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Introduction: -

Big Green Tractor, a tractor manufacturing company in Palembang, Indonesia, is facing a decline in growth and is looking to streamline its operations and increase efficiency. This project aims to analyze and evaluate current processes and develop and streamline strategies to reflect on operational efficiency. We propose environmentally friendly recommendations that will reduce pollutants and enhance competitiveness. Innovative solutions will be implemented to monitor results. We will collect and analyze data, all of which will reflect on achieving sustainable growth for the company and reducing environmental impact.

Executive summary: -

Big Green Tractor, experiencing declining growth, aims to simplify operations and increase efficiency.

This project will evaluate and streamline operations to improve efficiency, competitiveness, and propose eco-friendly solutions to reduce pollution.

The methodology of data analysis, development, implementation and follow-up of innovative solutions includes delving into the expected results, increasing efficiency, helping to reduce costs and environmental impact, helping in sustainable growth, increasing competitiveness and improving quality through a specialized team that will supervise the project and monitor all operational aspects.

This project will improve Big Green Tractor's performance, operational and competitive capabilities, and will effectively achieve sustainable growth, simplify operations, increase business efficiency and reduce environmental impact and its negatives.

Operations management: -

All processes from design, manufacturing and waste disposal will be included in operations management and will be essential to streamline operations and achieve company goals and include several key benefits of increased efficiency through:

- 1 .Reducing waste and optimizing resources.
- 2 .Improving quality through several stringent conditions and controls.

3 .Promoting sustainability through environmentally friendly practices.

4. Promoting innovation through several steps of research and development.

These contribute directly to growth. For Big Green Tractor, operations management simplifies operations, increases efficiency using lean principles, reduces pollutants through sustainable practices, and improves competitiveness by enhancing quality, reducing costs, and developing new products. Effective operations management is thus key to Big Green Tractor's success in overcoming growth challenges.

Operations performance: -

Big Green Tractor, facing growth challenges, needs to streamline operations.

The performance analysis evaluates the manufacturing cycle, supplier efficiency, value chain, quality management, cost management and competitor benchmarking.

Performance improvements will include improved manufacturing, automation, supply chain, employee training and improved inventory management.

Environmentally, Big Green Tractor will operate through clean technology, waste management, energy conservation, recycling, use of environmentally friendly materials, close monitoring of emissions, adherence to standards, awareness and training and development programs.

Assessing, monitoring and identifying sustainable resources, sustainable growth, improving efficiency and reducing environmental impact are the operational business plans for this project.

Operations strategy: -

Big Green Tractor's operational improvement strategy involves several key areas.

First, analyze current processes via process mapping, performance measurement, and weakness analysis.

Second, operations and businesses will be simplified by standardizing and eliminating non-critical activities, increasing manufacturing efficiency, automation, and optimizing technology, and improving supply chain management and planning.

Fourth, improve quality with total quality management, employee empowerment, and quality control at all stages.

Fifth, reduce environmental impact by using clean technology, waste management, energy and resource conservation, and eco-friendly materials. Sixth, enhance competitiveness through innovation, effective marketing, and excellent customer service.

Finally, implementation and follow-up involve a detailed action plan and periodic evaluation with necessary adjustments.

This strategy aims for streamlined operations, increased efficiency, improved quality, reduced environmental impact, and enhanced competitiveness, leading to sustainable growth.

Process design: -

Big Green Tractor's process design strategy encompasses several key areas.

First, product design focuses on customer needs, sustainability, efficient manufacturability, component standardization, and modular design.

Second, production process design emphasizes workflow and worksite planning, equipment selection, and process integration.

Third, quality management involves a comprehensive system, strict quality control, and continuous improvement.

Fourth, supply chain management prioritizes supplier selection, long-term relationships, and efficient inventory management. Fifth, human resource management focuses on employee training, motivation, and empowerment.

Sixth, sustainability includes reducing environmental impact and social responsibility.

Finally, implementation and monitoring require a detailed plan and regular evaluation with necessary adjustments.

This comprehensive approach aims for streamlined operations, increased efficiency, improved quality, reduced environmental impact, enhanced competitiveness, and sustainable growth.

Innovation and design in services and products: -

Big Green Tractor's innovation and design plan aims to drive growth, enhance competitiveness, and meet evolving customer needs sustainably.

