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The impact of product recalls on businesses and projects

MODULE – QUALITY MANAGEMENT IN AN OPERATIONAL ENVIRONMENT

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Abstract

This paper firstly focuses on the product recall process, there is a brief look at the steps involved in the process, the effects of a product recall, the reason why a product recall can happen and how a company should deal with this. Then there is a flow chart depicting the stages involved with the recall process.

The focus then shifts to the costs involved with product recall and control methods to avoid the chance of a recall happening, the consequences of poor quality are also documented.

Restoring the customers confidence is then examined through quality control measures, sustainable and ethical business models with a robust supply chain model.

Introduction

Product recalls can cost organisations millions of pounds and can destroy a brand image that may never be restored. Many people such as Taiichi Ohno, Shigeo Shingo, Genichi Taguchi and Armand Feigenbaum have pioneered quality models and techniques to avoid the likelihood of product recalls and errors in product manufacturing from occurring. There is also modern day, international standards like ISO9001:2015 that can be followed to create a quality management system. I feel that researching the quality models that have proven success is the key to reducing errors in manufacturing and service provision. Learning from others mistakes and implementing processes and procedures to remove the likelihood of errors presenting themselves should provide a robust production and service system. This paper displays the product recall process, costs associated with it, prevention methods and how to restore consumer confidence.

Product recall process

A product recall is the request from a manufacturer of a product for the return of a batch, or the entire run of a product production, usually on the grounds of a safety concern, primarily, to protect the user of the product from the issue and to avoid corporate liability for negligence and negative publicity (Kumar, 2014).

Product recalls can be a major issue for manufacturers, they can incur huge costs through the recall process, these can be generated from carrying out the rectification of the defective product, through repair or replacement, to damaged company image, insurance claims, fines, loss of custom, reputation and downturn in manufacturing quantity and sales (Kumar & Schmitz, 2011)

Figure 1 - Product recall process, below, details the typical steps involved in the product recall process, these steps can vary depending on the industry in which the product is being used, but, generally, these are guidelines that must be met to ensure an effective recall is implemented.

There are many reasons why a product may be manufactured in an unfit state, the elements of the manufacturing process that may lead to this issue include a lack of testing, this may be through inadequate quality assurance checks of the product, they may not be suitable, thorough, or rigorous enough. A mistake in the manufacturing process such as contamination, may lead to faults in the finished product. Substituting part of the product for a cheaper alternative may lead to an insufficient quality product. All these elements could play a part in the reason for a product recall, if this does happen, the manufacturer must react quickly and efficiently (Indeed Editorial Team, 2021).

During the product recall process the manufacturer must decide the type of recall and the scale of response. The type of recall will be classed as serious/ dangerous, potentially dangerous, and least dangerous, the level will then determine which parties need to be informed of the situation and the severity of the recall. The manufacturer should have clear communications with the affected parties and reassure customers and other stakeholders that corrective measures are being implemented (Smith, et al., 1996).

The way in which a company handles a product recall can influence the perception of the company and its brand image. If the company introduces a voluntary recall rather than an involuntary, this will instil a confidence in the customer that the manufacturer is responsible and displays care and commitment to its customers. This demonstrates an acceptance of responsibility and portrays a 'striving to supply safe products' image instead of giving negative connotations (Souiden & Pons, 2009).

