Operations Management

Executive Summary

Operations management focuses on production of quality goods and services. This subject provides theoretical background to create effective and efficient business operations. There is a vast competition in present business environment. Such competition exists not only within company's own industry but also within different industries. Basically that competition creates through effort that organization makes to utilize resources effective and efficient manner. Operations management seeks to enhance manufacturing performance through various techniques. Any manufacturing or service organization wishes to fulfill number of objectives by implementing effective operations strategy. Organization expects to achieve the ability produce at low cost. And also expect to gain quality by producing in accordance with specification and without error. Another objective is speed which mean organization's ability to do things quickly in response to customer demand. Dependability is also an objective of operations strategy. It means the ability to deliver products and services in accordance with promises made to customer. And also company expects flexibility through its operations strategy. It means the ability to change operations.

In order to achieve these objectives there are number of techniques and tools such as lean manufacturing, just in time, total quality management, six sigma and supply chain management. All these techniques require a flat organizational structure coupled with functional integration in the organization. (Gupta &Boyd, 2008) This report has been prepared to analyze how ABC has defined its operations strategy in strategic, tactical and operational level. Further report describes secrets behind operational success of ABC in automobile industry. It gives as a detailed analysis of quality management practices deployed by the ABC and established industry benchmarks. One functional department cannot solely perform operational activities and operations strategy of any organization consists with number of cross functional processes. ABC as an international business it also goes through different functional departments when performing some certain processes. Report discusses few such processes using standard tools and diagrams. Process innovation and improvement is always beneficial to organizations in order to sustain in the industry. Total innovation management can be used to effectively improve processes within the organization. Report provides basics on how ABC had used these techniques.

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Introduction

ABC is a leading automobile manufacturer in the world. The company has unique business and operations model and is a pioneer in the automobile manufacturing industry. Since 1937 ABC motor company has successfully expanded to 28 countries and operates in 75 manufacturing companies. ABC's operation in Japan and overseas uses its unique ABC production system. The parent company of ABC motor company established in Japan.

ABC has developed its global vision by giving priority to its operational strategy while being customer focused and to ensure environment sustainability. It is "through improvements of conventional technology, as well as pioneering efforts in the application of new technologies, ABC is taking great step to develop Eco cars which will help us become a low carbon society."

Mission statement says "Create vehicles that are popular with customers". In order to accomplish this vision and mission statement company involves in many activities. ABC provides world class safety cars in order to protect customers' lives. And also company confirmsSocial responsibility by providing infrastructure to local community. Company's philosophy focuses on employee education too. It is known as "Genchi–Genbutsu". And also company contributes in acquisition of new technology.

ABC has decentralized organizational structure and most of the tasks have designed as team works. Application of lean concepts in manufacturing has increased the productivity. Company's unique way of problem solving has allowed company to come up with flow of improvements as well as to develop highly committed workforce. ABC has achieved competitive advantage globally.

According to the statistical portal ABC has ranked as firstbased on global sales of world car manufacturers. Amount is 10.23 million. Other competitors such as Volkswagen and general motors are in second and third places. Such ranking convey mare about ABC's product quality and safety.

01. Operations Strategy of ABC

Operations strategy of an organization addresses strategic issues of manufacturing or service operations. Operations strategy devise from business strategy and it acts as a framework for design and management of operational functions. Operations strategy providesa framework for analyzing and solving strategic issues related to three levels known as strategic, tactical and operational.Issues related to strategic level are determining accurate strategies for design of goods and services, design process and capacity, layout, location, human resource and supply chain management. (Jae, Joel & Siegel, 2005) In tactical level operational management activities involve in determining layout and structure, project management methods and methods and policies related to equipment selection and replacement. Operational level of operations management represent issues such as scheduling and control of operations, inventory management, quality control and inspection, traffic and material handling and determining policies for equipment maintenance. Managers and employees in each level should concern on developing operation policies and procedures using the operation management knowledge.

Operations strategy of ABC aimed at achieving maximum reliability, easy maintenance of its cars ineach class, production systems that includes product design, processes, and supply chain management. Company involves in all operation management activities in order to fulfill performance objectives known as cost, quality, speed, dependability and flexibility.

Strategic level

Fourteen principles of ABC are highly applicable for strategic level of the organization. Those principles say the operating philosophy serves as a guide for its management.First principle directs the management decisions on a long-term philosophy even at the expense of short-term financial goals. When managers at the strategic level determine the design of cars, should concern on the vision of the company as it represent the long-term philosophy of the company. As well as power house of Japan figures how to build cars which attract the Europeans. The management of ABC is asking its engineers to propose a design which is innovative and cost saving in nature. ABC always tries to launch handful hot models. Company expects quality, engineering and value from their products. Their designs set global standards for safety, reliability and ease of maintenance in order to confirm value of products. (Mahadevan, 2010)

