

**SYSTEMS AND OPERATIONS MANAGEMENT: CRITICAL EVALUATION OF
THE COMPETITIVE FACTORS (LOTUS MOTORS)**

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Introduction:

In this era of technological growth and development, e-business has evolved into one of the most happening market places in the business scenario. The growth of the usage of internet among the consumer base has also reflected increase in the corporate practices in redesigning their business processes in accordance with the e-market place. Helper (2013) noticed that initially the trend of operating in the cyber space was mainly directed towards creating an online profile in the market and this marked the beginning of the e-business and e-market place. Although, e-business is one of the most hyped topics and business strategies in the corporate sector few industries are still operating in a brick and mortar model. Automobile industry is one of them and despite of covering a vast segment of the international market place, they are operating in the bricks and mortar model only. Hesterberg (2008) stated that because of the nature of the products involved in the automobile industry, the bricks and mortar model is the most suitable process for the automobile industry. However, the concept of remote operations and selling creates an opportunity for the automobile industries to develop a clicks and mortar model in the business process of the firm. The following segments of the study will focus on implementing a clicks and mortar model for an automobile company based on the United Kingdom and analyse the process of transition from bricks and mortar to clicks and mortar.

Task 1:**1.1 Introduction to Company: Lotus Cars**

Lotus Cars is a segment of Group Lotus Plc which is a wholly-owned subsidiary of DRB-HICOM based in the United Kingdom. Lotus is known for their highly appreciated products in motor sports (Lotus Cars, 2014). They have provided winning cars such as Espirit, Elise,

Elan, etc. The historical significance of the company is also boosted by the fact that the manufacturing process of the cars is situated in Norfolk which was an airfield during World War II (Lotus Cars, 2014). The entire Lotus groups have been segmented into three groups namely, Lotus Cars, Lotus Engineering and Lotus Motorsport (Lotus Cars, 2014).

Colin Dare and Colin Chapman founded the company in 1952. The company believes in developing a separate passage to success and creates its own trend rather than following (Lotus Cars, 2014). Throughout all these years of growth and development, Lotus has always tried to create new products with extensive use of technology; however their main intention has always been to keep their vehicles light. According to Hesterberg (2008), lightness in the vehicles is the key philosophy behind the operational process of Lotus. The focus of the operational department of Lotus Cars is to provide their consumer driving performance and pleasure. Lotus to their credit has 7 Formula 1 Champions since 1963 (Lotus Cars, 2014). Lotus has continuously focused on improving their products by including new and improved features in them such as speed, lightness and style.

The company had faced financial trouble during the recession of 1980 as their sales in the US toppled. On the other hand, Chapman established an agreement with Japanese automobile manufacturer Toyota for exchanging intellectual properties. Chapman died in 1982 of a heart attack (Lotus Cars, 2014). After his death, the ongoing scandal of Lotus with DeLorean Motor Company was revealed and Lotus had to pay a stunning amount of \$84 million as legal protective assessment. In 1983, Group Lotus was facing bankruptcy from which the company was saved by David Wickins (Hesterberg, 2008).

1.2 Business environment: PESTLE:

The business environment of the automobile industry has transformed into a challenging scenario over the years. Most of the business firms operating in the automobile segment are

facing stiff competition. Although number of consumers and use of vehicles in the international market place is increasing but the recent financial recession of 2007-08 has reduced the purchasing power of consumers in the market (Roland Berger Strategy Consultants, 2014). The business environment of Lotus can be better explained by using the PESTLE framework:

Political: The primary political factors that influence the automobile companies are the regulations regarding the work structure and the operational processes of the firms. As companies are involved in direct manufacturing process, labour laws and taxation process for export and import of the automobile parts influence the business expenses of the companies. In case of Lotus, the financial scandal with DeLorean Motor Company also imposed a huge financial instability on the company (Helper, 2013). Apart from this, changes in the political scenario of the firm also may initiate problems in the operational process of the business process of Lotus.

Economical: The economical factors mostly denote the exchange rate, the customer purchasing power, the economic stability of the nation, etc. American and European markets dropped significantly because of the global financial meltdown of 2007-09. The sales of Lotus in their primary markets created problems for the revenue earning process of the business. However, other problems were created because of the instable exchange rate fluctuations. These factors have created problems on the business growth of the firm (Roland Berger Strategy Consultants, 2014). The automobile market of the UK also struggled despite of the huge contribution towards the economy of the nation.

