COVER PAGE AND DECLARATION

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Student's Full Name:	Basheer Mohammed Yousef Mohammed Hasan
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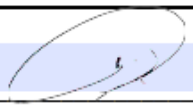
E-SIGNATURE: 

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EIU Paris City Campus
Address: 59 Rue Lamarck, 75018 Paris, France | **Tel:** +33 144 857 317 | **Mobile/WhatsApp:** +33607591197 | **Email:** paris@eiu.ac

EIU Corporate Strategy & Operations Headquarter
Address: 12th Fl. Amarin Tower, 496-502 Ploenchit Rd., Bangkok 10330, Thailand | **Tel:** +66(2)256923 & +66(2)2569908 | **Mobile/WhatsApp:** +33607591197 | **Email:** info@eiu.ac

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Module Assignment: Operational Procedures & Guide

1. Introduction:

In business, operations refer to the day-to-day activities that a company undertakes to produce and deliver its products or services to customers. These activities can encompass everything from sourcing raw materials and managing inventory to producing goods, managing logistics and delivering them to customers, and providing customer support.

Effective operations management is critical for the success of a business, as it can help companies optimize their resources, reduce costs, and improve the quality of their products or services. This can lead to increased customer satisfaction, greater market share, and improved profitability.

Operations management involves a wide range of activities, including:

1. Supply chain management: ensuring that the materials and resources needed to produce goods or services are available when and where they are needed.
2. Production management: overseeing the production process to ensure that products are manufactured efficiently and to the highest possible quality standards.
3. Logistics management: managing the movement of products from the factory or warehouse to the customer, including transportation, storage, and distribution.
4. Customer service management: ensuring that customers receive prompt and effective support when they have questions or concerns about products or services.

To succeed in operations management, businesses need to adopt best practices in areas such as lean manufacturing, Six Sigma, and supply chain optimization. They also need to invest in technology and tools that can help them manage their operations more effectively, such as enterprise resource planning (ERP) systems, customer relationship management (CRM) software, and logistics management platforms. Overall, effective operations management is essential for any business that wants to thrive in today's competitive marketplace.

It appears that The Big Green Tractor is an industrial tractor company that is located in Palembang, Indonesia. An industrial tractor is a type of heavy equipment that is commonly used in agriculture, construction, and other industries to perform tasks like plowing, excavating, and hauling. The Big

Green Tractor designs, manufactures, and/or sells industrial tractors to customers in Indonesia and potentially in other markets as well.

However, it is clear that the company is facing declining growth and is looking to streamline its operations to become more efficient. This suggests that the company is actively working to address its challenges and position itself for long-term success.

Overall, by implementing the below procedures and other environmentally friendly strategies, The Big Green Tractor can reduce its impact on the environment while also potentially improving its operational efficiency and reducing costs. This can help the company to position itself as a leader in sustainable manufacturing and attract environmentally conscious customers.

2. **An operational industrial streamline procedural guide that will help the Big Green Tractor from start to finish with their productions:**

Here's an operational industrial streamline procedural guide for Big Green Tractor to improve their manufacturing process while reducing costs and minimizing defects, and incorporating 21st century tools for a greener process:

Step 1: Identify the Current Manufacturing Process: The first step is to evaluate the current manufacturing process to identify areas where improvements can be made. This may include analyzing the use of materials, labor, and equipment, as well as identifying any bottlenecks or inefficiencies in the process.

Step 2: Introduce Lean Manufacturing Principles: Introducing lean manufacturing principles can help reduce costs by eliminating waste and improving efficiency. This may include implementing strategies such as just-in-time production, continuous flow manufacturing, and visual management.

Step 3: Implement Quality Control Processes To minimize defects, it is important to implement quality control processes throughout the manufacturing process. This may include conducting regular inspections, using statistical process control, and developing a culture of continuous improvement.

Step 4: Incorporate 21st Century Tools Incorporating 21st century tools can help Big Green Tractor create a greener process. This may include using renewable energy sources, such as solar or wind power, to power the manufacturing process. Additionally, using digital

tools such as artificial intelligence, robotics, and automation can help reduce waste and improve efficiency.

Step 5: Train Employees To ensure that the new manufacturing process is successful, it is important to train employees on the new procedures and tools. This may include providing training on lean manufacturing principles, quality control processes, and 21st century tools.

