assignment 1

by Sean Jones

FILE	10202_SEAN_JONES_ASSIGNMENT_1_179129_388638153.DOCX (55.7K)		
TIME SUBMITTED	08-APR-2021 07:41PM (UTC+0100)	WORD COUNT	2912
SUBMISSION ID	148953669	CHARACTER COUNT	15081

Course:	BSc (Hons) Electrical and Electronic Engineering
Module:	SGEE6004 Engineering Management
Assignment:	Strategic Management Issues
Name:	Sean Jones
University number:	1602826
Date submitted:	18/03/2021
Word count:	3072

Contents

Introduction 3
1. Strategic Review 4
2. Corporate Social Responsibilities 8
3. lean Manufacturing 9
4. Recommendations for Consideration 10
5. Vision and Mission Statements 11
Works Cited 12

Introduction

This is a review of EBS automation. EBS makes specialist production machines in multiple industries from automotive to food. It's been established for 27 years and has had over 10,000 projects pass though its doors. The company is very up to date on manufacturing techniques but this review highlights where these techniques work well at EBS and where they could be refined further to gain full potential.

1. Strategic Review

SWOT Analysis

SWOT highlights the good and bad points of a company to find out what areas need to be worked on and how the good points can be used to their advantage. Dergisi states "SWOT stands for 'strengths', 'weakness', 'opportunities' and 'threats'" (2017).

Strengths

The company has a large variety of different skills in house. This range of skills allows the special purpose machines to be built with very little work being sub contracted. This has multiple advantages as not only does it minimise being let down and delayed by external companies it holds a marketing opportunity as it attracts new customers. The company has experience within multiple sectors gives a much wider range of customers. EBS Automation states that these sectors are "Automotive, Industrial, Pharmaceutical, Food, White Goods" (2021). This allows the company to keep work and new orders being made as its not dependant on one sector to thrive for reliable work. The company pushes workers for an "OODA loop" mind set. According to Brehmer (2005) OODA loop is a thinking strategy which makes a person snap out of tunnel vison when coming across a problem. The ability to step back and tackle the problems efficiently makes the company very efficient in producing quality machines.

Weaknesses

The company doesn't standardize enough systems. For a company that has a lot of design work implemented by multiple workers this lack of standardization causes workers to reinvent something that a worker has already spent the time on. This is a waste of resources as time is wasted on jobs and effects the budget and timescale. Another issue of lack of standardisation is on jobs to the same customer they may have multiple machines with a certain part that has the same function but has multiple designs and different parts. According to Kusiak (2018) standardisation is essential in effect manufacturing. The company is given opportunities with new customers with a potential of a lot of work from that customer. These opportunities usually get let down by poor planning. The customer tends to be offered an ambitious timescale for the job to completed which isn't necessary the issue. Management times don't seem to have much communication with the workers on the job until the deadline is very close causing the job to leave late and resulting in an unhappy customer that may not use the company again. If there was more communication at the early stages of a project then a more suitable timing plan could be made and the likely hood of achieving the deadline is increased.

Opportunities

Efficiency in production could be the biggest opportunity for the company. Nearly every job the company has is behind time scale due to lack of efficiency and organisation. There are multiple jobs running the same time and the use of workers spread across these jobs seems to be unorganised and people are rearranged between jobs rapidly without any background of what is happening on that job. This causes delays as that person has to familiarise themselves with the job before starting work on it.

The government recently realising its plans for a greener future is a great opportunity as it may want to look into exploring possibility of the company assisting with government granted schemes that may require automation in prototyping and production.

Threats

Some of the rival companies are bit further ahead with technology on their machines that the company is slowly catching up but is slightly behind. As well as this the company has to be careful that it keeps training employees. Recent lack of training will cause the employees to fall behind on modern technologies. Some skilled workers have left the company and gone to work for rival companies for higher salaries. In automation design and manufacturing skilled workers are the back bone of the company and without them its not possible to make the high-quality machines. The company must keep an eye on the opposition and ensure they offer more to their employees so they do not feel disinterested and the need to leave.

