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1. Executive Summary

This report details a strategic analysis of EBS Automation. EBS Automation are leaders in the design, manufacture and commissioning of multi-sector special purpose machinery, automated and robotic systems and tooling, jigs and fixtures with the aim of achieving total quality control of product outputs. EBS supply to a multi-national customer base including USA, Ireland, Romania, Czech Republic and Germany.

A successful strategic analysis has been performed utilising SWOT, PESTLE and Porter's Five Forces; these tools have analysed different aspects of the business. SWOT was useful to outline the strengths, weaknesses, opportunities and threats that the business faces, and what can be done to improve the business performance by acting upon the weaknesses and threats, and utilising the opportunities to excel business. Porters Five Forces identified 5 competitive forces that shapes a business, by analysing other companies in the sector, the potential of new entrants within the industry with substitute products and the power that customers and suppliers have over the business were all analysed. Finally, a PESTLE analysis was performed, this outlined both micro and macro-economic effects that could shape the business performance, in positive and negative ways.

The business Corporate Social Responsibility (CSR) was analysed, this outlined that as an SME, EBS' CSR is on a microeconomic level due to the small influence it has on the local area. It demonstrated how valuable the current CSR is to employees due to the extensive investment in training, along with the importance to the local community through charity support to people within the local area. Both micro and macro-economic influences the CSR, therefore it is essential that the company adapts a solution to these influences to maintain competitive.

A discussion on Lean Manufacturing displayed how manufacturing techniques are implemented within EBS to consistently improve the manufacturing process, ultimately showing how 5 is utilised to create a fluid working production environment to maximise productivity whilst reducing wasteful procedures and time lost. Other manufacturing techniques such as TPM are used to maintain assets and ensure that the manufacturing processes can function smoothly, and why the "Five Why's" technique is so pivotal in the commissioning phase of machine building.

Finally, recommendations were made to the management team to further improve the production process. For example, monitoring and controlling goods inwards to reduce time when looking for components, and to control booking in procedures in a more efficient manner to ensure ISO 9001:2015 compliance. The difficulty in employing skilled software engineers was outlined, it was

recommended that a recruitment drive for software apprentices is required to ensure business needs within the future are met.

2. Strategic Company Review

A strategic company review is a process utilised to identify opportunities for creating new value in the business. It identifies the current situation of the business, potential performance improvements that can be made and what is required to successfully implement these. Improvements include performance of an existing company division or taking advantage of new market areas (Hone, 2023).

This can be done using a variety of tools and techniques including SWOT Analysis, Porters Five Forces and PESTLE.

2.1 SWOT Analysis

SWOT (strengths, weaknesses, opportunities, and threats) analysis is a framework utilised to evaluate the competitive position of a company, thus providing a means to develop strategic planning by addressing internal and external factors as well as the current and future potential of the business (Kenton, 2022).



Figure 1 – SWOT Analysis

Strengths are elements of the business that are done well, these are the qualities that separate the company from competitors. Weaknesses stop a business from performing at its optimum level, these are areas where the business must improve to remain competitive in the market. Opportunities are external factors which can be favourable to give the business a competitive advantage over competitors. Threats are external factors that have potential to harm the organisations profitability and operating status.

SWOT Analysis	
Strengths	Weaknesses
• All concepts, design, manufacturing and commissioning is undertaken in-house. • True bespoke solution catered to a customer's problem, delivered within budget and timescale. • Highly flexible, providing solutions within Automotive, Industrial, Food, Pharmaceutical, White Goods and Medical Devices sectors. • One hit machining capacity - 1600mm X 1300mm x 790mm. • Highly skilled and experienced multi-discipline engineering team of Electrical, Mechanical and Software Engineers with the competency to program and commission Siemens, Omron, Allen Bradley, Schneider and Mitsubishi PLCs and various Robots enabling control systems to be manufactured to client specification. • Strategic partners with global engineering suppliers including ABB and Staubli Robotics, Flexlink Conveyors, ATEQ, Technifor Lasers and Cognex Vision.	• Due to the bespoke nature of machines, it is getting increasingly harder to find people with the technical skills required to fill roles. • As a small and medium sized enterprise (SME) we operate with a relatively small team, when more projects are secured the workload of each person increases as engineers are working on multiple projects at once. • Due to the bespoke nature of the product, they are often one-off machines which results in a high research and development phase, this is not always capitalised on by repeat orders. • Lack of shop floor space - As the company has grown the workshop has been increased. However, when multiple large projects are developed at the same time space can be tight which brings its own inefficiencies.

Opportunities	Threats
• Three local special purpose machine builders within a close radius have entered liquidation, this has reduced competitors within the local area with the opportunity for their highly-skilled workforce to fill the organisations vacant positions. • The increasing number of start-up companies within the south of the country brings large opportunities to provide bespoke solutions, this is a large opportunity due to our position at the start of the M4 corridor. • Manufacturing capacity can be vastly increased by utilising the land owned by the business to create an extension which will double the factory floor space.	• It is becoming increasingly difficult to find employees with the right skills, if a current employee leaves it can cause a project to come to a halt due to the high-workload of other employees, resulting in timing plans being shifted. • Within the local area, manufacturing is at the lowest it has been in many years. Many manufacturers going out of business reduces the potential customer base within the area. • The on-going impacts of Brexit, COVID-19 and the Integrated Chip (IC) shortage has resulted in key components like PLCs, HMIs, Inverter and Servo Drives and safety devices having lead times over 52 weeks resulting in machine delivery dates being extended.

Table 1 – SWOT Analysis

2.2 Porter's 5 Forces

Porter's Five Forces is a model that identifies and analyses five competitive forces that shapes industry. Therefore, helping determine the strengths and weaknesses of the business. Porter's Five Forces is a useful tool in developing a structure to determine corporate strategies (Scott, 2022).

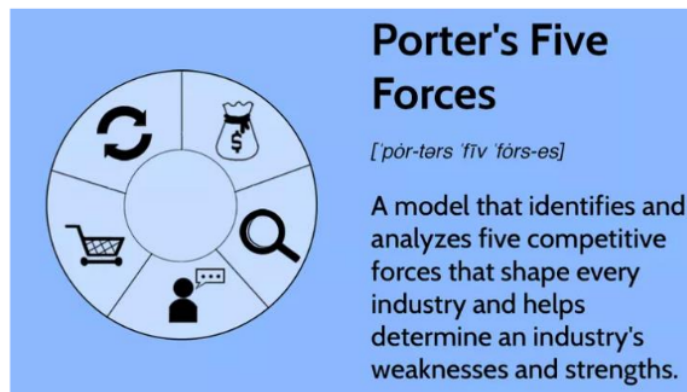


Figure 2 – Porter's Five Forces (Scott, 2022)

As seen in figure 2, Porter's Five Forces are:

- Competition in the industry
- Potential of new entrants into the industry
- Power of suppliers
- Power of customers
- Threat of substitute products

2.2.1 Competition in the industry

Within the local area, competition has fallen with Logic One Automation, Magor Designs and Celtic Automation all entering liquidation. This results in reduced competition within the local area. However, within the UK there are many machine builders including HAHN Automation, CME and Applied Automation. Due to the cost involved with the purchase of bespoke machinery and the ability for remote support through eWon devices, the location of the machine builder is not an important factor for most customers, therefore there is large competition across the United Kingdom.

