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Section 1: Introduction

1.1 Introduction to the innovation

Innovation can be defined as “the process of creating value from ideas” (Bessant, 2014). Inherent with any innovation-based activities are uncertainties and technical / business risks. Individuals, teams, and corporate behaviour can both facilitate or stifle innovation, in relation to best practice.

Bisley, F C Brown (Steel Equipment) Ltd, is a leading manufacturer of office storage, established in the 1940s. The company specialises in manufacturing steel products, but over the last five years has diversified to manufacture MFC products as well. The business aims to create innovative products that meet the evolving needs of our working world (Bisley, 2021). The development of the Belong product range will be considered for this report (Bisley, 2022) as the introduction of this range of products can be considered as innovative for various reasons.

Firstly, the Belong range is a *product innovation* as product concepts, which were new (for Bisley) with respect to their intended use and characteristics have been transformed to manufacturable goods to suit the needs of the customer. Secondly, the Belong range can be considered a *marketing innovation* – as for Bisley – this was the first product range to be specifically marketed towards the end user, more specifically for the domestic setting, initially for home working. Thirdly, this was a *business model innovation*. Using the Bisley online shop to sell directly to customers provided new opportunities for growth in a new market. This was a business risk, in which the skills matrix was not well defined. There was also a risk that this type of product and selling strategy was too far from the “core” Bisley brand. Finally, it can be considered as a *process innovation* as the accelerated new product development strategy implemented was the quickest product to launch in Bisley’s history. This streamlined process involved the collaboration of just four product designers. Ideas were generated and decisions were made quickly by management on which were feasible to pursue for manufacture and sale.

Section 2: Main Content

2.1 What was the principal driver(s) for this innovation

A driver for innovation can typically be either a particular issue that needs to be addressed and resolved or an emerging opportunity to be taken into consideration. The principal driver for this innovation was a response to the impact caused by the COVID-19 pandemic. Bisley is an established brand worldwide, and sells products across various countries including the UK, USA, Dubai, and many other European countries. However, traditionally product is sold via dealer and resellers networks as well as directly to corporate clients. With the introduction of national lockdowns, individuals were forced to work from home rather than travel into their office – this meant the company saw a significant reduction in sales and hence profits. It became apparent that the fundamental changes in the consumer behaviour and requirements was going to have a lasting impact on society and therefore we as a company needed to understand how this was going to change the future of the office furniture industry. Understanding what and how we needed to adapt to remain sustainable and competitive was imperative for the survival of the company (Harris, 2021).

This also provided an emerging opportunity to resolve the newly faced problems of individuals needing to be equipped to work from home. One of the key strategies as part of this innovation was to ensure Bisley products were first-to-market, as many of our competitors were racing to do the same. It was considered important to ensure majority of the market share. Another opportunity this provided was to ensure that the products were designed for flexibility; the future was uncertain therefore products needed to be flexible, ensuring suitability for the home and traditional office environments.

2.2 The barriers and risks faced by the company in developing this innovation

The major barrier faced by the company in developing this innovation was the limited resources (in terms of finance, personnel, and time), available to design, develop and execute the products to market quickly enough. This is a similar issue faced by many companies when trying to innovate (Satell G. , 2017). As previously mentioned, the NPD process could be considered as innovative because there were only four product designers within the core team for the project. Another barrier which made the process more challenging was the fact that two members of the team were based in the factory in Newport, South Wales and the other two members in the showroom in London. Decision-making regarding which product ideas to pursue and which were not commercially viable needed to be made swiftly. The major factors considered to validate the product ideas were cost to manufacture and time to develop.

Understanding the changing market requirements was challenging; as well as trying to determine if the company had the capabilities to meet these changing demands. Many of the processes within the business had functioned for years, built for mass production of “standard”, hard-tooled product. The risk was whether this disruption to the market would be short or long term? Irrespective the downturn in business meant something needed to be done for its survival. The risk was that customers would not “buy-in” to the new products because their requirements had not been correctly understood and/or addressed. Customers would also need to “buy-in” to the process of ordering Bisley products online through the Bisley shop. A strategic business model and marketing initiative was necessary to ensure this was successful. Finally, the Board of Directors needed to “buy-in” to the product ideas to approve making these concepts into physical products.

2.3 The key determinants in the process of committing to the develop the innovation

According to the Oxford Dictionary, a determinant is a factor which decisively affects the nature or outcome of something. One of the key determinants was the performance of the Bisley online shop. As customers were not able to physically visit the showroom or dealer, the online experience would need to be easy-to-use and a positive experience for customers. It was important that it was easy to locate what they were looking for and that ordering was a quick and simple process. As well as this, there is growing societal pressures within all manufacturing industries to produce higher quality goods at lower costs with shorter lead times (Nicholas, 2018). Therefore, it was important to ensure that the products were being sold at the correct sale price to appeal to the customers, whilst also making a healthy margin for the business.