Strategic pillars include customer-centricity, sustainability, technology integration, agility, and collaboration.

The **innovation mechanism** encompasses idea generation (internal and external), evaluation and selection, design and development (cross-functional teams, agile, design thinking, technology scouting), testing and validation (pilots, feedback, data analysis), and implementation/launch (phased rollout, marketing, post-launch monitoring).

The **plan** includes: Year 1: sustainable product enhancements; Year 2: technology-integrated services (e.g., connected tractors); Year 3: disruptive innovations via open innovation (e.g., autonomous tractor concepts).

KPIs track new offerings, customer satisfaction, market share, revenue, environmental impact, patents, and employee engagement.

Resources include a dedicated team, budget, and partnerships.

Continuous improvement is ensured through regular reviews, feedback loops, and a culture of learning. This plan enables continuous innovation and design, creating customer value, enhancing competitiveness, and achieving sustainable growth.

Supply network design: -

Big Green Tractor's supply chain strategy involves several key steps. First, analyze the current supply chain by identifying suppliers, analyzing material flow, and assessing risks.

Second, design the future supply network by selecting sustainable and diverse suppliers, strategically locating storage, developing long-term relationships, and implementing a supply chain management system.

Third, improve inventory management through an effective system, demand forecasting, and lean manufacturing principles. Fourth, reduce environmental impact by selecting sustainable suppliers, improving transportation efficiency, and using eco-friendly packaging.

Fifth, integrate the supply network with process design and enhance interdepartmental cooperation. Finally, implementation and follow-up require a detailed plan and regular monitoring with adjustments. This strategy aims for improved efficiency, reduced costs

and environmental impact, and enhanced competitiveness, leading to sustainable growth.

Layout and flow: -

Big Green Tractor's improvement project will follow a five-stage project management methodology.

- 1) **Initiation:** Define objectives (streamlined operations, increased efficiency, improved quality, reduced environmental impact, enhanced competitiveness), scope (all operational aspects), team formation (experts in relevant fields), and work plan development.
- 2) **Planning:** Collect and analyze data, design new processes and the supply network, and develop an implementation plan.
- 3) **Implementation:** Execute the action plan, ensure communication and coordination, and manage risks.
- 4) **Monitoring & Control:** Track progress, measure performance using KPIs, and take corrective action.
- 5) **Closure:** Evaluate project success, document all aspects, and deliver the project to stakeholders.

A Gantt chart or similar tool can visualize project flow. Flexibility, stakeholder involvement, and thorough documentation are crucial.

This methodology aims to ensure project success and objective achievement.

Process technology: -

Big Green Tractor's improvement project will utilize several technologies.

Manufacturing will employ lean principles (value stream mapping, 5S, Kaizen, JIT) and automation (robots, control systems, CAD/CAM, 3D printing).

Quality management will use TQM, SQC, and quality management software.

Supply chain management will leverage ERP, SRM, and WMS. Sustainability will incorporate LCA, energy management software, and recycling technologies.

Information and communication will utilize project management systems, collaboration tools, and data analysis tools.

Other technologies like IoT and AI may also be employed.

Appropriate technologies should be selected, employees trained, and systems integrated.

This technology adoption aims to achieve project objectives of streamlined operations, increased efficiency, improved quality, reduced environmental impact, and enhanced competitiveness.

People, jobs and organization: -

Big Green Tractor's process improvement project requires a strong human element.

A dedicated project team is essential, comprising a Project Leader, Operations Manager, Industrial Engineer, Supply Chain Specialist, Quality Specialist, Sustainability Specialist, Data Analyst, and staff from relevant departments.

Each member has specific roles and responsibilities, ranging from project leadership and process design to supply chain management, quality control, sustainability initiatives, and data analysis.

An organizational structure with a responsibilities matrix, clear communication channels, regular meetings, and potentially sub-teams is needed.

Skills development through training and professional development is crucial.

Incentives and rewards should recognize performance.

Finally, fostering a collaborative, communicative, and transparent team culture is vital. This focus on people, jobs, and organization will ensure active employee involvement and project success.

The nature of planning and control: -

Big Green Tractor's project planning and control should be comprehensive and flexible, covering all project aspects and focusing on achieving objectives (streamlined operations, increased efficiency, improved quality, reduced environmental impact, enhanced competitiveness).