PESTEL 1

A short description of PESTEL needed to clarify that this looks at external influences many of which are out of the control of the organisation

Political

The company produces machines for countries within Europe. Now that Britain has left the EU sales into Europe may be affected as it will be a lot more expensive for the customer to purchase a machine with the added tax. It is also difficult for the company to compete with companies that are in EU as they won't have the added difficulty of supporting a machine they've produced. Some companies such as some in the pharmaceutical industry are funded by government. This can affect their ability to purchase new automated system depending on what their annual budget is. A large number of customers are from the automotive industry which isn't a very stable industry. According to Jaguar Land Rover (2021) there was a loss of 42.4% on sales last year just from covid19. This effect automation companies in turn stops the automotive companies wanting to spend money improving systems.

Economic

Inflation rates of all kinds are positive for the automation industry as it encourages manufactures to be more efficient in their processes to have as little employees as possible to save on wages. Having an automated system boosts productivity and reduces the need for human input. Disposable income of the population gives a positive effect to automation industries. There is an indirect relationship between the buying of products and manufactures buying automated machines but they are linked.

Social

fewer

Social impacts automation as UniversitiesUK (2021) state "higher education institutions has decreased by 5.3% since 2007–08" if less people are studying in higher education it can reduce the back feed of engineers that are coming into the industry thus making quality engineers more sort after and companies will have to pay more in salaries to attract these engineers to work for them. Safety standards are continually being raised in the UK. This encourages companies to go automated or semi-automated on machines with high level safety equipment on the machines to keep their employees safe. 2

Technologies

Technologies in automation don't seem to be changing rapidly and have been fairly steady for the last 20 years. The only technology that's adapting in automation rapidly is the industry 4.0 where companies are looking for more remote connections on machines to have data analysis at ease. As long as training and consideration is kept to this industry 4.0 the automation company should keep up with competitors in the industry. On the manufacturing side of the company maybe if manual machine such as a milling machine or a lathe broke and needed a replacement it could possibly be updated with a new 3D printing system to give the companies new avenues.

Environment

There aren't many environmental factors that affect the company as its waste only tends to be metal and paper which is recycled. The company shouldn't have a large carbon footprint as it's a small building with < 40 employees. To make itself greener it could look at sourcing renewable energy to run the manufacturing side at a smaller cost to national grid. The company could do more to encourage less people to drive to work and reduce the emissions of the workers traveling. Government encouraging the use of renewable energies gives the company more opportunities to produce machines in these growing sectors.

Legal

Laws that protect employees in the work place are becoming more and more detailed and complex. The company may want to consider employing a HR role to ensure that every person in the company is being treated fairly and correctly against ethical and employment laws. Failure to do so may result in a claim against the company which may damage the company's reputation of being a responsibility. Health and safety in the work place needs to be continually scrutineered to ensure that no employee or visitor is at risk.

3 *Good work on the analysis*

A few words to describe Porter's,, otherwise, good work.

Porters' 5 forces 4

Threat of new entrants

There is high risk of new entrants in automation but it will take a company a long period of time to gather enough resources and skilled workers to be considered a threat. New companies will tend to bid low to win jobs and the result will likely have to make a loss on jobs by doing so as they won't have as much discount in buying parts for the system as an established company. Customers wont likely use a new company for an automated system as it would be a large risk for them to trust a company with little experience. It will be easy for a new company to get access to resources and they could easily subcontract their work that they don't have skills and experience in house. Overall, there is a threat of new entrants that could lose customers

Bargaining power of suppliers

In the case of free reign of products to use on a job the suppliers don't get much bargaining power as there are multiple suppliers and manufactures that can supply the equipment. If the customer requests a specific supplier or product for a machine that is not from a supplier that the company commonly uses then the supplier has bargaining power as there's no other choice but to use them. On PLC equipment changing suppliers won't affect programming abilities as the in-house skills as there is a wide range of knowledge. Staubli is the only robot manufacture that the company has skilled workers in. to change a robot supplier would in tale of costs of training and time for experience to be gained.

