

Product and Vendor Development Programme in Encouraging Supply Chain Management: A Case Study

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Abstract. This paper reviews the methods used by an automotive manufacturer in enhancing the Supply Chain Management (SCM) system through a setup termed as Product and Vendor Development Programme (PVD). PVD was developed to eliminate problems faced due to late delivery and poor quality of supplies and availability of supplies at the lowest possible costs. The paper explores the methodologies that have been employed by the PVD. Results overtime show that the PVD has improved the SCM system especially in the areas of quality and delivery services, other services and as well as cutting costs that manufacturers had to face due to problems that arose in the shortcomings of the supply services. The PVD has managed to promote the Localization Programme and has also been able to establish qualified vendors. Findings also establish that the PVD team is the key to the success for development of the PVD programme. The paper presents an original discussion about viewing PVD programme from a successful automotive manufacturer.

Introduction

Due to various dynamic competitions, many manufacturing firms have tried various approaches to remain competitive. Some of the quality improvement approaches that have been implemented by manufacturing firms show outstanding results. However, not all success stories can be achieved easily [1]. Each manufacturing firm will have to try its own approach and which will enable it to improve productivity and gain a competitive edge against its competitors. This issue has attracted many researchers and companies to conduct research and identify the best approach to achieve better results which would be appropriate to its manufacturing environment and business culture [2,3]. This paper discusses the kind of strategy that a manufacturer could pursue to improve his SCM system.

In general, the SCM is the oversight of materials, information, and finances as they move in a process from supplier to manufacturer to wholesaler to retailer to consumer. SCM seeks to synchronize an organization's functions and those of its suppliers to match the flow of materials, services, and information with the customer demand [4]. SCM involves coordinating and integrating these flows both within and among organizations. It is said that the ultimate goal of any effective SCM system is to reduce inventory (with the assumption that products are available when needed). In short, this definition is fairly complete as it indicates that it is not only the flow of goods that is important, but the flow of information and money as well [5]. Most manufacturing enterprises are organized as networks of manufacturing and distribution sites that procure raw materials, transform them into intermediate and finished products, and distribute the finished products to customers [6].

To ensure that the SCM is properly managed, a manufacturer should have a qualified supplier (vendor). Connecting with reliable and trustworthy suppliers has become a key factor for successful organizations [7]. Svensson [8] believes that supplier segmentation is a fundamental business activity to improve the outcome of a company's efforts to maintain and enhance its position in the marketplace, as well as customer segmentation, market targeting, and positioning (i.e. strategic marketing). Manufacturers are able to help their suppliers by providing them with the essential knowledge, skills and experience in order to further improve their delivery performance. Besides that, assistance from organizations can decrease production disruptions that are caused by poor quality materials. In addition, such suppliers also gain a better competitive edge as compared to their fellow suppliers as their performance improves and reduces a manufacturer's cost. Thus, supplier development is a vehicle that can be used to increase the competitiveness of the entire supply chain [6,9].

Supplier development is defined as any effort of a buying firm to increase the performance and capabilities of the supplier [10]. In practice, supplier development activities vary significantly, ranging from limited buying firm efforts that might include informal supplier evaluation and a request for improved performance, to extensive efforts that might include training of the supplier's personnel and investment in the supplier's operations [11]. Ideally, manufacturers will try to select to involve those suppliers that have sufficient knowledge and skills, but this may not always be possible. In several industries, increased supplier involvement in product development is a relatively new trend and suppliers may not have the opportunity and time to align themselves with the new demands placed on them. Moreover, there is a lot of research related to supplier development that have been studied and reported [12-15].

This paper provides an overview of how an automotive manufacturer, Isuzu Hicom Malaysia Co. Ltd (IHM) developed a supplier development programme called, "Product and Vendor Development," (PVD) in order to enhance the SCM system after undergoing a reform in the corporate restructuring. This paper is organized as follows: first Section explains the overview of supplier (vendor) development for capturing the key issues. Second Section classifies the research methodology. Then, the next Section explains the case study at a selected manufacturing firm and explores the Product and Vendor Development Programme (PVD). Final Section discusses the findings and the information gained and the final part of this section provides some useful conclusions and suggestions/ for future research.

Research Method

An in-depth case study was conducted at IHM, focusing on productivity improvement activities at the company. The research methodology comprises semi-structured interviews for the top management, focussed group discussions with ten shop floor leaders in the plant and direct observation of the plant in operation to collect the primary data. In addition, the interviews that are conducted not only deal on the past implementation, but also focus on future plans and development of the company. Secondary data is obtained from company reports, local literature and local newspapers.

Case Study

IHM which situated in Pahang, Malaysia is selected for the case study. IHM is a branch of Isuzu Motor Ltd (Japan) (IHL), holds a good membership of the Malaysian market shares for commercial vehicle category. Moreover, IHM has undergone a corporate restructuring of Malaysian Truck & Bus Sdn. Bhd. (MTB) shareholders towards IHM market enlargement in Malaysia. By the restructuring of IHM business assembly in Malaysia, this Japanese company has to manage its supplies efficiently in producing good quality vehicles as well as also efficiently administering other Isuzu factory activities such as outsourcing. IHM assembles the Hicom Perkasa light duty truck,

Isuzu medium and heavy duty truck, and the D-Max pick up. The principle commitment was to introduce new models which led to a restructuring of the partnership in that year. On 19th June 2007, DRB-HICOM Berhad, through its effectively 100% subsidiary, HICOM Holdings Berhad entered into a joint venture agreement with Isuzu Motor Limited (Isuzu), Japan in respect of equity participation of parties in the Malaysian Truck & Bus Sdn. Bhd.