EBS Automation do not only offer automated solutions, the flexibility of the company results in the ability to provide machining, welding and machine safety consultancy which increases their presence in the area. EBS Automation are also improving their presence in the industry, utilising Industrial Internet of Things (IIoT) technology to develop Digital Twins of their machines, these are dynamic virtual models of the machine which operate identical to the machine. This gives the ability to modify aspects of the machine without causing any downtime or manufacturing costs, which is a solution that few machine builders can offer due to the licensing and development costs. EBS Automation has also recently purchased an automated packaging system builder, increasing their presence in this sector by increasing their market share.

2.2.2 Potential of new entrants into the industry

It is a difficult industry to enter as a new business. There are large overhead costs due to the equipment required, ranging from CNC Mills & Lathes, Manual Mills & Lathes, Grinders, Welders to PLC licences and CAD packages for mechanical modelling and electrical & fluid schematics. These overhead costs are often far too high for most new industry entrants. This results in businesses specialising in one discipline, then working with other contractors of other disciplines to provide a complete solution, driving up project costs. EBS Automation operated in this manner up until 2014, it was found that projects run far smoother when fully in-house due to project being controlled by only one company enabling full control without relying on the schedule of other contractors to provide vital information.

2.2.3 Power of Suppliers

The bespoke nature of the products often requires bespoke components to be utilised, this can result in large costs especially in low-competitor markets. EBS Automation were commissioned to develop a robotic cell to flame polish Quartz domes utilised in IC Fabrication plants for Intel Corporation, this system required 6 quartz torches to be designed and manufactured. The speciality of the requirement meant that the market for the equipment is limited, only one supplier could meet the requirements, this then gave the supplier the power to charge high unit costs.

2.2.4 Power of Customers

The power of customers is not often an issue as customers receive a quote for the proposed machine with a cost and delivery time. However, buyers are free to explore the options of the market. Many companies provide free concepts as part of the quote, therefore extensive time can be lost during the quoting stages due the customers power to compare suppliers and choose the cheapest option. It is not infrequent that customers will try to bargain the price and lead time on a machine.

2.2.5 Threat of substitute products

The threat of substitute products ties in with the power of customers, as the customer is free to explore the market, other machine builders will also provide quotes and concepts to solve the same problem. However, once a solution has been provided customers with the same issue are likely to order a machine with the company. For example, EBS Automation produced a one-of-a-kind Mattress Stripping machine for Rhondda Cynon Taf Council to separate the springs from the mattress to be recycled, reducing landfill waste (letsrecycle, 2012). Other councils including Galway have ordered identical machines instead of market shopping, proving that if a solution already works, there is a low threat of substitute products in the machine building sector.



Figure 3 – EBS Automation Mattress Stripping Machine (Automation, 2012)

2.3 PESTLE Analysis

PESTLE is an acronym for exploring external macro-economic factors that a business can encounter, Political, Economic, Social, Technological, Legal and Environment. PESTLE is utilised to outline a clear idea about the environment the business operates in, helping aid strategic decision making to outline any areas which can be exploited to increase growth, or to reduce threats (CIPD, 2021).



Figure 4 – PESTLE Analysis (IBIS, 2020)

PESTLE Analysis			
Area	Factors to consider	Factors affected within industry	Importance to organization
Political	P1. Brexit P2. UKCA	P1. Brexit has impacted importing and exporting goods, even goods such as software licenses which would originally be sent over via email instantly, are now required to go through customs which can take weeks to deliver. P2. Due to the UK not being a part of the European Union, new legislation must be followed. Equipment for the UK market must now be UKCA marked, but equipment for the European market requires CE marking. Complexity is added when self-declaring CE compliance as the representative signing self-conformity must reside in the European Union. This requires third-party representatives to sign off EBS Automations technical file, thus adding extensive fees that were not required pre-Brexit.	P1. Delayed projects due to extended lead times on components, resulting in projects not meeting their proposed delivery date with loss of factory floor space due to machines being on stand-still waiting for critical parts. P2. Added technicalities when compiling the technical file. Employees require additional training on the new requirements. In order to sign-off a machine in an EU country a third-party representative must be employed, incurring further costs not required pre-Brexit.
Economic	E1. War in Ukraine E2. Cost of Living Crisis E3. IIoT	E1. The War in Ukraine, along with COVID-19 and Brexit has driven up the cost of raw materials, also increasing the cost of products (OECD, 2022). E2. The cost-of-living crisis has increased the companies' overheads. The equipment required to produce the components for the products are high power consumers, reducing overall profits. E3. IIoT is pushing manufacturers to improve their manufacturing processes, increasing the demand for automated solutions.	E1. Further costs resulting in machines costing more, this could result in a loss of orders due to cancellations as a result of price increases. Overnight drastic increases resulted in money lost on projects taken on before the war. E2. Reduced profits due to the increase in energy prices. E3. Increased demand for automated solutions has the opportunity to bring new projects.

Social	S1. Unsociable Hours S2. Automation in Society	S1. As many customers operate abroad, it is frequent that EBS' engineers are required to work unsociable hours abroad for periods of time. S2. Automation is often negatively portrayed in society due to its association with replacing manual labour jobs with automated robots.	S1. This could be a deterrent when employing engineers, not all employees are willing to travel. S2. Some groups view the business negatively, associating it with removing well paid jobs by automating the process.
Technology	I1. Industry 4.0 I2. Continuous Development	I1. Industry 4.0 & IIoT technologies offer new solutions to customer problems. I2. It is essential that employees are continuously improving and developing personally to understand new technologies, often requiring external training courses.	I1. These problems often require systems integrators and machine builders to implement and commission, enhancing EBS Automations project portfolio. I2. External training courses required, adding additional costs and loss of time on projects to learn new skills.
Legal	L1. Sector Legalities L2. Standards	L1. Different sectors have different legal standards which often contradict each other. L2. Frequent introduction of new standards.	L1. As EBS manufacture machines for many industries, it is essential that standards are not confused with one another, as each sector has differing requirements. L2. New standards mean that employees will need to attend training to keep up the most up to date legislation. This can require additional cost as well as loss of labour time
Environmental	EN.1 Recycling	EN1. As recycling requirements increase, more councils and governments will require solutions to efficiently recycle.	EN1. These requirements have led to EBS Automation being involved in developing control systems for machinery for digital deposit return schemes, giving consumers the ability to scan serialised codes on drinks bottles to obtain a financial deposit in a smartphone app (Circular, 2022).