Process and capacity design

Process design has initially based on ABC production system which considered as lean production.ABC production system has designed by standardizing tasks and it serves as a foundation for continuous improvement. But there is common production platform with ability to regional customization.The production system has buffers that are controlled through various pull signals. Robots are used widely in mass production and also involve people in all levels. In fourteen principles it describes "You must create a continuous flow of processes to bring out any possible outcome". Further it describes process should be designed in a manner having ability to avoid overproduction problems. And also encourage using a pull system. When determining capacity level outing workload is important.Kanban system play vital role in production process by providing instructions as a part move along the production line and provide precise information of the required material for the process. And also Kanban system determines production quantities in each stage of production. ABC production system is not only cost based strategy but also a value based strategy. TPS as an operational solution it ready to remake entire organization both at process and management levelby avoiding wasting time, resources and effort used in an ineffective technology. ABC has come up with process analysis and capacity planning solutions in order to enhance lean manufacturing and lower operation cost. For that ABC have conduct powerful bottle neck analysis to eliminate production and supply chain inefficiencies. Company has ensured effective line balancing during process redesign. And also process and capacity design further describes how to reduce lead time and operational cost by predicting the effects of unplanned events and better control of inventory levels. Increasing capacity of ABC is great advantage. (Mahadevan, 2010)

Location strategy

ABC follows a global strategy when locate production facilities and it has flexible, efficient production and sales network.ABC have established eight regional headquarters except Japan, two casting and foreign facilities, eleven engine assembly facilities, 37 assembly facilities, three stamping facilities, 10 R&D facilities, 167 distributors worldwide.

Production facilities around the world are able to addwith or switch to new models within a short period.ABC effort is to design products that appeal to particular regional preferences while allowing range of products in each region which it operates. Japan is the center of ABC's global operations. Company has established the global core in Japan develop products

and to lead and support operations in all other regions. In 2009 ABC implemented a global link production system that can respond quickly and flexibly to the fluctuating demand of the overseas market.North America is also one of ABC's most significant markets which aimed to establish a self-reliant operational framework. ABC gradually increased its production capacity in North America. And also ABC established its production facilities in Europe and increased production capacity in Turkey, France, United Kingdom and Russia. ABC further moves on Asia and expected the benefit of early entrance. ABC further increased its competitiveness by improving product range offered in the region and concerned on increasing local procurement to overcome the influence of foreign currency exchange fluctuation. (Jae, Joel & Siegel, 2005)

Layout strategy

Layout design of any organization focuses on achieving various objectives such as increase the utilization of space, equipment and people. Right layout strategy help to improve the flow of information, material or people. And also such a strategy will improve employee morale and will create safer working condition. As well as it may improve flexibility of production. Production plants of ABC have designed process or production oriented layout. Process oriented layout deals with low volume high variety production while product oriented layout seeks the best personnel and machine utilization in continuous repetitive production. When determining the layout strategy operations manager should specially concern on type of the product produced by the organization. If the product should go through a production line process layout is appropriate. Raw material converts to the ultimate product as an order resulting in an efficient product. There are machines and equipment grouped together and flexibility is the main advantage. (Jae, Joel & Siegel, 2005)

Human resources and job design

Most existing studies in the lean production literature emphasize the crucial importance of trust between labor management as a necessary condition for the successful implementation of lean production. (Euro Asia center research series).Job design is the process of structuring work and designing work for the specific job in ABC. Job scope and job design are two dimensions of job design. In ABC most jobs have high job scope.Lean production system of ABC concern on grants much greater autonomy and responsibilities to workers. When design Jobs Company highly depends on worker's skill and motivation. ABC highly concern on work humanization including job enlargement, job enrichment, self-management and job

rotation when design jobs. ABC always comes up with innovations in terms of product, processes, quality as well as in human resource management. Innovation in selection and recruitment process have ensured employee's satisfaction and low employee turnover.After the selection employees train using different methods such as lectures, training classes or job rotation. Satisfied employees serve more and they are an asset to the organization. Comprehensive Rewards and compensations scheme of ABC confirm employee satisfaction and retention. Skills and knowledge of staff is crucial for ABC innovation process. Technology is changing and enhancing frequently and employees should up to date with enhanced technology. (Mahadevan, 2010) HR development is important for the ABC in order to compete with industry with innovations.

Supply chain management

Supply chain management discuss about various systems that product go through. It is whole about how product moves from manufacturer to the customer. It is a coordination of production, suppliers and customers in order to deliver the product with maximum efficiency. Supply of appropriate material is alter to material management and it focus on sourcing inputs to require for processes. ABC's has achieved its success by reducing costs through wastes elimination.

ABC developed the pull systems and created the just in time techniques that made ABC production system more functional and efficient. ABC pioneered the value added concept through the lean supply chain. This allowed the company to detect waste in the value chain which is eliminated (Wee & Wu 2009).

The TPS since its inception created a group of first tier suppliers who were part of the company. During the 1970s the company developed a second tier of suppliers through kyoryokukai which is supplier association.During the 1980 s and 1990 s ABC spread its chain overseas part suppliers and distribution system (Jones et al, 1997).ABC's suppliers have integrated according to hoshinkanry policy and its supply chain mainly focuses on resources. ABC's assembly based system had dominant power relationship with suppliers. Innovative and customized supply chain was effective as a result. Customer's value also increased as a result of effective supply chain.

Tactical Level operations strategy

Layout and Structure

When discuss about tactical level operations strategy layout and structureis a major decision related to the level. ABC's structure is a flat and functional structure which allows employees for learning and improvement. It is a centralize power structure and authority is not generally delegated within the company.Most of the tactical and operational level decisions made by ABC itself by participation of its suppliers as there is a tiered structure. There are most of the team owned processes in tactical level and go through PDAC (Plan-Do-Act-Check) cycle. (Jae, Joel & Siegel, 2005)

Just in time layout featured by build work cells for family products, include large number of operations in a small distance group technology, improve employee communication, make flexible and movable machinery, organized workplace and design less space for inventory.

