Operations management

Executive Summary

Royal Philips is a Dutch company operating into three businesses namely healthcare, consumer lifestyle, and lighting. The company is well known for its innovation and producing new products and has research campuses in China, India, and Netherlands which are required to identify the needs of consumers along with providing concepts of new product development. Philips follows a business creation process that defines the processes of new product development. Philips uses various software to facilitate in smoothening their operations include SAP and SAVO. The process management at Philips is well maintained as it works in delivering higher value to customers However, Philips focuses so much on innovation that its focus on customers becomes low and is termed as product centric business. Lean management is followed by Philips and is termed as Six Sigma lean programs. Philips manages its capacity well with the help of research campuses that identify the demand of each market in each season. However, as the demand is uncertain therefore to manage this uncertainty change demand is followed in which demand is changed each month.

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Introduction

As mentioned by Philips (2015a), Philips is a Dutch technology product development company focusing on improving the life of consumers throughout the world. It manufactures variety of products including Healthcare, consumer well being and lighting products. The healthcare business of Philips aims at improving patient care for patients of all age with its latest technology usage and variety of global solutions. Philips health business revolves around Imaging Systems, Patient Care and Clinical Informatics products, Home Healthcare Solutions along with Healthcare Transformation Services.

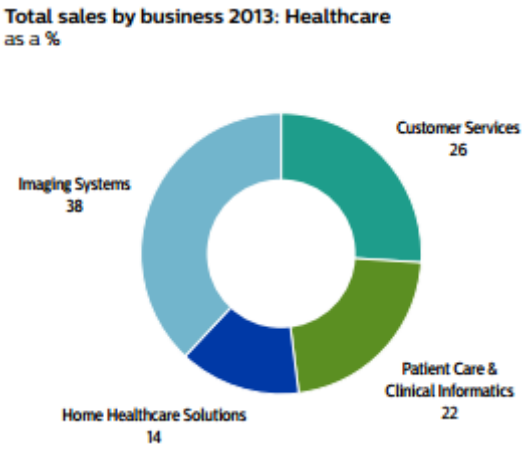

Figure 1: Total Sales 2013 of Philips Healthcare

(Source: Philips Annual report, 2013).

As stated by Philips (2015a), Philips consumer lifestyle business aims at improving the living standards of consumers through innovative technological means. Moreover, consumer lifestyle business of Philips connects with the consumer to understand their needs and wants in order to cater to them effectively. This business of Philips focuses of health and wellness products, personal care products and domestic appliances.

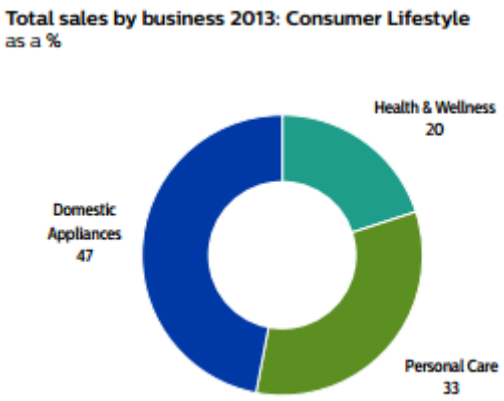

Figure 2: Total Sales 2013 of Philips consumer lifestyle business

(Source: Philips Annual report, 2013).

As indicated by Philips (2015a), Philips is one of the leading brand and recognized brand in lighting business due to experience of more than 100 years in these products along with innovative product development based on LED leadership. All lighting need of consumers are fulfilled by Philips as they have best solutions for homes, offices, Hotel, factories, restaurants and for public areas as well. Following figure shows the products of Philips in lighting business.

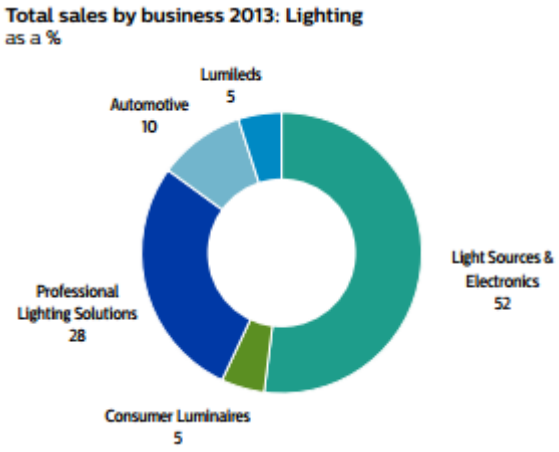

Figure 3: Total Sales 2013 of Philips lighting business

(Source: Philips Annual report, 2013).

According to Philips Annual report (2013), the reason for leadership position and success of all the business of Philips along with strong brand value is due to continuous innovation in each market through relationship with various academic and industrial partnerships. The

business has variety of research and development campuses for development of innovative products in China, India and Netherland. Philips (2015a) stated that Accelerate! is a program started in 2011 that is based on performance innovation along with journey of change. It aims at identifying the potential of the employees at Philips in order to produce innovative goods faster and better than that of competitors in order to sustain the leading positions of Philips. In addition, as Philips is based on improving lives of consumers not only by products but also by its operations therefore sustainability is followed in each business of Philips.