Table 2 – PESTLE Analysis

3. Corporate Social Responsibilities

Corporate Social Responsibility (CSR) refers to the voluntary actions taken by companies to improve their impact on society and the environment. The implementation of CSR policies can be influenced by various macro and microeconomic factors (Reckmann, 2023).



Figure 5 – Corporate Social Responsibility (thegivingmachine, 2018)

Microeconomic factors refer to internal economic conditions that affect individual companies. These include factors such as supply and demand, competition, and consumer behaviour (Boyle, 2021). These factors can impact a company's CSR policies in the following ways:

- Consumer demand: Consumers are increasingly concerned with ethical and sustainable business practices. Companies that meet these demands by implementing CSR policies may attract more customers.
- Competition: Companies may implement CSR policies to gain a competitive advantage over their rivals. For example, a company that invests in renewable energy may attract environmentally conscious consumers.
- Cost-benefit analysis: Companies must balance the cost of implementing CSR policies with the potential benefits. If the costs outweigh the benefits, a company may choose not to invest in CSR initiatives.

Macro-economic factors refer to external economic conditions that affect the economy as a whole. These include factors such as GDP, interest rates, inflation, and government policies (Bloomenthal, 2022). These factors can impact a company's CSR policies in the following ways:

- **Economic growth:** A strong economy can lead to increased consumer demand and higher profits for companies. This can provide companies with the financial resources needed to invest in CSR initiatives.
- **Government policies:** Government policies such as tax incentives and regulations can incentivize or mandate companies to invest in CSR initiatives. For example, a government may offer tax credits to companies that invest in renewable energy sources.
- **Social attitudes:** Social attitudes towards environmental and social issues can impact a company's reputation and bottom line. Companies may implement CSR policies to align with changing social attitudes and maintain their reputation

It is essential that the weaknesses and threats outlined in the SWOT analysis, along with the negative aspects of the PESTLE are addressed. If the SWOT analysis is ignored, important opportunities and threats will not be addressed (alacrity, 2020).

By ignoring the SWOT and PESTLE, EBS could be negatively impacted by:

- **Limited growth potential:** Ignoring weaknesses can limit a company's growth potential. Unaddressed weaknesses can hinder a company's ability to compete in the market and may prevent them from taking advantage of new opportunities (CIPD, 2021).
- **Missed opportunities for improvement:** Ignoring weaknesses means a company may miss out on opportunities to improve their operations, products, or services. By addressing weaknesses, a company can improve their performance and increase their competitive advantage (Humphrey, 2004).
- **Decreased customer satisfaction:** Weaknesses can lead to poor customer experiences, which can result in decreased customer satisfaction and loss of business. If a company fails to address weaknesses, they may struggle to meet customer needs and expectations (Chron, 2021).
- **Reputational damage:** Weaknesses can lead to poor performance or negative incidents, which can damage a company's reputation. Failing to address weaknesses can make a company appear unresponsive or unprepared, which can erode employee customer trust and confidence (Eccles, 2007).

As an SME, examples of CSR in EBS Automation are on a microeconomic level:

EBS Automation – Corporate Social Responsibility	
Investing in employees	In partnership with the University-of-Wales-Trinity-St-David, EBS Automation employees have been given the opportunity to work towards a Level 7 qualification in Continuous Improvement or Industry 4.0, giving employees the opportunity to gain credits toward a master's degree. EBS also has a long history of employing apprentices, developing life-long skills whilst giving the opportunity to undertake higher education courses up to degree level, not restricting the development employees to prevent them from leaving.
Supporting local charities	EBS frequently collect for local charities, these include food banks, animal shelters and Christmas collections for local families.
Sustainability	EBS are continually working towards sustainability in manufacturing, developing machines to recycle materials such as mattresses which would go to landfill. As well as developing control systems to scan consumers drinks bottles in recycling centres in return for a financial deposit, providing an incentive to recycle. Also, working with local companies in the development of cost-effective wind turbine solutions
Ffatri 4.0	EBS is working alongside the Welsh Government in a project to look how businesses can increase productivity whilst meeting net zero carbon emission targets through smart technologies, based on the premise that productivity and sustainability goals in manufacturing can be accelerated through digital manufacturing technology (gov.wales, 2022).

Table 3 – EBS Automation Corporate Social Responsibility

Micro and Macro-economic influences can influence the company's ability to deliver the CSR. Macro-economic factors such as the current economic conditions resulting in a cost-of-living crisis could result in the company finding it difficult to invest in their CSR initiatives. This could be a catalyst to negatively impact the micro-economic aspects. Financial difficulties could reduce the budget available to invest in employees training and development, along with external activities such as supporting charities (Pieloch-Babiarz, 2020).

This could result in the company creating a bad reputation for itself, further damaging the success and bottom line. Negative perceptions of the company can result in:

- Loss of customers: A negative reputation can cause customers to lose trust in the company and choose to do business with competitors instead.
- Reduced revenue and profits: As a result of losing customers, the company may experience a decline in revenue and profits, which can impact its overall financial health and stability.
- Difficulty in attracting new customers: A bad reputation can also make it difficult for the company to attract new customers, even if it offers high-quality products or services.
- Employee turnover: A negative reputation can also affect the morale of employees, leading to higher turnover rates and difficulty in retaining talent.
- Legal issues: In some cases, a bad reputation can also lead to legal issues, such as lawsuits, regulatory investigations, or fines, which can further damage the company's financial health and reputation.

A good reputation will attract apprentices to work for the company, benefits include further & higher education (employinganapprentice, 2021), professional development and the end-goal of full-time employment, whilst ensuring that the business can develop people to fill roles to support current and future requirements. In 2021, 10 apprentices were employed by EBS in Electrical, Mechanical and Welding disciplines, becoming one of the largest employers of apprentices within the local area, especially for an SME.

A good CSR improves customers perception of the business. Companies who take social responsibility seriously can win consumers, whilst developing a market platform. For example, EBS frequently develop machines for the medical and life sciences sector, developing processes to improve people's lives creates a positive force in society. CSR shows accountability, this is essential for EBS as customers are not likely to place orders if they are not viewed as accountable, also investors are only likely to invest in a company that is deemed accountable (Hoepner, 2022).

Delivering the CSR can save money, customers are willing to pay more for products from socially responsible companies (Wertz, 2021). Following the CSR will retain employees reducing time and financial losses associated with high staff turnover, also improving the perception of the company. Yoana Cholteeva states that "increased employee turnover is leading to the deterioration of company culture, company culture had suffered in 63% of UK businesses as a result of high turnover" (2022).

4. Discussion on Lean Manufacturing

Lean manufacturing is a production process ideology utilised to maximise productivity, whilst concurrently minimising waste within a manufacturing or production operation. Lean principles see waste as something which does not add value but still costs time, money and effort (TWI, 2022). Benefits of lean manufacturing to EBS include reduced lead times, operating costs and an improved product quality.