Rivalry among existing customers

There are a lot of other automation companies which brings rivalry with it. The customers will be loyal to a company that can back up their promises and provide a quality machine on time. There is a range of quality among rivals some which are lower quality machines but are cheaper and higher aesthetic quality machines that are more expensive. An advantage over the other companies is the range of in-house skills and experience. It doesn't affect customers greatly to switch between automation suppliers.

Bargaining power of buyers

The company has multiple customers from multiple sectors so it doesn't rely on one customer which can dictate prices. There are a few rivals to the company which will under quote the prices set to steal work so sometimes the price quoted for the job has to be lowered to win the job. This will affect sale prices. Competitors offer very similar services so customers tend to go for price and availability to meet their timescale. Customers have bargaining power as they could easily go somewhere else if the company was too expensive. The customer is in control of the automation market

Threat of substitute products or services

The only substitute to automation is a manual worker or semi-automated system which assists a worker to complete a task. automated systems are becoming more and more common in manufacturing though their consistency and speed it adds to production. Depending on the style of potential customers working strategy will dictate substitutes. A small low production company isn't likely to buy an automated system but a high-volume manufacturing company would.

2. Corporate Social Responsibilities

A cooment about triple bottom line thinking would be appropriate here

The company holds a strong CSR as it holds being ethical above profit. Health and safety is always the most important part of any machine produced and corners are never cut to save money or time. EBS states “At EBS we understand that our people are our greatest asset” (2021) this shows how important they consider their emplyees to be and likely they’ll treat all employees fairly, lawfully and respeactfully as its in their best intrest. EBS also states “through the creation of an excellent working environment we aim to be the workplace of choice for the very best people” (2021). Employees are given training to help develop their careers, employees are taken on as appresntices and have been given opurtunity to contiue to degree level all funded by the company.

The company encourages employees throughout the year to help towards charities for children and what the employees contribute they match. This shows how close the company is to the local comunitee.

The company could look into doing more to show its contribution to a greener Britain as its website doesn’t support the idea. This consideration to a greener Britain would improve the companies image in a world which is centred on a clean renewable planet.

3. lean Manufacturing

According to R. Sundar (2014) Lean Manufacturing is a way of stream lining the way the company is making its product or giving its service. It looks at what is the most efficient way of completing a process to save time and money. There are multiple techniques and areas to focus on in lean manufacturing an example is quality control to prevent customers receiving faulty goods.

EBS currently uses some Lean manufacturing techniques. The first technique is abbreviated as T-I-M-W-O-O-D 7 wastes. This stands for Transport, Inventory, Motion, Waiting, Over-Processing, Overproduction, and Defects. This is how the company uses this;

Transport is moving things unnecessarily. EBS reduces this buying having all the process for making an automated machine in one building to prevent having to transport the goods through the stages. This is also refined further as everything in the work is designed as a near production line setup where a project will progress through its design and implementation stage whilst moving step by step not moving back and forth around the workshop.

Inventory is ensuring that only the correct number of what's required is kept. When a job leaves the design stage parts list are ordered for the jobs to the specific number of what's required. No parts are allowed to be ordered for stock unless it's a disposable item for manufacturing or it is a calculated risk.

Motion is ensuring that work spaces are efficient. Most employees on the workshop floor have their own bench which they wheel to jobs so that all their tools are readily available to prevent them walking to get them.

Waiting is ensuring the whole process is timed perfectly so there is no waiting involved as soon as production stops due to a part or process that has to be waited on it is no longer an efficient process. EBS spends a lot of time managing projects to ensure as much as possible runs in sync to reduce waiting.

Over- processing is having a process that is more work that it needs to be. This looked at more in the design process as number of components in an assembly are always trying to be reduced to make it simpler. The only issue is with this is to avoid one thing doing two as its being tried and tested and with one of machinery it usually works as a compromise and can end up causing defects.

