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Enterprise Risk Management and Case Study: Supply Chain Management of PT. Kakada Pratama

Khristian Edi Nugroho Soebandrija[1] and Hendryvan[2]

Faculty Member[1] and Student[2]
Bina Nusantara University, Industrial Engineering Department,
Faculty of Engineering, Kampus Syahdan, Jl. K.H. Syahdan No. 9,
Palmerah, Jakarta Barat 11480. Phone : 021-534-5830, Fax : 021-530-0244
E-mail : Knugroho@binus.edu Khristian.teknik.industri@gmail.com and KhristianEdi@yahoo.com

Abstract

Nowadays, enterprise requires need risk analysis in order to ensure its sustainability in doing business. This paper has objectives to provide analysis in both theoretical aspects and its empirical aspects of PT. Kakada Pratama, within Enterprise Risk Management (ERM) Framework, not to mention the aspects of Supply Chain Risk Management. Precisely, it covers the process of analyzing risk relationship; identifying risk and its impact level toward supply chain activity level; and eventually deciding on the risk priority and select action within supply chain risk management strategy. PT. Kakada Pratama (PT. KP), is one of enterprises that plays role as component supplier of bridge construction projects. As Research Methodology, this paper refers to the Supply Chain Risk Management (SCRM) Framework, as developed by Hallikas (2002) (PT. KP). As the result of this paper, the Risk Map is compiled, and considered as the reference for the ERM and the SCRM Framework; eventually provide the table of Supply Risk Category of PT. KP. The mentioned analysis is supported by the SuperDecision Software, through Analytic Network Process (ANP) that is used in this paper. Posterior to that analysis, there are 28 risks resulted from brainstorming results and interviews with PT. KP, and at the risk of supply chain level PT. KP has a total of 14 low-risk categories, 15 moderate-risk categories, and zero high-risk categories. The mentioned results constitute the ground for further improvement for both theoretical and empirical aspects for future research.

Keywords Enterprise Risk Management, Supply Chain Management, Analytic Network Process, PT. Kakada Pratama,

1. Introduction

Nowadays, enterprise requires need risk analysis in order to ensure its sustainability in doing business. This paper has objectives to provide analysis in both theoretical aspects and its empirical aspects of PT. Kakada Pratama (PT. KP), within Enterprise Risk Management (ERM) Framework, not to mention the aspects of Supply Chain Risk Management. Precisely, it covers the process of analyzing risk relationship; identifying risk and its impact level toward supply chain activity level; and eventually deciding on the risk priority and select action within supply chain risk management strategy. The presence of PT. KP as a component supplier of bridge construction projects, requires project management toward its customers. Therefore, the smooth supply chain management and its risk of PT. KP, must be supported in order to smooth project management of the supply chain. By involving in a construction project, PT. KP as a supplier of construction components such as the construction of flyover or overpass to consider. Thus, it relates to public facilities and the public interest. There are several examples of project that PT. KP have been involved, such as toll roads with bridges that use elastomeric rubber bearing pad products from PT. Kakada Pratama. The mentioned toll roads comprise toll roads Cibitung - Cikampek, ring road in West Jakarta, East Jakarta ring road, fly over Tanjung Priok - Pluit, Cengkareng toll road - Soekarno-Hatta Airport, II Ampera Bridge Palembang, highway Padalarang - cikampek a liaison point for the economy society.

2. Literature Review

This paper refers to several literatures, in which the main literature are from Zsidisin and Ritchie (2010), in particular about Enterprise Risk Management (ERM) and from Hallikas (2002), in particular about Supply Chain Risk Management (SCRM). Brief description about ERM is stated in this literature review, and stated in detail in Result and Discussion. Similarly, Brief description about ERM is stated in this literature review, and stated in detail in Research Methodology, and Result and Discussion.

Furthermore, this paper refers to the additional and supporting literatures from (Juttner, Christopher, and Peck, 2004), based upon the five categories of supply chain risks. In term of further understanding of supply chain, this paper refers to dimension of Supply chain, through the paper of Spekman and Davis (2004) ; paper of Pinto (2007) pertaining the holistic of risk; (Suharjito, Machfud, Sukardi, Haryanto, and Marimin, 2002) pertaining the complex risk interaction in supply chain risks; Chopra (2004 and 2010) pertaining Supply Chain Breakdown and Management; Faisal (2006) pertaining Risk Mitigation, Gaudenzi (2006) pertaining AHP and Supply Chain; Lambert (2000) Issues in SCM; Laudon (2012) pertaining Management Information System; Nagy (2010) and Ritchie (2007) pertaining Risk and Supply Chain Performance; Raz (2005) pertaining Risk Management Standards;

3. Research Methodology

As stated in Literature Review; this paper refers to several literatures, in which the main literature are from Zsidisin and Ritchie (2010), in particular about Enterprise

Risk Management (ERM) and from Hallikas (2002), in particular about Supply Chain Risk Management (SCRM).

