

Analysis of Operational Decision Making: Evaluation of IMS Gear Georgia Inc.

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The objective of this analysis is to explore methods utilized to make operational decisions. The company being evaluated is IMS Gear Georgia Inc., a division of IMS Gear, the global experts in gear wheel engineering and gear systems. This company is being evaluated on its ability to manage areas of supply chain, inventory, quality, human resource and job design, process and capacity design, and maintenance. A thorough analysis of the critical decision-making areas will reveal a dynamic set of best practices implemented to effectively manage a company such as IMS Gear Georgia Inc. For the entirety of this work references made to IMS Gear should be understood to be a discussion of the practices of IMS Gear Georgia Inc. not to be discerned as a reflection of the company as a whole.

Supply Chain Management

Effectively choosing to make or buy a product can greatly influence a company's success. The two factors most crucial to consider are cost and quality. If the cost is lower to purchase an item or service and the quality meets the company's standards then the decision to buy could be made. At IMS Gear they believe that core competencies should be addressed first. If the creation of an item or service is within the core competencies of the company, and value can be added to the item or service, then the decision may be made to make the product or service. When determining this decision, quality is a key attribution that must be considered first and foremost.

In the case of a decision to buy something, a company must determine who to source from and the process to purchase. In this atmosphere the customer has the negotiating power and can demand where the supplies to produce their order comes from. When the decision to buy is made a company must ensure the supplier can produce the quality of product they require. If the supplier fails to meet the specifications established by the customer the supplier

is held responsible for the damages but the image of the company purchasing from the supplier may be tarnished.

If a company chooses to make a product themselves then the quality will be to their standards and the company can avoid giving a supplier the responsibility of production. Also if the decision is made to make a product, instead of buying it, the product can be perfected, changed, and adapted easily, especially if it is a core competency of the company. IMS Gear has chosen to establish a supplier development program to educate and share information to enable both the company and the supplier to improve.

To facilitate purchasing or making components, a channel of communication must be selected. Though there are varieties of communication methods, those used in E-commerce are today's most preferred. IMS Gear uses VMI to allow their vendors to regulate how much production is necessary. IMS Gear is implementing a new online ERP system. This new system will allow customers and suppliers to track production needs and fulfill those needs completely through EDI. This type of transmission is paperless and instantaneous which is highly beneficial to the company in cost savings and to sustainability of the environment. By utilizing this type of system the amount of time, labor, and resources necessary for the supply chain are reduced without a loss of quality or speed.

IMS Gear has rapidly changing requirements and will continue to have this attribute in the future because of their close relationship to the automotive industry. Because the automotive industry is constantly evolving due to innovation, it is very important to observe auto-trends for future sales. To ensure effective supply chain function in the future, IMS Gear follows a yearly business plan comprised of goals, production projections, and personnel planning. Each month the company evaluates the actual production and goal standings against the business plan. Each day the company does a DPR to verify progress with production,

capacity, and upcoming events. With these tools the company can focus on future requirements and ensure they are fulfilled.

As a manufacturing company IMS Gear must be concerned with sustainability on many levels. The shipping and receiving issues surrounding manufacturing can be difficult to make sustainable but IMS Gear has started using returnable containers in the spirit of becoming more sustainable. Using the returnable containers, the same box can be used to send and receive products and continuously reused for the life of the container helping operations managers drive down costs and preserve resources to be more environmentally friendly (Heizer, Render, 2009). As with many sustainable efforts the initial costs were high in comparison to conventional methods but the sustainable efforts regarding these containers are saving everyone that uses them money and helping the environment by reducing waste. The automobile industry is constantly changing to produce more sustainable vehicles because of regulations and company initiatives. As a result companies like IMS Gear that supply the automobile industry must change concurrently with sustainable progressions in that industry. By furthering these efforts and utilizing e-commerce IMS Gear is striving to become a more sustainable business now and in the future, and has a great outlook on continuing their business.

When a company has a highly specialized core competency Business Continuity Planning can be difficult. To lower the risk of business disruption concerning resource depletion a company can obtain supplier contracts to ensure those resources will be available. Beyond this safe-guard, insurance protection can further the life of a business during time of disaster. The company could also consider diversifying their customer base to extend beyond one industry although this may be a difficult process. In the case of IMS Gear they are directly influenced by the automotive industry and find markets in many areas of automotive

production but if the automotive industry became obsolete the likelihood of business continuity is severely reduced.

Inventory Management

Inventory management at any company is a highly intricate subject. IMS Gear uses a variety of procedures necessary for efficient and successful manufacturing. The view of inventory is on two levels at IMS Gear: finished goods (or parts), and raw materials.

When considering parts the company has an internal rule of maintaining 75% of the value of sales in inventory. This level of inventory is vital to the success of IMS Gear. Much of their clientele hold long-term contracts requiring regular systematic production orders. Their average inventory turnover for finished goods is between twelve and fifteen per year. The turn rate exceeds industry averages but IMS believes the higher rate is necessary to maintain a competitive edge and meet the needs of their customers. When considering raw materials IMS Gear holds 50% of the value of sales in inventory because, “the most expensive inventory is the inventory you don’t have when you need it (Emminger 2010).”

