

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/286298578>

Dynamic supply chain practices in Malaysia

Article · October 2014

DOI: 10.1109/ISTMET.2014.6936510

CITATIONS

0

READS

103

3 authors:



Shatina Saad

Universiti Teknologi MARA

5 PUBLICATIONS 9 CITATIONS

[SEE PROFILE](#)



Zulkifli Mohamed Udin

Universiti Utara Malaysia

79 PUBLICATIONS 414 CITATIONS

[SEE PROFILE](#)



Hasnan Norlena

Universiti Utara Malaysia

4 PUBLICATIONS 14 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



A GLOBAL COMPETITIVE SUPPLY CHAIN TECHNOLOGY ADOPTION MODEL FOR TEXTILE AND APPAREL INDUSTRY IN MALAYSIA [View project](#)



Supply Chain Management in Republic of Yemen [View project](#)

Dynamic Supply Chain Practices in Malaysia

A Case Study in Oil and Gas Company

Shatina Saad

Faculty of Business Management
University Technology MARA
Selangor, Malaysia
shatinas@salam.uitm.edu.my

Zulkifli Mohamed Udin, Norlena Hasnan

School of Technology Management and Logistics
Universiti Utara Malaysia
Kedah, Malaysia
zulkifli@uum.edu.my, norlena@uum.edu.my

Abstract— The oil and gas companies often claim as highly complex and structured through the supply chain system that requires dynamic practices. Oil and gas companies may encounter capabilities problems related to the dynamic supply chain practices in attainment and reassessment of their associates in the supply chains. Motivated by the complication in the oil and gas companies and its typical characteristic of the supply chain, this study intends to understand the real situation problem that needs to be known about how the supply chain practices as seen by oil and gas industry players. Resource-based view and organizational learning theory are used to support for developing the framework to the study. In order to gain an in-depth understanding dynamic supply chain practices the contractors registered with PETRONAS licensing companies have been chosen. Due to the subjectivity of the study that requires understanding of dynamic supply chain practices; this study uses the interpretive paradigm where it would guide towards qualitative methodology. This study will provide deep and wide description of the dynamic of supply chain practices where the outcome will contribute to the managerial and theoretical perspective of supply chain management in oil and gas players.

Keywords— *Dynamic capabilities; Dynamic supply chain; Oil and gas industry; Case study*

I. INTRODUCTION

Researchers and practitioners of supply chain management (SCM) attract great deal of attention in recent year. Effective SCM lead to customer service satisfaction by lower resources required, increase product availability and decrease order cycle time [1]; engage in information exchange and structural collaboration [2, 3]; relationships with downstream supply visible to participating companies with successful implementation in the global environment [4], proliferate, and business management decision making processes [5, 6].

According to [7, 8], a supply chain is a dynamic process which involves both within and between chain members, the invariable stream of information, materials, and funds across multiple functional areas. In order to meet customer's needs and to maximize profit, members in the chain need to collaborate with each others. However, it is a very difficult task in managing the multiple collaborations in a supply chain. Since there are so many firms involved, the supply chain operations also have each own resources and objectives. Real-time operation and decision making across different tasks,

functional areas, and organizational boundaries in order to deal with problems and uncertainties requires high interdependency of multistage processes. The focus for mass customization, quick response, and high quality service cannot be accomplished without more complex cooperation and dynamic structure of supply chains.

Dynamic collaboration capability has been identified to assist a company access, shift and leverage supply chain resources to rapidly respond to a varying competitive environment [9]. A dynamic process also involves the concurrent possession and continual re-evaluation of partners, technologies, and organizational structures. Firms may encounter the same problems, but they may have different awareness and potential solutions due to differences in their engagement of stakeholders. The more flexible and open of the firms to the issues there is more likely for them to explore, create, and invest in the dynamic capabilities [10, 11]. Therefore, firms that hold dynamic collaboration capability should be able to sustain high performance levels over time.