Social: Social factors do not directly influence the business activities of the automobile industry. However, they influence the decisions of the customers highly. In case of the automobile industry, the products are mostly not related to the religious or cultural aspects of

the consumers. However, they create a significant influence on the life style and the social status of the consumers (Waeyenbergh, Vannieuwenhuysse and Pintelon, 2004). For instance, Lotus' cars are mainly targeted for the niche consumer base where the competition is based on brand value and equity. With competition from other big brands such as Rolls Royce, Aston Martin, Lamborghini, etc, Lotus may have to struggle to promote their brand equity.

Technological: Technology is the most prominent factor in the automobile industry. The technological growth has improved the performance of the automobile products but has also increased the scope of innovations in their products. One of the most emerging technologies in the automobile industry is that of Hybrid and Smart Cars. Lotus is yet to venture in this segment as their primary focus is on Motorsports (Roland Berger Strategy Consultants, 2014). On the other hand, the continuous demand for environment friendly and fuel efficient cars in the market is increasing which may reduce the sales of the products in markets with lower consumer spending power.

Legal: The legal regulations imposed on the firms operating in the automobile industry create many barriers for developing a sustainable operational process. Legal laws related to the work structure, work culture and the employee management techniques influence the operational process and the productivity of the business. Laws such as Equality Act, Discrimination Act, Work Place Health and Safety, etc are major factors considered while designing the work structure of the business (Waeyenbergh, Vannieuwenhuysse and Pintelon, 2004). Apart from these, international bodies such as European Union also monitor the contribution of the business towards the members of EU which also balances the requirements of the business with the legal and regulatory bodies.

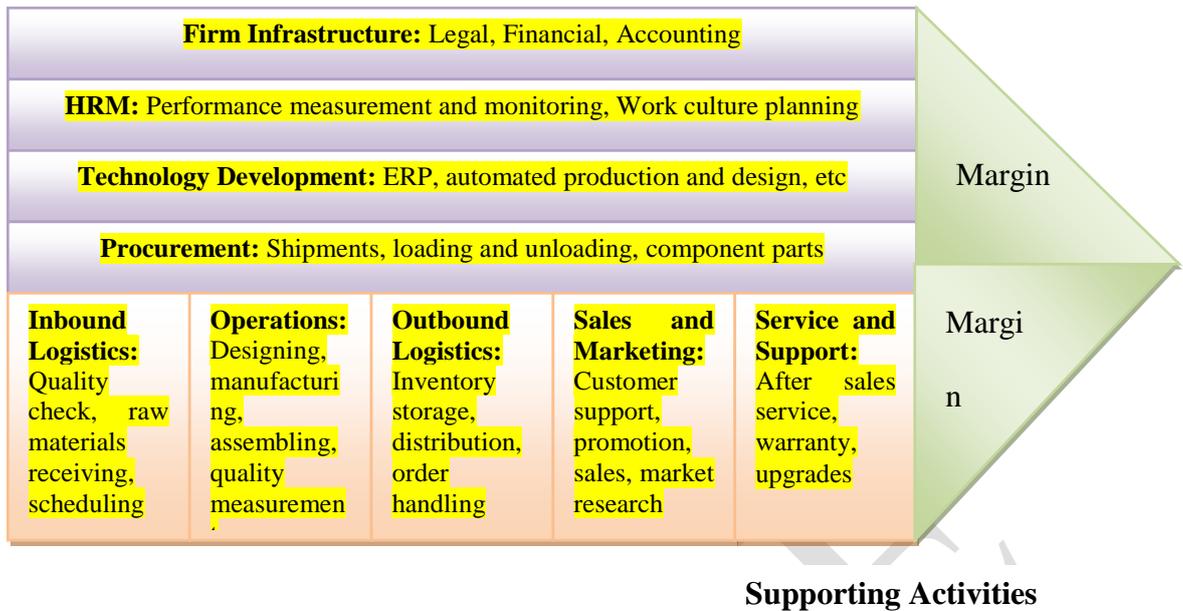
Environmental: Global warming and greenhouse effects are among the most discussed topic in context of the corporate social responsibility planning of business houses. Automobile

industry has been criticised by many environmental bodies such as UNESCO, UNCLOS because of the release of wastage and increasing pollution in the environment. However, some automobile manufacturers such as Volkswagen and Toyota have started developing Hybrid and Smart cars that are environment friendly and also have a lower CO₂ emission (Roland Berger Strategy Consultants, 2014). Lotus is mostly focused in the motorsports and luxury segment however they have tried to reduce their carbon footprints and also contribute in building the natural environment.