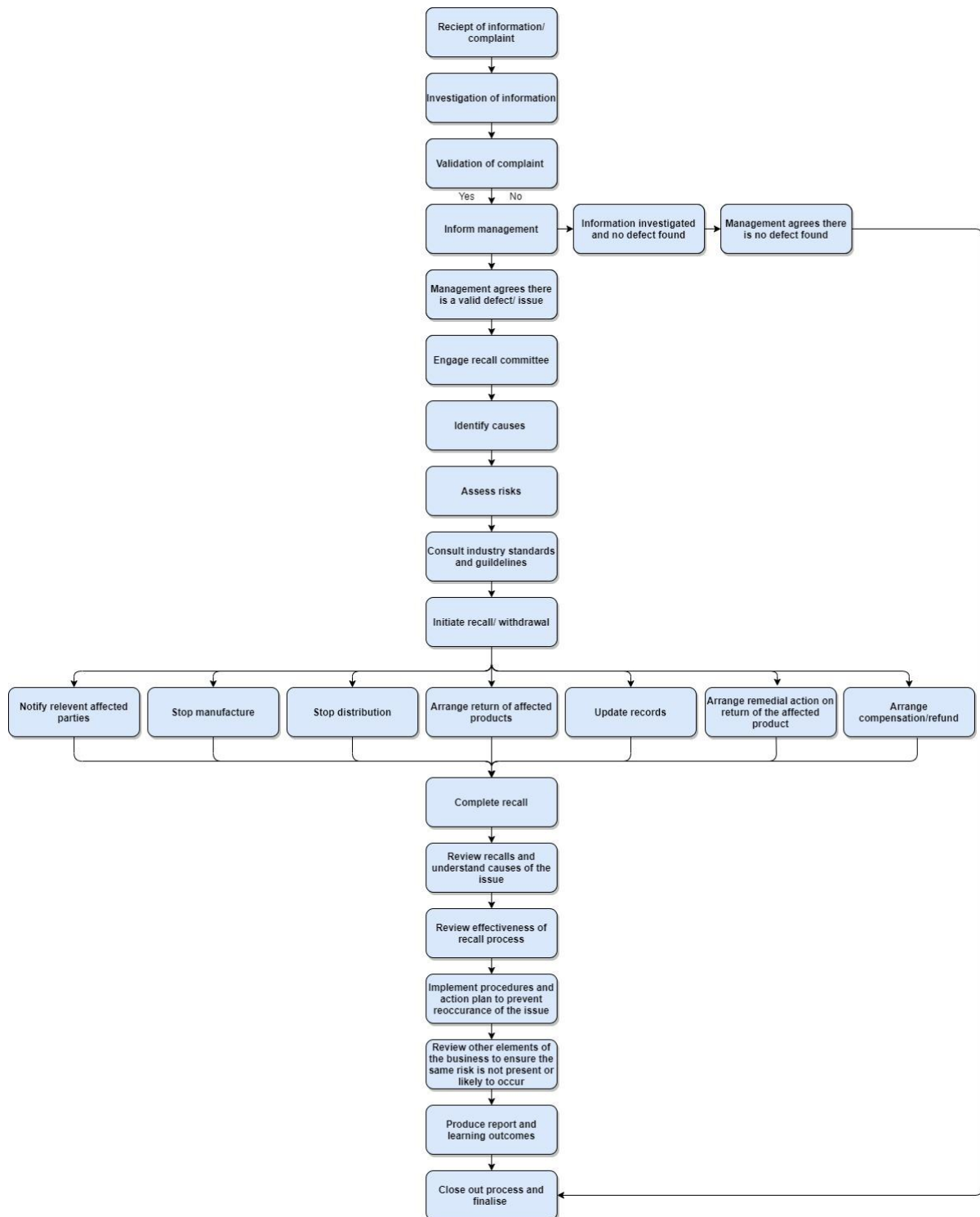


FIGURE 1 - PRODUCT RECALL PROCESS

Costs associated with product recalls and controls

The costs associated with recalling a product are made up of direct and indirect costs. Direct costs are measurable against the specific product that has been recalled, i.e., material costs, direct labour costs for production, indirect costs are costs associated with the business i.e., utilities, quality control, insurances (Berman, 1999).

The table below shows some of the typical costs associated with a product recall.

Direct costs of a product recall	Indirect costs of a product recall
Investigation costs (site visits, interviews, product testing)	Company market value
Communication costs (contacting distributors and end users)	Negative portrayal of brand image
Compensation/ refund costs	Costs associated in rebuilding brand image
Transport/ logistics costs to retrieve faulty products and distribution of replacement products	Loss of consumer confidence
Inventory loss costs	Long term sale losses
Disposal of faulty product costs	Increased product liability insurance costs
Business/ manufacturing interruption	Increased marketing costs to improve image
Fines/ claims	Increased product testing costs to ensure no further faults
Loss of profits	Additional personnel costs in testing facilities
Redesigning faulty product costs (labour and material)	Downturn in workforce morale
Downturn in sales costs	Downturn in future employee applications

