operation management

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1.0 Introduction

Recently managing operations has become one of the most required and important processes in a very wide kinds of business (manufacturing, food and beverages, hospitality, and services providing etc.) it's the handling, involved in, design, planning and monitoring relations and sequences between different departments evaluate the workflow to develop the final services or products from the start to finish taking in consider all customer demand and needs, managing the supply chain and inventory plan, risk management and taking decisions in many field of business regards to company culture, vision and mission keeping the social responsibility of the company up to date

2.0 Report brief

According to the last years reports of big green tractor there is declining in growth so we are going to review current production's phases, determine where the problem is, review products standards, redesign product, streamline the production operations to be more efficient, redesign the facility layout to make it more fast and low cost production, automate some steps, redesign customer services and maintenance centers to improve after sales services and at the end developing the social responsibility of the company towards greener process.

3.0 Last year's reports comparing

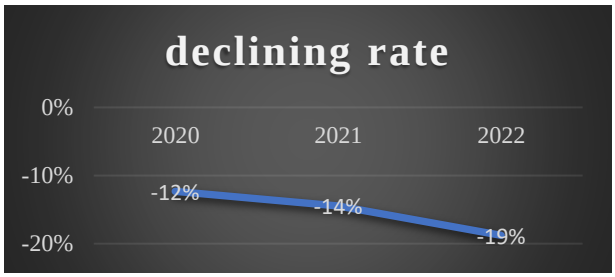
Here we can see some of the last 4 years numbers for comparing the sales volume, unit sales of each model, cost comparing, how many maintained units throw years and spare parts sales.

This comparing will show us where is the declining come from

3.1 Sales comparing

Here we can see last 4 years sales volume in millions

year	2019	2020	2021	2022
sales volume	$ 284.00	$ 249.00	$ 213.00	$ 173.00
declining rate		-12%	-14%	-19%



3.1.1 Model's sales units in thousands

years	2019			2020			2021			2022		
model	**Q**	**SP**	**TS**	**Q**	**SP**	**TS**	**Q**	**SP**	**TS**	**Q**	**SP**	**TS**
BGT-102	2.150	46	99	2.400	46	110.400	1.890	51	96	1.600	51	82
BGT-109	1.450	65	94	1.300	65	84.500	1.150	71	82	0.950	71	67
BGT-204	0.985	92	91	0.590	92	54.280	0.350	98	34	0.250	98	25
			284			249			212			174

As we see the model BGT-102 starts to make growth between 2019 and 2020 but when the prices raise its start to decline

But for the models BGT-109 and BGT-204 it starts the decline since 2020 comparing to 2019 and continue declining throw the years specially after increasing sales prices

3.1.2 Company expenses comparing

EXP	2019	2020	2021	2022
COGS	105	91	62	52
	37%	37%	29%	30%
HR	37	33	32	28
	13%	13%	15%	16%
utilities	53	51	49	39
	19%	20%	23%	23%
Sales and marketing	23	18	15	12
	8%	7%	7%	7%
total	218	193	158	131
	77%	78%	74%	76%

According to the fast cost analysis we can see that cogs rate are declining in 2021 that may happen because of using some low-quality material also the marketing budget decline and this can cause decline in total revenue

3.1.3 Maintenance report

By reviewing the maintenance's reports from the customer services centers we can find that the highest complains comes from painting and engine problems so we have to developing these 2 processes, increase the quality and power of engines

3.1.4 Problems analysis

After reviewing the previous data, we can see that we need to make a less cost production with keeping high quality, increasing the aftersales services quality and decreasing the product issues

4.0 Streamline the production process

Stream line the process is how to minimize and simplify the work process to improve the efficiency in the organization

In the next few steps, we will do this by reducing times and cost of some work flow

Changing ways of production and upgrading the processes inside facility

4.0.1 facility layout

This is a very important step in our plan a component of a business overall operation which can maximize the effectiveness of the production process and make it easier for employees