Environmental uncertainties in oil and gas industry lead to a need for higher reliability and flexibility within the production, planning and control systems in the supply chain. By understanding the root causes such as change in markets, products, technology, and competitors, uncertainties can be reduced [12-14]. As a result; managers must take decisions on shorter notice, with less information, and with higher penalty costs. Thus, a reliable yet a flexible system is fundamentally needed to assist the management in making decisions that might prove to be the make-or-break decision for their companies [8].

The focus of this paper is to understand the environment of dynamic supply chain practices in oil and gas (O&G) industry in Malaysia by looking into the dynamic supply chain capabilities. O&G industry spans a large scale in a supply chain, from the strategic to tactical to operational level and other various functions in the supply chain network, such as from the raw materials purchased through the refinery manufacturing to the distribution and sales [15, 16]. Integrated and coordinated decision making across various geographically distributed refinery manufacturing and storage sites also offers additional challenges to refinery operations. Even though refinery facilities management is part of major operations, transportation logistics and finished product distribution management remain important parts of the O&G supply chain.

Hence, this study is to explore and understand the dynamic supply chain capabilities in the dynamic supply chain practices in the Malaysia O&G industry. Specifically, the dynamic supply chains capabilities will be discussed in this study are the internal firm's capabilities in the dynamic supply chain practices of O&G industry. The internal firm's capabilities are the organization that provides services and registered with PETRONAS to the upstream and downstream in the O&G industry chains.

In the O&G industry, technical advancement for speedy exploration and maximize production has been taken seriously if compared to supply chain practices. Initially it is considered as "soft issue" in the industry until players beginning to realize that 80% of all operating expenses were spent on the supply chain system [17]. They also noticed that the project can be successful if the careful attention and precautions on the procurement or supply chain system are taken seriously.

Many of the articles found in the supply chain journals or other publications prior to this have done research on the dynamic supply chains referring to the manufacturing, retailing and using modeling techniques as a method in deliberating the decision [2, 18-20]. Several studies done in Malaysia on the supply chain issues also includes: value changes and multicultural complexity [17]; collaborative supply chain [21]; outsourcing [3] sustainability and environmental control [22]. Although there are many new technological breakthroughs in exploration and production [16, 23, 24], there also has been insufficient development in dynamic supply chain practices to explore more specifically in an O&G industry.

Generally, the research objective is to explore and identify the dynamic supply chain practices in the organizations, specifically for O&G industry in Malaysia's environment. The focus will be at the O&G dynamic supply chain practices internal firm's capability.

From the theoretical perspectives, this study utilizes dynamic capabilities, industrial system, resource-based view and organizational learning theory. These theories discuss the importance of information and materials as unique resources in SCM for the competitive advantage. It will represent an exploratory study on dynamic supply chain practices in Malaysia O&G industry. Furthermore, it will provide information in rising better strategies and decision made of dynamic supply chain practices.

From the managerial point of view, this study will benefit them in several ways. The results of this study will be expected to show the performance of a dynamic supply chain on O&G industry. This will help the players in the industry to understand the progress and future actions that could improve the SCM competitiveness in of Malaysia.

This paper is structured as follows; first O&G supply chain management literature was reviewed. Subsequently, the research methodology employed is then detailed. The paper finalizes with the key findings of the research, implications and contributions of this research as well as avenues for future investigation.

A. Oil and Gas Supply Chain Management

Petroleum companies, also known as Oil and Gas (O&G) companies have shaped a thrust of global economy for the last decade. By 2020, Malaysia will have a more diversified oil, gas and energy sector that remains crucial to the nation development, and that builds on the nation's competitive advantages. A key thrust not only to strengthen exploration and enhance production from domestic reserves but also to develop a strong regional oilfield services and equipment hub and a stronger presence in the regional midstream logistics and downstream markets [25]. Malaysia's national O&G Company, Petroleam Nasional Berhad (PETRONAS), holds exclusive ownership rights to all O&G exploration and production project in Malaysia. As Malaysia's oil fields are maturing, the government is focused on enhancing output from existing fields and from new offshore developments of both O&G, which is expected to increase aggregate production capacity in the near- to midterm [26]. Among other major players in Malaysia O&G industries are Esso Malaysia Berhad and Shell Malaysia Limited.