TABLE 1 – DIRECT AND INDIRECT COSTS ASSOCIATED WITH PRODUCT RECALL

The costs incurred during a product recall can be vast for a business. As with the recent VW emissions scandal in 2015. VW, the world's largest automobile manufacturer is reported to have fitted emission reducing devices onto its diesel engines to pass laboratory emissions tests whilst being 40 times above the permitted pollution level allowed during normal use value in the US. This discovery resulted in a 40% reduction in share value within 2 weeks of discovery. The financial cost to VW is said to be £26bn, these costs are made up of claims, fines, and legal costs. VW made public apologies and made radical changes to its organisational structure. VW set the direction of the company's recovery and future, and, in 2016/2017 sales increased. A survey revealed that 75% of 6,300 VW owners in Ireland would purchase from the company again and 54% of non-VW owners are not put off buying a VW in the future (Jung & Sharon, 2019). This proves that an established, strong, reliable company brand can weather some bad publicity due to its generally good and established image. This recall was the result of non-ethical business practices as well as bad quality control.

Control methods to avoid product recalls

To ensure minimum production or service faults, it is advisory to implement a quality management system. A QMS is a formalised system that documents policies, processes, procedures, and responsibilities to achieve the policies and objectives set out in the quality plan (American Society for Quality, 2022). The most prominent QMS standard is ISO9001: 2015 (Watkins & Orchiston, 2016). This standard sets out the requirements that need to be achieved to provide consistent international quality products and service. It aims to improve customer experience and satisfaction through implementing a culture that focuses on consistent quality, growth, and continual improvement (Keen, 2022).

The clauses that contribute to ISO9001:2015 are detailed in the table below.

1	Scope	What products or services the organisation can supply that meet customer and regulatory requirements
2	Normative references	This includes standards that form a mandatory input into ISO9001:2015
3	Terms and definitions	This contains the descriptions of ISO9001:2015 standard specific terms and definitions
4	Context of the organisation	This clause is broken down into 4 sub categories which addresses the organisation's QMS with emphasis on interested parties needs and expectations
5	Leadership	This section is divided into 3 categories, leadership and commitment, policy and roles, responsibilities and authorities.
6	Planning	This clause looks at preventing and reducing risks and ensuring continual improvement
7	Support	This element identifies the multiple areas of support required - resource, competence, awareness, communication and documented information
8	Operation	This highlights the operational requirements for the provision of supply of the product or service
9	Performance evaluation	This section emphasises the review of performance through monitoring, internal audits and management reviews
10	Improvement	Improvement contains actions on non conformances and corrective actions as well as continuous improvement

TABLE 2 - ISO9001:2015 CLAUSES

The Plan-Do-Check-Act cycle below provides a simple four step model for implementing a process or carrying out change. The circle represents continuous improvement as it has no end. The clause's of ISO9001:2015 have been placed against the section in which they should be implemented.

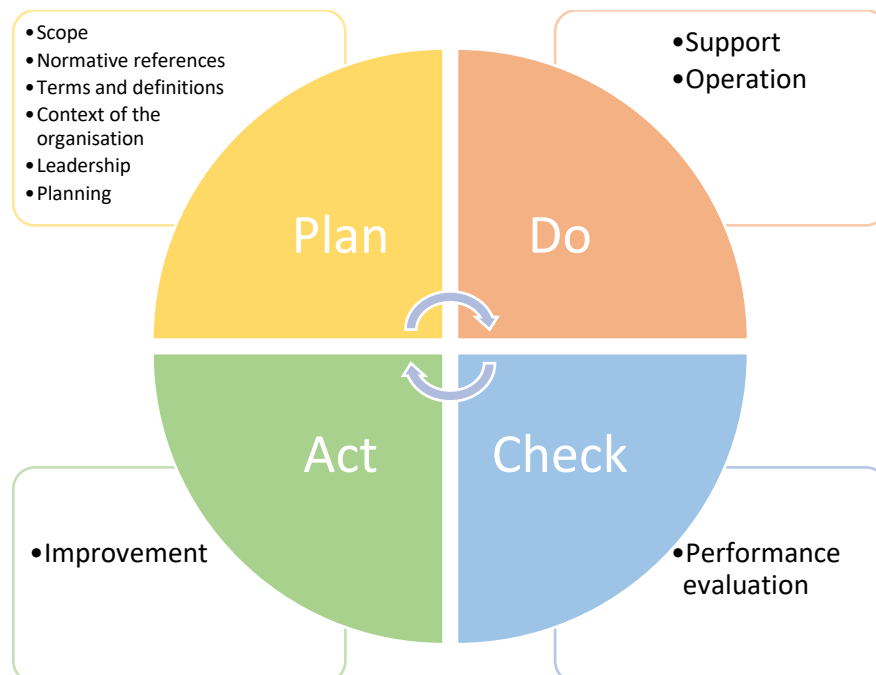


FIGURE 2 - PLAN DO CHECK ACT CYCLE

The figure below details the quality loops for products (left) and services (right).