Over Production this is similar to inventory where you should only make what is demanded.

Defects is slowing production by having to make things twice or reworking it whether it was made wrong or designed wrong.

Quality is always a priority for EBS so it looks closely at preventing defects as a machine goes though the stages of a project. The quality is maintained by checking and fixing defects as well foreseeing them and preventing them. Throughout the design stage there are meetings about the job where multiple people whom may not be working on that job share their views about it and consider improvements that could be made to strengthen the reliability before the machine is manufactured which will cost more to fix the issue. When the job is in manufacturing there are several quality control stages which should flag up any defects before the machine leave the factory.

5s is used in EBS but it isn't being utilized to its full potential. All the starting blocks are there to implement it but people aren't complying to it and it isn't being enforced. If it was a person's role to enforce 5s it could lead to a more productive work place. 6

many of the lean tools and techniques could have been mentioned if not addressed in detail

4. Recommendations for Consideration

As an over all of the company the processes have been quite refined especially in the manufacturing of parts for machines. The efficiency issues occur more in the assembly of machines where there isn't enough communication between management, designers and technicians. Defects occur that are when the machine is being assembled on the workshop that get spotted very quickly by technicians. Issues spotted this late in a project is costing more money and time. This is a trend that happens on nearly every job. If there was at least one supporting technician from each trad involved in the project review meetings in the design process of the job these issues could have been solved without the waste of rework or waiting.

7

trade

Priorities tend to get mixed up whilst commencing the project. Early on in the project if the meetings held more of a range of people then the Priorities of the job may be more accurate as everyone could give their views on what the top Priorities should be and agree on a ranking. This will allow the correct people to be working on the correct sections of the job without ending up with the waste of waiting.

A lot of time is spent gathering date in house at how long jobs and tasks take. This needs to be fed back into the timescale of jobs to ensure a more accurate timing plan causing less stress on employees having to work large amounts of overtime at short notice which may lead to the skilled worker feeling unhappy and being less productive causing further delays.

Timing plans should be created to a realistic scale of resources we actually have. Its sometimes shown on a plan that there is 100 hours of work to do in one week when there is only one person that can work on a job but it's become their issue to make the job plausible within that time. In summary make the timing plan to resources available not so that it just meets the deadline as there is no point in having it if it's impossible

5. Vision and Mission Statements

EBS states “Total piece of mind” (2021). This is towards their mission statement as their currently working on having the customers to have a thought that when they hand their job over to EBS it will be in safe hands and controlled. EBS mentions its global attributes in its mission statements as you can find their machines planted in multiple countries across the world which is something, they are proud of. A possible mention of quality may improve the mission statement so that potential customers may justify paying more for the machines. Other similar companies list what they can provide for their customers in their mission statements this might show more clearly what the reasons for choosing them are.

There is no vision for EBS on the website. The company should possibly look into focusing what their vison may be to attract new and existing customers as well as their employees to join them on obtaining their vison. A suggestion of a vision statement would be to that EBS’ vision is to see a lean manufacturing world that’s sustainable for renewable energy and safe for the environment.

Works Cited

Brehmer, B. (2005). The Dynamic OODA Loop: Amalgamating Boyd's OODA Loop and the. *10th International Command and Control Research and Technology Symposium*, 1-15.

Dergisi, U. S. (2017). SWOT ANALYSIS: A THEORETICAL REVIEW. *The Journal of International Social Research*, 994-1006.