A typical petroleum industry supply chain is composed of an exploration phase at the wellhead, crude procurement and storage logistics, transportation to the oil refineries, refinery operations, and distribution and transportation of the final products [16]. The upstream and downstream activities are two important activities in the petroleum industry [22]. SCM in O&G industry requires the company to integrate its decisions with those made within its chain of customers and suppliers. This process involves relationship management of the company to their customers and suppliers. A firm can create long-term strategic relationships with their suppliers and in most cases, there is a collaborative process between the O&G company with its suppliers [27]. Generally, O&G companies view their supply chain practices and coordination systems as commendable of improvement. Making necessary improvements over time allows the firm to gain competitive advantages in the marketplace.

In the oil refinery industry, the supply chain network is composed of shipping via vessel, oil tankers, and pipelines that may run across multiple countries. This network is used to transport crude from wellhead to refinery for further processing, transporting intermediates between multi-site refining facilities, and transporting finished products from product storage tanks to distribution centers and finally to the customers. Any disruptions arising in the global supply chain will be excellent repulsive effects in achieving operational efficiency, maintaining quality, profitability, and customer satisfaction. In contrary, the unfavorable dealings may happen due to uncertainty in supply of crude, demand, transportation, market volatility, and political climate. Hence, to identify O&G supply chain problem, the dynamics of the supply chain practices ought to be considered, and data aggregation techniques for the extensive data set should be employed [16].

B. Scope and Limitation of Research

This study is focusing on exploring issues on a dynamic supply chain practices in O&G industry only, thus the

generalization cannot be done in other organizations and industry throughout Malaysia.

The assumption of this study is that the major players in the O&G industries are doing the similar practices in managing their supply chain. During the exploration and production, the output is exactly similar to competing firms with limited product differentiation. Even though O&G exploration and production companies are unique in many fields, a differentiating factor can lie in the ability to adopt an SCM program.

III. THE METHODOLOGY AND MODEL

This study is an exploratory since not much is known about the situation of dynamic supply chain practices in O&G industry in Malaysia's environment. An in-depth study was undertaken to understand the nature of the problem, since very few studies have been conducted in the dynamic supply chain practices [28-30].

Additionally, when the phenomenon of interest is new, dynamic or complex, relevant variables are not easily to be identified, hence, extant theories are not available to explain the phenomena. In this condition, a qualitative approach is favored to build understanding in an exhaustive description of the phenomenon generated by collecting field data. Researchers may have access to rich level of understanding of new or complex phenomena by yielding a high level of details [31, 32].

As discussed by [32, 33], many useful insights can be tapped into the case study as a research designs strategy. Nevertheless, most research design decisions need further discussion for both the strengths and the weaknesses. The strength of a case study is because it allows customizing the research questions with the design and data collection procedures. However, case study resulting in many weak case studies, and allows to disapproval from the quantitative field of research. Even though, a case study implies a number of choices that need to be addressed in an ethical way [34].

A. Research Sample

The concept of purposive sampling is applied for this study because the researcher selects individuals and sites for the study. The decision about who and what are determined, what form the sampling will take and how many people or sites need to be identified [29, 31, 35]. Since this study is conducted in the O&G industry, gaining an in-depth understanding into complex practices, which will later set the ground for the generation of proposition [5]. The snowball or chain case selection technique was selected with the procurement and supply chain function in the focal organization as the unit of analysis [31].

B. Case Study Protocol

- Giminez [36] identifies the case study protocol as follows. Research questions need to be defined at the beginning of case study methodology. For this paper, the research objective is to explore and identify the dynamic supply chain practices in the O&G companies.