Subsequently, other than Supomo (2002), the Research Methodology in this paper, refers to the Supply Chain Risk Management Framework, by Hallikas (2002), as indicated in the Figure 1, pertaining SCRM Framework.

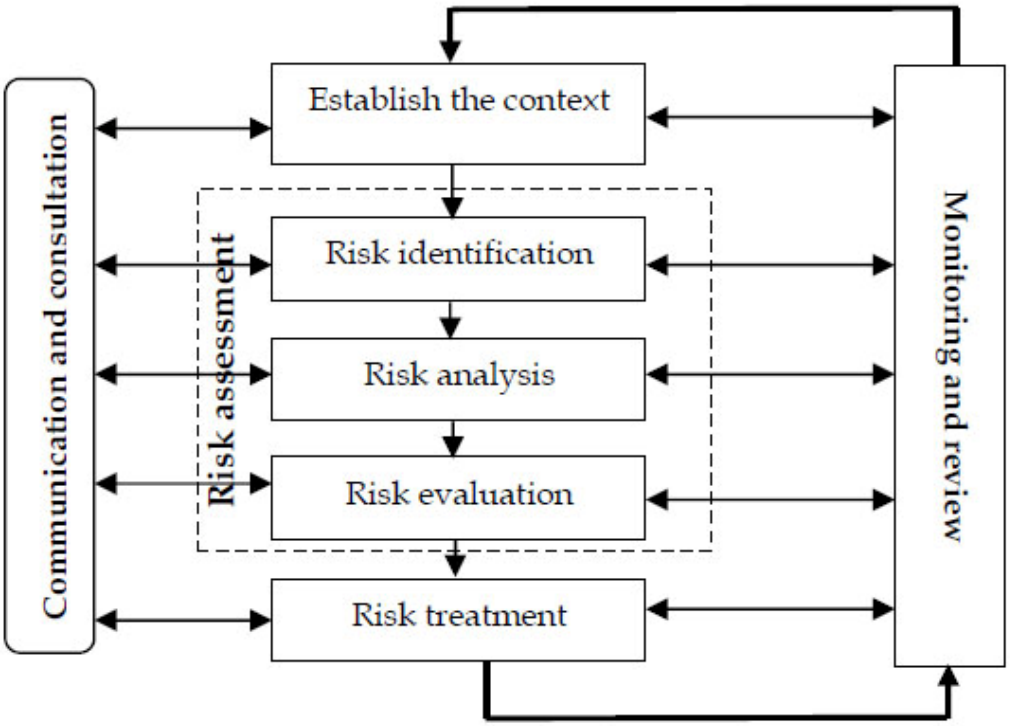

Figure 1: SCRM Framework

4. Results and Discussions

PT. KP as a supplier of construction component, including the production of a Bridge Component, in which it consists of a deck structure is supported by a pole mast. To anticipate damage due to thermal expansion of the movement, a structure shift due to vehicles movement, elastomeric rubber bearing pad, as indicated in Figure 2, is considered to accommodate reaction force, including bending movements, with the constraints of safety structures.