These loops detail the steps within the lifecycle of a product or service. I feel that if there is documented procedures that are implemented correctly with these steps as set out in the ISO9001:2015 guidance, this will provide adequate control measures to ensure that minimal product or service faults are encountered. This will in turn provide assurance to customers that a quality product or service will be received and increase customer satisfaction.

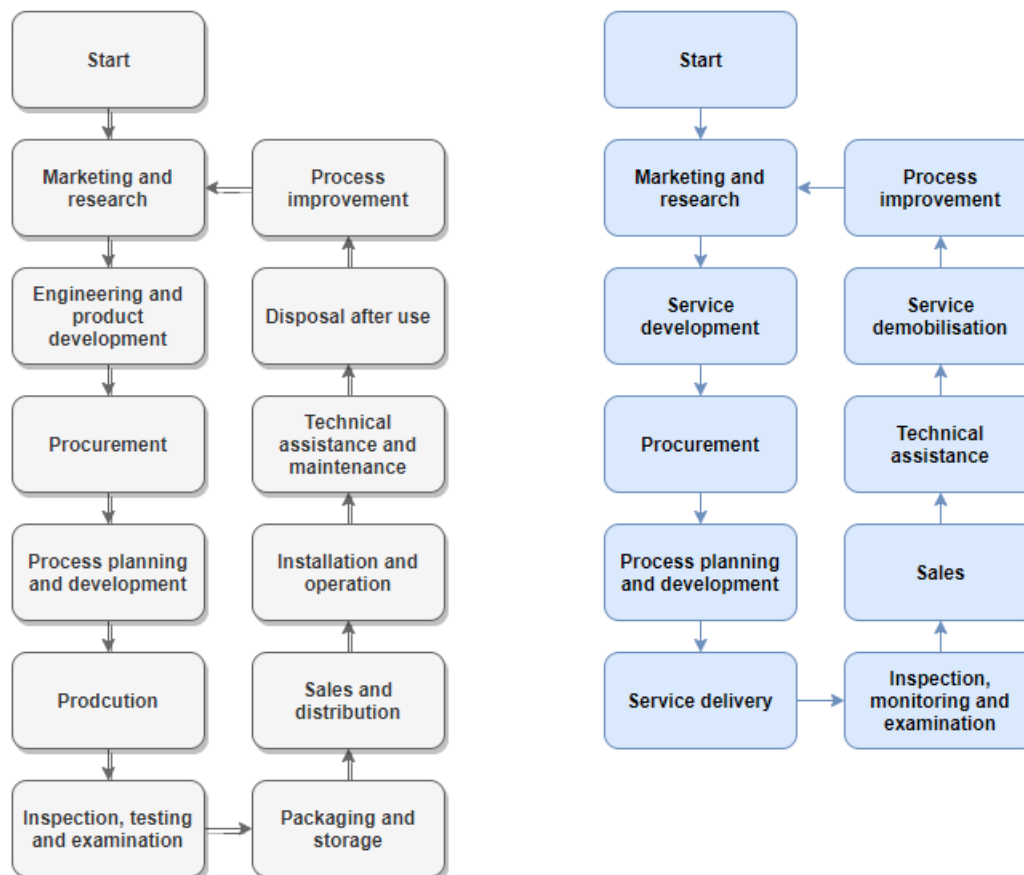


FIGURE 3 - PRODUCT AND SERVICE QUALITY LOOPS

The consequence and cost of poor quality

The definition of quality is the degree of which a product or service satisfies a specified set of attributes or requirements. Quality can be compared between two products or services that are of the same kind. The fact that quality can be compared, makes it imperative that the product or service that a company provides must be of good quality.

