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MGT550: *Managing Operations*

Module Assignment: Operational Procedures & Guide

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Operational Procedures

Green Tractor is a company that assembles tractors. Over time, it has been recording declining growth hence the need to streamline its operations. Operations in a business entail the activities that a business engages in to convert inputs to outputs that a consumer can use. Operations management is a crucial function of a business. It enables a business to operate efficiently on a day-to-day basis.

Furthermore, operations management is essential in ensuring a business is profitable and grows organically. Operations entail three crucial elements; inputs, transformation processes, and outputs. This paper will analyze the various ways Green Tractor can improve on how it gets its inputs, the transformation processes, and how it effectively handles the outputs. Therefore, the recommendations on how to streamline its operations will be divided into three segments.

Improving Input Processes

As an industrial tractor company, Green Tractor has several inputs. These inputs include labor, energy, and raw materials. For Green Tractor to operate efficiently, it needs to cut down the waste in the inputs, come up with cheaper alternatives without compromising on quality, and use green sources of energy to ensure it is sustainable.

Demand Management

Demand management is necessary for Green Tractor to determine the appropriate quantity of raw materials to the source. Demand management evaluates current product demand trends to help forecast the possible demand and maintain an appropriate inventory (Feng & Shanthikumar, 2018). If the company sources fewer raw materials, it will end up having shortages hence disappointing customers and losing its market share. On the other hand, if the company sources more raw materials and makes more tractors than it can sell, they risk having a dead inventory. The excess

stock holds up the business capital. Additionally, the business will incur more costs to hold the dead stock through expenses like storage, labor, and insurance on the goods (Nnamdi, 2018).

Therefore, Green tractor should use integrated business management systems that link different functions of the business, like sales and finance, to ensure they come up with optimal stock levels.

Streamline software is an example of a business management system that the company should use.

The software uses data from different functions of the business to assess the demand and forecast the quantities the company should produce (Stadtler et al., 2015). As a result, the Green tractor will order the necessary raw materials, reducing the wastage that arises from overstocking and the risks that arise from understocking.

Energy

For a company that makes tractors like Green Tractor, energy is a crucial input to the operations of the business. Furthermore, how the company sources and uses its energy determines the company's operational and social costs. Social costs are the implications the business subjects society to through its operations. For instance, pollution is a social cost. Therefore, in line with the energy input, the green tractor should use an energy usage plan to cut down energy wastage. Instances like leaving lights on when not in use or leaving machinery on when not in use are sources of energy waste. The wastage reflects in the business costs, making the business less profitable and restricting its growth (Phillips & West, 2022). Therefore the energy-saving plan for the operations should ensure there is an individual responsible for certain sections of the buildings and infrastructure. The employee's responsibility will be to frequently assess whether there are lights left on while not in use or machinery that is left on while not in use. Furthermore, there should be tough disciplinary actions for employees who engage in such activities that lead to power wastage.

Faulty types of machinery are another source of energy wastage. Green Tractors should set up frequent inspection and repair plans for their machinery to ensure they operate optimally hence no power wastage (Ellacott, 2022). The third recommendation is using transitioning to renewable energy sources. Since an instant transition might be costly, the company should start by implanting a hybrid system. For instance, installing solar panels will power half of the company. As the company generates more revenue, it should add more renewable energy sources and eliminate non-renewable sources. Non-renewable sources of energy are not only expensive to operate, but they are also harmful to the environment (Kåberger, 2018).

Labor

The third crucial input in Green Tractors Company is labor. Streamlining the operations of labor will enable the company to minimize wastage and generate more revenue as it grows. Possible sources of ineffective labor management that lead to poor operations of the company include understaffing, overstaffing, hiring incompetent employees, and poor shift management.

Green Tractors Company should develop an employee routine management plan to improve its operations. The employee routine management plan will enable it to allocate employees shifts that will enable them to maximize their potential (Martins, 2022). Furthermore, employee routine management will enable the company to identify whether it is understaffed or overstaffed. If it has more than needed employees, it should lay off others to reduce the wastage of resources and bureaucracy that results from overlapping responsibilities of the employees (Rubatt, 2021). On the other hand, if it is understaffed, it should conduct a recruitment process to hire new employees.