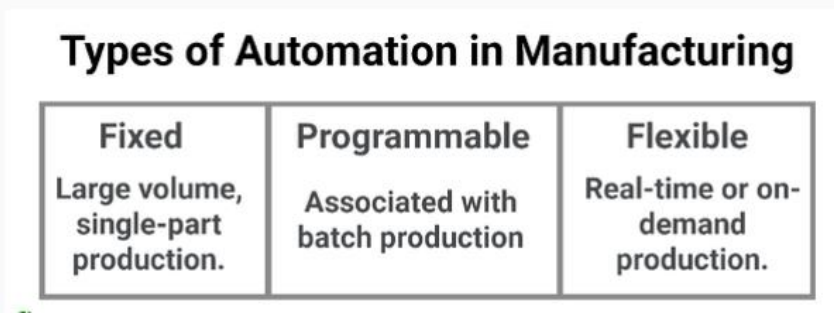
Step 6: Monitor and Evaluate Once the new manufacturing process has been implemented, it is important to monitor and evaluate its effectiveness. This may include tracking key performance indicators, such as cost savings, defect rates, and production efficiency, and making adjustments as necessary.

By following these steps, Big Green Tractor can improve their manufacturing process, reduce costs, minimize defects, and incorporate 21st century tools for a greener process.

2.1 The more cost-efficient manufacturing processes.

To reduce material costs, The Big Green Tractor could consider implementing several strategies. Here are a few possibilities:

1. **Optimize the supply chain:** As mentioned earlier, optimizing the supply chain can help to ensure that materials are available when and where they are needed, which can reduce material costs. The company could work to optimize its supply chain by identifying inefficiencies and bottlenecks and implementing strategies to address them, such as sourcing materials from different suppliers, negotiating better prices with suppliers, and using just-in-time (JIT) inventory management techniques.
2. **Automation:** Automation is being increasingly used by manufacturers to improve precision, consistency, and operational efficacy. Know your goals first. It is simpler to align a goal with a solution the more specific the goals are. Although general, goals like increasing production indicate that you must be aware of production's influences. It is simple and quick to incorporate sensors and devices that monitor equipment and produce data, graphics, and other user-friendly output. will connect production lines and provide additional advantages:
    a. Reduce downtime
    b. Provide predictable maintenance
    c. Improve decision making



3. **Reduce waste:** Waste can be a significant cost for manufacturing companies, so reducing waste can help to reduce material costs. The company could work to reduce waste by implementing lean manufacturing practices, such as value stream mapping, 5S, and Kaizen, to identify and eliminate waste in the production process.
4. **Establish a schedule for preventive maintenance:** When a machine breaks down in the middle of a production run, it causes unnecessary delays in your manufacturing process and costs you more money to fix. As the saying goes, it's better to be safe than sorry. So, a schedule for preventive maintenance that lets you do regular maintenance can keep your machinery from breaking down unexpectedly and keep your production process running smoothly.
5. **Explore alternative materials:** The company could explore alternative materials that are less expensive than its current materials. This might include using recycled materials or finding more cost-effective alternatives that still meet quality standards.
6. **Negotiate better pricing:** The company could negotiate better pricing with its current suppliers by leveraging its buying power or exploring partnerships with suppliers that offer discounts or other incentives.

The Big Green Tractor can reduce its material costs and become more competitive in the marketplace. However, it is important to balance cost reduction with maintaining quality and meeting customer needs.

2.2 A through plan to minimize defects throughout the manufacturing process

To minimize defects throughout the manufacturing process, The Big Green Tractor could consider implementing a thorough plan that includes the following steps:

Step 1. **Identify & Audit potential defects:** The first step is to identify the potential defects that can occur in the manufacturing process. This can be done by analyzing past production data, conducting a Failure Mode and Effects Analysis (FMEA), or using other

quality control tools. Since ISO 9001-2015 certification provides importers with some assurance of production capabilities and quality control procedures, many prefer to work with suppliers with this certification. However, just because a factory possesses an ISO 9001 certificate does not imply that they are actually putting the standard's practices into practice. steps to avoid quality problems A quality audit, also known as a supplier review, is a methodical look at a factory's quality management system (QMS), usually in relation to ISO 9001 standards.

Step 2. **Set quality standards:** Once the potential defects have been identified, the company should set quality standards that outline the acceptable level of defects. This can include setting specifications for the dimensions, weight, appearance, and functionality of the product.

Step 3. **Train employees:** Employees should be trained on the quality standards and the steps they can take to prevent defects. This might include training on proper assembly techniques, inspection procedures, and quality control measures. including determining whether employees are educated about specific defects related to their roles in employee training.

Step 4. **Implement quality control measures:** The company should implement quality control measures throughout the manufacturing process to prevent defects. This can include visual inspections, statistical process control (SPC), and other quality control tools. It is time to make adjustments to your quality control procedures after employees, customers, and automated data provide feedback on them. Quality control typically reveals the areas that need improvement and how even small changes can have a significant impact, regardless of how well your operations are running.