Dr Armand V. Feigenbaum pioneered the TQM (Total Quality Management) concept. Feigenbaum believed that quality is a principal, it is continuous improvement, not a quick fix, quality is the customers perception and not what the company thinks it is, and productivity is gained through cost effective quality investment (Feigenbaum, 1991). Designing, implementing, maintaining, and operating a total quality management system incurs costs through labour and accreditation but also through the ongoing continuous improvement requirements such as R&D, quality assurance, training, and process improvements. I feel that the justification of these costs is evident, as we have seen with the VW product recall and many more, the costs associated with product recall can be vast, as well as the negative press and loss of confidence in the brand, quality is always worth maintaining.

Armand V. Feigenbaum identified four quality cost categories, Prevention, Appraisal and Failure (internal and external). Prevention costs are those that are associated with ensuring that the process produces suitable quality products or services, appraisal costs are derived from inspecting the quality levels of the product or service and failure costs are incurred when rectification to a product or service because of poor quality is required before (internal) or after (external) delivery to a customer (Schiffauerova & Thomson, 2006).

Poor quality costs an organisation money, good quality saves an organisation money (Harrington, 1999). Although, there are costs associated in implementing and maintaining a quality system, the long-term costs of having these systems in place saves an organisation. The consequence of poor quality is far deeper than just financial loss, it also provides dissatisfaction in customers, loss of reputation, loss of customers and lost opportunities. The largest loss maybe that of opportunity, opportunity can only be estimated and not accounted, therefore, the magnitude of this will never be entirely accurate (Popescu & Dragomir, 2012).

Restoring customer confidence

Restoring customers confidence after a product recall or an issue with a service can take time. It is important that these issues are dealt with quickly and efficiently and that the customer understands that the organisation accepts responsibility for the problem, an apology followed up with corrective actions is vital. An effective complaint management system can help resolve complaints efficiently. The process must acknowledge the customers expectations. The objective of this process is to regain customer confidence, secure the customers business, strengthen business relationships, generate positive brand image, collect, and use the complaints received to improve products, services, and processes. The system must be accepted by all, ensuring that complaints are managed positively, leaving the customer satisfied when resolution has been met. The strategy should receive complaints, resolve the complaint, and send feedback to the customer (Filip, 2013). The figure below gives a simple overview of the process that should be followed when resolving customer complaints, ultimately, resolving the issue should develop and maintain loyalty and therefore maintain a successful business and profits.