1.3 Porter's Value Chain Analysis:

The value chain analysis of Porter highlights the crucial factors involved in the operational process of the business which increases the value of the products and services being manufactured (Waeyenbergh, Vannieuwenhuyse and Pintelon, 2004). Considering the nature of the operational processes being developed with the IT systems, the value chain process has also transformed and included some new aspects in the supply chain functions of business houses. The value chain process helps in connecting the various activities of the business and achieves the organisational objectives in context of their operational functions. The value creation process in the products of the automobile industry is mainly related with the style and the core strengths of the firms (Awad and Nassar, 2010). In case of Lotus, their production mechanism is based on creating a light weighted vehicle which also is technologically superior and fulfils all expectations of the consumer.

Figure 1: Porter's Value Chain



(Source: Awad and Nassar, 2010, p - 18)

The key features of the production process of Lotus are their customised and hand made cars, aluminium chassis, Toyota engines, manual assembling and paint works (Stevens, 2007). Each of these work process have created the brand equity and the value for the products of the Lotus. The entire operational process also includes procurement, output, sales and marketing and service. The overall operational structure of Lotus is focused on creating the best vehicle in the market that exceeds the expectations of the customers in every aspect (Waeyenbergh, Vannieuwenhuysse and Pintelon, 2004). The operational process of the cars begins from the procurement stage which brings in the essential raw materials from the suppliers around the world. The input logistics is one of the most cost incurring parts of the manufacturing process of Lotus. Components that are outsourced include the custom designed tyres brought in from Yokohama and the engine is developed by Toyota. The four cylindered inline water cool naturally aspirated engines are being developed by Toyota in an attempt to enhance the force and strength of the vehicles without increasing their weight (Awad and Nassar, 2010). Lotus has created value in their manufacturing process and thus has an automated value inclusion system in the production of their vehicles.

The work process has been designed to consider the smallest details of the quality. For instance the paint used in cars is water based paint for increasing the smoothness of the colour and also is environment friendly. The assembling process of the cars takes around 3 to 5 days on an average (Geunes, 2009). According to the supervisors of the Lotus production unit, each car on an average receives a minimum of 100 man hours to ensure that each and every aspect of the cars are perfect and showcase the quality of Lotus brand (Awad and Nassar, 2010).

Task 2:

2.1 Current Operation strategies being used in Lotus:

Process Design: The process design of Lotus is based on the concept of aligning the entire operational systems and functional aspects of the business. Observing the overall process design of Lotus an unorthodox pattern can be followed. They have maintained a chain network and also ensured a process of simultaneous completion of activities reducing the time taken in production of each car.