Product and Vendor Development (PVD)

The PVD is structured by three main components which includes the localization programme, product development and vendor monitoring. To ensure that the PVD runs properly, a PVD team was established. Qualified executives with technical knowledge from different departments of IHM, representatives from production planning and control, procurement, and production engineering department were selected as the members of the PVD team. The following sub-sections will explain the details of the PVD.

Localization Programme. The main objective of the localization programme is to plan and monitor the overall localized plan as a part of the product development based on the localization procedure. The localization procedure covers the overall monitoring of the localization programme starting from the localization plan, vendor development, and the development of the part/s to the completion of the plan and approval for mass production. This programme is implemented for coordinating the timing and effective lots for the deleting of the *Complete Knock Down* (CKD) parts and supply of local parts, as well as to determine qualified vendors who will supply parts or items that can meet to the IHM requirements for quality, costs, and delivery.

The PVD team is responsible to set up a programme to localize potential parts. The PVD team will identify potential items for localization. The item identification should follow the Local Material Content Point (LMCP) and the price of the part/s. All the potential items will be summarized in the Localization Programme Plan Book and this will be proposed for approval. The potential items will be reviewed and any necessary changes required in the plan book will be made. If there are items that are rejected by the management committee or there are developments that certain items cannot be continued due to unforeseeable problems or if the Isuzu Motor Limited (IML) does not permit IHM to develop a particular item/s then changes will be also be made.

Upon approval of the management, the PVD team will prepare related drawings and Isuzu engineering documents that would request for further action of the IML. Besides that, the PVD team would request and purchase the sample parts from IML and as well as if there is a requirement for a study on vendor tooling development. With this kind of action, vendors can prepare the related tools to produce the parts as requested by IHM. This can ensure that all vendors will provide services that would satisfy IHM production needs. All vendors that are appointed by IHM are listed in the Approved Vendor List that would be released to the related departments such as the Procurement and Production Planning Department upon request via a memorandum and duly agreed by the head of PVD team.

Product Development. Product development is the process that requires the PVD team to study the viability of a product development. The procedures and steps in Product Development will be the responsibility of the PVD team in order to plan and monitor the execution of the product development which involves the Malaysian National Commercial Vehicle (MNCV) products. The study, planning and monitoring are to ensure that the specification of a product developed complies with the requirement of the government regulations. Like other vehicle manufacturing organizations it is realized that by fulfilling terms and conditions according to the regulation requirements, the safety and comfort of the customers can be ensured. At the beginning of a product development, the PVD team will identify a new product for development through the marketing strategy meeting with the distributors. In IHM situation, Hicom Holdings Berhad is one of the prime movers on IHM

marketing orientation that is involved in the manufacturing, assembling, and distribution and sales of a commercial vehicle. The partnership with Automotive Corporation Malaysia Sdn. Bhd. (ACM) is important in order to develop the marketing strategy because Hicom Holdings which is contracted for distribution activities for the MNCV product around Malaysia. The product meeting with ACM is based on the requirement and principal for Hicom Perkasa products from Isuzu Motor Limited (IML). In order to get the high quality of the product and to fulfill customer satisfactions, the product development team will study the market requirements and gather information pertaining to the product.

Vendor Monitoring. Vendor monitoring procedure is established to ensure all vendors supply the parts continuously and consistently with quality products. After selected companies have been approved by IHM, these companies must be monitored every month. This covers for vendor performance evaluation through vendor rating system and to countermeasure any problems related to quality, delivery and cost. The procedure of vendor monitoring is to maintain their performance continuously and avoid any problems that can affect the production. The scope of this procedure is applicable only in IHM for continuous vendor performance monitoring for Hicom Perkasa parts based on quality and delivery.

Discussion and Conclusion

The findings show that to have a qualified supplier (or vendor), it requires an organized procedure. The description of the responsibility of all parties that are involved in the PVD is a key success factor to avoid misunderstanding and delay in decision making process especially by the PVD team. The step-by-step methodology in the PVD explains that a new supplier or an existing supplier cannot be ignored from the performance evaluation procedure to ensure that supply is prepared based on the IHM standard. The authors agree that the current practice of the PVD is practical for the current operational needs at IHM. Furthermore, based on our observation, there seem to be three issues faced by the IHM in achieving effective and efficient supplier involvement which is similar to Wynstra *et.al*, [16]: (1) identifying specific processes and tasks that need to be carried out, aimed at the integration of product development and out sourcing processes; (2) forming an organisation that supports the execution of such tasks; and finally (3) staffing the organisation with people who have the right commercial, technical and social skills.

In a nutshell, involving suppliers in product development can result in major benefits in terms of money and time. But, it requires a great deal of thinking and effort. Primarily, it requires an active management support on behalf of the manufacturer, both in the short term and in the long term, supported by adequate organizational and human resources for the success of the PVD. Therefore, in order to develop future research in this area, it is suggested that the following research questions should be evaluated:

- Is there any technology that can be used to improve the PVD?
- What are the risks that may influence the result/s of PVD?
- What are the constraints for IHM to sustain the PVD?
- What kind of action should be taken by IHM to enhance the PVD and to encourage its staff to contribute (in terms of knowledge) in improving or updating the SCM system?
- Besides the PVD, what kind of activities could be developed to enhance the SCM in IHM?

The authors of this paper intend to provide details of such research questions in future publications. They believe that the above suggested research solution/s may prove useful in helping to redesign the PVD as an effective method towards the success of SCM.

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