We will make a new Facility lay-out design to be easier in logistics services such as change the main parts warehouse area to be near to the main preparing of manufacturing area that will give less transportation time between warehouse and production area then redivide the main ware house to gather all kind of parts in one division also make the final stage of production is near to the final products warehouse redesign the final products warehouse to be more suitable for the production Quantities making a storing departments for each model

Make the final products warehouse near to the transportation area for more fast transporting

4.0.2 product redesign

We are aiming In this step at improve the user experience by rebuild our product

As far as products design is one of the most important steps which reduce the cost of production because of good design means always quality standard and decrease the productions wastage so we are going to redesign the products to be more quality specially in the main parts such as engine, gear box, the tractors body also this step will give more aftersales satisfaction, decreasing maintenance need, and longer life for products

1- Give each department a specific steps and clear design

2- Testing the prototype for making sure every thing is going to be according to the standards

3- Focusing on our clients complains about engine performance and develop it to a new model of engines

4.0.3 upgrading the MES

To be sure that all process and activities are going to be more fast and highest productivity of all departments we are going to upgrade the current MES (manufacturing execution system) to the last suitable one for our industry making sure all departments are working efficiency according to the best performance, timing and productivity also we have to upgrade some old equipment to be suitable for the new MES

This step will save time, wastage and give the highest monitoring for all departments.

4.0.4 reducing overheads

According to upgrading MES we will be able to save some of overheads like

1- Supervisors
   We will reduce supervisors to be 1 for each two departments instead of one for each department
2- Reducing transportation inside the facility because of the new facility design
3- Reduce depreciation and maintenance of the machines thanks to the new equipment
4- Reducing warehouses spaces
5- By make a good warehouse design and divide it we will save time of finding parts and inventory will be more controlling

4.0.5 standardization

Unify some shared parts for all products like seats, side windows, doors and some engine parts this step give us more inventory control, easier supplying way, less wastage, more power negotiating with suppliers and small space for storage

Also, will reduce the production’s mistakes in using and make the assembly process easier

Putting new standards for all parts of the products and processes of production

4.0.6 focusing on our star products

Increase the productivity of the best-selling item to:

1- Meet the market's demand and need
2- Decrease clients complains and dissatisfy
3- Decrease cost of after sales maintenance
4- Increase profitability
5- Increase our market share

4.0.7 supply chain and inventory management

Searching for a new powerful partnership with our most using items suppliers which is give us more fast supplying, best quality and more good prices

1- Must have two or three supplying partners for the quick products parts (seats, windows etc.) whose guarantee time and quality
2- Using only one kind but not one model of the main parts (engine, gearbox etc.)
3- Monitoring our inventory levels and seasonality production's period
4- Monitoring each item reordering levels
5- Prepare each item par level for production and monitoring it
6- Forecasting our needs of all parts depending on sales forecasting and productivity level
7- Redesigning the warehouse will help in more control by categorizing the raw and spare parts each together.

4.0.8 sales analysis and forecasting

1- reprice all items according to the new cost and competitor's prices
2- forecasting our sales after repricing
3- estimate the new clients after sales needs according to the new sales forecasting
4- applying new production plan depends on the sales forecasting with a flexibility of changing to high or less quantities after monitoring our actual VS forecasting sales
5- depends on expected ordering quantities and economical production quantities from each model
6- re-train the customer services employees for more customers satisfaction

4.0.9 new marketing plan

- prepare new marketing campaign to get more brand awareness
- focusing on our new product's advantages and new design
- start to introduce our new customers services

4.1 planning to minimize productions defects

Depending on the production's streamline steps and to be more efficiency we have to make a plan for minimizing the productions defects to the maximum for saving time and cost this plan will go through some steps which is coming next.

