added these were the employees that required high competence and their system required improvement on TAT. Sumatera 1 respondent answered yes however only for incidental situation, for example an issue rose from a customer complaint and the Head Office stepped in to fix it. Sumatera 1 added that there should be some form of consistent improvement program for TAT and QoS and the branch was to be equipped to conduct the improvement properly. West Java 2 respondent faced laboratory maintenance issues. Even though they had technicians to repair the equipment, there should be regular maintenance program to ensure the laboratory equipment was running smoothly. Only Coal respondent answered yes, as they have ongoing improvement efforts on TAT and QoS, and they were able to provide recommendation to top management. With KM tools, data about the next due dates for equipment maintenance and calibration, preventing breakdowns.

For Question 5 on whether they think if all of the experts were in compliance, the majority of the respondents said their experts follow their seniors or somewhat comply because they did not have formal training or taken any assessment before; and if they have variations in the task, they would be confused and have difficulty in completing the job. This was also dangerous as they might follow without fully understand the concept of the work. Their experts also lacked experience. This situation was similar with Fong and Choi (2009) study, where the favorite mode of research was colleagues' experience. The respondents felt new recruits should receive formal training and be assessed by Head Office to accelerate the learning process. Marine respondent replied every branch had different reporting method causing compliance not being objective. Only Kalimantan 2 respondent and Petrochemical respondent answered yes that their experts were in compliance because they were governed by ISO 17025.

For Question 6 on whether the respondents think if the organization support in providing resources for KM development, three respondents answered yes but it was optimized and one answered yes because there was some form of online access, and another answered maybe. Four respondents answered no, because, while there were systems like MAYA and SOP online, a system to improve TAT and QoS did not exist. There were no concrete results from top management in KM initiatives and they were in the mode of "more of corrective actions rather than preventive actions". They further stated that while the firm had the MAYA system that could be accessed online, however, it could not yet be used as part of QC nor does it connect information from field directly. Currently, the data was inputted by an office staff based on information given by surveyor in the field. If this system to become an online application that integrate data in the field, QC processes, real time reporting and provide some form of access to clients to monitor the results of survey, then this system would value add for the firm. The online system would reduce face-to-face coordination time or via phone; and would bring real time as any assigned QC person, HoO, surveyor, and sampler were connected in one application via online. Wherever the assigned QC person could perform QC process via smartphone, the result

of each preliminary report could be completed in just one hour. This would in-turn reduced TAT drastically. The respondents had described an example of KM tool, a form of commercial cloud computing service as cited by Rathi and Given (2017). For Question 7, respondents were asked if they could be committed to be involved in KM initiatives. All respondents agreed to commit to KM initiatives implemented by the top management as these would help solve TAT and QoS issues and reduce related customer complaints. Interview questions and answers for the seven questions were tabled and found in Appendix 1.

For Questions 8, respondents were asked what were the problems and challenges resulting in late TAT and poor QoS. Most respondents replied that the Quality Control (QC) process to check on the quality of analysis data, reports and certificates took longer than needed to be done. This was because this is done by the HoO, and HoO was also occupied conducting surveys themselves, due to lack of senior surveyor manpower. This resulted in the TAT for the QC being 1 day becoming 3 days. Sumatera 2 respondent added there was no commitment from top management to follow through a program implemented. The other challenge for branches were no access to real time data, while customers expected real time data. They were still using WhatsApp messaging, and felt an online application would bring real time data, automate the reports generation and reduce manual work, thus providing results to customer in timely manner.

For Question 9, majority of the respondents stated their experts were in need of development program (training, courses, and certification) including soft skills training, to be able to handle the technical aspects of the job and relationship aspects when handling customers. This was because the respondents felt their team lack expertise and skills. On the other hand, the respondents felt for the highly qualified and performing experts, they should be rewarded accordingly; being paid more or have more benefits. Four branches (Sumatera 1 and 2, Kalimantan 2 and Coal) had experienced of experts with behavior issues, for example were not punctual to customers' site, however there was no disciplinary actions taken. Kalimantan 1 had some experts who left their workplaces messy and unorganized making retrieval of documents difficult. West Java 2 and Sumatera 2 experienced broken equipment due to absence of regular maintenance program, and laboratory consumables finished before re-stocking.

The last question was about if there was any effort to increase employee involvement in KM program, for example management policy and endorsement, coaching and encouragement from superiors. Most respondents replied that the top management was required on commitment to KM program implementation from start until completion, required their encouragement and endorsement, be aware of issues in the field if not hands-on about it in order to make better decisions. KPIs assigned should have periodic reviews. Employee positions should be differentiated by pay compensations and/or benefits. Make employees in the know. To focus on improving quality of work, and not cutting costs to increase profitability.

5. DISCUSSION

From the interview excerpts reported under the Results session, the main points of interview results were highlighted as codes to generate themes, according to Caulfield (2019), in Figure 5.