Project Management Methods

ABC engages with many projects such as new product development, introduction of new processes and methodologies, building of new plants. Lean principles are highly deployed through the project life cycle in planning, initiation, execution, monitoring and controlling and closing stages from top to bottom.According to the Jane Womack and Daniel Jones there are five key principles of the lean methodology defined as Identify value, map the value system, create flow, establish pull and seek perfection. When applying the lean methodology to project management it is mostly focus on managing people rather than product. Lean project management is more beneficial for the company as it helps to eliminate wastes in terms of time and resources. (Mahadevan, 2010)

When applying the lean principles to project management ABC effectively apply them in each stage. "Identify value"principle deployed by breaking down projects to determine what elements can be eliminated. In "map the value stream" project managers look at the entire project and determine team requirement by developing schedules. In "creating flow"break down projects into small manageable tasks and assign tasks and measure individual performance. In "seek perfection" principle project manager empower teams with decision making, responsibilities and accountability.

Operational level strategies

Scheduling and control of operations

In operational level operations management strategies discuss under few topics .Scheduling and control of operations is one of them. Operational activities scheduled in ABC ensure fewer man hours and fewer inventories. In controlling operations ABC use visual control system in order to avoid missing any possible hidden problems.

Inventory Management

Inventory management strategy of ABC is widely discussing topic. JIT system is all about inventory management in ABC. JIT system hopes to ensure inventory reduction, smaller production lots and batch sizes, Quality control, complexity reduction and transparency and waste minimization. It is based on three fundamental principles known as elimination of wastes, continuous quality improvement and participative work culture. This method reduces the set up time and all deliveries are coordinated from suppliers to meet the production needs. The Kanban system implements the control of JIT system. Marketing activities also integrated into system and also link the suppliers to shop floor. The Kanban system pulls for getting the parts in the operations. (White and Pearson, 2001)

Quality control and inspection

Quality control and inspection of ABC expect to ensure that the correct materials and parts are used with precision and accuracy. Numbers of inspections perform by team members during the production process in order to identify deviations from product standards. Team members are the inspectors for their own works and they are responsible for parts they use. When any team member noted problem on any vehicle such team member can pull a rope called an andoncorde to stop production.

Quality control means setting benchmarks for quality of products and reject products which does not meet such benchmarks. Widely discussed quality control method use by the ABC is Kaizen.In here; employees take responsibility for the quality of products and always striving for improvements. (Mahadevan, 2010)

Traffic and material handling

Traffic and material handling strategy is important for ABC as appropriate material determines the effectiveness of product.Since 1950 established the concept of continuousmaterial flow.ABC use JIT management system for material handling and it reduces the traffic by controlling material flows and also deliver required material to the production line.

02. Quality Management Practices in the Organization

Quality management engages in four main areas such as quality planning, quality control, quality assurance and quality improvement.ABC expects to achieve highest quality cars with fewer defects compared to its competitors. (Mahadevan, 2010) ABC's quality policy is "we will strive to meet customer's expectations by providing world class products and services through total employee commitment and continuous improvement". ABC has built good image for production of high quality vehicles in all over the world. ABC has implemented number of quality management practices in the company.ABC production system itself ensures the quality of products. There are number of tools in ABC production system which allows smooth functioning of production process while ensuring the quality of the product. Those are total quality management, reengineering, Kaizen, just in time, jidoka, kanban,.

Total quality management ensures the quality of product in all processes involved in all levels from operational employee to the executive level. ABC quality depends on the flexibility and teamwork of its members. TQM encompass quality of design, quality of input materials, quality of processing, quality of performance and quality due to product support. Total quality management focuses on continuous process improvement. And also concerns on intangible effects on processes in order to identify ways to optimize or reduce their effects. Another aspect of TQM is to leads to improvement product itself by examining way the user applies the product. Finally TQM broaden the managements concern beyond the immediate product. Company maintains established quality standards in all activities in business. In short TQM expect the first time correctness of each activity. (Mahesh, Gupta, 2008)

Reengineering is another quality management practice used by ABC. It is about transformation of key business processes leading to strong coordination and greater flexibility in responding to changes in environment. There are similarities in between total quality management and business process reengineering as it also included elements such as customer focus, management planning for improvement, training in improvement goals and TQM methods, formal training in job skills and tasks and team work at all levels.

Kaizen is another quality management practice used by ABC. It is about continuous improvement and come up with five principals. Workers always search for whether there is a room for improvement. Workers are given freedom and they are confident about offering suggestions. Organizational culture of ABC has designed to value every one's opinion.

Strong personal discipline and teamwork in quality circles required to deploy the Kaizen mindset.Kaizen involves in defining most appropriate benchmarks for each processes.Kaizen mindset always encourages people to closely associate with the process to identify potential improvements.

As the first step to develop Kaizen environment istrain employees in the statistical process control. Statistical process control is a tool for quality improvement. SPC involves in collecting quality data in real time during manufacturing measuring them and control by determining specification limits considering client needs.

After the training SPC absorbed to workers daily operations.