- Unit of analysis next is to be determined. The best approach is to include those involves in the chains such as retailers, logistics providers, refiners, purchasing centers, etc. Nevertheless; due to the study boundaries, the study is focused on the registered services' contractors from the O&G industry in Malaysia.
- Interview schedule and a database of case study database are to be created to enhance the reliability of the case study. Later, chain of evidence is to be established consecutively to support any external observation.
- Next, interviews with companies need to be conducted. Registered services' contractors from the O&G industries in Malaysia are selected among the top supply chain in O&G industry.
- Finally, data collected need to be collated in the case database, analyzed and reached the conclusions. Newspaper clippings and articles also can be used to corroborate and augment evidence as sources of evidence.

C. Interview Protocol

Semi-structured interview protocol was applied and provided the flexibility to focus on what was exclusive among the companies. Generally, underpinning theories are used as bases for the interview questions. For example, knowledge accessing has been seen as a component of creating dynamic supply chains capabilities [13], therefore, it is important to understand how dynamic capabilities' issues were addressed in the dynamic supply chain practices.

D. Collection of Data

Several researchers recommended various research designs specifically in operations and supply chain management researches [32, 33, 36-41]. The preliminary interview schedules were set with top managers relevant to supply chain. The participants includes as follows:

- The CEO or person responsible for the supply chain activities.
- Middle managers responsible for operations/purchasing/marketing or logistics.
- One or more people involved in product and/or process in supply chain.

In reality, organizations are structured in a different way and job titles differ. The top management interviewed was accountable for one or several functions. Even though, the supply chain expert of the companies has been identified earlier for the research design, there were also participants who had multiple tasks. Number of interviews might be reduced, but indirectly it has raised the interview span for more individual participants. Besides, if the earlier interviews made needed additional data further participants were interviewed. As result, multiple respondents were interviewed at the O&G services' contractors. Those who have the fabricated facilities also allow the visit as part of the data collection. Informally questioned

were asked with the employees during the visit. Furthermore, publicly available data were also gathered from Web sites, published articles, and related agencies/regulators reports for each organization. The interviews were normally conducted on site/off site between 60 and 90 minute. All interviews were conducted, taped, and observed field notes taken to record impressions, context and so on by a single interviewer. After each meeting, conversations taped were later transcribed and field notes were edited, and checked for accuracy. Any new or interesting areas that arose from the data were added to the edited interview protocol for next visits.

Collection of data includes; taped and transcribed record of the conversations, multiple respondents interviewed, facility observed, and archival sources. This design allowed on data triangulation by combining data from multiple sources and/or different types of data to lessen biases and improve reliability and validity [32, 33]. The use of multiple respondents and types of data reduces the biases of a single respondent and increases the odds of capturing the companies' view of the construct. Moreover, the plant visit provides the opportunity to conform rhetoric to reality and may induce further questioning.

Transcripts, interviewer field notes and secondary data later were coded. If there is any inconsistencies between the data and the sources, followed up with the participants are done using the phone calls and e-mails.

IV. THE FINDINGS

Malaysia entailed the diversification of energy resources to prevent over-dependency on oil after the global oil crisis in 1973 and 1979. Prior to the Four-Fuel Diversification strategy was implemented in 1981; the contribution of oil in Malaysia's energy mix was once up to 87.9 percent. Malaysia has proven high quality oil reserves of 5.46 billion barrels as of January 2008, and most of the country's reserves are located off the east coast of Peninsular Malaysia.

Data on production of crude oil, condensate and natural gas projects have come public during the last few years, although Malaysia's oil output declined somewhat in 2006. Average production for 2006 stood at 243,000 barrels/day, down 5.2 percent from 2005. In 2012, Malaysia consumed an estimated 214,317 barrels/day of oil, with net exports RM135 million. Malaysia had about 545,000 barrels/day of refining capacity at six facilities as of January 2007. Malaysia's state-owned national oil company, PETRONAS, dominates upstream and downstream activities in the country's oil sector. PETRONAS operates three refineries (259,000 barrels/day total capacity), while Shell operates two plants (200,000 barrels/day), and ExxonMobil one (86,000 barrels/day) [42].