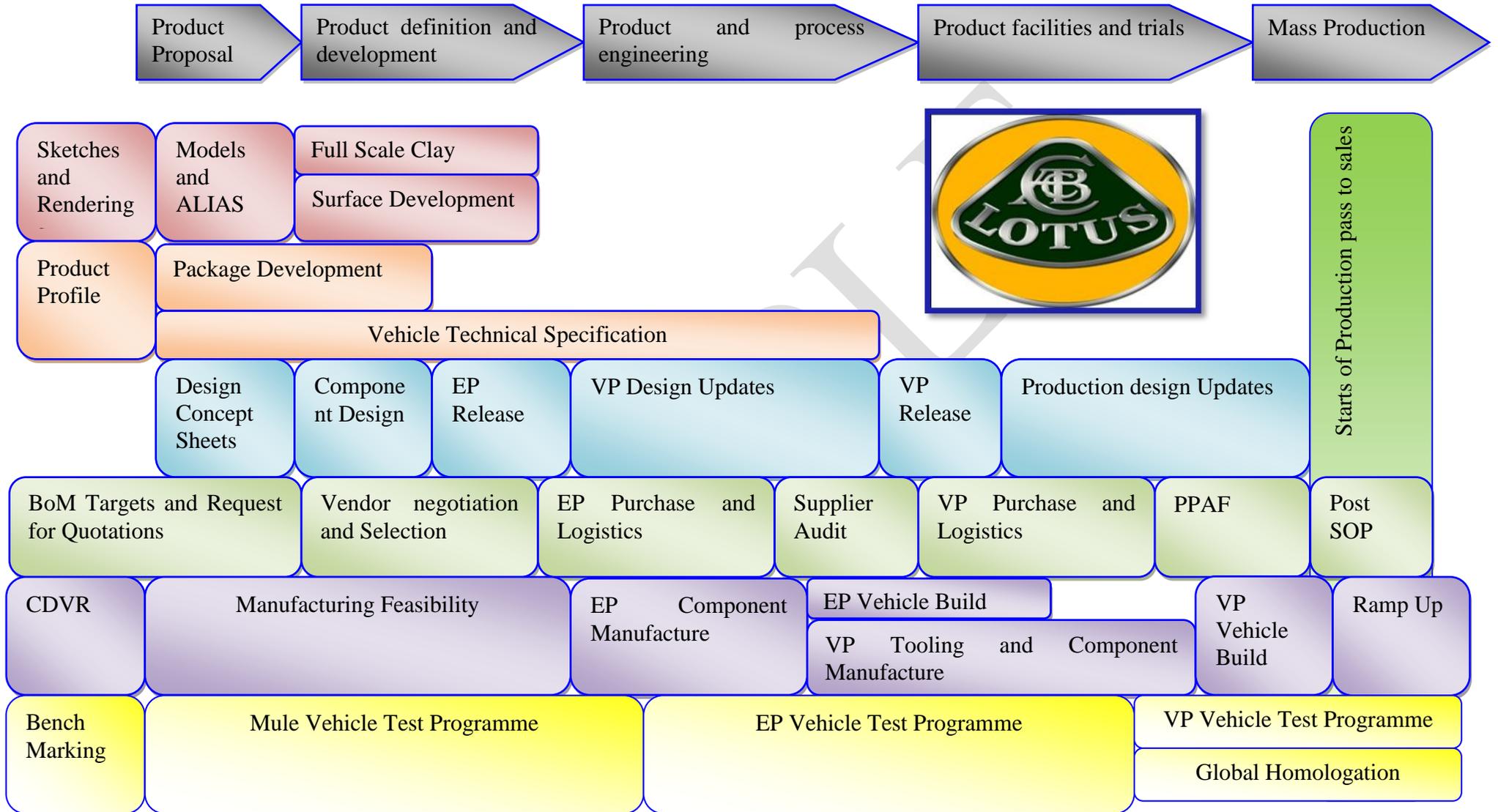
The operational management process of the firm has been developed by connecting the functional departments of the firm. The essential fact regarding the operations process of Lotus is that the collaboration of the activities is not only based on the connection of the overall departments but also the individual activities under each department are connected. This allows the company to measure the performance of all the activities meanwhile also develops the flow of the information among the various activities of the firm. Based on the concept of basic supply chain management and its importance, it can be observed that information flow in the functional segments of Lotus is significant. However, unlike upstream flow towards customer, the information flow of Lotus is both ways. For instance the information flows from the departments to the customer as well as from the customers to the

supply chain management of the business. The below given figure illustrates the process design of Lotus Cars in a detailed manner:

Figure 2: Process Design of Lotus

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(Source: Sandanayake, Oduoza and Proverbs, 2008, pp - 741)