Then operations managers concern on build work teams and employee involvement. Employee involvement is the core of continuous improvement. Work teams are about quality circles. Those quality circles consist with 5 to 15 employees who are members of single work unit, section or department. A team member appoint as the leader of each team. Main purpose of this circle is to discuss quality problems and make opportunity to team members to develop ideas about how to improve quality. (Mahadevan, 2010)

Jidoka system plays a critical role as a quality management practice.ABC production line has special ability to eventually stop problems in production line such as equipment malfunctions, quality problems and work being late. Either machinery or people are able to identify such an abnormality. This is a good quality inspection method which prevents passing on defects. It doesn't require full time inspectors as there is an automation inspection and contributing directly to the consistent quality. Jikoda is a fixed-position stop system. Whenever worker note any abnormality in production line, he pulls a rope located overhead. These lights up an ANDON which notifies the supervisor that there is a problem

5S is another quality management practice that implement in quality improvement stage. ABC motivate its employees to work in a 5s environment by conducting 5S workshops. Seiri stage is about sort or waste reduction. In here Seiri team involve in mark all known problems, find leakages and remove hazards by red tagging. Seiton is about setting everything in order. In here Seiton team place and arrange equipment and material more efficient way. It makes workers easier to access material and machinery. Seiso means keep factory, equipment and machinery shiny clean. All people working in the area including managers and staff involve in seiso activity. ABC factory area split into small parts and appoint teams to take care of

each part. Seiketsu is about standardized clean up. In here team schedule proposed activities in and develop systems.Shitsuke means discipline should be sustained.In here people are appointed for all systems that introduced.

Kanban system is another method for quality management. In here employees created sign boards to transfer information between processes. This system helps to make production function smoother. It conveys number of parts that had to be filled. Not only in production line it also helps in inventory control. (Mahadevan, 2010)

Six sigma is another practice used by ABC. It helps to improve the value added steps from manufacturing to transactional. To achieve six sigma processes must not produce more than three four defects per million opportunities. It is data driven and methodology for eliminating defects in any process.There are five phases of "six sigma" as define, measure, analyze, improve and control. Identifying Stage Companyidentifies the customer and their needs, in measuring stage define the process for measure defects. Then analyze most important causes for defects. Then determine ways to eliminate causes for defects in the Improve stage. In control stage determine what actions are needed to sustain improvement.

Further other elements of ABC production system such as pull system, cellular work flows, JIT system and fourteen principles of ABC are also contribute on enhance quality of ABC products. (Mahesh, Gupta, 2008)

When looks at the automobile industry ford motors in United States represent fifth place of the world. It applies traditional management methods while ABC applies total quality management. In traditional scientific management method there is a separate team to check the quality of work performed by workers. But in TQM method all members in the organization participate in identifying defects and making suggestions for quality improvement.ABC has won many quality awards such as J.D power quality award. ABC plants in Japan and North America have won the prestigious worldwide platinum plant quality award. ABC products were ranked at the top with fewer than industry average of problems per hundred vehicles. It doesn't mean ABC is perfect with quality management. ABC's quality issues still haunt it. Last fall consumer reports removed the ABC Camry and other few categories from its recommended list as failed a new test from the insurance institute for highway safety. (http://www.forbes.com). In 2015 first place won by Fiat Chrysler in annual total quality index. Some certain quality issues could identified in ABC in the year of 2011 basically according to the lean and six sigma perspectives. Kyle Topazzini

who is international consultant for lean six sigma presents in quality digest that ABC's quality problem may include in assembly or design, even if the design was built according to specifications. He further describes ABC have much room to improve on its quality relative to the lean six sigma standards. Now ABC has implemented lean, six sigma. And also ABC extended their principle of self-reflection called ANDON system to the customer.

03. Cross Functional Processes of ABC

Ultimate objective of any organization create value to customers. Most of the time this value creation does not an effort of single organization functions. Most of the organizational processes require collaboration across of many functional lines. In ABC functional areas can be seen in engineering and manufacturing, sales, legal, purchasing and finance.In short different functional areas of organization are working to complete the same goal. Most of the projects implemented by ABC accomplish through cross functional teams. These cross functional processes can be presented using different standard tools and diagrams. Those are process chart, process flow chart, responsibility matrix.

Process flow chart is a graphic tool that shows how a process works. It can be applied to any process within any kind of organization. Process flow chart is a better tool to illustrate and understand the different activities included in the process and order and flow of each tasks.Flow chart use number of symbols to show different parts of the process.

Oval shape used to show where the process begins and end

Direction of the flow

Specific activity

Set of activities in the same task (ordering, receiving, storing)

Document is produced

Flow chart enables pinpoint unnecessary loops or activities and to find opportunities for improvement.

Responsibility matrix is more descriptive than a process flow chart and it shows various roles participate in each task, deliverables of each activity. It especially describes responsibilities for each task. (Mahadevan, 2010)

New product development is one of cross functional process. People in different functional areas have face to face discussion. For an example product designer and manufacturing engineer get together and discuss effects that a propose design for a particular car body would have on the cost of production. (Harvard business review)