Last two decades, Malaysia has invested in refining activities to meet the country's demand for petroleum products domestically. Despite growth in exploration activities and several new marginal projects, Malaysia's proven oil reserves have declined in recent years. Production of crude oil which peaked at 257 millions dropped to 243 million barrels in 2006. The largest decline was recorded in 2011 with 10.7 percent. On the contrary, in 2012, production of crude oil recorded an increase of 3.1 percent after a decline since year 2009.

Malaysia Petroleum Resources Corporation identifies that 90% of annual turnover in O&G industries are coming from domestic projects. These domestic projects comprise from the local suppliers in Malaysia. This domestic supplier involves 84% as services providers and 16% in product's supplies. The services' providers are mainly in 63% and 32% coming from production and development phases respectively and majorities are in minor fabrication, maintenance and manpower services. Additionally more companies needed for technologies to support the O&G industry in Malaysia.

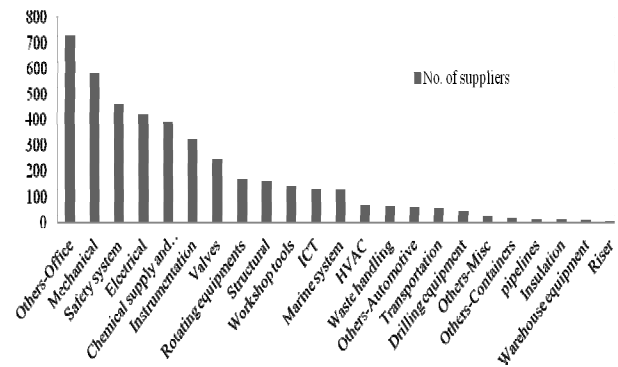


Fig. 1. Product supplies for Oil & Gas Industry in Malaysia

Meanwhile, there are more than 4200 domestic product supplies for O&G industry in Malaysia. These are mainly in mechanical, electrical and instrumentation, chemicals and safety system and also the highest are for the office supplies. Figure 1 shows the domestic supply chain related to the O&G industry in Malaysia.

V. SUMMARY AND CONCLUSIONS

Previous researches scrutinized what was dynamic supply chain management; nevertheless, this study took a different approach. This study directly explored what Malaysia O&G services' contractors distinctively did and that attempting others to trail the same path in dynamic supply chain practices. Dynamic supply chain capabilities are later being recognized as the element of their business and are included in every aspect of their dynamic supply chain practices. The O&G services' contractors also search for new acquaintances to bring new dynamic supply management practices literatures. Concern for dynamic supply chain practices includes supply based continuity, material traceability and price transparency. Additionally, this study gives opportunities for future research to be taken. Since this study focused at the small sample of case studies, therefore, the external validity of the proposed model needs to be empirically tested in a larger sample.

ACKNOWLEDGMENT

The authors would like to appreciate the several referees for their precious suggestions and input, which have improved the paper quality from former version.