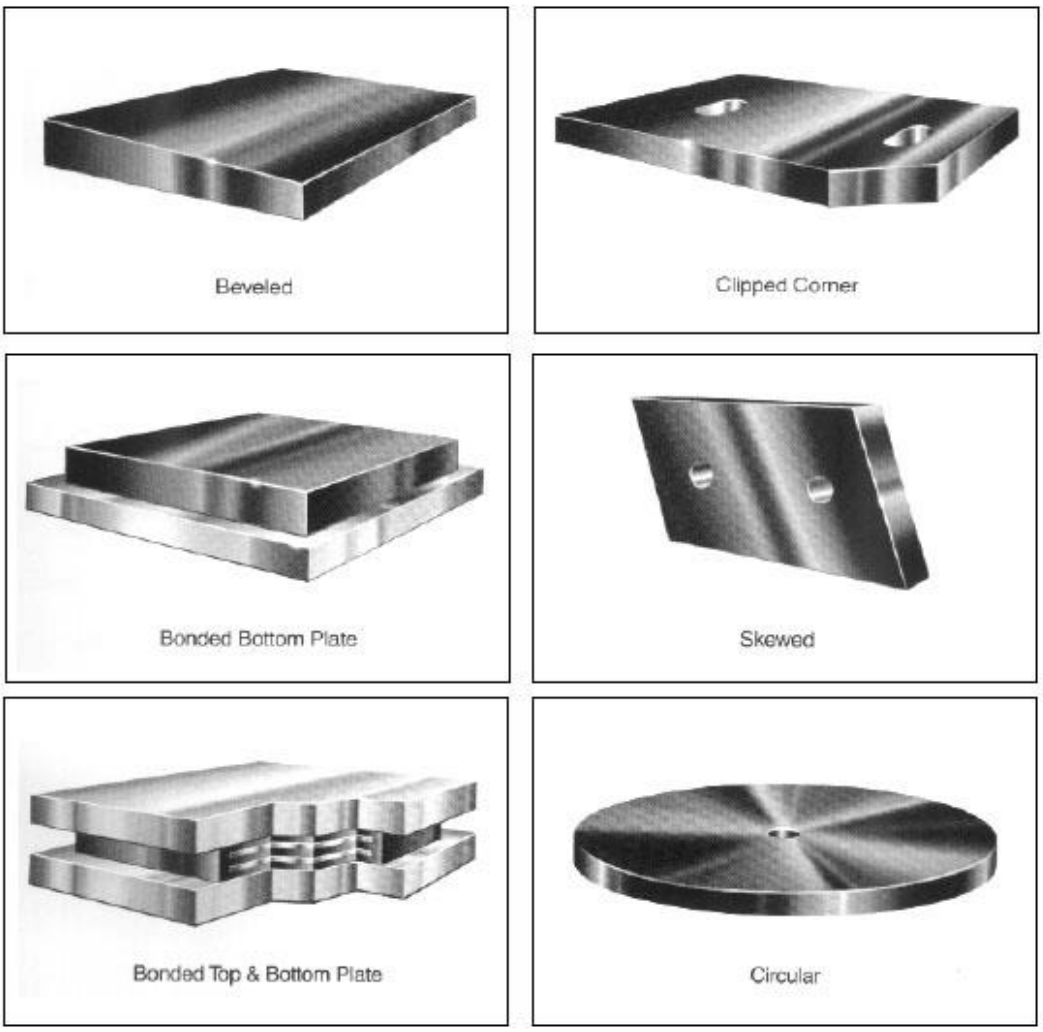

Figure 2 Elastomeric rubber bearing pad

Neoprene, in term of Natural Rubber is an ideal engineering material for bridge bearings, due to its characteristics of its elasticity and sufficiently softness to accommodate movements without transmitting harmful stress. Other indispensable characteristics that are embedded in this materials, it also absorbs and isolates energy from impacts and vibrations. Bridge bearings are devices for allocating loads and movement of the bridge deck to the pier. (pretread.com)

In the process, the supply chain of PT. KP have started the process of the supply chain from suppliers to customers that involve multiple stakeholder roles. Furthermore, PT. KP has the 3 types of supply chain risks, comprise Downstream, Upstream and Operational Risks; that are further segregated into supply risk, demand risk and operation risk. Of each risk is divided into three streams, which include information flows risks, risks include financial flows, and the risk of covering material flow.

In term of Supply Risk, the downstream view comprises RSI1: Error information in raw material prices; RSI2: Mistakes stock availability information; RSI3: Ordering specification error; RSI4: Misconception agreement; RSK1: Delay in payment; RSK2: Debt backlog of manufacturing; RSM1: Delay in delivery of raw materials; RSM2: Error goods delivery specifications; and RSM3: Lack number of shipments.

In term of Demand Risk, the downstream view comprises RDI1: Ordering specification error; RDI2: Errors product pricing information; RDI3: Changes in booking completion time; RDI4: Misconceptions contract; RDK1: Delay in payment of bills; RDK2: Availability of cash for payment of bills; RDK3: Error scheduling bill payments; RDM1: Late receipt of goods;RDM2: Acceptance of goods is not within specifications; and RDM3: Acceptance of defective or damaged goods.

Furthermore, in addition to the mentioned Supply Risk and Demand Risk, this paper elaborates the Operational Risk at PT. KP, that consist of: ROI1: Communication error between divisions; ROI2: Damage to the company's information systems; ROI3: Damage to the company's information technology; ROK1: Unavailability of money for payment of suppliers; ROK2: The occurrence of late payment; ROK3: The occurrence of delay issuing bills; ROM1: The occurrence of shortages of raw materials production; ROM2: Defect production; and ROM3: Delay in delivery.