01. Responsibility matrix for product development

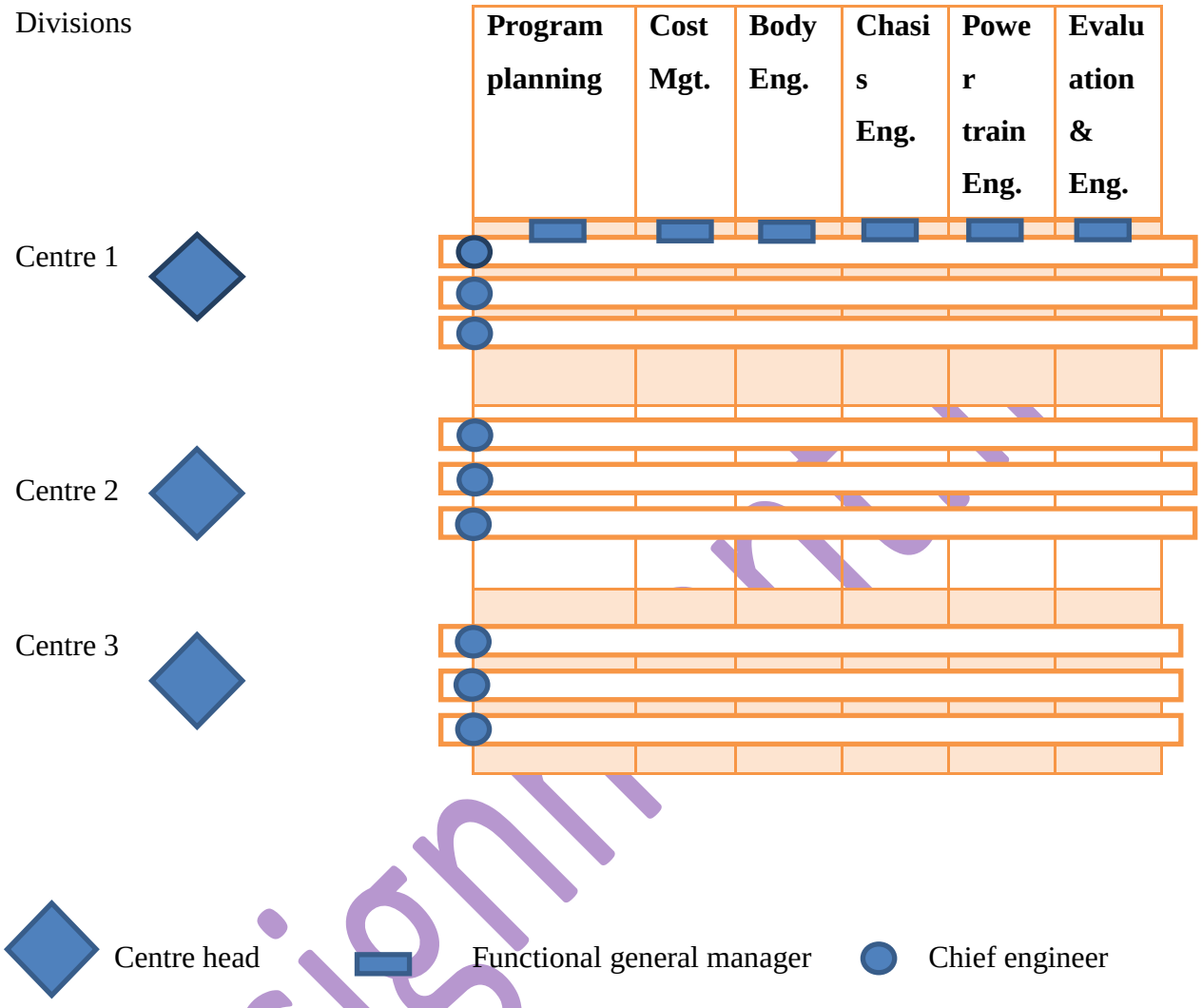

Figure 1 - Responsibility matrix for product development

Responsibility matrix for ABC's product development describes detailed process in a summarized chart. It says that there are three vehicle centers as 1, 2, and 3focuses on family products. There are functional groups within each center including technically special group with its own general manager. The general manager controls the engineers by assigning those projects. The chief engineer control the vehicle programme and responsible for the results. The chief engineer has to depend on all functional groups to supply the people and get the work done. (Mahesh, Gupta, 2008)

Purchasing is critical to ABC as quality of final output is depending on quality of purchased material. This procurement process also requires integration of various functional areas such as manufacturing, accounting, finance and legal.