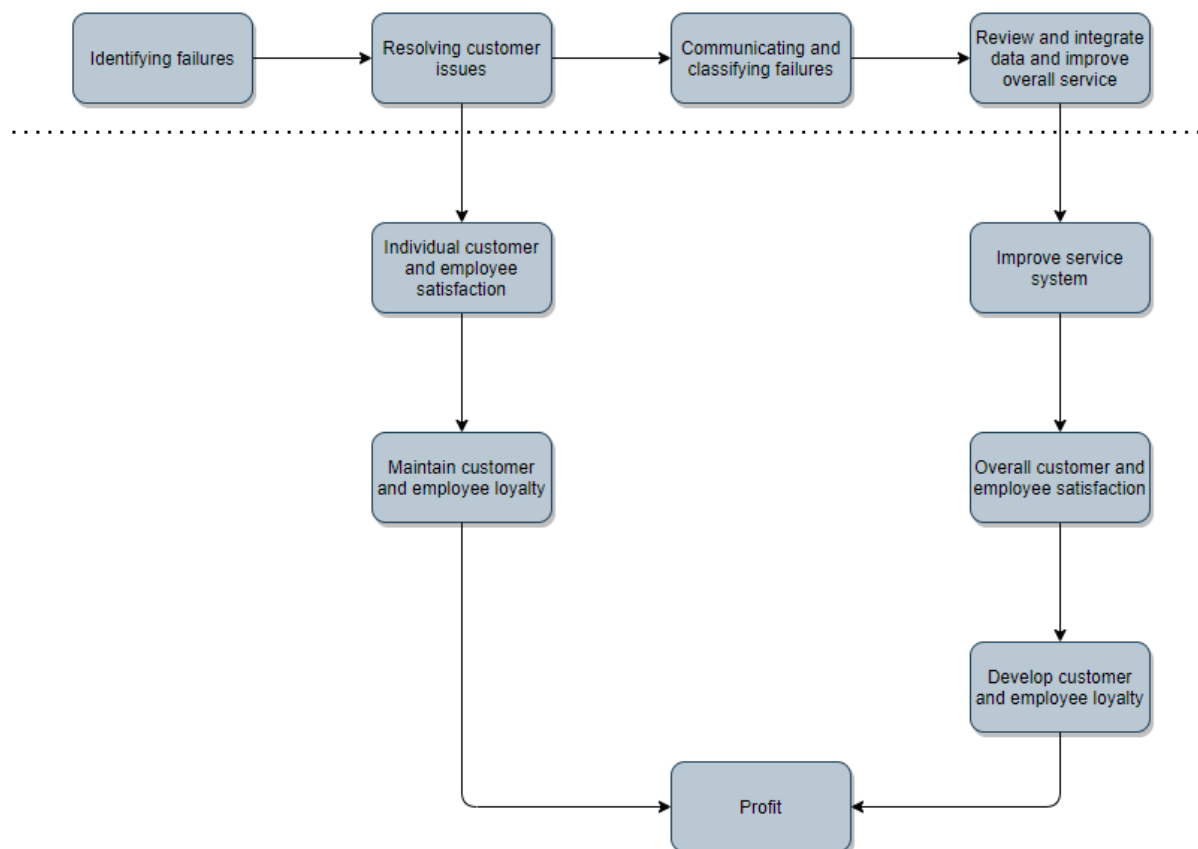


FIGURE 4 – SERVICE RECOVERY PROCESS

(TAX & BROWN, 1998)

When the complaint has been dealt with, it is important to go the extra mile and ensure that the customers affected understand that their business is valued and appreciated. This can be achieved by offering a free product or service, it is important that the experience finishes positively.

Sustainable business practices

Part of the customer confidence element of business operations places more demand on sustainable business models. The growth of the world population has accelerated economic development and as a result has increased demand on resources needed for industrial activities (COMIN, et al., 2020). Traditionally, the business concept model is described as a tool for an organisation to produce a product or provide a service, add value to these items and provide them to customers. Whereas a sustainable business model concept incorporates a social profit equation (social profit and environmental profit), value constellation (internal value chain and external value chain), value propositions (stakeholders products/services) and economic profit equation (sales revenues, cost structure and capital employed) (Aagaard, 2018)

Being a sustainable business is to not negatively affect the environment, community, or society. Being a sustainable business requires the organisation to consider the environmental, economic, and sociological factors when making decisions, to ensure that a short-term profit does not mean long term liabilities (Spiliakos, 2018).

The three pillars of sustainability are economic development, social development, and environmental protection. The image below shows that sustainability is achieved at the intersection of economic, social, and environmental values where they interact at the same level.

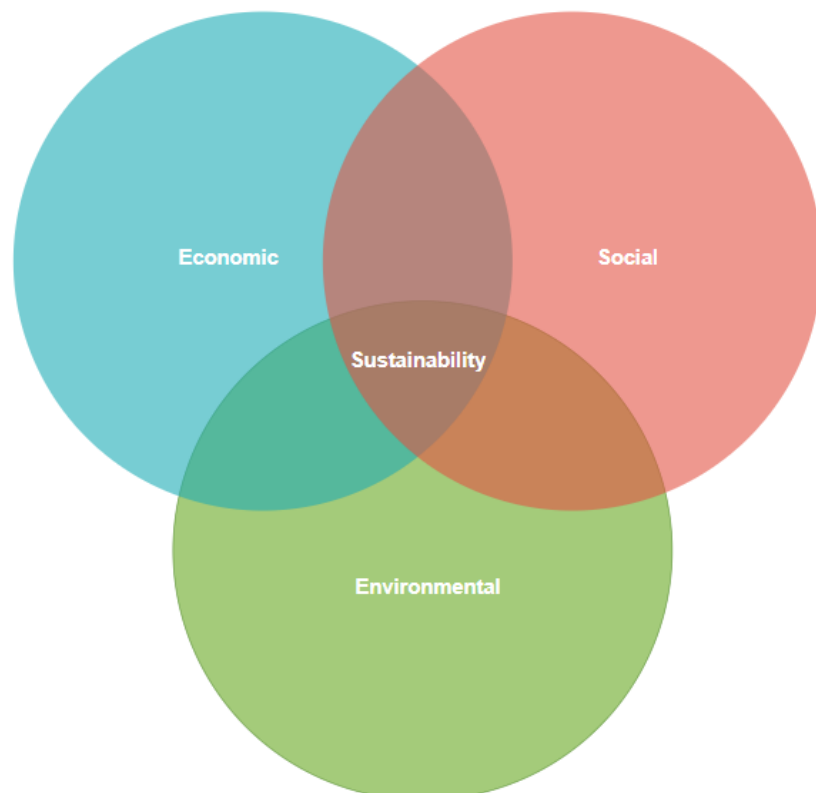


FIGURE 5 – THE THREE PILLARS OF SUSTAINABILITY

The main elements to address in relation to environmental sustainability are:

- Reducing energy consumption
- Reducing the amount of waste produced
- Increase amount of recycling
- Reduce carbon footprint
- Use sustainable materials for packaging and marketing
- Use local and sustainable suppliers

The main elements to address in relation to social sustainability are:

- Providing fair labour regarding pay rates, working conditions, freedom of association and no coercion or harassment in the workplace
- Being an equal opportunity employer, promoting diversity and inclusion without prejudice
- Providing effective and appropriate health and safety equipment and advice for all
- Engaging with local communities where the organisation is based

The main elements to address in relation to economic sustainability are:

- Profits – levels of profits and shareholder value
- Human investment – training investment in employees
- Investments - capital investments, acquisitions
- Local economy – strength of local economy
- Market capacity – position in market and future position in market
- Innovation - introduction of sustainable operating
- Growth – investment in future of the organisation to become larger in sector

Ethical trading

The difference between right and wrong is a principle of life. Everyone deals with decisions that tests integrity every day. It is important that a business operates with integrity as this displays honesty and morality. This attitude should stem from the very top of the organisation and through all departments.

Business leaders should demonstrate ethical practices in all situations, choices should be made for correct ethical reasoning rather than being financially driven. A robust leadership team demonstrates the correct values for the rest of the organisation and the correct attitude is embedded into the values of the business and all its employees.

Good ethical standing should be displayed in the way a business deals with its employees and customers, it should value its employees' opinions and should acknowledge customer feedback and address any issues that arise. The relationship with employees and customers should be loyal, loyal employees tend to work harder and maintain a better relationship with the employer, loyal relationships with customers ensure they continue to use the service provided rather than going elsewhere. An ethical business also cares for anyone, and anything effected by its operations. This includes employees, customers and any part of the supply chain, the environment, and the communities in which it is involved (Phillips, 2019).

Robust supply chain

A supply chain is the network of all individuals involved in the process of producing a product and selling it. It represents all involved from supplying of raw material, logistics, manufacturing, and distribution.

There are several supply chain models which are more/ less suited to different businesses (Lutkevich, 2021):

- Continuous flow – established, stable industries
- Agile – unpredictable demand and made to order products
- Fast chain – short lifecycle products
- Flexible – stable industries with predictable demand peaks
- Customised – bespoke services
- Efficient – highly competitive markets with focus on pricing

There will be overlaps with some of these models, determining the correct model to use in an organisation will be decided by the supply chain manager.

The term complexity within a supply chain is used as there are several parts that interact in a non-simple way (Bode & Wagner, 2015)

The figure below shows the two structural dimensions of a supply chain, horizontal and vertical. The horizontal structure refers to the number of tiers across the supply chain, the vertical structure shows the number of supplier and customers in each tier (Min & Zhou, 2022). A breakdown in any of these networks, will result in delays to manufacturing or delays to the delivery times.