Figure 6 – Lean Manufacturing (leanfactories, 2019)

The principle of implementing lean manufacturing is to continuously improve a process by removing waste. Reductions of waste deliver process improvements, therefore delivering value to the customer and the business. Waste types include services, processes, parts and activities which require time, money and skills but do not create value, one of the largest drains on profitability is waste (Gay, 2016). Within the automation industry these wastes are excessive inventories of parts, underused talent and wasteful processes.

Lean manufacturing is used in the business to:

- Reduce Costs: Only manufacturing & purchasing the correct number of components needed, then eliminating unnecessary waste.
- Reduce time: Time wasting is a highly inefficient working practice which costs money. Being able to work efficiently creates shorter lead times and allows for machines to be designed, commissioned and delivered on time.
- Quality Improvement: The improvement of quality allows SMEs to stay competitive in their market, which is essential as the customer's needs and wants develop.

4.1 5S

5S is a systematic form of visual management. 5S is not just about the cleanliness and organization of a company but about maximising efficiency and profits (Morrison, 2021). The 5S methodology originated in Japan, implemented by Toyota in order to make 'Just in Time (JIT) Manufacturing' possible (Harris, 2019). 5S enables the correct amount of product to be produced, when required. Having an organised workspace implementing visual cues to maintain structure allows JIT manufacturing to proceed fluidly whilst identifying defects easier (Muelaner, 2019).

The 5S steps are:

5S Steps	
Sort (Seiri)	Sort through materials, keeping only the essential items needed to complete tasks. (This action involves going through all the contents of a workspace to determine which are needed and which can be removed. Everything that is not used to complete a work process should leave the work area.)
Set in order (Seiton)	Ensure that all items are organized and each item has a designated place. Organize all the items left in the workplace in a logical way so they make tasks easier for workers to complete. This often involves placing items in ergonomic locations where people will not need to bend or make extra movements to reach them.
Shine (Seiso)	Proactive efforts to keep workplace areas clean and orderly to ensure purpose-driven work. This means cleaning and maintaining the newly organized workspace. It can involve routine tasks such as mopping, dusting, etc. or performing maintenance on machinery, tools, and other equipment.
Standardise (Seiketsu)	Create a set of standards for both organization and processes. In essence, this is where you take the first three S's and make rules for how and when these tasks will be performed. These standards can involve schedules, charts, lists, etc.
Sustain (Shitsuke)	Sustain new practices and conduct audits to maintain discipline. This means the previous four S's must be continued over time. This is achieved by developing a sense of self-discipline in employees who will participate in 5S.

Table 4 – 5S Steps (creativesafetysupply, 2020)

5S has been successful within the electrical automation department. Utilising the 5S steps to organise electrical consumables such as cable, terminals and control product accessories, allows for reduction in time lost searching for the required components. Each consumable has a designated bin on a Kanban trolley in the stores, regularly monitored to ensure that stock levels are acceptable, resulting in high efficiency when building control panels. Figures 7-13 in appendix 9.1 display where 5S has improved efficiency in EBS.

4.2 Total Productive Maintenance (TPM)

Total Productive Maintenance (TPM) is a strategy that operates with the idea that everyone within a company should participate in maintenance. TPM utilises the skills of all employees to seek incorporation of maintenance into the everyday production of a factory. TPM is performed daily on EBS Automations production machines (CNCs, Grinders, Manual Mills and Lathes), these are not just machines but assets to the company which are essential to the daily operations. Implementing TPM results in fewer breakdowns, increased performance and a safer workplace (Fiix, 2022).

4.3 Six Sigma

Six Sigma uses data and statistics to analyse and reduce errors and defects. Six Sigma improves cycle times and bottom-line results while minimising errors and defects by reducing process variation and enhancing control (asq, 2020).

Six Sigma has been an essential tool utilised within EBS Automation for high volume machining of brake calliper castings. With large unit costs at a high volume, it was essential that the CNC machines were set up to meet tight tolerances. By measuring and analysing the first hundred parts, the CNC was monitored and adjusted using gathered data to ensure defects were minimal.

4.4 Five Whys

Five Whys is a technique which assists in determining the root cause of a problem, and not the symptom of a problem. Five Whys involves repeatedly asking “Why” questions until the true underlying reason for the defect has been determined. This technique is highly useful in identifying solutions to problems to initiate a corrective action to the root cause, not a symptom (Chaneski, 2016). Within EBS Automation, Five Whys is essential as previously, machine modifications have been made to quickly alleviate an issue during commissioning. It is often then found that this modification did not solve the root cause resulting in a loss of time and materials and often having a knock-on effect on other machine functions, instead of initially tackling the real cause through the 7 steps:

1. Assemble a team
2. Define the problem
3. Ask the first “Why?”

4. Ask “Why?” four more times
5. Know when to stop
6. Address the root cause(s)
7. Monitor your measures

4.5 Mistake Proofing

Mistake Proofing is an essential manufacturing technique for machine builders. It is essential that mistakes are found and rectified before the machine enters the manufacturing stage, this limits loss of revenue, time and materials. All electrical, mechanical and fluid drawings must be checked and signed off by another engineer, greatly increasing the potential for errors to be found before it is too late.

Poka-Yoke is implemented on most production machines, this focuses on eliminating human error which causes defects. This is based upon the fundamental human behaviours that:

- Errors can be eliminated
- Mistakes are inevitable

EBS Automation have implemented various mechanical poka-yoke systems using tooling and fixtures to ensure the correct part is fitted to an assembly, in the correct orientation. Electrical poka-yoke systems have been implemented in production machines, ensuring that thermostat dials are set in the correct position before automatic microswitch calibration through stepper motors, this poka-yoke system cannot be defeated by operators, giving the customer the peace of mind that the product has been properly calibrated.

4.6 Lessons Learned

A key manufacturing technique utilised for continuous improvement in EBS is “Lessons Learned”, before a machine is delivered to a customer. The project engineers have a meeting with technicians at the machine to identify what was learned, helping uncover what was done well and what can be improved. Coloured post-it notes are used to collate the opinions of engineers and technicians by placing them on the machine to invoke discussion, helping to outline the positive and negative aspects

of the project. This technique has been highly useful in ensuring good practices are repeated and the same errors is not made twice. Lessons Learned is especially useful on repeat orders and duplicate machines.

5. Recommendation for Management Team

EBS Automation are consistently improving project management, design and manufacturing processes, along with purchasing and stores. This is essential to stay ahead of competitors.

A key area for improvement is the stores area utilising lean management systems. Currently each job number has a dedicated shelf for the goods-in items, with electrical items allocated in red boxes, and mechanical items in blue. All EBS employees can gain access to these boxes within the stores, and regularly items are taken from the wrong job area or are taken for other projects and then not replaced, resulting in time lost looking for the item, then having to re-order and wait for delivery. In the current climate lead-times are extended causing projects to be on stop for longer periods than usual.