4.1.1 testing the new designs

The main point in design that it always builds from imagination which is sometimes can be executed little harder than what our company needs so this too much important to test our new product's design to monitor if it easy to execute it or no and also the best way is not accept any new designs before the approval of execution department

Step two we have to be sure that prototype is 100% matching with the accepted design then testing the first manufacturing unit to be sure it's standard are matching with all the previous steps

After that we will approve the start of the new products production

Phase steps

- generating new ideas
- feasibility analyzing
- determine product's specifications
- developing the prototype
- reviewing the design
- market test
- product's introduction
- follow up the comments and the WOM (word of mouth)

4.1.2 preventives steps

1- We have to put and prepare roles and regulations for each production's step
2- Standards for each product must be generally clear for all employees and labors
3- Check all material before use in manufacturing process
4- Making 2 or 3 checkpoints for each stage of production depends on the length and important of this stage
5- Supervisors must review all steps before and during the process of each department

4.1.3 production's checkpoints

Every production phase must be reviewed and designed to be suitable for the process and as one of the preventives steps, we have to make check points at each phase which is going to give the company more controlling of wastages and non-quality units as we say we have to put two or three checkpoints on every production's stages.

4.1.4 quality management

Quality management is one of the most important parts of the production this give us control, monitor and less clients complains

We have to put the quality standards which is must be going with market standards and needs

Trying to achieve the 6 sigma's standards of production

This management should review all production's stages, parts manufacturing, assembly process and the final unit to be sure it's met the product's standards

There is always a cost of quality like testing and prototypes, design and the preventions cost

But this will save more while production and quality tests

4.1.5 communications and training system

1- Internal communications must be taken in consider as one of the most efficiency element all departments should have communicate between each other to be sure all processes are going in a harmony way
2- All employees must have a good training and development system to be suitable with our new standards and system

3- Training policy must be developed from HR department
4- Every supervisor has to take the enough level of training then be sure that all standards are applied
5- Using the new technology in internal communications between departments
6- Taking in consider the aftersales center's employees whose must be well trained of customer's services
7- Monthly monitoring reports from all departments about quality of production, sales, maintenance and financial

4.2 greener process

The green process is to produce goods without harming the environment As the population and world global environments and resources has become the biggest problems New roles and directions of all countries and companies' culture is to go green in all the company flow even inside managements offices and all the company's department for that we need to take some more actions towards the internal and external environment to be sustain and to be responsible towards employee's health, environment health and greener then achieving a new leverage and balance between environment and business benefits at the first step we need to analyze our environmental impact considering all of our usage like raw-material, water, electricity, fuel and non-eco packaging items

What are the benefits of green manufacturing?

1- Cost saving
2- Sustainability
3- Increasing customer's loyalty
4- Developing a new technology
5- Increase profit
6- Employee's motivation

What are the cons of green manufacturing?

1- Takes times
2- Initial cost some times may be high
3- May need to find new vendors

4.2.1 protection of environment

We need to change some our productions tools for more greener

1- Fixing and upgrading old machines
    - The replacing of the old machines and deploying new or repair the old will help is reducing waste giving more productivity and decreasing the pollutant of those machines
2- Using new kinds of material which is not harming the environment
    - Replacing some raw material with other eco friend one
3- Replacing some of energy resources
    - Using the clean sources of energy
4- reducing wastage
    - create new design and testing it will reduce the wastage of production
5- Find better ways of disposing chemical waste
    - Using new industry roles of disposing chemical waste
6- Reduce the wasting of electricity by changing some kind of lights
7- Investing in the new technology systems to less wastage
8- Using filters for all hoods and air inside the facility

Also, we will put a new guide for these steps latterly in the report

4.2.2 greener administration's process

We can go for more green administrational process as a start inside the offices

1- Reducing the usage of paper printing and replace it with E-communications and approval
2- Replace the usage of plastics inside offices and replace it with paper or eco friends' materials (cups, plates etc.)
3- Stop some paper's communication as we can and replace it with the new E-communicate methods
4- Reduce of electricity wasting inside offices (using dimmers switches and what else)
5- Implement new document archiving system to be electronic

4.2.3 using green technology

Green technology (GT) is a technology using for reducing the damages created by the production process which can help us detecting what can we do for more greener processes.