02. Flow chart of the procurement process

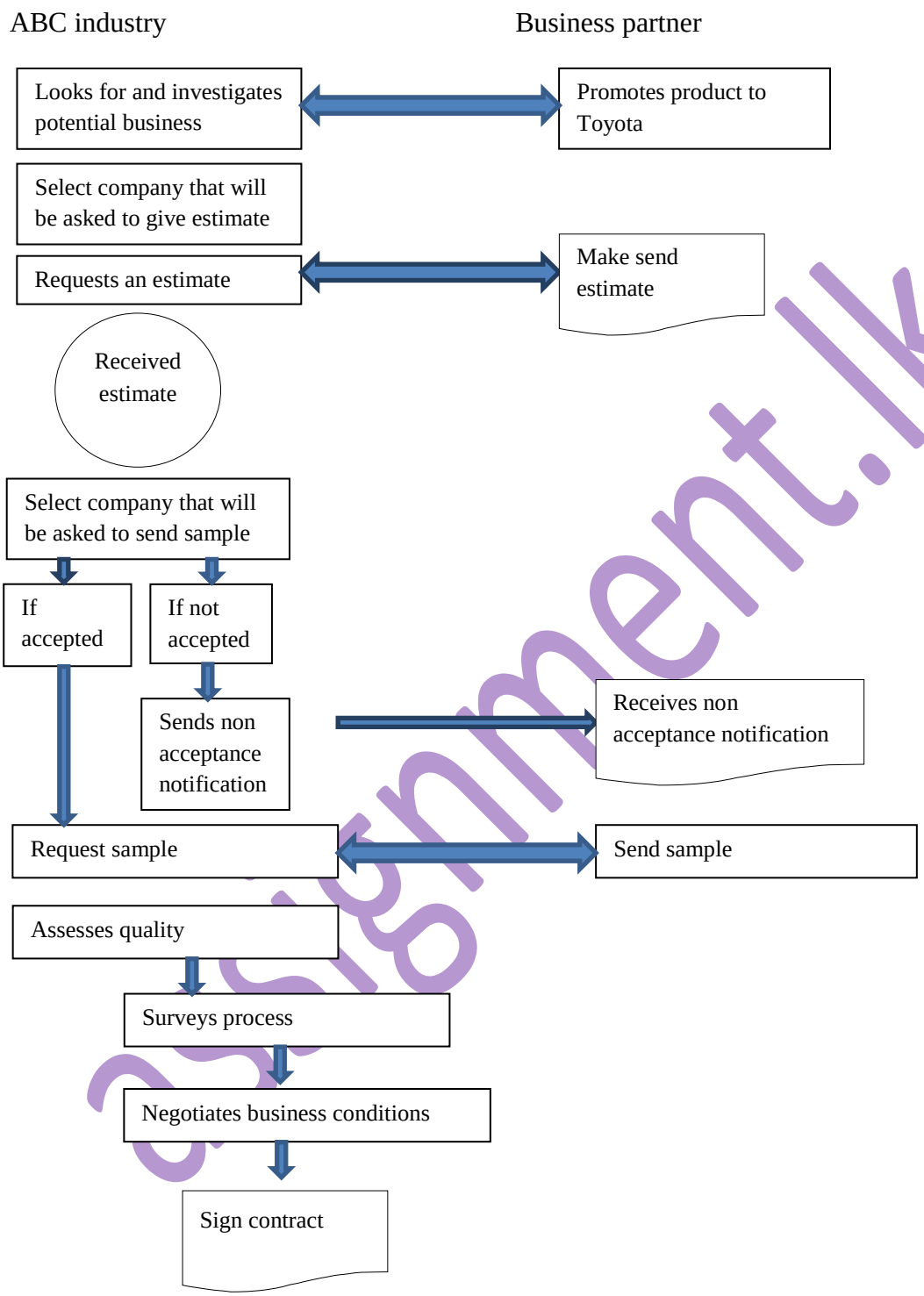

Figure 2 - Flow chart of the procurement process

03. Just in time inventory control

ABC manufacturing based on just in time inventory control. ABC purchase material when there is zero inventories in the stock. There is a process for purchasing material with JIT delivery schedules. This process also goes through various functional areas such as strategic, production, accounting and purchasing. This process can be included in a process flow diagram as follows.