A recommendation is to improve the stores area, initially using 5S to organize and lock off the area. Then introducing a booking out system to ensure that the correct parts are booked out for the correct job, introducing traceability of parts which are signed for, only being booked out by a designated employee. It would also be beneficial for the control system department to develop a PLC, HMI & Barcode scanner system to book in all goods inwards parts, utilising an SQL database to store records goods inward items, saving the extensive time taken up for the storeman to manually input the data, preventing the wrong data potentially being entered. This will ensure that ISO9001:2015 quality audits are met.

In recent years, it has become increasingly difficult to find employees with the necessary skills required for PLC programming, a further recommendation would be to offer apprenticeship roles focused in machine software, ensuring role gaps are filled with the necessary skill requirements.

6. Company Vision, Mission Statement and Values

6.1 Vision

"To be a specialist machine design & manufacturing company that is recognised worldwide for customer service whilst operating:

- *Professionally*
- *Ethically*
- *Legally*
- *Authentically*
- *Profitably"*

(Automation, 2017)

6.2 Mission

"To employ and develop staff at all levels with the attitude, skill, confidence and ability to deliver the vision." (Automation, 2017)

6.3 Values

"For yourself, the customer and the company:

- *To be open and honest*
- *To be respectful*
- *To have integrity*
- *To be conscientious*
- *To be adaptable"*

(Automation, 2017)

6.4 Discussion

A company's vision statement should be adapted over time to ensure that it remains relevant and reflects the company's current goals and priorities. A company vision statement should be frequently adapted due to:

- **Changing Market Conditions:** Conditions can change overnight, resulting in vision and mission statements no longer being relevant if changes are not adapted.
- **Evolving Business Goals:** As EBS continues to grow, its business goals will change. The vision statement must be current and reflect these changes to ensure that everyone in the organisation is working towards the same goals.
- **New Leadership:** New leadership may have a different perspective and may want to revise the company's vision statement to reflect their vision for the company.
- **Feedback from Stakeholders:** Employees, customers and other stakeholders can help a company understand how they are viewed and what changes are required to improve. Adapting the company's vision statement ensures that the company is addressing these concerns and staying relevant.

In summary, adapting a company's vision statement is necessary to ensure that it remains relevant within the business and society, and reflects the company's current goals and priorities. By adapting its vision statement, a company can stay competitive, aligned, and better positioned for success.

7. Conclusions

The strategic management report has proven successful, outlining areas that can be improved to increase performance. The SWOT analysis was useful in outlining what the company does well and the current opportunities that can be capitalised on, but also the areas where the company lacks and potential threats that could harm the business. This outlined that the company is highly successful due to the bespoke nature of machines catered to a customer's specification, but this results in difficulty finding employees with the technical skills required. It was found that the bespoke nature of the company is both a strength and a weakness, as the systems are tailored to solve a customer problem which once solved does not result in multiple orders to capitalise on the extensive time spent on research and development. For many, manufacturing one-off systems would not be financially viable, but this method has been successful for EBS.

Utilising Porters 5 Forces, it is seen that EBS Automation is in a good position, being one of the only automation companies within the local area, reducing their competition thus giving the ability to increase bargaining power. Also, outlining how difficult the industry is to enter for new businesses due to the extensive overhead costs which reduces competition.

The PESTLE analysis outlined key issues which could potentially harm the business growth, such as the country's current economic situation such as the cost-of-living crisis develops. It is becoming increasingly more expensive to operate due to energy costs and raw material prices, reducing overall profits. As a result, the only option is to increase the cost of labour to ensure that the company is still profitable. It however outlined the potential projects that will arise as the Internet of Things (IoT) further develops where manufacturers will require control systems for smart factories, along with governments requiring machinery to monitor recycling processes due to the highly-technical workforce who can develop bespoke solutions. The increase in costs is likely to result in customers going out of business, decreasing the customer base.

However, it is clear that as an SME, EBS' corporate social responsibility impacts the local community, on a micro-economic level. As the company continues to grow in conjunction with the Welsh government, the CSR will develop and impact the wider community, however, it was seen how the CSR can easily be effected by micro and macroeconomic changes, and it is essential that the company addresses these changes to ensure the business can survive.

It is seen that EBS utilises lean manufacturing techniques daily to improve business performance, ensuring that projects are delivered on-time and on budget. The figures in the appendix clearly display how 5S has been utilised to improve the pull and flow of the project process by standardising and

organising the workplace, in turn reducing wasted time. It outlined how important TPM, 5 Why's and Mistake Proofing are to the full process from design to commissioning, utilising these tools ensures that machines are delivered within budget.

Recommendations were made to implement 5S in further areas such as the stores to increase the control of the goods inward, implementing a booking out system will introduce traceability of components, this would reduce time lost looking for components that have been used on different jobs. Also, apprenticeships in software engineering could be offered to fill job roles, developing young engineers in a training program tailored towards the business needs will be highly beneficial to future proof the business.

8. Citation List

- alacrity, 2020. *SHOULD I USE A SWOT OR PESTLE ANALYSIS?*. [Online]
Available at: <https://alacrityfoundation.co.uk/should-i-use-a-swot-or-pestle-analysis/>
[Accessed 21 02 2023].
- asq, 2020. *WHAT IS SIX SIGMA?*. [Online]
Available at: <https://asq.org/quality-resources/six-sigma>
[Accessed 28 02 2023].
- Automation, E., 2012. *Gallery*. [Online]
Available at: <https://www.ebs-automation.com/news/gallery/>
[Accessed 19 02 2023].
- Automation, E., 2017. *Employee Hand Book*. 2nd ed. Llanelli: EBS Automation .
- Bloomenthal, A., 2022. *Macroeconomic Factor: Definition, Types, Examples, and Impact*. [Online]
Available at: <https://www.investopedia.com/terms/m/macroeconomic-factor.asp#:~:text=Macroeconomic%20factors%20include%20inflation%2C%20fiscal,national%20income%2C%20and%20international%20trade.>
[Accessed 11 03 2023].
- Boyle, M. J., 2021. *What Factors Influence Competition in Microeconomics?*. [Online]
Available at: <https://www.investopedia.com/ask/answers/042115/what-factors-influence-competition-microeconomics.asp>
[Accessed 03 11 2023].
- Chaneski, W., 2016. *Lean and Six Sigma Make a Good Team*. [Online]
Available at: <https://www.mmsonline.com/columns/lean-and-six-sigma-make-a-good-team>
[Accessed 28 02 2023].
- Cholteeva, Y., 2022. *High employee turnover damaging company culture, research suggests*. [Online]
Available at: <https://www.peoplemanagement.co.uk/article/1795419/high-employee-turnover-damaging-company-culture-research-suggests>
[Accessed 03 11 2023].
- Chron, 2021. *What Happens When a Business Does Not Meet the Demand of Consumers?*. [Online]
Available at: <https://smallbusiness.chron.com/happens-business-not-meet-demand-consumers-21832.html>
[Accessed 11 03 2023].
- CIPD, 2021. <https://www.cipd.co.uk/knowledge/strategy/organisational-development/swot-analysis-factsheet#gref>. [Online]
Available at: <https://www.cipd.co.uk/knowledge/strategy/organisational-development/swot-analysis-factsheet#gref>
[Accessed 11 03 2023].
- CIPD, 2021. *PESTLE Analysis*. [Online]
Available at: <https://www.cipd.co.uk/knowledge/strategy/organisational-development/pestle->

[analysis-factsheet#gref](#)

[Accessed 10 03 2022].