Step 5. **Conduct testing and inspection:** The company should conduct testing and inspection at various stages of the manufacturing process to identify and correct defects. This might include testing the raw materials, conducting in-process inspections, and performing final product testing.

Step 6. **Continuous improvement:** Finally, the company should continuously monitor and improve the manufacturing process to reduce defects over time. This can include analyzing data, soliciting feedback from customers, and implementing process improvements based on this information. In the manufacturing sector, continuous improvement refers to an integrated strategy in which product, process, and service development are monitored with the goal of continuously improving them. Continuous Improvement, taken a step further,

focuses on linear, incremental improvement within a single process. One of the greatest figures in the manufacturing industry of the 20th century was largely responsible for developing the procedure.

By implementing these steps, The Big Green Tractor can develop a comprehensive plan to minimize defects throughout the manufacturing process. This can help to improve product quality, increase customer satisfaction, and reduce costs associated with defects and returns.

2.3 The use of 21st century tools to create a greener process.

To create a greener manufacturing process, The Big Green Tractor could consider implementing 21st century tools and technologies that can help to reduce waste and minimize the environmental impact of its operations. Here are a few possibilities:

1. **Internet of Things (IoT) sensors:** IoT sensors can be used to monitor the manufacturing process in real-time, providing data on energy usage, water consumption, and other environmental factors. This data can be used to optimize the manufacturing process, reduce waste, and minimize the company's environmental impact.
2. **Automation and robotics:** Automation and robotics can help to reduce waste by optimizing the manufacturing process and reducing the likelihood of errors or defects. This can help to reduce the need for rework, which can in turn reduce waste and minimize the environmental impact of the manufacturing process.
3. **3D printing:** 3D printing can be used to create prototypes and parts on-demand, reducing the need for excess inventory and waste. This can help to minimize the environmental impact of the manufacturing process by reducing the amount of raw materials needed.
4. **Renewable energy sources:** The company could consider using renewable energy sources, such as solar or wind power, to power its operations. This can help to reduce the company's reliance on fossil fuels and minimize its carbon footprint.
5. **Green chemistry:** The company could use green chemistry principles to reduce the use of hazardous chemicals in the manufacturing process, and to develop products that are more environmentally friendly.

By leveraging these and other 21st century tools and technologies, The Big Green Tractor can create a greener manufacturing process that reduces waste, minimizes the company's environmental impact, and improves its bottom line.

3. **Developing a socially responsible operational guide for the Big Green Tractor for their pollutants**

To develop a socially responsible operational guide for pollutants, The Big Green Tractor could consider implementing the following steps:

1. **Conduct a pollution assessment:** The first step is to conduct a pollution assessment to identify the sources of pollution and the environmental impact of the company's operations. This can help to identify areas where improvements can be made.
2. **Set pollution reduction targets:** Based on the results of the pollution assessment, the company should set pollution reduction targets that are aligned with its overall sustainability goals. These targets should be specific, measurable, and time-bound.
3. **Implement pollution reduction measures:** The company should implement pollution reduction measures to meet its targets. This might include reducing energy usage, improving waste management practices, and using environmentally friendly chemicals in the manufacturing process.
4. **Monitor and report on progress:** The company should monitor and report on its progress toward its pollution reduction targets. This can help to identify areas where additional improvements are needed and demonstrate the company's commitment to sustainability to stakeholders.
5. **Engage with stakeholders:** The company should engage with stakeholders, including employees, customers, and the local community, to build support for its pollution reduction efforts. This might include hosting educational events, providing regular updates on progress, and soliciting feedback from stakeholders.
6. **Continuous improvement:** the company should continuously evaluate and improve its pollution reduction efforts over time. This might include implementing new technologies, exploring alternative raw materials, and identifying areas where additional pollution reduction measures can be implemented.

By implementing these steps, The Big Green Tractor can develop a socially responsible operational guide for pollutants that demonstrates its commitment to sustainability and minimizes its environmental impact. This can help to build a positive reputation for the company, attract environmentally conscious customers, and improve its bottom line over the long term.