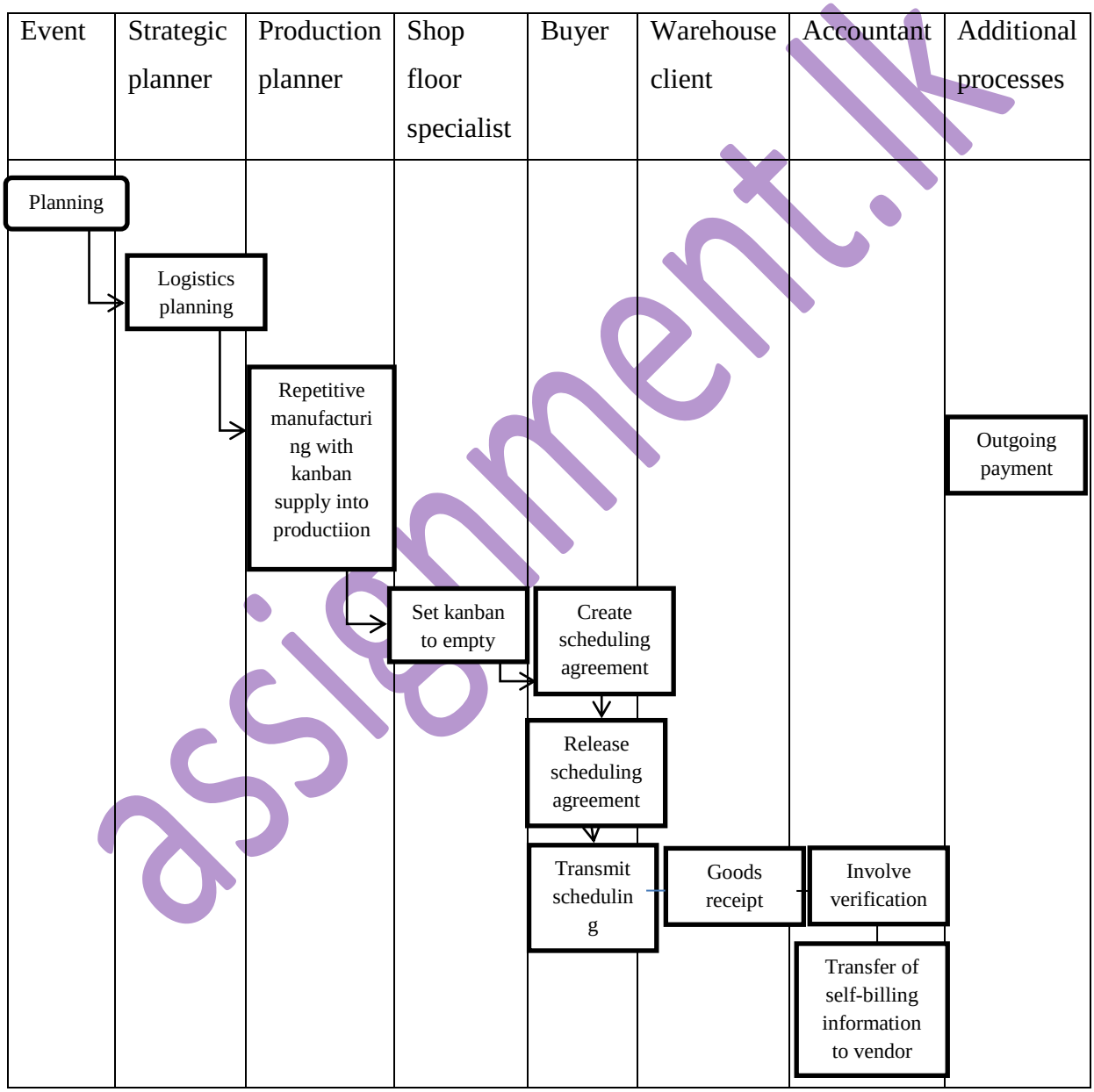

Figure 3 - Just in time inventory control

ABC after sales services deal with many cross functional processes such as complaint management and repair processing

04. Complaint management process flow chart

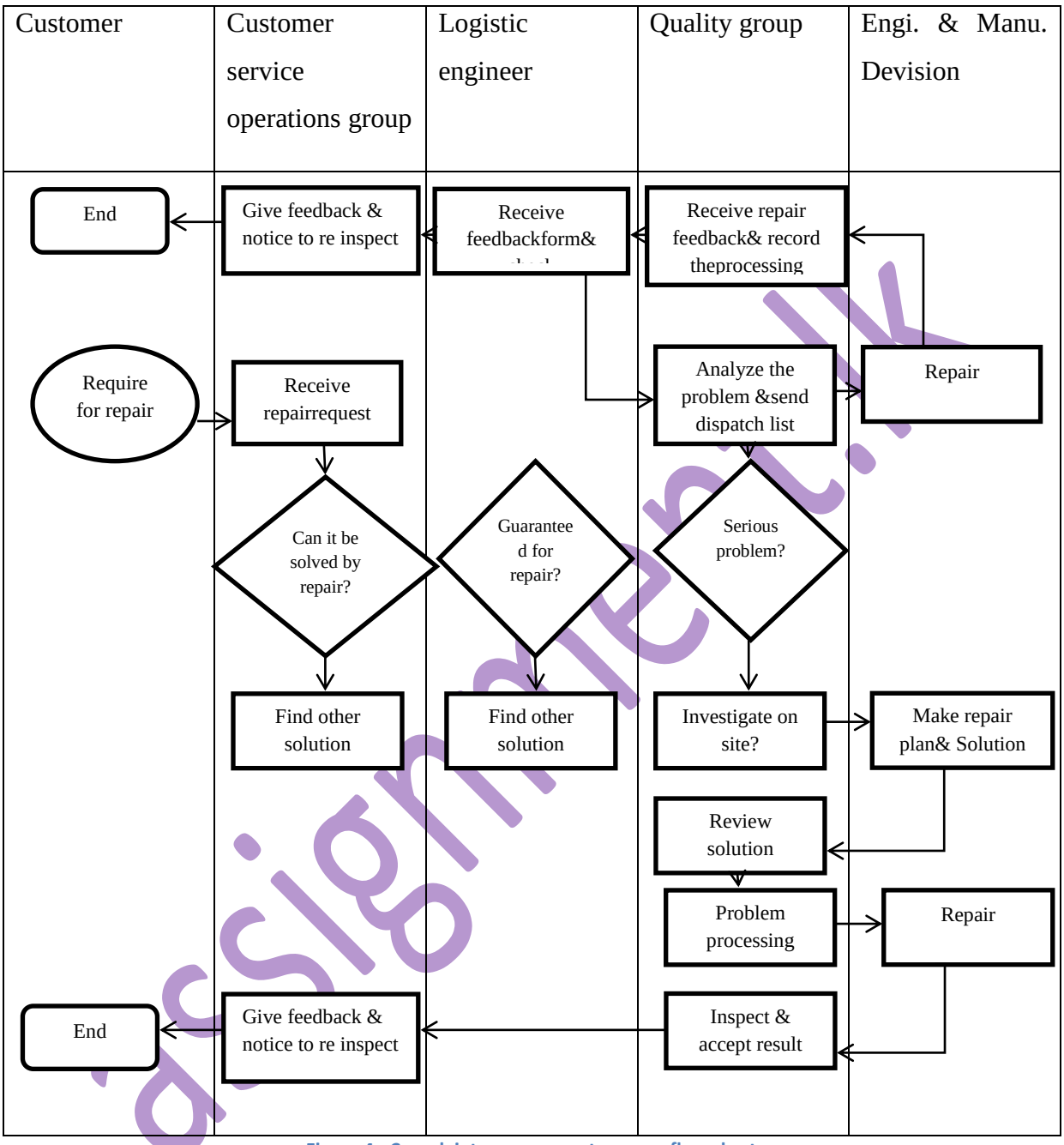

Figure 4 - Complaint management process flow chart

Establish of continuous improvement teams is a responsible of quality division. But In ABC there is total quality management approach and all divisions responsible for quality related issues. (Mahadevan, 2010) Continuous improvement is highly deployed by ABC not only in manufacturing but also in other tasks such as supply chain management, finance department. So there should be contribution of all functional departments when establish continuous improvement team. When developing the continuous improvement team there are few activities have to follow by each division and that can be illustrated by responsibility matrix.