- Feeling of the social responsibility is one the most important element of the business sustainability but at all we can't forget our main goal which is the business and economical responsibility towards the company so we have to be balanced between the both to guarantee the sustainability

5.0 developing the social responsibility

At the beginning we need to know what is the corporate social responsibility or (CSR) As one of the biggest industrial companies we have a great social responsibility towards our social not only for making business benefits but to develop the surrounded environment involving in other social's problems that what will give the business sustainability and growth

5.0.1 concept of social responsibility

The major goal of all business is making profit and sustain but there is another goal which is serve and protect other society member's needs like customer, workers and the whole community

In this report we are going to set some guidance for our main big environmental and social's impact

5.1 industrial standards on disposable of chemical waste

What is the chemical waste?

It's the wasted chemicals material which always comes from the production process

This chemical always be a harmful material for the environment or the employees whose work or dealing with

We have tow kinds of chemical waste

1- Solid metals (some metal parts, small parts, fiber and plastics, etc.)
2- Liquid waste (engine and gear oils, paints, etc.)

So first of all, as a company we have to put guide to train employees how to deal with this material in right way

Also we need to create a new department (waste control management) or contracting with a wastage disposable company which is not a good choice from my side

Also, how to dispose it without harming the environment

5.1.1 Employee's safe guide

1- all employees should use a special safe uniform
2- always wearing face mask at all of production phases
3- use health and safe policy which provided from HR department

5.1.2 chemical waste disposing

Most chemical wastes should be disposing by the hazardous waste program or using the 3R rule

Reduce-Reuse-Recycle

1- Reducing chemical wastes
- using of safer chemical alternatives
- maintain the machines for less wastes
- using technology for less wastages

2- recycle as much as we can of the solid wastes or reuse it if it in a good condition to use

there is a lot of ways for disposing the chemical wastes but we need to follow the new ways which is eco friend

1- disposing solid chemical
- open dumps: and this is not supposed method
- sanitary landfills: after recycle and reuse of the metal waste we can use this as a good and healthy solution for the solid wastes
- incineration: is a simple way to burn trash but it pollutes air

disposing of liquid chemical wastes

2- using chemical containers
- liquid chemical wastes should be stored in specific containers which must be labelled clearly and be suitable for the type of waste
- Never mix material in one container

- Use a compatible container with each material
- Don’t put any solid material inside the containers

3- filling of containers

- the container must not be full filled as a role of thumb waste container the container should be filled to only ¾ of its capacity or less the air space allows for pressure changing above the liquid

4- labelling the container

- all containers must be clearly labelled with the full details of content, date of wastage and the name of the person who waste it also must mention which kind of material nside

5- closing the containers

- all containers must be closed very well under the supervision of the waste management team

6- storing the containers

- must store the containers in the central of the waste storing facility

7- disposing of the containers

- first of all, the container must transport very carefully by a professional and specialist team under the supervision of the waste management team
- transport the container to a clear desert area which is allowed by the authorized governmental agencies to dispose this kind of wastage

5.2 Green alternative to traditional manufacturing process

To guarantee sustainability we need to look for a new technology and alternatives for the traditional processes in too many fields and sides of our industry facility

1- energy

- switching off lights when finished work
- switching to LED lights
- turn off and run the machines when needed
- clean and maintain the equipment
- use renewable resources of power (solar, winds etc.)
- adjust air-condition temp

- use natural airflow

2- water saving

- implement water saving program inside the production facilities

3- reduce wastage

- set waste management goal
- minimize the stock
- monitoring the inventory on daily base
- reduce packaging
- perform waste audit
- recycling some items as we can

4- digitize the communications

by making the internal communication 100 % digital we can save tons of papers and also make it more efficient by speeding the process

- use emails instead of paper letters
- using electronics archiving system to save place and time
- using electronic appointments for clients at the services center

5- implement eco friend items

    - replace plastic with fiber
    - replace plastic cups with paper ones
    - replace glass with some kind of fiber optics

6.0 conclusion

At the end of the report, we have to know that the main goal of operation's management is to lead the organization to the maximize profit and efficiency processes

Hope that I have covered the points clearly and briefly

Also, I hope this recommendation execute as fast as we can and be monitoring after executing

Wish you all the best

Regards

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