EBS Automation. (2021, 03 14). Retrieved from www.ebs-automation.com: https://www.ebs-automation.com/careers/

EBS Automation. (2021, 03 15). *www.ebs-automation.com/about-ebs-automation-special-purpose-machines/*. Retrieved from www.ebs-automation.com: https://www.ebs-automation.com/about-ebs-automation-special-purpose-machines/

EBS Automation. (2021, 03 10). *www.ebs-automation.com/sectors*. Retrieved from www.ebs-automation.com: https://www.ebs-automation.com/sectors/

JaguarLandRover. (2021, 03 10). *media.jaguarlandrover.com/news*. Retrieved from media.jaguarlandrover.com: https://media.jaguarlandrover.com/news/2020/07/jaguar-land-rover-reports-q1-fiscal-202021-retail-sales

Kusiak, A. (2018). Smart manufacturing. *International Journal of Production Research*, 508-517.

R. Sundar, A. B. (2014). A Review on Lean Manufacturing Implementation Techniques. *Procedia Engineering*, Pages 1875-1885.

UniversitiesUK. (2021, 03 11). Retrieved from universitiesuk.ac.uk: https://universitiesuk.ac.uk/facts-and-stats/data-and-analysis/Documents/patterns-and-trends-in-uk-higher-education-2018.pdf

assignment 1

GRADEMARK REPORT

FINAL GRADE

49/100

GENERAL COMMENTS

Instructor

A good standard of report, detailed feedback on what was done well and what could be improved can be found in the feedback form.

PAGE 1

PAGE 2

PAGE 3

PAGE 4

PAGE 5

Text Comment. A short description of PESTEL needed to clarify that this looks at external influences many of which are out of the control of the organisation

Comment 1

A short description of PESTEL needed to clarify that this looks at external influences many of which are out of the control of the organisation

Text Comment. fewer

Comment 2

fewer

PAGE 6

Text Comment. Good work on the analysis

Comment 3

Good work on the analysis

PAGE 7

Text Comment. A few words to describe Porter's,, otherwise, good work.

Comment 4

A few words to describe Porter's,, otherwise, good work.

PAGE 8

Text Comment. A cooment about triple bottom line thinking would be appropriate here

Comment 5

A cooment about triple bottom line thinking would be appropriate here

PAGE 9

Comment 6

many of the lean tools and techniques could have been mentioned if not addressed in detail

Text Comment. many of the lean tools and techniques could have been mentioned if not addressed in detail

PAGE 10

Comment 7

trade

Text Comment. trade

PAGE 11

PAGE 12

GRADING FORM: NEW CSG-RUBRIC

SEAN JONES	**49**

1. ENGAGEMENT WITH LITERATURE

Research and use of the wider literature relevant to the assignment tasks. A satisfactory range of web sites has been used to research the topic.

06

2. KNOWLEDGE AND UNDERSTANDING

Display of knowledge of the subject, awareness of current thinking Strategic planning This has been conducted to a good standard. The work would benefit from being more in the form of bullet points to keep the important messages easy to find and read. CSR Some triple bottom line thinking is evident in the analysis (profit people planet). There is a satisfactory explanation of some of the CSR activities undertaken by the company. The analysis could have included some recent examples of CSR. Lean manufacturing The explanation of lean is satisfactory considering the wastes, quality and 5S. However, some very appropriate lean tools and thinking have not been covered such as the use of kaizen to improve the wat things are done, Poka Yoke to avoid the assembly problems stated, FMEA to get right first time and QFD to focus on correct solutions.

15

3. COGNITIVE AND INTELLECTUAL

Critical thinking and analysis of the topic. Grasp of the broader topic A satisfactory grasp of lean, CSR and strategic planning has been demonstrated.

09

There are gaps in the study of lean which could have been filled by a more concise consideration of a wider range of the thinking, leaving space for more detailed work on the most relevant.

4. PRACTICAL APPLICATION

How well the strategic management planning and evaluation tools been applied. The analysis suggests communications, planning and early design issues are the areas for improvement. A link between these and studies of lean and strategic planning should have been included here. Overall the analysis is satisfactory.

12

5. TRANSFERABLE SKILLS

Communication skills. How well has the report been written considering report structure and language. A well laid out report that has a reasonable flow to it. Use of bullet points and perhaps graphics would have made it easier to glean the important points.

07