Circular, 2022. *Deposit Return Schemes and the case for “digital”*. [Online]

Available at: <https://www.circularonline.co.uk/features/deposit-return-schemes-and-the-case-for-digital/#:~:text=What%20is%20a%20DDRS%3F,using%20a%20smart%20phone%20app.>

[Accessed 28 02 2023].

creativesafetysupply, 2020. *5S Lean Methodology, Systems & Principles - Training & Research Page*.

[Online]

Available at: <https://www.creativesafetysupply.com/content/education-research/5S/index.html#:~:text=5S%20stands%20for%20the%205,task%20on%20a%20regular%20basis.>

[Accessed 28 02 2023].

Eccles, R. G., 2007. *Reputation and Its Risks*. [Online]

Available at: <https://hbr.org/2007/02/reputation-and-its-risks>

[Accessed 11 03 2023].

employinganapprentice, 2021. *SMEs*. [Online]

Available at: <https://www.employinganapprentice.com/employers/employer-type/smes/>

[Accessed 11 03 2023].

Energy, E., 2022. *You pay your electricity bill but do you know the real kWh cost?*. [Online]

Available at: <https://www.edfenergy.com/for-home/energywise/what-is-kwh-guide>

[Accessed 17 12 2021].

Fiiix, 2022. [https://www.fiiixsoftware.com/maintenance-strategies/total-productive-maintenance/#:~:text=Total%20productive%20maintenance%20\(TPM\)%20is,everyday%20performance%20of%20a%20facility..](https://www.fiiixsoftware.com/maintenance-strategies/total-productive-maintenance/#:~:text=Total%20productive%20maintenance%20(TPM)%20is,everyday%20performance%20of%20a%20facility..) [Online]

Available at: [https://www.fiiixsoftware.com/maintenance-strategies/total-productive-maintenance/#:~:text=Total%20productive%20maintenance%20\(TPM\)%20is,everyday%20performance%20of%20a%20facility.](https://www.fiiixsoftware.com/maintenance-strategies/total-productive-maintenance/#:~:text=Total%20productive%20maintenance%20(TPM)%20is,everyday%20performance%20of%20a%20facility.)

[Accessed 28 02 2023].

Gay, C., 2016. *8 WASTES OF LEAN MANUFACTURING | MACHINEMETRICS*. [Online]

Available at: <https://www.machinemetrics.com/blog/8-wastes-of-lean-manufacturing>

[Accessed 13 03 2023].

gov.wales, 2022. *AMRC Cymru hosts project to boost productivity and cut emissions*. [Online]

Available at: <https://www.gov.wales/amrc-cymru-hosts-project-boost-productivity-and-cut-emissions>

[Accessed 02 03 2023].

Harris, A., 2019. *TOYOTA LEAN MANAGEMENT AND 5S*. [Online]

Available at: <https://www.toyotaforklift.com/blog/toyota-lean-management-and-5s>

[Accessed 11 03 2023].

Hoepner, A. G., 2022. *Corporate social responsibility across industries: When and who can do well by doing good?*. [Online]

Available at: <https://www.risk.net/esg-investing-and-analysis-a-practitioners-guide/7955309/corporate-social-responsibility-across-industries-when-and-who-can-do-well-by->

doing-good

[Accessed 21 03 2023].

Hone, A., 2023. *Conducting A Strategic Review: An Elite Consultant's Ultimate Guide*. [Online]
Available at: <https://expert360.com/articles/conducting-strategic-review-elite-consultants-ultimate-guide#:~:text=%E2%80%8D-What%20Is%20A%20Strategic%20Review%3F,a%20new%20market%20adjacency%20opportunity>.
[Accessed 17 02 2023].

Humphrey, A. S., 2004. *SWOT Analysis*. [Online]
Available at: <https://www.businessballs.com/strategy-innovation/swot-analysis/>
[Accessed 11 03 2023].

IBIS, 2020. *How to Conduct a PESTLE Analysis*. [Online]
Available at: <https://www.ibisworld.com/blog/3-step-pestle-analysis/99/1127/>
[Accessed 19 02 2023].

Kenton, W., 2022. *SWOT Analysis: How To With Table and Example*. [Online]
Available at: <https://www.investopedia.com/terms/s/swot.asp>
[Accessed 19 02 2023].

leanfactories, 2019. *Lean Manufacturing Training Materials*. [Online]
Available at: <https://leanfactories.com/lean-training-materials/>
[Accessed 28 02 2023].

letsrecycle, 2012. *Welsh council opens mattress recycling facility*. [Online]
Available at: <https://www.letsrecycle.com/news/welsh-council-opens-mattress-recycling-facility/>
[Accessed 19 02 2023].

Morrison, T., 2021. *The Importance of 5S in Lean Manufacturing*. [Online]
Available at: <https://dcmlearning.ie/video-content/the-importance-of-5s-in-lean-manufacturing.html>
[Accessed 11 03 2023].

Muelaner, D. J., 2019. *5S – Organizing the Lean Workspace*. [Online]
Available at: <https://www.engineering.com/story/5s-organizing-the-lean-workspace>
[Accessed 13 03 2023].

OECD, 2022. *The supply of critical raw materials endangered by Russia's war on Ukraine*. [Online]
Available at: <https://www.oecd.org/ukraine-hub/policy-responses/the-supply-of-critical-raw-materials-endangered-by-russia-s-war-on-ukraine-e01ac7be/>
[Accessed 02 03 2023].

Pieloch-Babiarz, A., 2020. *An impact of macroeconomic stabilization on the sustainable development of manufacturing enterprises: the case of Central and Eastern European Countries*. [Online]
Available at: <https://link.springer.com/article/10.1007/s10668-020-00988-4>
[Accessed 21 02 2023].

Reckmann, N., 2023. *What Is Corporate Social Responsibility?*. [Online]
Available at: <https://www.businessnewsdaily.com/4679-corporate-social-responsibility.html>
[Accessed 11 03 2023].

Scott, G., 2022. *Porter's 5 Forces Explained and How to Use the Model*. [Online]

Available at: <https://www.investopedia.com/terms/p/porter.asp>

[Accessed 19 02 2023].