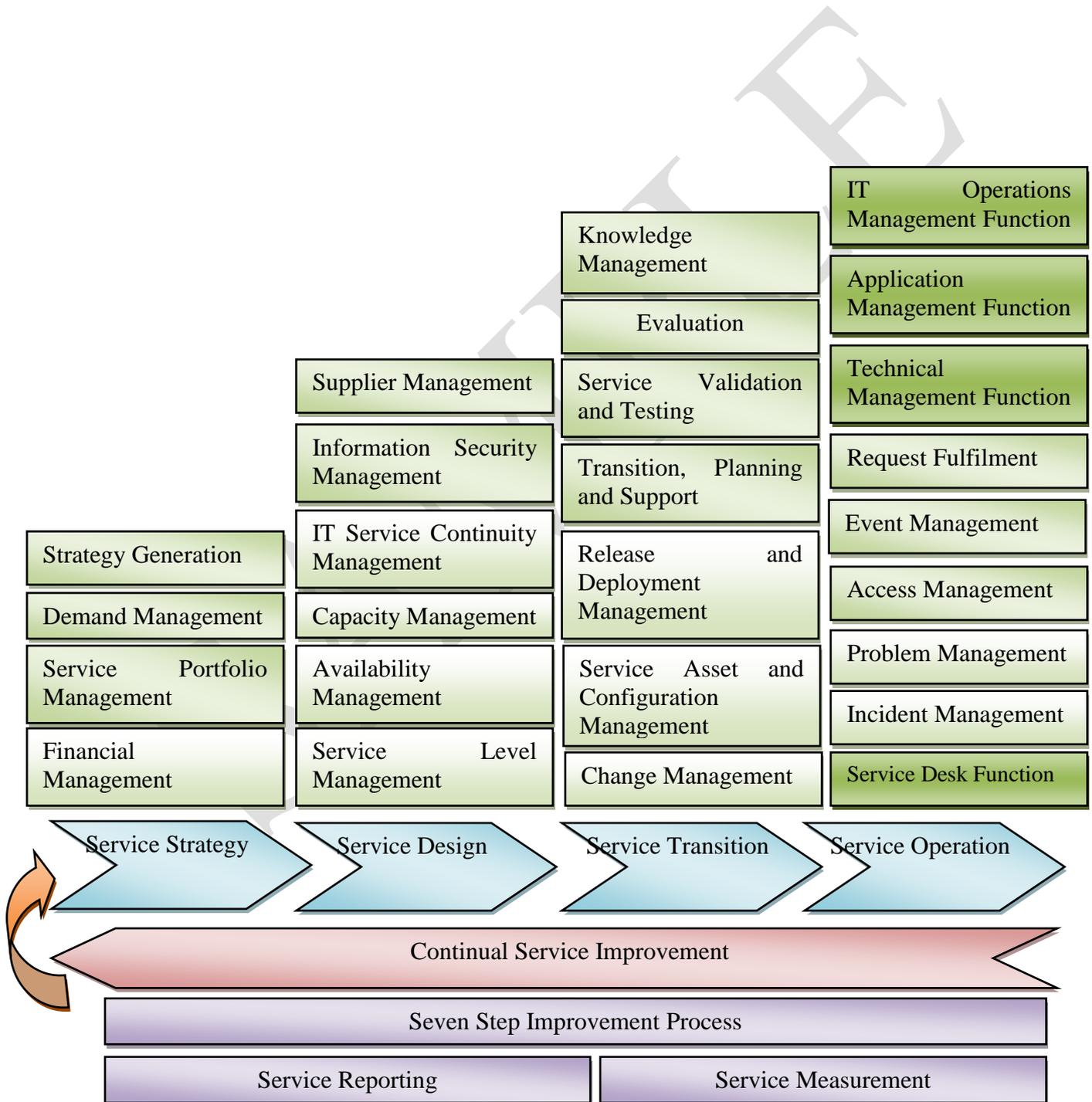
The entire production process of Lotus is developed on the basic structure of responsive supply chain management but each step is formulated by detailed functions. Beginning from the design the diagram reflects all the activities that are being conducted in order to assess the market demand and develop the appropriate supply channel (Sandanayake, Oduoza and Proverbs, 2008). However, one crucial gap identified in the entire process is limited logistics services being incorporated in the process design which can hamper the accuracy of the cost of operations.

2.2 Capacity Management:

Capacity management includes the process of controlling the technological resources used by a business in the production process and other functional aspects of the business (Waeyenbergh and Pintelon, 2002). Moreover, Roland Berger Strategy Consultants (2014) added that capacity management assess the future technological requirements of the business based on the current utilisation of technology in the firm. Most of the organisations develop their capacity management strategies based on the Information technology Infrastructure Framework (ITIL) framework. The ITIL framework is directed towards four core activities namely service strategy, service design, service transition and service operation (Waeyenbergh, Vannieuwenhuysse and Pintelon, 2004). All these activities are utilised for integrating the technological resources of a firm and enhance the quality of services. In the words of (Sandanayake, Oduoza and Proverbs, 2008), capacity management ensures a process of achieving continuous improvement in the business processes. Theories of capacity management such as theory of constraints are applicable in the case of Lotus. The theory of constraint allows the business process to achieve most of the objectives by reducing the number of barriers faced by the firm. On the other hand, the finite nature of capacity management of Lotus also allows the company to reduce the number of the barriers in the firm. The capacity management process of Lotus is related with the responsive supply chain

management process of the company. As the demand is not certain, the capacity management process of Lotus is finite. The responsive supply chain management reduces the changes being installed in the operational process but on the other hand also enhances the ability of the firm to improve the existing functional process of the company.

Figure 3: Capacity Management Process being used in Lotus



(Source: Waeyenbergh and Pintelon, 2002, p - 304)

The above diagram shows the aspects considered in Lotus Cars for capacity management. They have incorporated factors such as change management, access management and incident management for reducing the risks in the transition and the operations process (Sandanayake, Oduoza and Proverbs, 2008). On the other hand, inclusion of financial management in the initial step of the business reflects that the business activities are controlled and monitored on cost aspects also. The ITIL framework has been used for developing the basic framework of the operational functions of Lotus