As part of the Result and Discussion, this paper elaborates risk analysis shown in likelihood and consequences table 1

Table 1 Likelihood and consequences PT. KP

Risk	L	C	LxC
RSI1	2	2	4
RSI2	1	1	1
RSI3	4	4	16
RSI4	2	3	6
RSK1	5	2	10
RSK2	3	2	6
RSM1	4	3	12
RSM2	1	4	4
RSM3	1	2	2
ROI1	3	2	6
ROI2	5	3	15
ROI3	4	3	12
ROK1	3	2	6
ROK2	4	2	8
ROK3	1	1	1
ROM1	3	4	12
ROM2	3	3	9
ROM3	3	2	6

RDI1	3	4	12
RDI2	2	5	10
RDI3	3	5	15
RDI4	1	3	3
RDK1	4	4	16
RDK2	2	3	6
RDK3	2	1	2
RDM1	3	3	9
RDM2	1	5	5
RDM3	1	5	5
Total	73	83	215

Scale value of L (likelihood)
1 = least common
2 = very rarely occurs,
3 = often,
4 =, is very often the case
5 = most common
Scale value of C (Consequences)
1 = least impact,
2 = no impact
3 = slight impact
4 = very impacting,
5 = most severely impacted.

From the calculation LXC formed in a 5x5 matrix and placed in accordance with the value of L (scale 1-5) and the value of C (scale 1-5), where the value of L (1 = most frequent, 2 = extremely rare, 3 = often, 4 =, 5 = very frequently occurs most often occurs), with a large value of C (1 = least impact, no impact 2 = 3 = 4 = very little impact, 5 = most severely affected)

Table 2 Indicator table of risk map

LxC Class	Risk category	Color
1-8	Low risk	
9-17	Medium risk	
18-25	High risk	

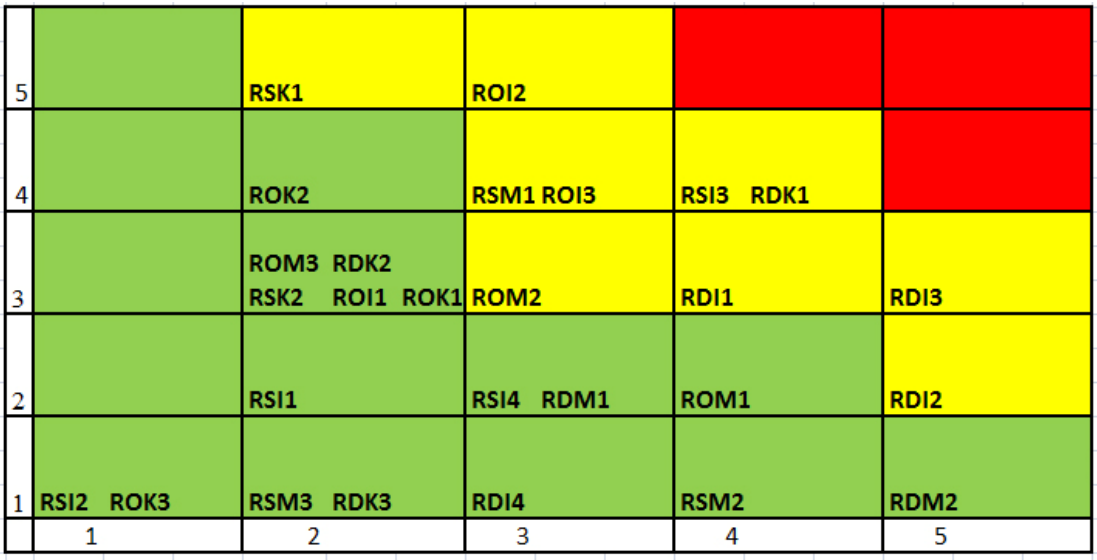

Figure 3 Risk map of PT. KP

From the results of the risk mapping above, there are three categories in which the value of LXC categorized as low risk (1-8), moderate risk (9-17), and high risk (18-25). Elaboration of each of which is included in the category of risk described in the following table:

Table 3 Table of supply chain risk category PT. KP

Risk category	Risk
Low risk	RSI2, ROK3, RSM3, RDK3, ROK2, RSI1, ROM3, RDK2, ROI1, ROK1, RSI4, RDM1, RSM2, RDM2
Medium Risk	RSK1, ROI2, RSM1, ROI3, ROM2, RSI3, RDK1, RDI1, RDI3, RDI2 ROM1,
High risk	----------

From the results of brainstorming, which obtained the views and ideas are given a translation of the results and the relationship of each brainstorming in conjunction with the risks and other risks. The risk profile is made to determine the level of risk and risk relationships. The level of risk is described in the form of a risk map created relationship between risks relationship tables.