The success of Philips is due to the well managed operations it has. The report is based on operations management of Philips and initiates with evaluation of existing operation functions with the organization along with the role of operations manager. The report further incorporates the process chart of Philips illustrating how customers are processed through operations with the organization. Moreover, lean management is discussed along with its benefits for the organization. Managing capacity is one of the complicated parts of operations management due to uncertainty. Therefore managing capacity is discussed in detail. Finally, concrete conclusion and recommendations for Philips are given in the report.

PART A

i) Evaluation of existing operations functions of Philips

According to Philips Research (2015), Philips is based on innovative solutions therefore the operations of Philips start from the research and development activity where the new innovative means, growing and changing needs and the ways to make consumers happy and to satisfy more of their needs are identified. As given by Scheine (2013), the product development phase of Philips is known as business creation process and consists of the steps illustrated by the figure below.

Figure 4: Business Creation Process

(Source: Scheine, 2013).

As mentioned by Scheine (2013), the business creation process starts with the strategic planning, the strategic planning involves all of the stakeholders as each one of them has some knowledge that the other does not even know about. For example, the retailer will know much better about the reason for changing consumer needs as compare to the manufacturer itself. The involvement of all stakeholders helps in evaluation of a new product and the features that it needs to have. The portfolio management is based on reviewing the product portfolio of the company along with identifying the further improvement or discontinuation of the product. Moreover, Scheine (2013) adds that the sales cannibalization due to new product development is also identified. The next step is based on the concept on the new product; using insights of consumers and other stakeholders. The next step of application and solution is based on validation of proposition along with the feasibility of the product to be developed. Once the concept is considered feasible then it moves towards manufacturing to comply with technical specifications, customer specific requirements and then toward product release. As mentioned by Mishra and Shah (2009), involving stakeholders lead to be a better product development and in most of the cases it guarantees success. On contrast, Arnaboldi and Spiller (2011) argued that involving stakeholders can lead to information disclosure to competitors as the same stakeholder may be a part of the competitors group as well.

According to Philips (2015b), when the product to be developed is finalized then the company moves for to the acquisition of raw material. The company has moved a long from the traditional pattern of buying from suppliers. It has been maintaining good relationship with its suppliers along with including them in product development. The strategies of Philips are standardized therefore same kind of relationship is followed in all parts of the world. The reason for maintaining good relationship is due to the changing expectations of consumers for electronic industry. Customers appreciate those electronic companies that are high on innovation and low on lead times. In order to increase the level of innovation and to reduce the lead time, strong relationship with each supplier is created. A very small amount of raw material is manufactured by Philips and almost 90% of the raw material is acquired through outsourcing and from suppliers that have a long term relationship with Philips. As mentioned by Ghijsen, Semeijn and Ernstson (2010), a strong relationship between the manufacturer and the supplier leads to competitive edge for both of them as their association leads to higher profits and shorter lead times along with catering to quality aspect of the product well. On contrast, Nair, Narasimhan and Bendoly (2011) argued that relationship with suppliers can

lead to high bargaining power of suppliers as sensitive information is being shared by the manufacturer with the supplier therefore the switching cost of the manufacturer may go low. This result is growing demands for the suppliers end.

As given by Goodwin (2000), there was a paradigm shift in Philips and e procurement was adapted. The aim of this e procurement system was to reduce cost by 8%. However, only 3% was saved as an issue of unawareness within employees prevailed regarding placing orders through it. According to the SAVO Group (2012), SAVO is a productivity software solution used by Philips in their operations to reduce their time utilized and to increase the productivity of the business. As Philips believes in one strategy implemented all over the globe therefore the need for equal access to information, technology, training and other tools for sales team are significant. As Philips is into a lot of acquisitions therefore connecting to employees of all organization is essential and this need is served by SAVO. SAVO provides a platform to connect and train all employees throughout the globe at a single timing resulting in solving the issue of e procurement and achieving desired results. Therefore, Philips does not need to wait for face to face interactions and in maintaining follow-ups with employees in other market for scheduling the training. In addition, knowledge and information sharing with the stakeholders is easy by the use of this solution. Consumers are searching and adapting to products developed by Philips, in addition, they are clicking on the information regularly and are actually giving their views of the knowledge and information shared by the company. As mentioned by Stock and Zacharias (2011), the technology industry is into innovation along with catering higher needs of consumers. The innovative need can be catered by polishing the skills of employees and that is possible by trainings at the global level to enhance the creativity and inventive skills of employees. On contrast, Buchel, Nieminen, Armbruster-Domeyer and Denison (2013) argued that involving stakeholders and consumers can lead to higher innovative products as compare to involving employees only.