Siemens, 2022. *6EP1334-1LB00*. [Online]

Available at: <https://mall.industry.siemens.com/mall/en/ww/Catalog/Product/6EP1334-1LB00>

[Accessed 19 12 2021].

thegivingmachine, 2018. *Corporate Social Responsibility - A Simple Guide*. [Online]

Available at: <https://www.thegivingmachine.co.uk/blog/posts/corporate-social-responsibility-a-simple-guide/>

[Accessed 02 03 2023].

TWI, 2022. *WHAT IS LEAN MANUFACTURING AND THE 5 PRINCIPLES USED?*. [Online]

Available at: <https://www.twi-global.com/technical-knowledge/faqs/faq-what-is-lean-manufacturing#:~:text=Lean%20manufacturing%20is%20a%20production,are%20willing%20to%20pay%20for.>

[Accessed 28 02 2023].

Wertz, J., 2021. *How Social Values Drive Consumers To Brands*. [Online]

Available at: <https://www.forbes.com/sites/jiawertz/2021/12/27/how-social-values-drive-consumers-to-brands/?sh=12880f057425>

[Accessed 11 03 2023].

9. Appendix

9.1 Examples of 5S

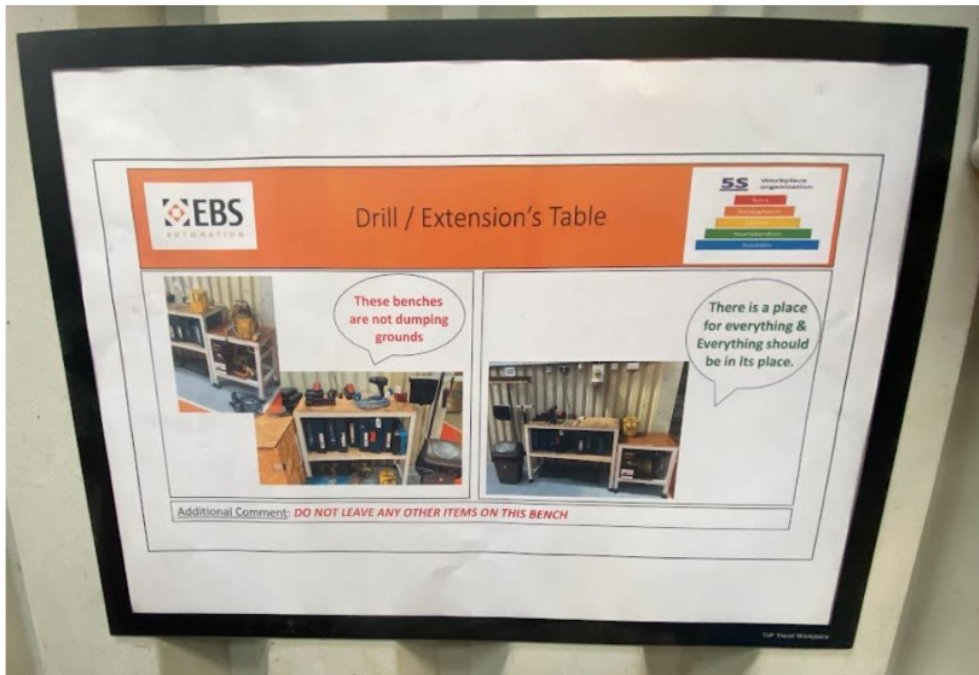


Figure 7 – 5S Extension Table Notice



Figure 8 – 5S Extension Table

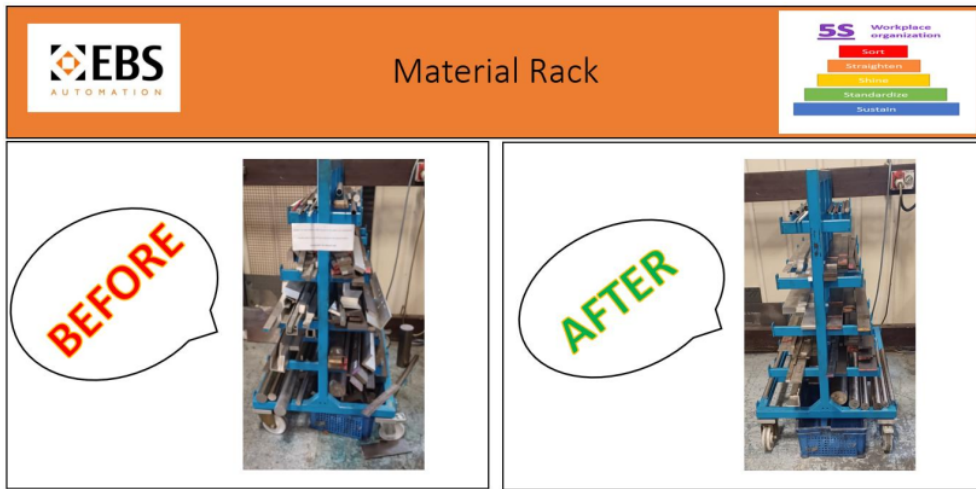


Figure 9 - 5S Material Rack Notice

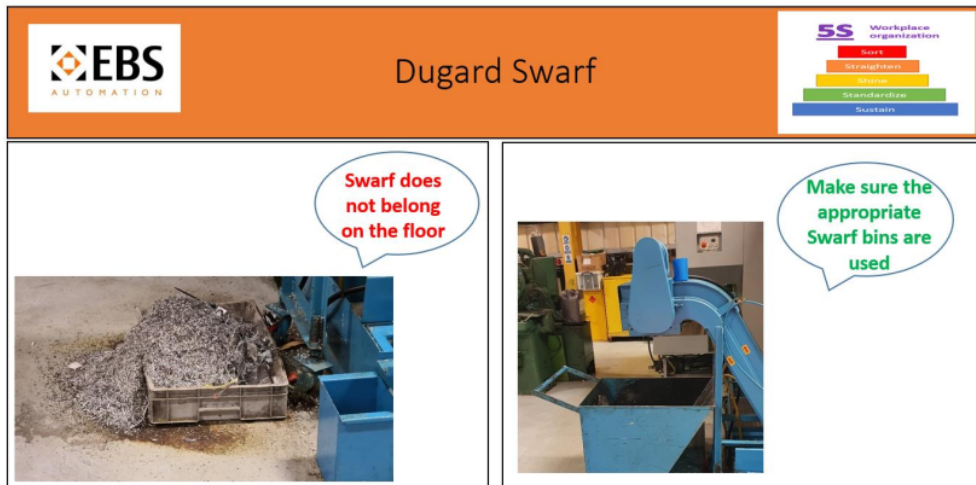


Figure 10 - 5S Swarf Notice

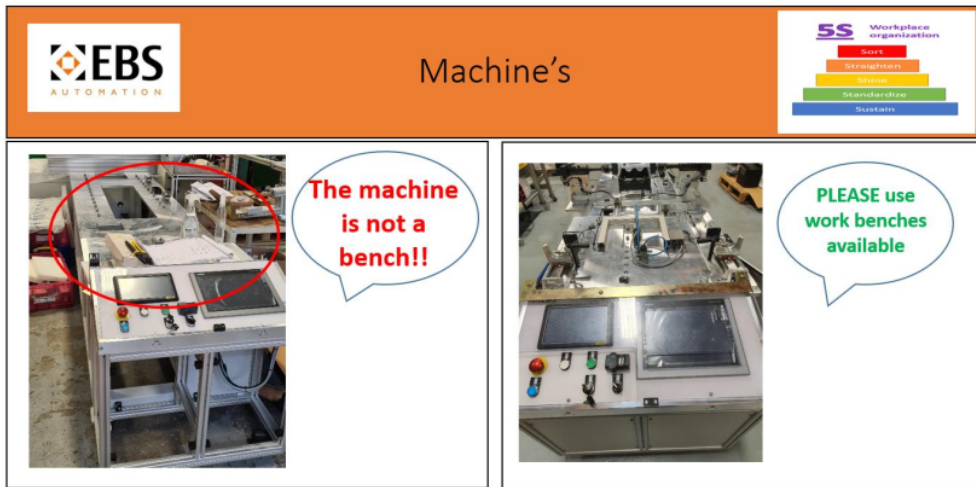


Figure 11 - 5S Work Benches Notice

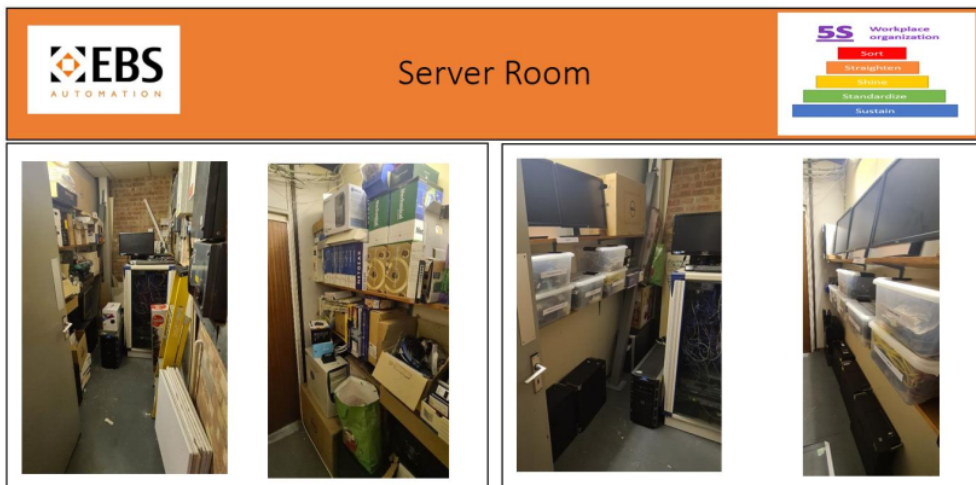


Figure 12 - 5S Server Room Notice

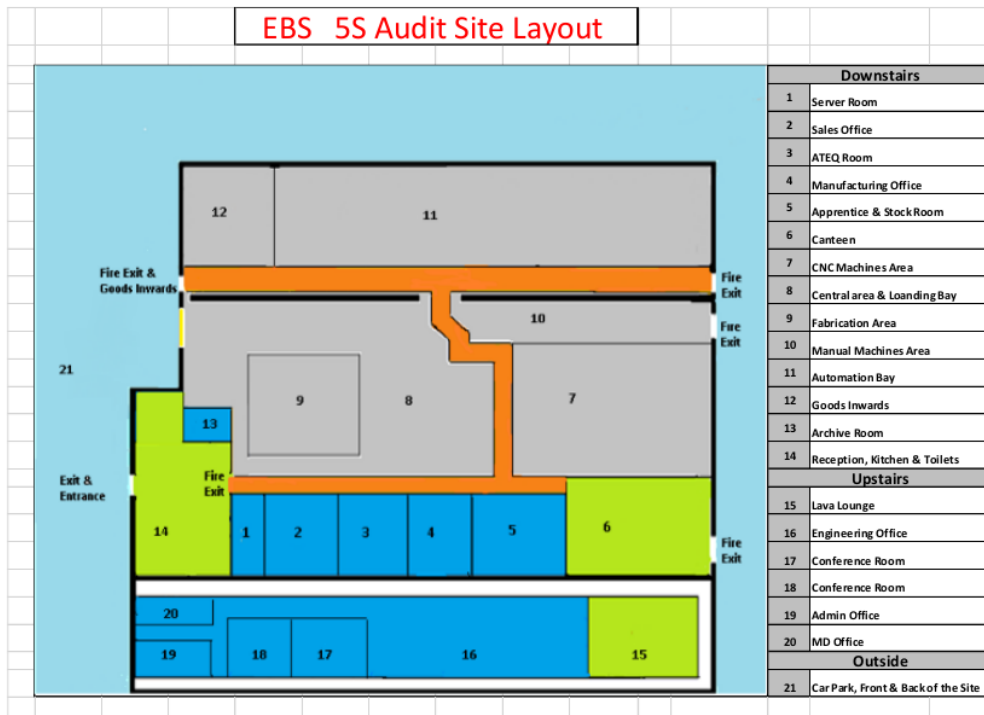


Figure 13 – EBS 5S Audit Site Layout

9.2 Live Project Board

JN/Customer	Job Title	Monday	Tuesday	Wednesday	Thursday	Friday	Delivery Date
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5371							

9.3 Quality ISO 9001:2015



Figure 15 – ISO 9001:2015 Board

FINAL GRADE