2.3 Quality Planning:

Quality management process of Lotus is not only embedded in the production and the operational functions of the business but also is included in each and every business activity of the firm. The organisational process strictly believes in putting in the outmost effort for providing the best experience to their customers (Roland Berger Strategy Consultants, 2014). As mentioned in the value chain analysis of the business, every single car has certain segment of handmade portions that focus on the minutes of the production process. The quality monitoring process in the operational process continues till the final assembling of the cars and begins from the product design process. The three quality parameters included in the works structure of Lotus are light weight, style and speed (Torotrak.com, 2013). Unlike some of their competitor firms, the products of Lotus not only use the strength of engine for increasing the horse power of the vehicles but also focus on other aspects such as aerodynamics and throttle power (Waeyenbergh and Pintelon, 2002). Apart from this, the customary aluminium chassis is another factor that adds to the customisation of the cars. Nick Adams, Vehicle Development Manager of Lotus stated that Lotus cars are made with

absolute precision and not only considers the organisational capability but also calculates the customer needs and the environmental standards set by EU (Waeyenbergh, Vannieuwenhuysse and Pintelon, 2004).

The quality and planning process of a business house depends upon the organisational capability of the firm. However, external factors are also included in the planning process such as the technological growth and customer management process. Moreover, the scheduling, sequencing, loading and monitoring and control are essential factors of the firm. Relating these aspects to the quality planning process of Lotus it can be observed that the responsive supply chain process of the firm all these steps are effectively implemented in the business process of the firm. On the other hand, if the theory of constraints can be implemented on the operational process of Lotus, the conclusive scenario reflects that due to lack of changes in the operational process, the barriers to the production process will be limited.

The performance management process of Lotus is also different from other high profile automobile companies. The performance monitors of the operational process are also the final assemblers of the products. Nick Adams also stated that at Lotus they focus on looking the products from customer perception (Youtube, 2008). The performance managers of the company are not only exceptional car engineers but also car enthusiasts who know the requirement of their clients (Youtube, 2008). It is essential to make the customers realise the value of the products and thus every single detail of the products are checked before they are sent to the inventory house. The quality management factors are also considered by the technological factors such as the database management which includes performance monitoring setups like KPI dashboard and Kanban Card (Torotrak.com, 2013). Both these techniques are used to measure the time taken to complete each activity and also assess the productivity and performance of the individual employees of the firm. Kanban and KPI also

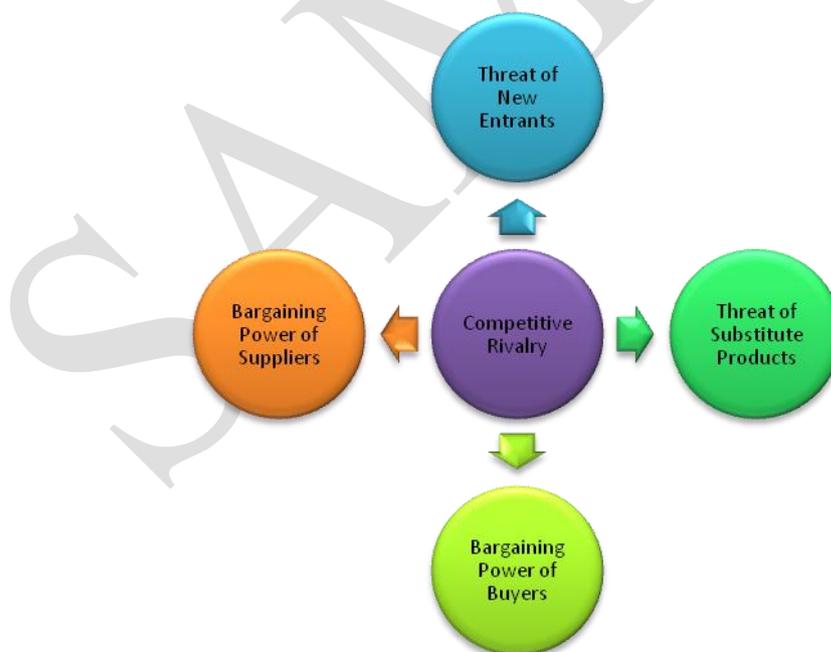
act as a communication network developed within the business process of the firm for connecting the various functional departments of Lotus (Torotrak.com, 2013).

Task 3:

3.1 Effects of Introducing E-Business Components in Lotus:

The effects of introducing E-business components in the business process of Lotus will be evaluated with the help of Porter's Five Forces framework. It should be noted that Lotus has an existing framework of ICT technology used only for internal communications and other operations based necessities (Sandanayake, Oduoza and Proverbs, 2008). However, their customer communication and sales process are still functioning on the brick and mortar model.