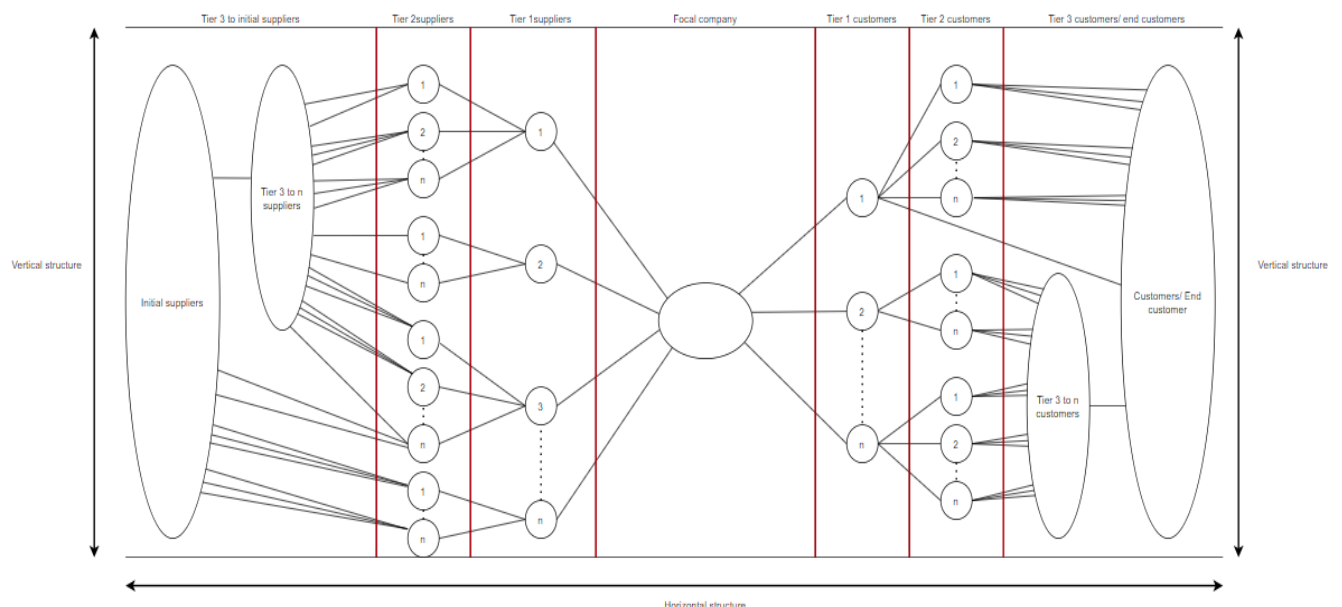


FIGURE 6 - SUPPLY CHAIN NETWORK STRUCTURE

Conclusion

Having reviewed literature on the costs of product recalls, it is evident that control methods should be put in place to minimise the chance of these failures occurring. The financial costs as well as damaged brand image can be catastrophic for organisations, some brands may recover over time, but some may not recover at all.

I feel that the best way to achieve a reliable system and to reduce the likelihood of errors occurring is by way of a quality management system. A QMS will enable the organisation to document all parts of the process, ensuring that frequent quality checks are carried out at all stages of the system. The policies, process and procedures should ensure minimum chance of error in the system. The procedures will ensure a level of responsibility for the people involved with the process and provide the opportunity to find and rectify any errors before the goods or service is released to customers. The ISO9001:2015 guidelines map out these requirements, they are internationally recognised, so, if the organisation is certified to these standards, it will give new and existing customers confidence that a quality product or service is being provided.

During this research process, it has become apparent that the consequences of providing poor quality products and services have a financial implication on the business through replacing faulty products and incurring more waste material, but the biggest consequence of poor quality is the dissatisfaction of the customer, loss of customers and future opportunities. The missed opportunity has the potential to be far greater as they are unquantifiable.

The research then led to restoring the customers confidence during and after the product recall process. Restoring consumer confidence takes time, the organisation must maintain clear and effective communications throughout the process. It is vital that the company admits its mistakes and takes responsibility. The issues must be dealt with in a timely manner, the product/ service production halted immediately, the issue found and rectified and then an investigation must take place to determine how it happened and how to prevent it happening again. The affected parties must be compensated and given an apology to ensure that they realise how much their custom is appreciated and how dedicated the company is to ensure better quality products and services in the future.

The research then moved to looking at sustainable and ethical business practices. I feel that these elements highlight a company's commitment to the future. These models also provide a commitment to restoring customers confidence as this shows sustainable practices through reducing waste, increasing recycling, reducing energy usage, using sustainable products in manufacturing and generally being conscious of sustainable practices in relation to the environment and society. Ethical practices were then reviewed, I found that integrity must prevail from the very top of the leadership team, these values will then be instilled through the workforce and company. Finally, the supply chain was investigated to identify the complexities within it. There are different models of supply chain that suit different business sectors. All supply chains however rely on all parts of the chain working, if one element fails, this can lead to delays in manufacturing and distribution.

I feel that that the areas researched in this paper relating to product recall and the aftermath of it can be utilised to minimise recalls occurring, improve organisational standards and gain/ improve customer confidence.

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