Interview Results Codes	Themes
- Majority had high understanding of KM - Majority agreed KM will improve TAT and QoS	Support and commit to KM
- Data not easily available and accessible - Data was non-standardised - Poor laboratory upkeeping	Low KM management

- Top management's lack of investment in KM program
- Top management's lack of follow through in KM program

} Lack of top management commitment

- More benefits for experts

- Experts followed previous seniors' work
- Better manpower distribution
- Experts need training and development for technical and soft skills

} Experts need training & development

FIGURE 5: Themes generated from interview results.

From the interview results, the four themes generated were the respondents supported and committed to KM, low KM management, lack of top management commitment and the firm's experts need training and development. The head of branches and divisions showed support and commitment to KM, because they know the most information in the field as per Shelley (2018), where they understood the importance of KM for their organization. The next theme is low KM management indicated that the status of KM in the firm was still very low or at infant stages. This was in agreement with studies by Bencsik and Pawliczek (2016) in SMEs where KM level was very low and Wahab et al. (2021) on logistics service provider in Malaysia where its KM status at infant stage.

The next theme was lack of top management commitment; which was identified as one of the barriers to KM where it was found insufficient support, the incomplete follow through and inconsistency of KM program which was inconsistent organizational practices, as cited by Ceptureanu et al. (2018). Certain branches were neglected from top management focus. The firm's culture should be changed to avoid incidental improvement, move from corrective actions to preventive actions, focus on quality improvement and not on cost cutting to have more efficiency. KM tools to expand to include important information for example laboratory consumables inventory and equipment maintenance due dates. As Wahab et al. (2021) stated that top management had to commit and be willing to invest in KM programs.

The recommendations for the firm to move forward on KM processes because it was a professional services type of firm (Lowendahl, 2000) and KM was a systematic and inclusive process of management of a wide portfolio of company activities (Bencsik & Pawliczek, 2016), company's internal and external knowledge could be organized to become more effective (Dalkir, 2017) and knowledge could flow efficiently (Nissen, 2004) to meet its KPIs e.g., TAT and QoS. The firm was recommended to consider a Business-KM-Fit Strategy as per Greiner et al. (2017) as it was a similar type of services firm being studied. The business strategy identified after the interviews, to address TAT and QoS were top management commitment and willingness to invest resources in KM processes, drawing of concept of competency for experts in knowledge and assessment, make data available an accessible via online tool (mobile application) for every personnel involved in the particular job, laboratory consumables planning inventory versus budget, and monitoring of calibration and upkeeping of laboratory equipment.

As the current status of KM in the firm was relatively at a young age, the recommendation was to start at pilot scale of the KM phases because successful KM would start small and grow. It could start with an overall strategy and plan, and then moved to pilots which small parts of the firm could be brought in, so that lessons could be learned and adjustments made at the people, process and supporting technology were implemented across the organization (Barnes, 2018). There was no company which could realistically aim to be active in all four stages of the KM process (Birkinshaw & Sheehan, 2003). The KM processes detail recommendations from literature review using Davenport and Prusak (1998), Staab et al. (2001), Fong & Choi (2009) and merged them into current KM practices; keeping in mind the firm's findings on its KM status:

Knowledge creation

- Invite experience staff to record their knowledge and experience, including customer complaints sharing where currently practiced
- Encourage experts to identify best practices which the firm has implemented for future use during the firm's existing best practices sharing sessions
- Existing knowledge at workplace is used to develop new knowledge in current focus group discussions

Knowledge storage

- Data and information from knowledge creation processes above, customers' data, issuance of reports and certificates were selected and organized before being stored because the retention of knowledge required organization to identify and code them (Gonzales & Martins, 2014)
- Knowledge was recorded by electronic means, not only in paper medium
- Enable access for experts to be able to find knowledge when needed

Knowledge distribution

- Assign experienced and high qualified experts to mentor new and less experienced staff
- Make accessible knowledge gained from different projects to all experts
- Have knowledge transferred electronically in addition to surveyors and analysts asking their seniors and follow steps of seniors; with current MAYA system upgraded or expansion, or online application on mobile or devices to include QC checks and connect all personnel related to the job
- Provide remote access to workplace database, so that the branches no longer use WhatsApp, and have access to real time data.
- Continue on providing Internet access as external KM Source (Kumar & Kumar, 2015)

The fourth theme was that the firm's experts were in need of training and development of technical skills as well as soft skills. The next recommendation was training and development program for the firm's experts where almost all the respondents mentioned this was required and; the first initiative to KM were human resource development (Chen & Huang, 2009) for knowledge acquisition (Gonzales & Martins, 2014). KM processes required the organization to hire and train individuals so that they were knowledge capable to contribute to organization knowledge (Cardoso et al., 2012). Employees' skills, experience, cognition and learning abilities influence the success of KM (Lystras & Poulodi, 2006). In addressing behavior issues of experts, organization must build a participatory internal context where employees were motivated to collaborate (Chen & Huang, 2009) and expressed appreciation (Lopez et al., 2006). The firm should invest in its employees because KM was moving from technology to employees where employees would be the center of gravity for KM (Weidner, 2018). Some form of teamwork could be seen since the newer and lesser experienced experts could rely on senior experts' guidance to accomplished their jobs, which were an important construct in KM (Gonzales & Martins, 2014). Therefore, it was concluded the firm top management should play a stronger role in KM initiatives and programs, which in return, they would be able to improve its TAT and QoS.