Planning involves establishing a clear, measurable vision; defining project scope (all operational aspects); developing a flexible work plan (phases, activities, resources, timelines, budget); defining KPIs; and identifying potential risks with contingency plans.

Monitoring includes regularly tracking progress against the plan using project management tools; measuring performance via KPIs and analyzing data; taking corrective action; managing changes; ensuring effective communication among stakeholders; and fostering continuous learning. Planning is an ongoing process, and control is proactive, encompassing all project aspects (performance, quality, cost, time, human resources) and remaining flexible.

Tools like Gantt and PERT charts, EVA, dashboards, and project management software can be utilized. Effective planning and control are crucial for project success and goal achievement.

Capacity management: -

Capacity management is crucial for Big Green Tractor's improvement project. It involves planning and identifying resources (personnel, equipment, materials, technology) and their utilization.

Capacity estimation analyzes project requirements, identifies available resources, and compares them to identify gaps.

Capacity planning develops a plan to meet resource needs, identifying internal/external sources, allocating resources based on priorities, and scheduling provision.

Capacity implementation focuses on providing resources, managing them effectively, and tracking usage.

Capacity monitoring involves regularly monitoring resource usage, analyzing performance, and taking corrective action.

Capacity improvement identifies and implements opportunities to enhance planning, utilization, and waste reduction.

Flexibility, communication, and integration with other project management aspects are essential. Effective capacity management ensures Big Green Tractor has the resources to achieve project objectives on time and within budget.

Inventory planning and control: -

Inventory planning and control are essential for Big Green Tractor's optimization project.

The goal is timely availability of quality raw materials and components while minimizing costs and waste.

Inventory planning involves identifying inventory types, forecasting demand, defining inventory levels and reorder points, defining supply policies, and implementing an inventory management system.

Inventory control tracks inventory levels, monitors performance using KPIs, identifies deviations, analyzes data, and generates reports.

Inventory improvement focuses on reducing waste, improving demand forecasting and supply chain management, applying lean principles, and using technology.

Flexibility, integration with other project aspects, and effective communication are crucial.

Effective inventory planning and control ensure material availability, reduce costs and waste, and contribute to improved efficiency and competitiveness.

Supply chain management: -

Big Green Tractor's supply chain management is crucial for project success. It aims for smooth flow of materials, information, and services.

Current supply chain analysis identifies suppliers, analyzes material/information flow, and assesses risks.

Future supply chain design selects strategic suppliers, develops a flexible network, and integrates it with other processes.

Purchasing management improves through developing strategies, supplier negotiation, and automation.

Inventory management implements an effective system, forecasts demand, and applies lean principles.

Logistics management plans transportation and distribution, selects transportation companies, and tracks shipments.

Environmental impact is reduced by selecting sustainable suppliers, improving transportation efficiency, and using eco-friendly packaging.

Risk management identifies risks and develops contingency plans.

Collaboration and communication are enhanced among stakeholders.

Technology like ERP and SCM systems is utilized.

Continuous improvement monitors performance and identifies opportunities.

Effective supply chain management contributes to improved efficiency, reduced costs and environmental impact, enhanced competitiveness, and sustainable growth.

Enterprise resource planning: -

ERP systems can significantly benefit Big Green Tractor's improvement project.

Key advantages include improved efficiency (through automation), coordination (via a central platform), decision-making (with accurate data), inventory management, supply chain management, quality management, and sustainability (by tracking resource consumption).

Choosing the right system involves defining needs, evaluating options, and selecting a reputable vendor.

Implementation requires detailed planning, customization, employee training, and thorough testing before going live.

Ongoing management includes maintenance, support, and development.

Cost, time, resource requirements, and change management are important considerations.

Effective ERP implementation and management can help Big Green Tractor achieve its project goals, improve efficiency and effectiveness, and enhance competitiveness.

Lean synchronization: -

Lean Project Synchronization aims to improve workflow and reduce waste by applying lean principles. Key principles include defining value, mapping the value chain, creating flow, implementing a pull system, and continuous improvement.

In the Big Green Tractor project, this can be applied by analyzing current processes, simplifying them, improving workflow, reducing inventory, improving communication, and fostering continuous improvement.