Role of the operations manager

An operational manager plays a significant role in the organization. The operational manager requires variety of skills and knowledge in order to handle the operations of the organization well. As given by Karsten, Keulen, Kroeze and Peters (2009), the operation manager at Philips is different for each of the business but the roles they follow are quite similar as they are required to manage resources to achieve substantial operations. Moreover, they planned and manage the operations well through efficient human resource usage. They set the goals

and smart objectives for the operations of Philips and ensure that every employee follows the right path to achieve them. The education level and experience level of managers is high that is the reason why they have a bird eye view over the operations of Philips. As mentioned by Langabeer (2008), communication skills and convincing skills are essential for an operations manager in order to handle the employees well. On contrast, Brown, Bessant and Lamming (2013) argued that financial overview is essential activity of operational manager in order to conduct the cost and benefit analysis for the business and to ensure that the resources are efficiently utilized. Longoni, Golini and Cagliano (2014) stated that performance management and technology selection also add to the responsibilities of an operation manager.

ii) Process management and Process Chart of Philips

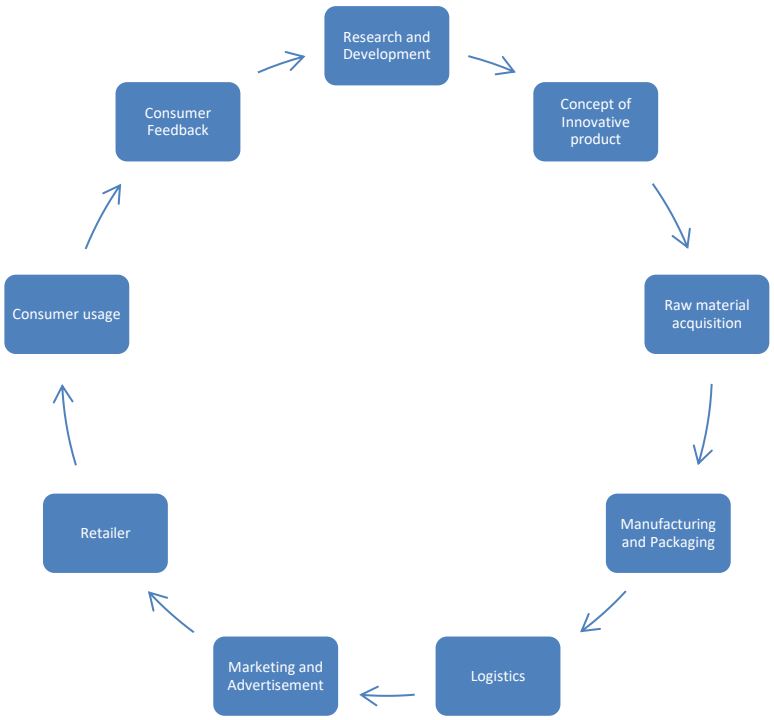

Figure 5: Process Chart

The process chart that shows the flow of how customers are being catered by Philips is indicated by the figure given above. The process starts with research and development that identifies the changing consumer needs along with the demand of that product in the market. Philips Annual report (2013) presented that consumer's needs in technological industry is different in each market therefore products are to be different according to the change in internal and external environment of each market. In accordance to this view, the research

and development of Philips is based in three different markets of the globe including Netherlands, China and India. Each research and development campus identifies the need of different markets in order to cater consumers in global markets effectively with their healthcare, lighting and well being products. As mentioned by Bush (2011), the lighting products required for European market is different from that of Asian market therefore the products developed for each market are also different. However, Philips Annual report (2013) stated that the main strategy of Philips that is based on increasing consumer value and developing energy efficient products is standardized in each market. This standardized strategy serves as competitive edge for Philips. The research department of Philips identified that the aging population is growing thus shows that the demand of healthcare products will increase in the coming years. Moreover, well being of people around the world shows that they need products continuously in order to maintain their well being. In addition, the demand for energy efficient consumption is also expanding and is identified by Philips in order to mange capacity and demand along with providing innovative solutions.

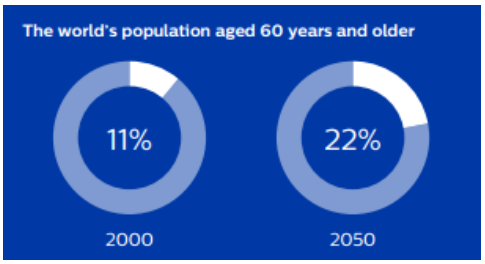

Figure 6: Philips Research results

(Source: Philips Annual report, 2013)

Figure 7: Philips Research results

(Source: Philips Annual report, 2013)

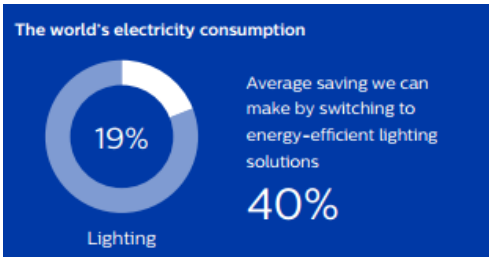

Figure 8: Philips Research results

(Source: Philips Annual report, 2013)

As mentioned by Scheine (2013), the next step of concept of innovative product is developed and approved by all the internal stakeholders as each one can provide relevant information on selling, technology usage and capacity utilization. Once the concept is considered competitive and is approved, then a plan is developed which helps in identifying the steps that the product development will take place in. According to Philips (2011), raw material procurement is the initial part of the process mapping and strong relationship are developed with the suppliers in order to reduce the lead times and cost of supplies. In 2011, due to economy recovery, the supplies were short and prices of those supplies were increased due to shortage. However, this did not affect Philips much as they were able to negotiate with the suppliers well along with delaying price increase due to the strong relationship the company has with its suppliers.