In the quest to improve labor as an input for the processes in Green Tractor, the company should overhaul its recruitment procedures. The recruitment process should be effective to ensure the company hires talented and skilled employees who will operate effectively. Some strategy the

business can incorporate to improve its recruitment process is improving diversity. Diversity in the workforce entails having employees with different characteristics and different backgrounds. A diverse workforce is more creative compared to a homogenous workforce (Joseph R. & Selvaraj, 2015).

Research and Design

Before a company engages in the mass production of a product, it has to conduct the research and design process to ensure they understand the consumers' needs and manufacture a product that meets the needs. Failure to conduct the research and design process places a company at risk of producing a product and failing to sell it since it does not meet consumer needs. Consumers' needs are also dynamic and subject to change as technology adjusts (*Integrating design and manufacturing for competitive advantage*, 2021). Therefore, it is necessary for Green Tractor to come up with a research and design team and task it with the responsibility of researching the market needs frequently and adjusting designs subject to the change in consumer needs. Engaging in this process will give Green Tractor a competitive advantage hence an increase in sales. Consequently, the process will facilitate the growth of the company and ensure it comes up with designs that are sustainable.

Transformation Processes

As an industrial tractor builder, the transformation processes of Green Tractor entail assembling the different parts to come up with a tractor as the end product. Therefore, the transformational processes of Green Tractor primarily entail the manufacturing process. The company should come up with risk management processes to ensure the transformation processes are effective.

Risk Management Processes

The manufacturing processes in Green tractors have several risks that can impact the business negatively. These risks can lead to loss of life and injury, loss of revenue, and loss of property. The risk management process entails the identification, assessment, and mitigation of various sources of risk (Smith & Merritt, 2020). By coming up with effective risk management processes, Green Tractor will be able to operate optimally on a day-to-day basis. On the other hand, failing to have a risk management process can cripple all other processes once an incident happens. For instance, a fire in the manufacturing plant can injure and kill employees, lead to loss of property and cripple the business processes. Having a risk management process will enable the company to identify such a risk, assess its likelihood of happening and set up mitigation strategies like fire insurance, fire extinguishers, and employee evacuation procedure (Evi, 2022).

Time Management

Time management is an important area in the processes associated with a manufacturing company. Effective time management ensures all processes are carried out in a timely manner to fulfill the needs of different stakeholders. Time management entails the scheduling of processes, forecasting the time needed for different processes, and frequently evaluating progress. Green Tractor should use tools like the Gantt chart to schedule its processes. The chart will enable the management to schedule different processes and evaluate the progress hence optimizing the available time in the company (Tonchia, 2018). In conclusion, the company can streamline its manufacturing processes through effective time management strategies.

Communication

The overlap between manufacturing processes and other functions of the business, like marketing, distribution, and supply, calls for constant communication. A business has to operate as a team

and communicate effectively to ensure processes run smoothly. Communication entails the exchange of information from one party to the other (Rosemann & vom Brocke, 2014).

Green Tractor Company should improve its communication strategies to ensure it streamlines its operations. The employees in the company should maintain timely, clear, and precise communication with each other. Furthermore, the company should switch to modern channels of communication to enhance information management.

Reducing Wastage through Lean Management

Some processes in a business lead to a waste of resources and revenue. The processes hinder the growth of a company to its full potential (McLaughlin, 2019). For instance, a product that comes out of the production line as faulty cannot be sold to the customer since it does not meet the customer's specifications. Therefore, the product is considered waste. Green Tractor can mitigate such wastes by introducing a functional quality control department. The duties of the quality control department will be assessing the quality of the materials and processes that the company engages in as it produces the product. Therefore, engaging in the quality control process will protect the business from avoidable wastages that result from defects.

Another source of wastage is faulty machinery in the manufacturing process. A faulty machine consumes more energy and does not produce optimum output (Gay, 2022). Therefore, the machine not only leads to a waste of resources like energy but also a wastage of time. Green Tractor should ensure it services its machinery frequently to guarantee maximum and efficient output from the machinery. Additionally, Green Tractor should focus on recycling material that can be recycled. Recycling material that could have been discarded as waste enables the company to operate in a sustainable manner by not polluting the environment (Lawson, 2018). For instance, it can use waste plastic from the company and mold it into plastics than can be used in tractor parts.