REFERENCES

- [1] R. Banomyong and N. Supatn, "Developing a supply chain performance tool for SMEs in Thailand," *Supply Chain Management: An International Journal* vol. 16, pp. 20-31, 2011.
- [2] H. C. Co and F. Barro, "Stakeholder theory and dynamics in supply chain collaboration," *International Journal of Operations & Production Management*, vol. 29, pp. 591-611, 2009.
- [3] M. Raja Mazlan, R. and K. N. Ali, "Relationship between supply chain management and outsourcing," 2006.
- [4] F. S. Manzano, "Supply Chain Practices in the Petroleum Downstream," Massachusetts Institute of Technology, 2005.
- [5] K. Foerstl, C. Reuter, E. Hartmann, and C. Blome, "Managing supplier sustainability risks in a dynamically changing environment—Sustainable supplier management in the chemical industry," *Journal of Purchasing & Supply Management*, vol. 16, pp. 118-130, 2010.
- [6] C. Harland, R. Brenchley, and H. Walker, "Risk in supply networks," *Journal of Purchasing & Supply Management*, vol. 9, pp. 51-62, 2003.
- [7] V. Jain, S. Wadhwa, and S. G. Deshmukh, "Select supplier-related issues in modelling a dynamic supply chain: potential, challenges and direction for future research," *International Journal of Production Research*, vol. 47, pp. 3013-3039, 2009/06/01 2009.
- [8] S. Saad and Z. M. Udin, "Dynamic supply chain: A study in oil and gas industry," in *The 3rd International Conference on Technology and Operations Management: Sustaining Competitiveness through Green Technology Management*, Bandung - Indonesia, pp. 271-277, 2012.
- [9] D. J. Teece, "Dynamic capabilities and strategic management: organizing for innovation and growth," *Strategic Management Journal*, vol. 18, pp. 509-533, 1997.
- [10] V. Jain, S. Wadhwa, and S. Deshmukh, "Revisiting information systems to support a dynamic supply chain: issues and perspectives," *Production Planning and Control*, vol. 20, pp. 17-29, 2009.
- [11] S. L. Hart and G. Dowell, "A Natural-Resource-Based View of the Firm : Fifteen Years After," *Journal of Management*, vol. 37, pp. 1464-1479, 2011.
- [12] K. N. S. Iyer, "Demand chain collaboration and operational performance: role of IT analytic capability and environmental uncertainty," *Journal of Business & Industrial Marketing*, vol. 26, pp. 81-91, 2011.
- [13] C. C. Defee and B. S. Fugate, "Changing perspective of capabilities in the dynamic supply chain era," *The International Journal of Logistics Management*, vol. 21, pp. 180-206, 2010.
- [14] I. Awudu and J. Zhang, "Uncertainties and sustainability concepts in biofuel supply chain management: A review," *Renewable and Sustainable Energy Reviews*, vol. 16, pp. 1359-1368, 2// 2012.
- [15] S. S. Pitty, W. Li, A. Adhitya, R. Srinivasan, and I. A. Karimi, "Decision support for integrated refinery supply chains: Part 1. Dynamic simulation," *Computers & Chemical Engineering*, vol. 32, pp. 2767-2786, 2008.
- [16] N. K. Shah, Z. Li, and M. G. Ierapetritou, "Petroleum refining operations: key issues, advances, and opportunities," *Industrial and Engineering Chemistry Research*, vol. 50, p. 1161, 2011.
- [17] M. Mohammad, "Procurement strategies for the oil and gas industry: to capture changing values and dealing with multi cultural complexity," in *The proceedings of the international conference on construction and building technology (ICCBT2008)*, *Universiti Teknologi MARA (UiTM), Malaysia*, pp. 29-38, 2008.
- [18] M. Wang, H. Wang, and J. Liu, "Dynamic Supply Chain Integration through Intelligent Agents," in *40th Hawaii International Conference on System Sciences*, Hawaii, pp. 1-10, 2007.
- [19] G. Jun-jun, Z. Yun, and M. Xia, "A joint decision model of dynamic pricing and dynamic inventory in an apparel supply chain with demand learning," in *International Conference on Logistics Systems and Intelligent Management*, pp. 692-696, 2010.
- [20] S. E. Fawcett, C. Wallin, C. Allred, A. M. Fawcett, and G. M. Magnan, "Information technology as an enabler of supply chain collaboration: A dynamic-capabilities perspective," *Journal of Supply Chain Management*, vol. 47, pp. 38-59, 2011.
- [21] Z. M. Udin, S. Mohtar, and A. A. Othman, "Collaborative Supply Chain Management: The Hybrid Knowledge-Based Development Approach of Suppliers-Customers Perspective," *Operations and Supply Chain Management*, vol. 1, pp. 130-141, 2008.
- [22] N. Mohd Ali. (2009, Sustainability Of Petroleum And Environmental Control In The Malaysian Petroleum Law. Available: <http://ddms.usim.edu.my/handle/123456789/1549>
- [23] I. Firdaus, A. S. Razizad, M. Z. Awang, N. Razali, A. B. Osman, and S. Hadi, "Successful Execution of 'D Field Compressed Gas Capacity Enhancement Integrated Turnaround' (DuCIT), Peninsular Malaysia Operations, PETRONAS," presented at the SPE Project and Facilities Challenges Conference at METS, Doha, Qatar, 2011.
- [24] S. Zailani, R. Premkumar, and Y. Fernando, "Factors Influencing the Effectiveness of Operational Information Sharing within Supply Chain Channels in Malaysia," *Operations and Supply Chain Management*, vol. 1, pp. 85-100, 2008.