As stated by Philips (2013), the next step of the flow is product manufacturing and packaging. Manufacturing of Philips are increasing in Asian economies due to technology from India and cheap factor of production in Asian economies. However, most of the activities of Philips are outsourced due to better quality produced when outsourced rather then producing it internally. However, the manufacturing is also based on the needs of consumers and support of supply chain members. All of the activities of Philips are working on green practices even the next logistics activity of Philips is based on green practices and works on minimizing carbon emissions. Various programs are operating to reduce logistics emissions and Philips is following freight consolidation and deconsolidation to ensure that no energy to maximize capacity on both sides to reduce empty kilometres that effect the environment.

As mentioned by Fineberg (2014), Marketing and advertising of the products of Philips is done through print advertising and through e marketing techniques to attract many consumers

along with reducing the cost. It mostly caters to business consumers along with few of other consumers therefore it advertises through interactive advertisements, short stories on social media regarding the innovative aspect of the company. The effect that innovation has on the consumer's life is illustrated by the advertising efforts. The next step of the process includes retailers; the products of Philips are available at official Philips stores with half of the products available with the retailers.

As mentioned by Philips (2013), the retailers are required to follow the ethical regulations and policies of the market it operates in order to carry products of Philips. The products are available at variety of stores in each market in order to make the product available to all consumers easily and with convenience. Next is the stage where consumer buys and uses the product in order to identify and analyze whether the product is able to meet their needs effectively. If the needs of consumers and perception are met by the products of Philips thus results in loyal customer, repeat purchase and increase in brand equity. However, if the need of consumer is not catered well, then consumers can suggest or put forward their complaints regarding the product or the need. Philips works effectively on complains and suggestions given by the customers as they serve as the development for new product for the company. According to SAVO Group (2012), SAVO is adapted by Philips in order to provide information to consumers regarding various innovative products through articles and stories. Moreover, SAP (2013) mentioned that SAP is also adapted in Philips in promoting innovation through customer relationship management (CRM) programs which facilitates in managing customer information from initial request of information seeking to shipping and invoicing part of the process. In addition, this helped in increasing customer satisfaction as their queries and problems were solved instantly along with forecasting demand on the basis of information of consumers. Moreover, SAP helps in faster order delivery and this helps in increasing value delivered to consumer.

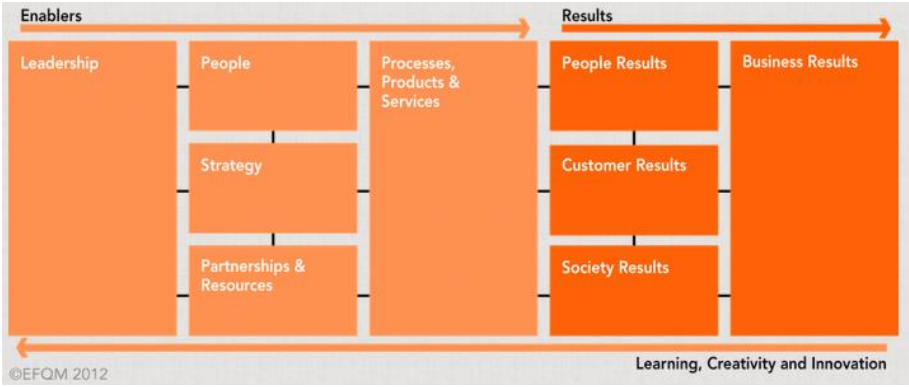

Figure 9: EFQM Model

(Source: EFQM, 2015)

According to Philips (2015c), In order to create quality and improvement in its operations, Philips is a member of EFQM and follows the EFQM model. As stated by EFQM (2015), the model is based on creating leadership in terms of the people, strategy, partnership and resources. The people are the employees whereas the strategy is the overall strategy of the company. Moreover, developing better association with suppliers and other supply chain members will lead to leadership in relationship as well. This leadership will result in better processes, products and services developed. The overall enablers act will give overwhelming results in terms of satisfied people, customers and society and satisfaction of stakeholders will result in better business results in terms of sales, profitability, brand image and brand awareness. Moreover, learning, creativity and innovation can be attained from these results to make the internal operations of the company better.

As stated by Madison (2005), in process management, one of the main aspect is to manage the inventory well and to ensure that the flow of inventory is efficient and on time. It can be achieved by supplier assistance, employing inventory control personnel and by tracking the inventory. Software can do well in these aspects to ensure that the inventory is well maintained. On contrast, Lamb, Hair and McDaniel (2008) argued that the inventory of Philips is managed well but the just in time approach is not being followed by any of its business.

According to Philips (2015d), all the businesses at Philips ensure that the inventory management is an integral part of the business therefore they use Xper Information Management Inventory Coordinator to facilitate them in this aspect. It is connected with other

functional software in order to certify that the information is accessible to all functions along with reducing the chances of redundant information. In addition, the plans and actiivites are scheduled well as if one activity is late then this can cause time delay in all following activities as well..