05. Responsibility Matrix

Activities	HR director	OPS manager	Team leader	Team facilitator	Team members	Budget admin	Quality director
Member recruitment	S	A	R		I	S	I
Schedule/Facilities	I	A	R	S	I	S	I
Administrativesupport	S	S	R		I	A	C
Role assignment		A	R	C	I		
Team guidelines	R	S	S	C	I		
Team training	R	A		S	I	S	
Recognition rewards	R	S	I	I	I	S	A

Figure 5 - Responsibility Matrix

"A" defined the approval role, "C" defined the consultation role, I" defined the information notification role, R defined the responsibility for action, S defined the support role.

04. Importance of Process Innovation and Improvement to the Organization

Total innovation management depends on four principles which determine total organizational success. The focus of TIM should be other people's world. It means what are the requirements of current and potential customers. Custom should concern as the center of the organization. All organizational activities and all organizational people should gather around the customer. ABC always concerns on safety and quality of vehicles as it effect on people's daily life. Company committed to the customer's first principle in its all stages ranging from design, production, and sale and after sale services.That's why the company has deployed many quality management practices which move with great technology. Those are lean manufacturing, just in time, six sigma, kaizen and jikoda through its supply chain. All those practices are highly moved with automation practices too. And also ABC has come up with new products such as Hybrid vehicles as a solution for increased fuel prices, environmental factors. It's about how ABC focuses on other people's world.

Second principle of TIM is "The energy". This principle relate to human resource perspective of organizational processes. (Mahadevan, 2010) It describes employee commitment will depends on extent to which match people's jobs with their interests and energy. Highly committedemployees will automatically care for their customers and organization. ABC carries out human resource training in order to share the ABC way. Respect of people is more towards strengthening workers by allowing team work and commitment to education.

Third principle of TIM is "The intelligence". It provides a framework for turning idea in to action. In here every one involve in doing things better and different in order to delight customers. Further it ensures constant flow of ideas in to action with the purpose to improve revolutionize product, services, systems and procedures. Kaizen which means continuous improvement, quality circles implemented by ABCmake constant flow of ideas. Hybrid cars produced as a result of ideas generated in quality circles. And also ABC identified the difference between traditional process improvement and lean improvement. So the company created ABC production system which is native to the company. ABC's research and development contribute more on revolutionizes products and processes. In every year company held an internal technology exhibition in all divisions and company-wide technology exhibition. There are number of research and development results put in to action by R&D division. Those functional parts for use in fuel cells, non-contact power supply

technologies for use in clean logistics, super smooth coatings for inside car air-conditioning compressors and three dimensional fabrics reinforced composite technologies. Likewise R&D continue into new technology themes including automobiles, material handling equipment and electronic. (Mahesh, Gupta, 2008)

As well as there are many examples from ABC in product development. It has integrated powerful technology into products. ABC has established the basic elemental technologies needed to fix macromolecular fuel cells. And also ABC has developed recycling technology for rubber wastes generated in manufacturing and in post-consumer products. Hybrid synergy drive and planetary gear set are other improvements for product.

"The action" is the last policy of TIM .It is about establishes freedom within a framework. Employee empowerment within a framework is essential to create synergy within the organization. ABC give opportunity to make work related decisions. It empowers workers to trace product or service problems and redesign production processes to eliminate those weaknesses. As a result customer focused self-managed work teams can be developed which allows continuous improvement and continuous learning.

Conclusion and Recommendations

In conclusion, it would be fair to say that ABC already employs a very efficient and thorough operations management strategy and that to their credit they developed it themselves.

There are number of recommendations that can be made to improve ABC's operations strategy in order to gain better advantages than present. Company already deploys lean manufacturing principals in most of activities. And also there are waste management systems and continuous improvement techniques have deployed in order to increase efficiency. But ABC can deploy these techniques in combined manner.If the company can deploy lean manufacturing concept in conjunction with six sigma or other techniques it will create more efficient results in manufacturing.

As there are criticisms on this technique the six sigma system can be used alongside the lean manufacturing technique. As a result company can control waste management and quality with the same process and management team. This will not only save on waste and improve quality but will ensure that the operations management team itself is running things smoothly from one optimal point.

Kaizen is a quality management technique used by ABC separately. But this technique can link with other technique such as lean manufacturing. So it can be recommended that ABC can apply Kaizen along with the current lean manufacturing and six sigma. When considering the in human resource perspective Kaizen is a great motivational tool and ABC can increase productivity by increasing employee productivity in parallel to machine efficiency.When discuss about process innovation ABC need to integrate total innovation management principles more into their processes.

The recommendations made in this assignment will achieve tangible and testable success in the performance of the production of goods and services by the company, ABC.

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