On calculations made figures of ANP, in Figure 4 with Super Decision Software, and cluster nodes. Relationship of nodes and cluster ANP, that is developed by Saaty (1980, 1990, 1995, 1996, 1999, 2000, 2001, 2004a, 2004b, 2005, and 2008), is a tool to find the rankings of risk have a relationship with the others risk profile for

the calculated level of correlation risk. Of each of the risks that have the relationship, compared with a scale of 1-10, where 1 = the same scale is important, 2 = slightly important, to 10 = extremely more important.

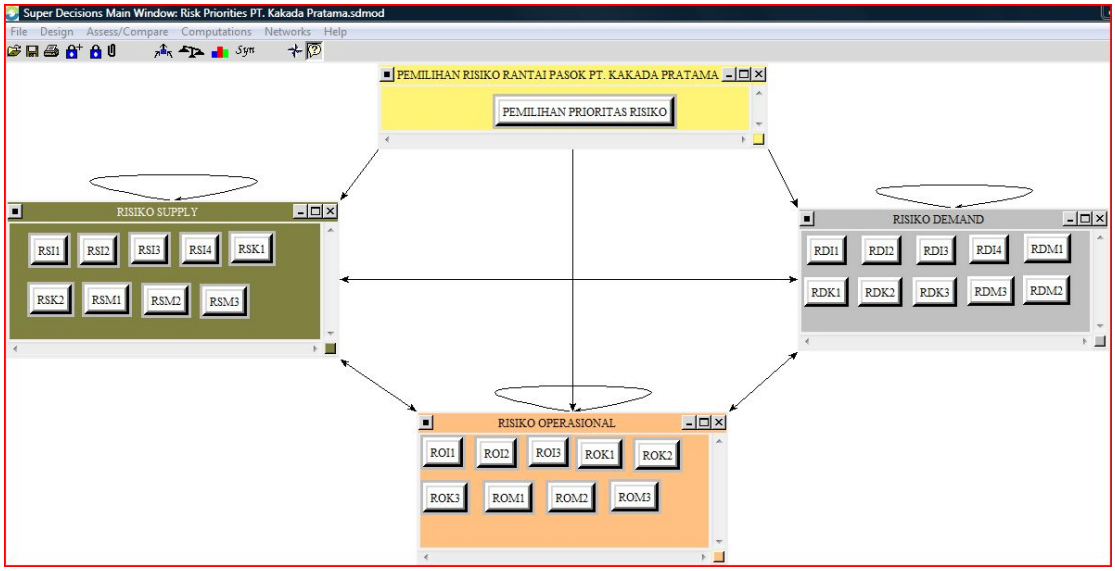

Figure 4 Supply risk at PT. KP and ANP Figure

5. Conclusions

As Research Methodology, this paper refers to the Supply Chain Risk Management (SCRM) Framework, as developed by Hallikas (2002). As the result of this paper, the Risk Map is compiled, and considered as the reference for the ERM and the SCRM Framework; eventually provide the table of Supply Risk Category of PT. KP. The mentioned analysis is supported by the SuperDecision Software, through Analytic Network Process (ANP) that is used in this paper. Posterior to that analysis, there are 28 risks resulted from brainstorming results and interviews with PT. KP, and at the risk of supply chain level PT. KP has a total of 14 low-risk categories, 15 moderate-risk categories, and zero high-risk categories. By considering the Supply Chain Risk, this paper emphasizes the anticipation and remedial action toward its consequences. Precisely, the mentioned remedial action in PT. KP is beneficial to save expenses the cost of recovering the goods in case of specification error standard ordering, delivery of finished goods specification error, shortage of delivery of finished goods. Subsequently, in term of precaution action, in term of risk reduction or risk transfer, results in the cost reduction of customers loss and the acquisition of new customers. Data from the 2012 turnover of PT. Kakada Pratama relies 17% -26% of repeat customers. From these figures, losing one customer is still deemed potential revenue lost amounting IDR 432,272,681.60 to IDR.661.122.924.80 per annum. The mentioned results constitute the ground for further improvement for both theoretical and empirical aspects for future research.

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