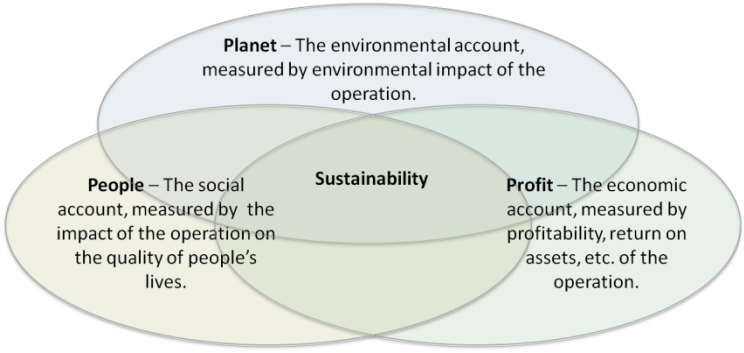

Figure 10: Triple Bottom Line

(Source: Archel, Fernandez and Larrinaga, 2008)

According to Archel, Fernandez and Larrinaga (2008), Operations in organizations are required to be planned well in order to achieve sustainability by triple bottom line. The operations can affect the planet by recycling materials, reducing energy consumption, reducing waste materials and carbon emissions along with lowering the impact of process failure on the environment. The people aspect is catered through operations by providing customer safety, employment at the location of operations, employee safety procedures and non exploitation of employees. If operations are catering well in achieving sustainability then the profits will also increase for the firm resulting in benefit for each stakeholder. As stated by Denning (2011), the aim of Philips is to maintain its profits along with beating the competition but is giving low emphasis on creating customer pleasure. In addition, Philips is divesting its businesses that are not profitable but Philips should hold on with the important businesses and should make them grow by working on it.

This shows that the operations of Philips are green and aim at reducing impact on environment along with adding to the profits but the operations are not working for satisfying customers and is not playing good in terms of sustainability.

iii) Lean management in Philips

As mentioned by Philips (2015c), the Royal Philips used to apply Six Sigma as improvement tools for all of its business till 2008. As mentioned by Antony (2006), Six Sigma is used for improving the quality of process and product by reducing chances of errors of process. It is also based on identifying and analyzing the reasons for these errors. Moreover, each process of Six Sigma identifies the errors that are occurring or can occur along with steps that can help in eliminating these errors without affecting the process much. According to Schroeder, Linderman, Liedtke and Choo (2008), Six Sigma consists of statistical calculations and a business is considered to be good when the value of Six Sigma for its process is 99.99% that denotes that the products and processes are error free. However, Ede (2009) stated that in 2008, Philips realized that lean management tools are also to be added in order to be innovative along with operating through efficient and quality business processes. The aim to add lean manufacturing was to reduce waste and to create higher value for consumers. The quality aspect of Philips is known as Six Sigma lean programs which use both Six Sigma and lean principles in order to sustain its position in terms of quality in the industry. In each department of the business, one master black belt was hired in order to train the employees and to work towards lean processes of the business. As stated by Furterer (2009), the Master Black belt is a leader that works on DMAIC project. DMAIC is a tool used for quality management and stands for define, measure, analyze, improve and control in the lean processes. According to Emiliani (2006), Lean management is based on identifying the waste and errors in each process to reduce the cost along with the impact on the environment resulting in higher value for the customers. As mentioned by Ede (2009), In Philips, instead of DMAIC, MEDIC was followed which stands for Map, Explore, define, implement and control. However, in 2008, it was decided that each business will be responsible for its own quality improvement programs.

According to Ede (2010), the focus on improvement tools increased and moved from merely cost reduction to adding value. Value stream mapping was applied in stocking area to reduce the stock along with proper aligning and placement of each product. Currently, there are more than 80 black belt masters in consumer lifestyle business of Philips that continuously work at reducing waste and errors along with efficient uses of resources. Even the research and development department of Philips works not only to produce plans for innovative

products but the complete supply chain and value adding process of the product that aimed at lean processes.

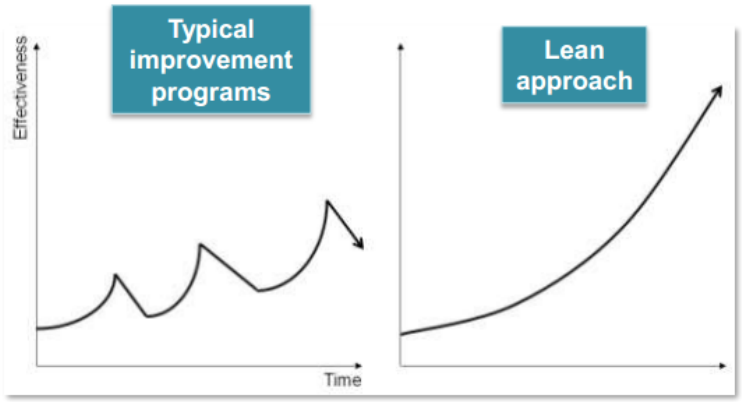

Figure 11: Business improvement after lean processes in Philips

(Source: Mil, 2010)

The above figure given by Mil (2010) shows that after implementation of lean approach in Philips, the improvement of the business has gone up with respect to time. It is due to lean product development that one factory in Philips Netherlands achieved double projects with approximately the same cost.