Figure 4: Porter's Five Forces Framework of competitive rivalry



(Source: James and Deighan, 2007, p - 54)

Competitive Rivalry (High): The competitive rivalry in the automobile industry is high both in mass consumer and niche consumer segments. The growth of competition has forced the business houses to extend their business operations to the international market place and also keep the cost of operations in control (Sandanyake, Oduoza and Proverbs, 2008). Companies such as Volkswagen who operate in both mass and niche consumer segment have developed online business components for selling automotive parts (Torotrak.com, 2013). This strategy can also be observed in the business practices of other multinational firms such as Toyota and Ford. The factors highlighted above have made positive contributions for the stated firms in context of developing both cost and differentiation advantage.

Threats of New Entrants (Moderate): Although the cost of entry into the automobile industry is high but with the incorporation of information technology the cost has reduced dramatically in the last five years (Waeyenbergh, Vannieuwenhuysse and Pintelon, 2004). Most of the new entrants in the automobile industry are not engaged in direct production of the vehicles but work as a transporter or platform for selling the automotive parts of cars. This has increased the number of operatives in the industry and also increased the competition for the existing firms. However, the direct entry into the automobile industry is still low because of high entry costs and thus the threat of new entrants can be considered as moderate.

Threat of Substitute Products (High): The threats of substitute products in the automobile segment is high considering the nature of products being produced by the industry leaders such as Volkswagen, Honda, McLaren, Ferrari, etc (Johnson, Scholes and Whittington, 2006). The sports car segment are mostly focused on speed and response of the machine to divers' input. However, Lotus has an advantage in this aspect with their light weight vehicles. In this aspect, the differentiation of the product can be reflected to the consumers on E-commerce platforms which will also ensure better customer response.

Bargaining Power of Buyers (Moderate): Considering the nature of products being developed by Lotus and other niche segment cars, the bargaining power of the customers will be moderate because of the specific features of each car developed in accordance to the value creation concept of the firms (James and Deighan, 2007). However, inclusion of E-commerce in the business process may increase the consumer bargaining power in context of the automotive parts being sold as the consumer access to market information will increase.

Bargaining Power of Suppliers (High): The bargaining power of suppliers in the automotive industry is high because of picture perfect requirements of the manufacturers. For instance the tyres and engines used by Lotus are from Yokohama tyres and Toyota (Johnson, Scholes and Whittington, 2006). This also increases the power in the hands of the suppliers. Also considering the financial position of Lotus in comparison to the stated suppliers, vertical integration cannot be considered as an option. However, developing an E-commerce platform for individual selling of the automotive parts may reduce the supplier's bargaining power as the demand for individual parts of cars can increase the ordering amount of Lotus.

From the above analysis, it can be inferred that the industry structure is changing because of growing competition and technological shift. The threats of the new entrants have increased but mostly the new entrants are not manufacturers of complete products but parts. This will enhance the scope of the market as now customers have the option of purchasing parts of individual producers. Apart from this, the variety in the products is not significant enough to create a large range of diversity in the market and hence the threats of substitute products are also high. However, this threat is expected to support Lotus because the consumer information regarding the market is expected to increase with the number of products increasing in the market. Apart from this the bargaining power of the buyers will also increase with the increasing options which can also reduce the brand loyalty of the consumers. On the other hand, niche market product manufacturers such as Lotus will have

the advantage of brand equity and the specific traits of the products produced by the company. The bargaining power of the suppliers is expected to be high based on the requirements of the producers and high standards of quality.

3.2 Integration of CRM, ERP and Knowledge Management Process:

As mentioned above, the operational process of Lotus has an existing information and communication technology which connects all the functional departments of the company. The ERP system used by Lotus is managed by International Business Systems (IBS) (Torotrak.com, 2013). The IBS system creates a network that connects all the data being uploaded in the mother server in accordance with their departments. This also helps the company in internal decision making process. On the other hand, the CRM process of Lotus is mostly conducted offline and the data of each customer transaction or service process is uploaded in the main frame server under customer service department (James and Deighan, 2007). This shows that Lotus is yet to develop and implement the concept of E-CRM in their business process.

The essential aspect of the ERP implementation is that it helps the business in enhancing their data management process. With new technological tools such as electronic data interchange, electronic data capture and electronic data collector are used by the business processes for connecting the data directly with their primary server. Apart from this, the supplier orders or the purchase system, order fulfilment system, E-CRM etc. are extensively utilised in the business operations. Apart from this, information systems are also used in order to analyse the market research processes such as the results derived from the Porter's Five Forces analysis in the previous segment.