Assembly Processes

The manufacturing process in Green Tractor involves the assembly of several parts to come up with the final product, a tractor. Streamlining this process will enable the company to grow and reduce pollution. One of the ways the company can streamline the assembly processes is by using robotic machinery and artificial intelligence to assemble (Chouffani, 2019). For instance, BMW, Mercedes, and GM car manufacturers use co-bots to streamline their assembly process (Daley, 2019). The co-bots are collaborative robots that work alongside humans to fasten the assembly process by helping the workers in handling materials, packaging, and inspecting the quality. Once Green Tractor implements the use of co-bots, it will gain a competitive advantage in the market by having the capacity to produce more tractors. Therefore, the high capacity output will help generate more revenue for the company.

Output Processes

In a manufacturing company, the end product that meets the customer's needs is known as the output. The output of Green Tractor Company is a finished tractor. There are several processes involved in handling the output and ensuring it gets to the customer. These processes include sales and marketing processes and inventory management processes.

Sales and Marketing Processes

These processes entail advertising the product to the seller and convincing them to buy it. Sales and Marketing is a process that happens on a daily basis and is capable of influencing the product's demand. Therefore, Green Tractor has to improve its sales and marketing processes to ensure it increases its sales. The company should make use of digital marketing strategies like the use of social media platforms and digital advertisers to advertise the product. For instance, if Green Tractor uses Google Ads to advertise the tractors, the advertisement conversion rate will be high

hence generating more sales and revenue for the company. Digital advertisers like Google Ads use algorithms that enable them to display an advertisement to an individual who is likely to purchase the product through assessing their personal data (Lawson, 2022). Therefore, the advertisements land on the target market compared to conventional forms of advertisements like billboards.

Green Tractor should also implement after-sale services to ensure they increase customer satisfaction after-sale services increase customer retention, and loyalty (Othman et al., 2020). Furthermore, a satisfied customer is a free form of advertising. Green Tractor can improve after-sale service by implementing processes like a free consultancy to individuals who have bought tractors from the company. They can also create an interactive online forum to follow up on those who bought tractors from the company.

Inventory Management Processes

Inventory management processes entail tracking a product from the moment it is manufactured to the moment the customer receives it (Wild, 2017). One of the processes is the movement of the products from the manufacturing plant to the storage warehouse and display showrooms. In the Green Tractor company, how the company transports the tractors does not add value to the customer. However, the transportation process is capable of increasing the company's carbon footprint and increasing the cost of production. Therefore, Green Tractor should ensure it uses cost-effective transportation options when moving the tractors. For instance, moving the tractors in bulk instead of hiring movers for individual trucks. Additionally, the company should streamline the inventory management process by coming up with strategic showroom locations. The strategic showroom location should meet the criteria of being easily accessible by customers and easily accessible by delivery trucks from the manufacturing plants.

Another element of the inventory management process that Green Tractors should streamline is order placement. A customer should be able to place an order without challenges. Furthermore, the company should process the order quickly and transfer the ownership of the tractor to the customer (Wild, 2017). If the order placement and order processing is full of hiccups, the company will hardly grow since most of its customers will move to rival companies. Additionally, the company should also implement environment-friendly inventory management techniques like having a paperless system. Papers are made of wood; hence companies that use them directly encourage the cutting down of trees. Green Tractor Company should replace the paper system with online receipts that are not harmful to the environment.

Socially Responsible Guide for Pollutants

Green Tractor Company is a tractor maker that has some processes that pollute the environment. Polluting the environment during production is a negative externality that is passed to the neighboring community. Therefore, Green Tractor is responsible for ensuring it minimizes or eliminates the pollutants in its processes to protect the community where it operates. Effectively mitigating pollution enables the company to maintain a positive relationship with the neighboring community hence improving the company's brand image. There are several industrial waste management guidelines in Indonesia that guide how industries should manage their waste. This socially responsible operational plan is based on the laws and regulations around waste management in Indonesia. Furthermore, green alternatives to traditional manufacturing processes are recommended at the end of the operational plan.

Article 10

In article 10 of the 2025 Clean-from-Waste Indonesia plan, the government set a regulation requiring all persons and companies to effectively manage their waste by reducing their total waste,

recycling, and reusing their waste (Bahagijo, 2022). The Green Tractor Company should adhere to the regulation by making several adjustments to its operations.

One of the strategies the Green Tractors can implement is initiating a buy-back program for its old tractors that are subject to disposal. Instead of increasing the overall waste in the environment by letting customers dump old and broken tractors in the yard, the company can buy them back and recycle some of the material. This program will create a closed-loop system whereby the company's production line entails recycling of materials hence reducing the overall waste disposed to the environment.