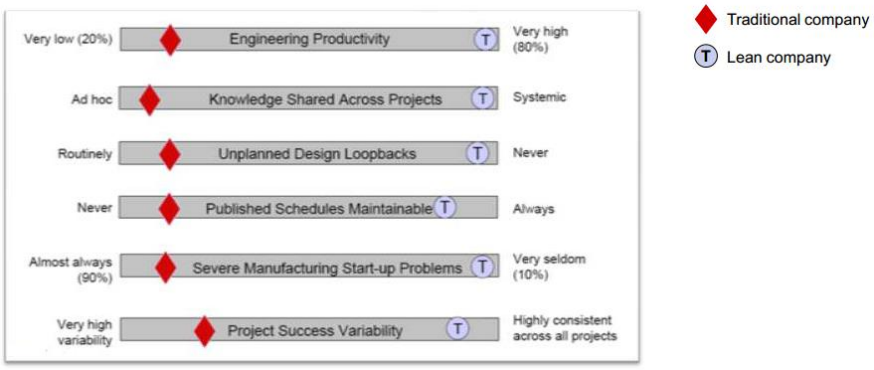

Figure 12: Traditional and Lean Company

(Source: Mil, 2010)

The figure above given by Mil (2010) presents that the change between a company following traditional practices and the company following lean practices. This made Philips realize the need for moving to lean processes. The engineering productivity of lean company is high at 80% as compare to 20% of traditional company. Moreover, in lean processes, the knowledge sharing is systematic and unplanned design loopbacks are restricted. The published schedule maintenance and project success sustainability is high in lean processes. As Philips is an

innovative company therefore the need of quick but factual information is essential along with proper means of information sharing therefore lean processes were inculcated in the functions of Philips. In addition, Philip does not want to waste the time of people for information and engineers waiting for decisions due to lack of information. Moreover, the company wanted to have reduction in over processing, inventory, over production, useless processes and operations as these were wastage for the business therefore, Lean processes were adapted.

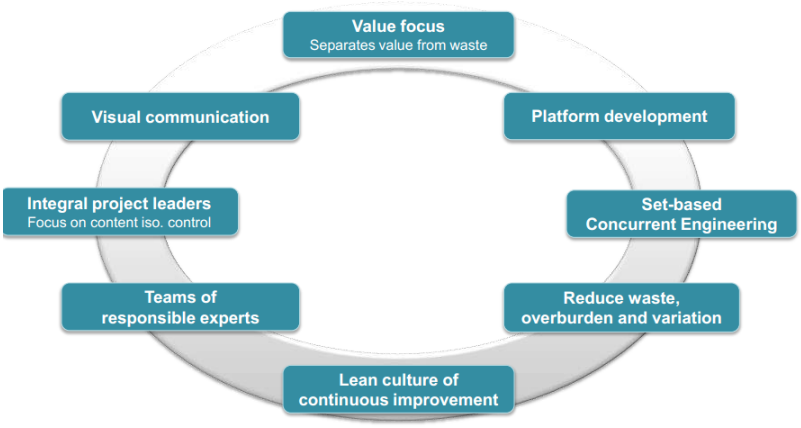

Figure 13: Eight Areas of Lean Management of Philips

(Source: Mil, 2010)

The figure above given by Mil (2010) shows the eight areas that were focused to inculcate lean management in Philips. The areas include value focus, platform development, set based concurrent engineering, reducing waste, overburden and variation, lean culture of continuous improvement, teams of responsible experts, integral project leaders and visual communication with can facilitate effective implementation of lean processes.

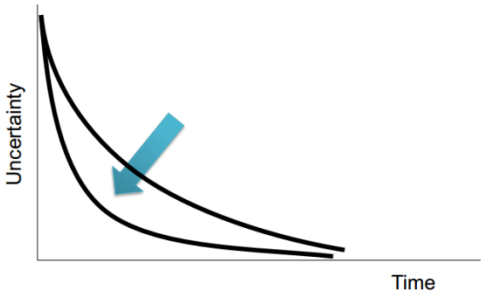

Figure 14: Lean manufacturing in Philips

(Source: Mil, 2010)

The above figure given by Mil (2010) illustrates that implementation of Lean manufacturing in Philips reduces the uncertainty and time of a project as the curve lowers as compare to the other curve that denotes time and uncertainty before lean processes. Lowering time and uncertainty is possible due to lowering lead time, quick product cycle along with fast prototyping.

According to Invistics (2006), the Lean manufacturing is not much adapted in the pharmaceutical company due to the fact that the complexities in manufacturing medicines is high along with the different challenges occurrence in its manufacturing plant as compare to other production plants. Disadvantages of not adapting to lean manufacturing include inability to reduce cost due to various waste activities throughout the supply chain. As given by Yang, Choi, Park, Suh, and Chae (2007), Samsung follows Six Sigma approach and is not moving towards lean processes. This is due to the fact that Samsung aims at improving processes to achieve better productivity and results but does not aims at reducing wastages. The wastages are not reduced nor is the environment being beneficial in this aspect. On contrast, Toyota follows Lean manufacturing system and is benefited by reducing waste, increasing value delivered to the customers along with minimizing costs. As mentioned by Ford, Williams Spencer, McCammon, Khoury, Sampson and Lee (2012), Toyota was pioneer in implementing lean processes and is highly benefited by it as compare to U.S. car manufacturer who are high on wastages and inefficient utilization of resources.