Reordering methodology is imperative to manage both aspects of inventory. One chosen method to determine when to reorder at IMS Gear is the Kanban system which is the means of carrying out and controlling in the Toyota Production System (Shingo, 1981). The Kanban system utilizes a predetermined inventory quantity that when is reached a signal to reorder. This type of signal is the ROP at which and order should be placed (Heizer, Render, 2009). Customer confirmed orders aid in the reordering process because this gives a predetermined amount of inventory needed at a predetermined time. To ensure inventory is managed effectively IMS Gear has instituted a few key methods of best practice, such as the balanced score card and a written report of the business unit on a monthly basis. The balanced score card helps by tracking monthly inventory changes and keeping track of financial data,

customer data, process, human resources and training. The written report is a required report to the parent company to encourage the business unit to analyze inventory. The parent company then analyzes all business units and ensures best practices are used within the business units. In the next five years IMS Gear could be highly reliant upon VMI through EDI to manage inventory associated with production requirements. Using technology in this manner will allow the communicating companies to become more sustainable and be more cost effective in the future. A realistic goal for the next ten years may include the implementation of RFID to track the location of inventory along every step of the supply chain and make automated bookings.

Managing Quality

Quality comes in many forms but is an essential role in any type of business. Companies must consider the implications of quality discussed by Heizer and Render (2009) regarding the effect of quality on company reputation, product liability, and global implications. Though there are many standards for quality with different names and practices, a company must choose which one best suits their needs or the needs of their industry. In the case of IMS Gear the ISO/TS 16949:2002 standard is the required form of quality management. ISO/TS 16949:2002 is an ISO Technical Specification that represents a comprehensive quality management system for the global automotive industry to achieve world class levels of product quality, productivity, competitiveness and continual improvement (Karthan, 2010). IMS Gear as a supplier to the automotive industry is required to have this certification. To have an effective global presence this certification is necessary because it was developed to be “recognized globally,” and “eliminates the need for having multiple certifications (Karthan 2010).” Having one comprehensive set of standards enables an organization to focus directly on a specific set of requirements and build them into their business and core competencies.

Following this mentality allows a company like IMS Gear to “focus on the development of a global management system that provides for continual improvement, emphasizing defect prevention and the reduction of variation and waste in the supply chain (Karthan 2010).” The North American divisions of IMS Gear are required by NAFTA to be in compliance with these standards. This requires a common understanding of quality and an implementation of a quality system between the business units. This contingency requires all units to work together in their strive to continually improve and produce high quality products.

Throughout organizations, managing quality lies on the shoulders of everyone within the company. Certain positions can be created to oversee quality management, but if every member of the team is not working together to develop quality then the optimal level cannot be reached. IMS Gear uses Internal Quality Issue reports to catch quality issues before they become disastrous. If a defect is suspected an IQI is completed and the area or part in suspect is given a red tag until a thorough investigation is completed and the issue is resolved. To minimize the affect of an issue every employee at IMS Gear has the authority to shut down production immediately without prior consent. The company uses the *Stop, Check, Report, Act, Prevent* method (referred to as SCRAP) as part of the IQI system to quickly eliminate quality issues before they go any further through the supply chain. To protect the value stream, Advanced Product Quality Planning or APQP is used. This procedure enables companies to plan ahead with their customer’s quality standards in mind. By defining these requirements before production begins continuous improvement can be made instead of adjusting to customer requirements during production. Using APQP results in less work, less time, and less scrap material, which adds value to the process. Quality is added in the value stream by checking quality along the way. A procedure used at IMS Gear is the Initial Sample Report

along with a defined range of process checks from APQP to ensure value is added and protected.

Human Resource and Job Design

Regardless of the type of industry human capital is by far the most important and difficult asset to manage. Each company must perfect a competency with human resources and job design. IMS Gear attributes their human resources knowledge to years of internal industry experience. The company focuses the requirements from a production stand point and then determines who, how, and how many people will be needed to do the job. When making this determination, deciding if a job should be completed by automation or by a human is a modern application that must be considered. Monitoring Organizations help to guarantee employee and job safety. OSHA plays a demanding role in ensuring companies develop a safe work environment and maintain safety standards. IMS Gear also performs monthly internal audits to ensure the absolute best working conditions are provided for employees. After a safe work environment is established the output expectations of employees must be established. Work studies are the best method for IMS Gear to evaluate how much and how well an employee can be expected to perform. These work studies are carried out during the job design process to establish a list of acceptable practices.