6. CONCLUSIONS

In conclusion, four themes were generated from this study, mainly the heads of branches and divisions supported and committed to KM, low KM management, lack of top management commitment and the firm's experts need training and development through a qualitative interview method and thematic analysis. The professional services firm in Indonesia status of KM was still low and at an infant stage in meeting its quality of work, namely TAT and QoS, which was agreement with studies conducted earlier on SMEs and logistics service providers (Bencsik & Pawliczek, 2016; Wahab et al., 2021). Results also showed the reasons of low status being insufficient top management commitment and unwillingness to invest in KM program, no proper

follow-through and absence of training and development concept for their 'experts'. The firm should move forward in KM initiatives and program, have commitment and willingness to invest in KM resources from the top management, remove identified KM barriers. The firm could start small and in phases; in knowledge acquisition, knowledge storage and knowledge distribution. It could consider a Business-KM-Fit Strategy as explained earlier. It was recommended to be combined to its business strategy to increase experts' competency, invest in upgrade or expansion of its current KM tool to provide real time data, improve laboratory inventories and equipment maintenance program.

The limitations of this study where the interviews were conducted on heads of branches, where it could have included survey on the 'experts' themselves using a quantitative survey method, to provide more hypothesis to be tested. Other limitation was this is for a professional service firm, and may not apply to other services or industries. The implications of this study for future research were to understand KM processes in detail manner in surveyors and samplers, conduct questionnaires to the professionals who were doing the actual work, and explore if KM was affected by individualism-collectivist society. This study only covered certain employees in the operations department, and future study could look at other positions or other departments.

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APPENDIX 1

Interview Questions and Answers tabled for analysis

	Interview Questions	West Java 1	Sumatera 1	Kalimantan 1	West Java 2
1	Level of understanding of KM	High	Medium	High	Low
2	Would implementing KM improve TAT and QoS?	Yes	Yes	Yes	No
3	What do you think about current operation performance, especially TAT and QoS?	Average	Not Satisfactory	Not Satisfactory	Have constraints
4	Was there any improvement effort to increase operational performance, especially for TAT and QoS?	Lack of effort at branch	Yes but only incidental	Partial	Maintenance issue
5	Do you think all of the experts were in compliance?	Follow senior	Follow senior	Follow senior	Somewhat comply
6	Do you think the organization supports on providing resources for KM development?	No	No	No	No
7	Are you committed to be involved in KM initiatives?	Yes	Yes	Yes	Yes

TABLE 1: Interview results summary for first four respondents.

	Interview Questions	Sumatera 2	Kalimantan 2	Marine	Coal	Petrochem
1	Level of understanding of KM	Medium	High	High	High	High
2	Would implementing KM improve TAT and QoS?	Yes	Yes	Yes	Yes	Yes
3	What do you think about current operation performance, especially TAT and QoS?	Average	Good	Average	Average	Good
4	Was there any improvement effort to increase operational performance, especially for TAT and QoS?	Partial	Partial	Partial	Full Yes	Partial
5	Do you think all of the experts were in compliance?	Somewhat comply	Comply because have ISO	Different method of reporting from different branches	Comply but inexperieced	Comply
6	Do you think the organization supports on providing resources for KM development?	Yes	Yes but not optimize	Yes but not optimize	Maybe	Yes but not optimize
7	Are you committed to be involved in KM initiatives?	Yes	Yes	Yes	Yes	Yes

TABLE 2: Interview results summary for next five respondents.

APPENDIX 2

Interview Questions

No	Interview Questions
1	What do you know about Operation performance especially for TAT and QoS?
2	What do you know about knowledge management?
3	Could you explain whether by implementing knowledge management then TAT and QoS, operation performance could increase?
4	What do you think about current operation service performance especially for TAT and quality of service?
5	What do you think about current improvement to increase operational performance especially for TAT and quality of service? Ie any improvements?
6	In your opinion, what problems or challenges are causing TAT complaints and QoS?
7	What do you think, is there any influence of external factors such as policy, encourage from superiors, coaching, endorsement management, etc. can strengthen employee involvement in KM program?
8	Do you think all of experts comply with the procedure, is there any issue about compliance?
9	Do you think the organization supports the facility or asset for the development of Knowledge Management?
10	Are you committed to involve in KM improvement as the part of best practice KM implementation?