Considering the nature of products and the organisational structure being dealt in by Lotus, E-CRM installation in their business would also require them to develop a separate team to

handle customer queries online. The E-CRM process can be implemented with the help of their existing IBS simulation. As observed by Johnson, Scholes and Whittington (2006), ERP systems most often have internal space and systems for creating E-CRM by customising the data generation process. Lotus in this regard will have to manage their data in consideration with the existing process of the firm (Johnson, Scholes and Whittington, 2006). The E-CRM implementation will also develop new service processes such as e-mail or social media platform for communicating with the customers which will be directly connected with the E-CRM server of the company which will enhance the process of knowledge management process of the business (James and Deighan, 2007). The utilisation of ERP and other IT formations will be helpful for accelerating the process of business management for Lotus and can help them in enhancing their customer service process also. The transformation of Lotus from bricks and mortar to clicks and mortar process is not completely possible but partial transformation will help them in enhancing the efficacy of the operational department of Lotus.

3.3 Implications of installing clicks and mortar model in the Lotus:

The installation of E-commerce components in the business process of the firm will also initiate changes in the basic work structure as well as the service structure of the firm. Developing E-commerce components for Lotus should only focus on selling automotive parts to the consumers. The installation process of E-commerce will initiate by collaborating with the suppliers of Lotus namely Yokohama and Toyota for selling their automotive parts on Lotus E-commerce website (Johnson, Scholes and Whittington, 2006). Apart from this, Lotus can also promote their own products such as aerodynamic features, throttles and aluminium chaises for other automotive firms which will increase their brand value to other competitors (Torotrak.com, 2013). However, the initial cost of launching, aligning and implementing the E-commerce platform is expected to be high considering the market size in which Lotus

operates. Also the data management process and the E-CRM management will also change as a result of E-commerce business process (James and Deighan, 2007). The data management should be redesigned with space for storing the online transactions of the business which will also have to be provided to the E-CRM management for enhancing the after sales service quality.

Task 4:

4.1 Recommendations for Lotus:

Lotus is one of the most well-known brands in the automotive industry. Including a new online component in their business structure will instigate numerous changes in the existing operational structure of the business. The development of the business process will also be aligned with the information and technology resources being utilised by the company for monitoring and managing their internal work process. Considering the benefits of E-commerce, it can be recommended to Lotus that they can introduce an online platform for selling automotive parts which are frequently needed by the customers. The strategy was implemented by Ford and General Motors who collaboratively launched a new business segment for providing automotive parts to their customers (Awad and Nassar, 2010). Similarly, Lotus can develop their personalised online store for their customers from where they can purchase automotive parts and also gather information about the main line products of Lotus.

In order to improve their online activities they can also create a platform for exchange or sale of automotive products for other competitor firms and also for dealers of automobile. The online platform will be a place to discuss the needs and issues and exchange services and products online. This will also be considered as a step towards fulfilling the corporate social responsibilities of Lotus and enhance their brand equity. The main purpose of the online

platform will be to build good relationships among the automobile firms and also promote the growth of upcoming automobile business houses in the UK.

Conclusion:

Bricks and mortar models of business are limited in the modern day market scenario. The growth of the online business models has directed huge consumer traffic towards the online platforms. Also reduced cost of operations and inventory management has attracted many entrepreneurs to develop click and mortar model. Although the bricks and mortar model is suitable for automobile industry because of the nature of their product, some of the top automobile investors have already developed a click and mortar model for enhancing business operations in the market.

Lotus Cars is a sub-division of the Lotus Group and is renowned for their high speed and exclusive motorsports cars. With numerous wins in motorsports championships such as F1, Lotus has proved the quality of its products to the worldwide consumer base. The operational process of Lotus is focused on delivering quality and value to its customers based on the traditional production process. Their production process is still mostly based on manual and custom made improvisations to maintain the three key components of their cars namely, speed, light weight and style. The production process has been developed in a tightly knitted manner so as to ensure proper communication among the internal departments. The use of KPI dashboard and Kanban cards also increase the performance monitoring and measurements process of the firm. The employee management process will also change with the implementation of the IT systems. The HRM process of the firm has to be aligned with the database and knowledge management process. The performance and activities of the employees can be monitored with electronic data capture systems which will directly transfer the information to the mother server of the company. On the other hand, the communication

process is expected to improve with the help of the ERP implementation. As the managerial teams of the company will have direct access to the activities of the work structure, the employee management process can be more focused and centralised.

Operating in the E-commerce segment, Lotus can improve their online and also develop a retail outlet for selling their automotive parts. Apart from this, they can create an online service exchange platform for the automobile business houses and dealers to exchange products and services among themselves. This will be an income source for Lotus and also increase the market value of their brand. However, the installation and development process of E-commerce firms will be expensive for the firm.

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