Job processes are designed with the employee in mind. Employees are studied doing their tasks in every aspect and initiatives to improve the process and reduce strain on the employee are implemented. The layout of machinery and workstations are also evaluated to ensure the highest level of ergonomics is available. Following a well designed work setting a stable production calculation is made to determine how much can be expected out of the employee in the environment provided. Once employee requirements are established further education for the employee may be necessary to stay ahead of new developments in the supply

chain. Every employee receives internal training at IMS Gear which includes monthly quality training. For some types of training companies must go outside their walls. Some of these forms of external training are administered by suppliers of machinery to help employees better understand how the machine operates.

To determine if employees are performing at the level expected and identify any training needs. IMS Gear uses several evaluation methods. IMS Gear's TS 16949 quality certification requires a yearly evaluation and in this evaluation job performance is critiqued and improvement suggestions are made. IMS Gear has their own internal evaluation of employees to ensure predetermined goals are being met and to keep employees focused on progress. These methods are a necessity internally but additional methods are required for international business. The international aspect of business is a difficult task to manage effectively. IMS Gear has embraced the international aspect of business by having business units across the globe in Germany, The United States, Mexico, and China. With this type of cross-cultural business activity some precedents must be formed company wide while others must be specific to their region. Once a company makes a determination on international business and obtains a global presence furthering production in other areas becomes less challenging. IMS Gear effectively embraces and manages the international aspect of business and will likely continue to do so and grow in the future.

In the next five years IMS Gear could easily continue to grow their company and further diversify their global presence. In addition to new facilities, more automation and robotics technology will likely be utilized to ensure a level of quality beyond standards that a human could evaluate. Within ten years IMS Gear may be producing components for automobiles that have not even been conceptualized by the automotive industry as of now. This could entail a shifting of production to allow the company to diversify the types of products it makes to meet

the needs of the ever changing automotive industry. By this date it is possible that the vast majority of procedures will be carried out electronically by software and machines which would limit room for error from an employee. This is not to suggest employees will not be needed. Employees will still be a necessity to facilitate and oversee production and the technology associated with production as well as managing customer service interaction. As shifts to automation occur a job rotation will be possible in which employees will move from one specialized job to another and job enrichment will allow employees to take on more responsibility that may involve planning and controlling (Heizer, Render, 2009).

Process and Capacity Design

Capacity planning at IMS Gear is primarily determined by customer releases and forecasts before production. In this equation a decision that must be made is between making the part by hand or by automation. After determining how the process will be completed the profit margin must be evaluated to determine if the job is of value to the company. If the job is valuable to the company the amount of times the process can be completed and the machine and inventory availability must be evaluated. All assumptions cannot be made blindly with how much and when to produce because the reliability of the customer's forecast of production and the reliability of the process must be assessed as mentioned in the capacity considerations discussed by Heizer and Render(2009). To evaluate equipment and technology needs the overall capacity must be determined. The need to purchase new equipment or technology must be considered. After machine decisions are made then a company must decide when to begin production, how long to produce, and how much capital and maintenance are necessary to run the production.

As mentioned earlier, the sources to obtain the necessary materials for production are typically established by the customer because of their personal preference or affiliation.

Supplier audits are carried out at IMS Gear to ensure quality, process, and capacity expectations are being met by their suppliers. Supplier quotes and contracts enable companies to determine how much to produce and how much cost will be incurred. In addition to rules and requirements established between companies, outside requirements are present. Some outside requirements companies have to abide by include laws, subcontractor capability, and customer forecasting

Maintenance

Assigning maintenance responsibilities and schedules are critical to ensuring efficiently functioning equipment. IMS Gear developed a maintenance department within their organization more commonly termed the “tool shop.” Two key maintenance requirements at IMS Gear include maintenance on automation and facilitating maintenance schedules. Some preventative maintenance measures used are listed in a maintenance schedule which provides a specific number of uses before a tool or operation needs to be evaluated, repaired, or replaced. Maintenance schedules are formulated for every aspect possible in the supply chain and describe when maintenance should be carried out. If an issue or failure is present before the scheduled maintenance is necessary a maintenance technician must be ready to spring into action and repair the problem this manages preventative maintenance and breakdown maintenance which are the maintenance requirements outlined by Heizer and Render (2009). Total Productive Maintenance principles are followed in some organizations without using that specific terminology but many companies feel equipment improvement must involve everyone in the organization, from line operators to top management (Nakajima, 1989). IMS Gear recognizes that maintenance is something that every employee throughout the company should do their part in to ensure preventative maintenance is done and necessary maintenance is carried out when a repair is necessary. Having each member of an organization involved in

maintenance allows an operator to perform basic maintenance on their own equipment and develop the ability to detect potential problems before they generate breakdowns (Nakajima 1989). From cleaning the floor to prevent a fall to recalibrating a machine to output correctly, maintenance is essential to keep the supply chain in good working order.

Conclusion

High profile organizations and operational terminology are often involved in operational decision making but are not required for a company to be successful. In this analysis some cutting edge technology and systems have been mentioned but are by no means a requirement to manage a successful organization just what works best to make IMS Gear Georgia Inc. a success.

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