PART B

Capacity management in Philips

According to Dugmore (2006), Capacity management is defined as the extent to which a company's resources are able to produce particular amount of output in a certain time frame. It identifies the limit of an organizations' factors of production can contribute to get the required amount of results. The organization resources includes skills and number of labour force along with managerial employees, the land used for production and manufacturing, technology machinery, financial resources, intellectual property rights, inventory and various other resources without which the production is not possible. As mentioned by Stevenson and Hojati (2007), the product is required to meet the demand of the market and is not to be short as a short product can result in bad brand image for the company. Moreover, the machinery, raw material and labour force is to be enough to meet the demand of consumers in each market. For example; a product launched in the market is successful but unfortunately is out

of stock in the market largely; thus this will affect the brand image of the company as the consumers will perceive that the company is unable to make the product available to them or the product is not made for them. Due to this perception, consumers will not try this product again. On contrast, Dadzie and Winston (2007) argued that new products going out of stock results in interest of consumers as they might perceive that the product is so good that is actually went out of stock. Therefore, this makes them curious to buy and use the product when in market resulting in increase in demand.

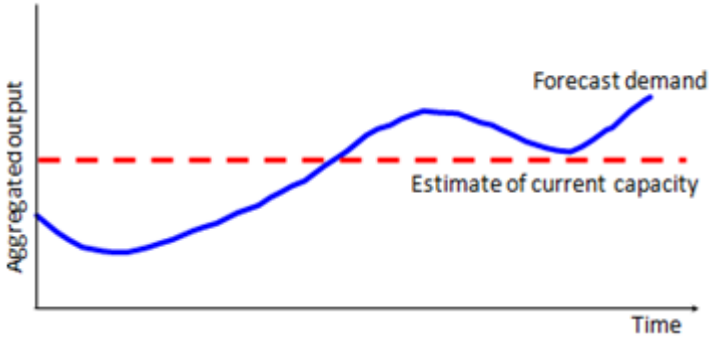

Figure 15: Capacity Management

(Source: Gupta and Wang, 2007).

The figure given above by Gupta and Wang (2007) shows that in order to manage the capacity well, a business needs to measure the total capacity that it can produce by utilizing current resources effectively. Moreover, the demand needs to be measured through various sources and it is required to match the demand with the capacity to deliver higher value to customers. Managing time effectively and eliminating waste activities can lead to better activities being performed along with saving of resources. However, Alp and Tan (2008) stated that the actual demand and the demand forecasted are most likely to differ due to uncertainty. Uncertainty prevails when consumers are expected to buy the product but they do not due to various factors including lowering income, spending on some other product rather then this product and includes finding a better product to fulfil their need. In addition, buying in bulk in the sale season and stocking it for future usage, buying from some other city or country along with hoarding can also lead to uncertain demand. On contrast, Xiao and Yang (2008) argued that demand can be uncertain not because of the seasonality but due to the fact that the customer is not satisfied by the products or its price and has decided not to buy the product anymore as he/she has shifted to another brand due to lower switching cost.

As indicated by Philips Annual report (2013) the research department of Philips identified that due to aging population, demand for medical care is growing and due to growing environmental care, the demand for energy efficient lighting is growing due to which the company's operations are working to manage the capacity to meet the demands in each market well. The figure below given by Philips Annual report (2013) shows that as a result of matching the capacity to meet demand of well being, 0.29 billion of lives are enhances by Philips well being products, 0.63 billion by Philip care products whereas 1.49 billion lives by Philips green products. As Philips follows lean manufacturing thus it is essential that it manufacturers and manages its capacity to meet the demand of the market as overproduction does not comply with the lean management principles. Philips (2011) stated that Philips has its own research centres which are working for the analysis of growing needs and demand of consumers. This is beneficial in order to maintain their capacity to meet the demand. However, as the demand pattern is uncertain, the demand and sales can vary but Philips produces according to the demand as few units not sold cannot cause much harm as that of being out of stock. The need for improved life was identified by the research centre therefore to meet this demand, the machinery, technology and resources were aligned well to manage capacity.