Benefits include cost reduction, quality improvement, reduced time, increased customer satisfaction, and improved competitiveness. For example, in tractor manufacturing, lean synchronization can be implemented by analyzing the manufacturing process, streamlining assembly, reducing waiting time, and reducing inventory through a just-in-time system.

This helps Big Green Tractor improve operational efficiency, reduce costs, enhance quality, and increase customer satisfaction, thus achieving project objectives.

Project management: -

Big Green Tractor's Improvement Project Management Plan aims to enhance efficiency, reduce costs and environmental impact, and increase competitiveness.

Scope covers design/manufacturing, supply chain, quality control, waste disposal, and marketing/sales. **Structure** involves analyzing processes, designing/implementing improvements, improving supply chain, implementing sustainability initiatives, and developing marketing/sales strategies, broken down into work packages with defined sequences.

Schedule management includes task identification, duration estimation, schedule development, and monitoring.

Budget management covers cost estimation, budget development, and monitoring.

Resource management addresses identification, allocation, and efficient use.

Quality management defines standards, procedures, and control.

Risk management involves identification, analysis, response planning, and monitoring.

Communication management identifies stakeholders and develops/implements a

communication plan. **Change** management establishes procedures, evaluates impact, and implements approved changes. **Procurement** management addresses needs, supplier selection, contract negotiation, and management. **Stakeholder** management identifies stakeholders and develops/implements a management plan. **Knowledge** management covers identification, collection, sharing, and storage.

Sustainability management defines goals, implements initiatives, and monitors performance. **Evaluation** management defines criteria, conducts evaluations, and identifies lessons learned.

Closure management completes tasks, delivers the project, closes contracts, and documents everything. The **team** comprises a Project Leader, members, and managers.

Communication involves periodic meetings.

Quality management: -

Big Green Tractor's Quality Management Plan aims for the highest quality standards across all project aspects, contributing to overall objectives.

The plan covers processes from design and manufacturing to customer service, referencing ISO 9001 and other relevant standards.

A quality management structure defines responsibilities from the Project Leader to all employees. Quality planning includes defining standards, developing metrics, identifying tools/techniques (e.g., Six Sigma, Lean), and creating quality plans.

Quality assurance implements procedures, provides training, and conducts internal audits.

Quality control monitors performance, identifies deviations, and analyzes data.

Quality improvement identifies and implements opportunities, evaluating results.

Total Quality Management promotes a quality culture, continuous improvement, employee participation, and customer satisfaction.

A communication plan ensures effective stakeholder interaction.

Training programs and workshops enhance quality understanding.

Periodic reviews ensure system effectiveness. Documentation of procedures and quality records is maintained.

Performance evaluation and continuous improvement are ongoing. This comprehensive plan aims to achieve high quality, contributing to project success and increased competitiveness.

Operations improvement: -

Big Green Tractor's Process Improvement Plan enhances operational efficiency and effectiveness across all processes, from design and manufacturing to customer service.

Focusing on key areas like design/production, supply chain, quality control, and customer service, the team (with defined roles from Project Leader to all employees) will use a structured methodology: identify/prioritize processes, analyze current processes, identify opportunities, develop/implement solutions, and pursue continuous improvement.

Tools like Lean, Six Sigma, Kaizen, value stream mapping, root cause analysis, 5S, and Poka-Yoke will be used. Performance will be measured via KPIs (productivity, quality, time, cost, customer satisfaction) through data analysis.

Continuous improvement will be driven by opportunity identification, implementation, and reviews.

A communication plan ensures stakeholder engagement.

Training will develop process improvement skills.

Periodic reviews will evaluate effectiveness. This plan aims for significant operational improvements, contributing to overall goals and competitiveness.

Risk management: -

Big Green Tractor's Risk Management Plan identifies, assesses, and monitors project risks, developing mitigation strategies.

Covering internal (technical, financial, operational, administrative) and external (economic, competitive, environmental, social) risks, it uses a proactive methodology: identification, analysis, evaluation, response, and monitoring.

A Probability-Impact Matrix assesses risks, and responses include avoidance, mitigation, transfer, and acceptance. KPIs track risks, with the Project Leader responsible for implementation, the Risk Manager for risk assessment and strategies, the Project Team for participation, and stakeholders for information. Communication is essential, with regular meetings and reports.

The plan is regularly reviewed and updated, using tools like the Probability-Impact Matrix, SWOT, and Root Cause Analysis.