3.1 Some examples of Industrial standards on disposal of chemical waste.

Here are some examples of industrial standards for disposal of chemical waste:

- Resource Conservation and Recovery Act (RCRA): The RCRA is a United States federal law that sets standards for the management of hazardous waste, including the generation, transportation, treatment, storage, and disposal of such waste.
- Hazardous Waste Regulations (HWR): The HWR is a set of regulations issued by the European Union that sets standards for the classification, packaging, labeling, and disposal of hazardous waste.
- Globally Harmonized System of Classification and Labelling of Chemicals (GHS): The GHS is a system that was developed by the United Nations to harmonize the classification and labeling of chemicals worldwide. It includes provisions for the safe handling and disposal of hazardous chemicals.
- Occupational Safety and Health Administration (OSHA) Hazard Communication Standard: IT requires employers to inform employees about the hazards associated with the chemicals they work with and to provide training on safe handling and disposal of those chemicals.
- International Organization for Standardization (ISO) 14001: ISO 14001 is a standard that sets requirements for an environmental management system, including the management of hazardous waste. It requires organizations to develop a policy for the safe handling and disposal of hazardous waste and to monitor and continually improve their environmental performance.
- Basel Convention: is an international treaty that was designed to reduce the movement of hazardous waste between countries and to ensure that such waste is disposed of in an environmentally sound manner. The treaty sets standards for the classification, packaging, labeling, and transport of hazardous waste, as well as for the management of waste once it reaches its destination.

These are just a few examples of the industrial standards for disposal of chemical waste that are in place around the world. Adhering to these standards can help to protect human health and the environment and ensure that hazardous waste is disposed of in a safe and responsible manner.

3.2 Green alternatives to traditional manufacturing process

Every company that hasn't yet taken the initiative to go green or lean has a chance to see for themselves the significant financial advantages of doing so. Numerous benefits are reported by those who have already taken action in this direction.

Companies that focus on their ESG (environmental, social, and governance) performance have been shown to have better financial results. This is confirmed by a meta-analysis that looked at over 2000 individual analyses of ESG performance across investment firms from 1970 to 2014.

There are a variety of green alternatives to traditional manufacturing processes that companies can consider to reduce their environmental impact. Here are some examples:

- Lean synchronization: Synchronization means that the flow of items (materials, information, or customers) that make up services and products always delivers exactly what customers want (perfect quality), exactly when they need it (not too early or too late), and exactly where they need it (not in the wrong place). To accomplish all of this at the lowest possible cost is lean synchronization. Items move quickly and smoothly through processes, operations, and supply networks as a result. is a process that emphasizes minimizing waste and maximizing efficiency in production. By implementing lean synchronization principles, Big Green Tractor can reduce the amount of energy and resources they use, while also improving the quality of their products.
- 3D printing: also known as additive manufacturing, is a process that creates products by building them up layer by layer using materials such as plastic, metal, or ceramic. This process can help to reduce waste and energy usage by only using the materials needed to create the final product, without generating excess scrap or material waste.
- Bio-based materials: are made from renewable resources, such as plants or other organic matter, rather than petroleum-based materials. Using bio-based materials can help to reduce the environmental impact of manufacturing, as these materials are often biodegradable and have a lower carbon footprint.
- Closed-loop manufacturing: is a process that seeks to minimize waste by designing products and manufacturing processes so that waste materials can be reused or recycled.

This approach can help to reduce the amount of waste that ends up in landfills and reduce the environmental impact of manufacturing.

- Green chemistry: is an approach to chemical design and manufacturing that seeks to minimize the use of hazardous chemicals and reduce waste. By using safer, less toxic chemicals in the manufacturing process, companies can reduce their environmental impact and improve worker safety.
- Public Relations: It is only right that a company should be recognized and talked about if they make extraordinary efforts to use environmentally friendly manufacturing practices. Businesses that go green are becoming more and more important to the environment, and one way we encourage them to do so is by rewarding their efforts.

  If your company does a good job of green manufacturing, you ought to talk about it and let people know about your efforts. This can be a very useful tool for your public relations and can help people see your brand in a good light.

These are just a few examples of green alternatives to traditional manufacturing processes. By adopting these and other sustainable practices, companies can reduce their environmental impact and improve their bottom line over the long term.

4. Conclusion

In conclusion, streamlining industrial operations is an essential process for any organization seeking to improve efficiency, reduce costs, and improve its environmental impact. By adopting best practices in lean manufacturing, waste reduction, and green alternatives to traditional manufacturing processes, The Big Green Tractor can reduce their environmental footprint while improving their bottom line.

A thorough plan to minimize defects throughout the manufacturing process can help to reduce waste and improve the quality of products, while the use of 21st-century tools can enable Big Green Tractor to implement green alternatives and reduce their reliance on fossil fuels.

In addition, developing a socially responsible operational guide for pollutants can ensure that The Big Green Tractor meet their legal obligations while minimizing their environmental impact and protecting the health and safety of workers and local communities.

By adopting these practices, The Big Green Tractor can become more competitive, improve their reputation, and position themselves as leaders in sustainability, all while contributing to a more sustainable future for the planet.

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