GENERAL COMMENTS

Instructor

70/100

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GRADING FORM: CSG-RUBIC

RESEARCH-INFORMED LITERATURE

 Excellent research used to support background information and establish company marketplace and strategic position. Excellent broad ranging Citation list of referenced sources but no separate Bibliography. Citations used to identify sources throughout but sentence structure needs to improve with use of citations as part of sentence instead majority are at end of paragraph.

7

KNOWLEDGE AND UNDERSTANDING

 Excellent background knowledge of EBS with history identifying business CSR, SWOT and PEST in tables and listing points to illustrate links to strategic position. Not necessary to provide images of SWOT but has depth of knowledge how each tool is used to provide criteria points for each.

22

ANALYSIS

 Links knowledge very well to understanding of lean methods used in EBS and where they link to sustainability for future potential using IoT etc. Identifies Porter's 5 forces as method of critical

13

awareness of fluctuations in macro and micro economic situations and political influences.

PRACTICAL APPLICATION AND DEP.

 Excellent knowledge of methodologies adopted in EBS and discusses TPM, Six Sigma, 5 Why's etc. to illustrate where they have tried to learn lessons and implement changes that improve efficiency. Company mission statement discussed and linked to recommendations. Needs to avoid too much detail in tables, figures etc.

22

SKILLS FOR PROFESSIONAL PRAC.

 Very good layout and details. Structure relies on information in tables. Improve use of citations in sentence structure.

6