Effective implementation minimizes negative risk impact and maximizes project success.

Organizing for improvement: -

Big Green Tractor's process improvement plan involves several key steps.

- 1) **Team Formation:** Select a leader, assemble a cross-functional team, define roles, and establish work rules.
- 2) **Scope Definition:** Identify target processes, define measurable goals, and establish KPIs.
- 3) **Process Analysis:** Collect data, map processes (e.g., Value Stream Mapping), and analyze data to identify problems.
- 4) **Process Design:** Develop improvement solutions, simulate them, and document new processes.
- 5) **Process Implementation:** Train employees, implement changes gradually, and provide follow-up support.
- 6) **Results Evaluation:** Collect data, analyze it, and identify further improvement opportunities.
- 7) **Continuous Improvement:** Foster a culture of continuous improvement, conduct periodic reviews, and learn from experience.
- 8) **Organization Plan:** Define the organizational structure, communication channels, meeting schedules, reporting mechanisms, and a change management plan.
- 9) **Tools and Techniques:** Utilize Lean Manufacturing, Six Sigma, Kaizen, Value Stream Mapping, Root Cause Analysis, 5S, and Poka-Yoke.

This plan aims for significant operational improvements, contributing to overall goals and increased competitiveness.

Corporate social responsibility: -

Corporate Social Responsibility (CSR) at Big Green Tractor means integrating social and environmental considerations into operations and stakeholder interactions.

Key areas of responsibility include:

Employees: safe work environment, fair conditions and wages, training, diversity/inclusion, work-life balance.

Society: supporting local communities, sponsoring education, improving infrastructure, supporting health/environment initiatives, encouraging employee volunteering.

Environment: reducing emissions, using eco-friendly materials, rationalizing resource consumption, supporting recycling/conservation, promoting sustainable agriculture.

Customers: high-quality/safe products, clear information, excellent customer service, complaint handling, respecting consumer rights.

Suppliers: long-term relationships, fair treatment, supporting local suppliers, encouraging sustainable practices.

Examples include scholarships, supporting environmental initiatives, discounted tractors for low-income farmers, awareness campaigns, and NGO cooperation.

Benefits include improved reputation, increased loyalty, enhanced investor appeal, better community relations, and contribution to sustainable development.

CSR is vital for Big Green Tractor's long-term success, contributing to a better society and environment while enhancing company growth.

Operational industrial streamline procedural guide: -

Big Green Tractor's streamlined operational guide involves five steps.

1) **Identify target processes:** List all processes, prioritize improvements (impact on efficiency, cost, quality), and define scope.

2) **Analyze current processes:** Map processes (e.g., Value Stream Mapping), measure performance (KPIs), and identify waste.

3) **Develop streamlining procedures:** Streamline/standardize steps, improve workplace design, use technology/automation, improve inventory/material quality, and empower employees.

4) **Implement procedures:** Provide training, implement gradually, and monitor/evaluate (KPIs).

5) **Continuous improvement:** Conduct periodic reviews, learn from experiences, and communicate effectively.

Socially Responsible Operating Manual: -

This guide helps Big Green Tractor integrate socially responsible practices into its improvement project, balancing economic objectives with social and environmental responsibilities.

Key areas include:

1) **Commitment:** Official statement, responsible person/team, integration into project strategy.

2) **Employees:** Safe work environment, fair wages, training, diversity/inclusion, work-life balance.

3) **Community:** Supporting local projects, job creation, communication, transparency.

4) **Environment:** Reducing emissions, waste management, resource conservation, supporting biodiversity, environmental assessments.

5) **Customers:** Product quality/safety, transparency about products, excellent customer service, data privacy.

6) **Suppliers:** Fair treatment, supporting local suppliers, encouraging sustainable practices, transparency.

7) **Monitoring & Evaluation:** KPIs, reporting, continuous improvement.

8) **Communication:** Employee awareness, stakeholder communication, transparency. By adhering to this guide, Big Green Tractor can contribute to a better society and environment while enhancing its own success.

Conclusion: -

The Big Green Tractor improvement project aims to streamline operations, increase efficiency and quality, while promoting sustainability and social responsibility.

This will help reduce costs, improve environmental performance, support local communities, and increase the company's competitiveness in the tractor industry.

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