- [25] Performance Management and Delivery Unit, "Economic Transformation Handbook: A roadmap for Malaysia," 2010.
- [26] Energy Information Administration. (December 2010, 1 February 2011). Malaysia energy data, statistics and analysis - oil, gas, electricity, coal. Available: www.eia.doe.gov/cabs/malaysia/oil.html
- [27] C. M. Chima, "Supply-Chain Management Issues In The Oil And Gas Industry," *Journal of Business & Economics Research*, vol. 5, pp. 27-36, 2007.
- [28] U. Sekaran, *Research methods for business: A skill building approach*: John Wiley & Sons, 2006.
- [29] R. Kumar, *Research methodology: A step-by-step guide for beginners*: Sage Publications Limited, 2010.
- [30] M. Easterby-Smith, R. Thorpe, P. Jackson, and A. Lowe, *Management Research*: SAGE Publications, 2008.
- [31] J. W. Creswell, *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*, 3 ed.: SAGE Publications, Inc, 2012.
- [32] K. M. Eisenhardt, "Building Theories from Case Study Research," *The Academy of Management Review*, vol. 14, pp. 532-550, 1989.
- [33] R. K. Yin, *Case study research: Design and methods* vol. 5: Sage Publications, Incorporated, 2008.
- [34] C. B. Meyer, "A case in case study methodology," *Field Methods*, vol. 13, pp. 329-352, 2001.
- [35] W. Zikmund, B. Babin, J. Carr, and M. Griffin, *Business Research Methods*, 8 ed. Canada: South-Western Cengage Learning, 2010.
- [36] T. C. Giménez, "Case studies and surveys in supply chain management research: Two complementary methodologies," in *Research methodologies in supply chain management*, H. Kotzab, S. Seuring, M. Müller, and G. Reiner, Eds., ed Heidelberg (Germany): Physica-Verlag, 2005, pp. 315 - 330.
- [37] B. Miles and A. M. Huberman, *Qualitative Data Analysis: An Expanded Sourcebook*, 2 ed.: SAGE Publications, Inc, 1994.
- [38] M. Pagell and Z. Wu, "Building a more complete theory of sustainable supply chain management using a case studies of 10 exemplars," *Journal of Supply Chain Management*, vol. 45, pp. 37-56, 2009.
- [39] D. M. McCutcheon and J. R. Meredith, "Conducting case study research in operations management," *Journal of Operations Management*, vol. 11, pp. 239-256, 1993.
- [40] M. Christopher, *Logistics and Supply Chain Management*, 4 ed.: Financial Times/ Prentice Hall, 2010.
- [41] A. B. L. d. Sousa Jabbour, A. G. A. Filho, A. B. N. Viana, and C. J. C. Jabbour, "Measuring supply chain management practices," *Measuring Business Excellence*, vol. 15, pp. 18-31, 2011.
- [42] S. Saad, Z. M. Udin, and N. Hasnan, "Dynamic supply chain management in oil and gas industry.," in *3rd Asia-Pacific Business Research Conference*, Kuala Lumpur, Malaysia, 2013.