Articles 12 and 13

Article 12 and 13 of the 2025 Clean-from-Waste Indonesia plan requires companies to limit the production of waste and encourage recycling through a support program (Bahagijo, 2022). Green Tractor Company can meet the waste management guideline by implementing going paperless on their processes. The paperless approach entails the elimination of paperwork like placing an order on paper, issuing paper receipts, and sending paper mail. Going paperless will enable the company to reduce its total waste output.

Regulation 101 of 2014

Regulation 101 of 2014 regarding waste management in Indonesia states that a company should collect, store and manage its hazardous waste (Bahagijo, 2022). Being a tractor manufacturer, Green tractor has a wide range of hazardous wastes. These wastes include used oil, chemicals from engines, chemicals from battery components, and fuel. Therefore, it is Green Tractor's responsibility to ensure it collects and manages its waste. It can employ techniques like thermal disposal whereby it burns some of the material hence turning them into disposable material. Additionally, it can employ the use of underground landfills to dump some of the hazardous waste.

Corporate Social Responsibilities

Other than managing the output and disposal of waste materials in the plant, Green Tractor Company should also engage in corporate social responsibilities as a way to do good to the community due to the pollutants generated from the manufacturing processes. These CSRs should primarily be focused on improving the environment. For instance, the company should actively plant trees in the neighborhood. It should also engage in cleaning the environment by collecting garbage and recycling some of the materials hence reducing pollutants in the neighborhood.

Green Alternatives

Green Tractors Company should implement several green alternatives in its manufacturing process to decrease its carbon footprint and decrease overall pollution. These green alternatives include switching to renewable sources of energy, introducing biodegradable packaging, and investing in research and development for electric tractors.

Renewable Sources of Energy

One of the major sources of pollution in a manufacturing company is the energy it uses to operate the plants. Green Tractors should transition from non-renewable energy to renewable sources of energy. Renewable sources of energy include solar energy. The company should invest in setting up solar panels in the plant to act as a source of energy. Other than using solar energy as a source of energy, it can also redesign its building windows and roofs to create space for more natural light to get in. Therefore, during the day, the company will be using sunlight as the source of lighting. Using sunlight as the source of light not only offers a green alternative but also helps the company cut down on the cost of energy (Kannan & Vakeesan, 2016).

Using Biodegradable Material

During the manufacturing process, some of the materials Green Tractor uses are harmful to the environment. One of the materials is polythene, which packages things. For instance, in a new tractor, the seats are covered by nylon, and the manuals are placed in a plastic bag. The company should replace plastic packaging with biodegradable material that does not pollute the environment (Zhong et al., 2020). In some instances, it can totally do away with the pollutant plastics.

Replacing the Transport Fleet

Some processes in the manufacturing process require the use of motor vehicles. Internal combustion vehicles pollute the environment by emitting harmful gases (Ferrero et al., 2016). As part of changing the manufacturing processes to green, the Green Tractor company should change its fleet from internal combustion vehicles to electric vehicles.

Replacing the Plant Machinery

Some machinery in the manufacturing plant uses internal combustion engines to operate. For instance, forklifts and cranes. Green Tractor Company should replace these machinery with electric versions of them that have zero emissions. This move will enable the company to reduce its carbon footprint hence making the business environmentally sustainable.

Invest in Research and Development

Due to the high rate of carbon footprint left by internal combustion engines, most vehicle manufacturers have been designing electric motors that will run the vehicles. The electric motors have zero emissions hence no air pollution. The Green Tractor company should invest in setting up a Research and Development department (R&D). The scope of the R& D will be researching an electric motor for a tractor. Over time, the R&D team will test the various possible designs to come up with an effective electric motor that will run the tractor. Redesigning the internal

combustion tractor to a zero emissions tractor will be a huge stride towards replacing the manufacturing processes with green alternatives.

Conclusion

The inefficiencies in Green Tractor Company's operations have played a significant role in its declining growth. Furthermore, those inefficient processes have led to the wastage of resources hence affecting the company's capacity to produce optimally and generate more revenue. The recommendations, which are divided into three segments of operations; input operations, transformational processes, and output processes, will help the company streamline its operations. Furthermore, the recommendations on managing waste from the manufacturing process have aligned with regulations in India to ensure the company reduces and disposes of waste in a socially responsible manner. Lastly, the operational guide has recommended green alternatives to the current operations in the manufacturing process.

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