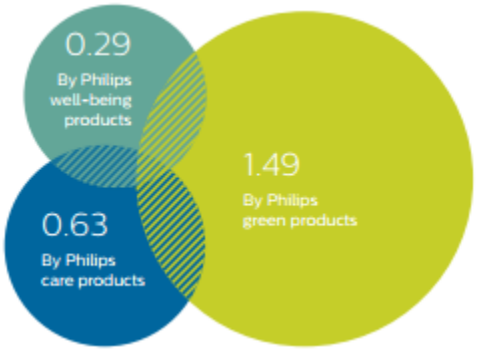

Figure 16: Improved Lives by Philips

(Source: Philips Annual report (2013)

As mentioned by Philips (2015b), the way followed by Philips to manage capacity and demand is that of change demand where the patterns of demand are changed each month due to the demand calculation. When the demand increases, the capacity is increased temporarily by increase in working hours but this is rare as research of the company works well in measuring demand due to the ample experience along with analyzing demand of each market separately. According to Philips (2011), in order to meet demand effectively and to manage the capacity well, Philips has few suppliers but the relationship of Philips is strong with all

the supply chain partners. Thus, this helps them in meeting uncertain demand in shorter time if needed. Moreover, meeting the growing demand from consumers end, reducing lead cycle, improving the quality of the supplies is easy for Philips due to collaboration with suppliers. In exchange, the teams of Philips work for the suppliers' risk management. In 2011 in Japan, the earthquake and tsunami affected the supplies resulted in hoarding which was followed by loss for suppliers. Thus, teams in Japan and elsewhere worked to mitigate these risks for the global market. This is the reason for suppliers working with Philips in uncertain demand patterns as well. On contrast, Olhager and Johansson (2012) argued that meeting the uncertain demand requires a lot of cost and other resources as latest information and research is required for identifying and calculating the demand and capacity of the business.

PART C

Conclusion

Royal Philips is into three businesses namely healthcare, consumer lifestyle, and lighting. The company is well known for its innovation and producing new products according to the needs of the stakeholders. The company has research campuses in China, India, and Netherlands which are required to identify the needs of consumers and society along with providing concepts of new product development for each of the business of the company. Philips follows a proper business creation process that defines the processes of new product development. Philips uses various software to facilitate in smoothening their operations include SAP and SAVO. A issue faced by Philips when moving towards e procurement was that of unawareness of employees to use the system therefore this raised the issue of equal training for all employees in each market and for this reason SAVO was included to facilitate equal training and information sharing. The operations manager plays a vital role in managing the operations of Philips along with ensuring efficient use of resources. The process management at Philips is well maintained as it works in delivering higher value to customers as it involves all the supply chain partners in the process. In addition, the needs are also identified well by the research campus of Philips and customer service strategies are also followed. However, Philips focuses so much on innovation that its focus on customers becomes low and is termed as product centric business.

Philips is also a member of EFQM and follows the EFQM model for quality and improvement in its business operations. Lean management is followed by Philips and is termed as Six Sigma lean programs. Lean management resulted in improvements in operations along with reducing uncertainty and time utilized for a process to be completed. Capacity management is essential in order to meet the demand in each market. Philips manages its capacity well with the help of research campuses that identify the demand of each market in each season. However, as the demand is uncertain therefore to manage this uncertainty change demand is followed in which demand is changed each month.

Recommendations

The operation management analysis conducted shows that the operations of Philips are well organized and performing well but few of the recommendations are given that can be followed for improving the operations at Philips. The lean management of Toyota can be followed for flawless operations of Philips. As mentioned by Lander and Liker (2007) in their research that the lean management of Toyota works on continuous improvement process in

each activity. The company works on reducing set up times as set up times are waste of time and resources. Toyota achieves this by organizing procedures and using trained workers along with producing in small lot as bigger lot consumes high time. This results in short cycle and lead times along with maintaining the quality of work and product. In addition, suppliers are involved and trained to reduce inventory, set up time and to maintain higher quality. Moreover, employees are empowered and involved in decision making and all aspects of the business as it trains them to correct the error then and there where they see it. Furthermore, this employee involvement also helps in increasing the morale of the employees.

Philips is focusing less of quality and on employees therefore Philips should work on their employees, involve them and should employ strategic human resources practices to work through them. According to Carvalho, Azevedo and Cruz-Machado (2010), in operations management, wastages are to be reduced and avoided; visual controls should be developed along with maintaining high quality standards for production and other functions. As smooth and effective operations are achievable only by the employees therefore SMART objectives for the operations of Philips should be set and employees should be incentivized through monetary and non monetary benefits for the achievement of those objectives. Workload should be level out along with employing pull strategy in order to avoid overproduction.

Sousa and Voss (2008) stated that in order to manage operations of a business well, a culture should be built that aims at achieving quality for the first time instead of correcting them each time. In addition, if any issue is being faced, then the root cause of the issue is to be identified in order to finish that issue completely. As mentioned by Skerlavaj, Stemberger, Skrinjar and Dimovski (2007), to achieve excellence in operations, the organization should be converted to a Learning organization where employees not only learn by research and development campuses but also on their own and by other stakeholders. Job rotation should be employed to recognize the issues and to understand the situation of each activity. Decisions regarding operations of Philips should be made by consensus rather than the black belt master taking the decision on its own without consulting others.

Hodge, Goforth Ross, Joines and Thoney (2011) recommended that in operations of a manufacturing firm, the errors identified should be witnessed personally in order to understand the level of error instead of relying on words of others. The effective implementation of lean manufacturing results in lowering cost, this benefit should also be transferred to the customers in order to deliver higher value to them. The time between the

order placed of Philips product and the time taken to deliver it is to be reduced and to be measured in hours rather than days as this will help in reducing the lead times and providing just in time inventory.

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