As well as this, the knowledge and understanding of the product designers was a key determinant. They needed to be able to understand the voice of the customer and interpret specifications into manufacturable products that were profitable, with components that the company was able to procure, in an appropriate lead time, with consistent high quality.

The reliability of the supply chain infrastructure was also a key determinant in the process of committing to the development. Due to the nature of the products the company manufactures, it was critical that there was a clear information flow from Bisley to its suppliers. For this to be successful, the internal supply chain also needed to be reliable. The correct information needed to be given to the correct department, at the correct time, in a clear and coherent manner. It can be difficult to implement change and new ways of working, especially within well established businesses. An iterative learning approach can help embed change within an organisation (Ates, 2011).

2.4 The processes and technologies which the company used to carry this development forward

As previously mentioned, the products were developed using an accelerated product development strategy to ensure speed to market entry. This meant that design ideas were critiqued and evaluated, with small iterations being made before any physical product prototypes were produced. “Sign-off gates” were used as management approved concepts to be progressed to manufacturing.

Drawings for parts were produced using Siemens Solid Edge software; this was the key mechanism in communicating information from design to manufacturing. Due to the de-centralised working of the project team, the company heavily relied upon IoT and cloud computing to ensure employees could collaborate and share ideas. Simulation or digital twins were also used to present and communicate ideas to the stakeholders. Investment was also obtained for a 3D printer which enabled additive manufacturing of small polymer components. This was beneficial as it saved time waiting for external suppliers to produce samples, and also helped in proof of concept before investing in tooling, etc.

2.5 The extent to which the development relied on resources external to the company and the ways in which the deployment of these resources was managed

As this innovation took place during the midst of the pandemic, there was an effort to ensure that there was minimal reliance on resources external to the company. Historically, the company has used open innovation, such as working in partnership with design consultants for innovative product development. Whilst beneficial for knowledge-sharing, there is a risk that they do not have a complete appreciation of the manufacturing capabilities and limitations of the existing plant.

External suppliers with the supply chain played an important role. For example, in order to manufacture the new product innovations, raw materials including MFC, and steel coil and sheets needed to be supplied. In addition to this, an important aspect for the mass-customization (Yi Wang, 2017) of these products was the opportunity for the customer to define finishes from a large colour palette. The company relied upon its longstanding, strong relationship with powder coating suppliers to ensure this was achievable. Although, this posed some challenges outside of the control of both the company and its suppliers, due to worldwide raw material shortage of epoxy resin. Another innovation resulted, through use of polyester powder coatings as an alternative solution.

The release of these products was innovative in terms of the marketing and business strategy as well as the product and process itself. As a result, the development relied heavily on external resources to help promote the adapting brand image to potential new customers. This was primarily done through marketing in press releases and industry magazines (Steele, 2020).

2.6 How management overview of the development was maintained

Overall, the company’s management view the innovation as being successful for a number of reasons. Firstly, since the launch of the product range sales via the Bisley online shop have continued to grow. “We have the Bisley shop in place, which has been producing sales of circa 6-7k per month with no major focus. During lockdown, we increased our marketing spend and sales are now circa 26k+ each month and growing with the appropriate focus” (Costin, 2020)

In addition to this quantitative data, the qualitative data also portrays a positive picture as the innovation as a whole has helped to promote the brand reputation and image. Whilst well established, the company has proven its ability to be agile in adapting to the changes in customer demand. Nevertheless, several areas of improvement were identified during the launch of this new product range. There was a significant strain on other projects – largely due to the limited resources available.

Communication flow and knowledge-sharing between departments was also identified as an area for improvement for future projects.

Section 3: Evaluation

3.1 The extent to which the innovation process represents best practices

There is a vast amount of literature available surrounding the topic of the best practices of innovation and its management. Some of the most reliable and trusted authors include Greg Satell, Joe Tidd and John Bessant. One common theme between the literature of these authors and many others is that the success and “best practices” for innovation are very much dependent upon the environment in which they are being implemented. There is no “one-size that fits all approach” therefore very often a combination of methodologies needs to be combined to suit its application.

Furthermore, a review of the existing literature has proven that innovation and its management cannot be considered in silo within the operation of the business. Innovation should never be considered as a closed-door policy for the design team. As the figure shown below from (Bessant, 2014) suggests, there many overlaps within the innovation process. As well as these, there are various examples in which innovation strategy links together with new product development, lean manufacturing principles, eco-design and strives towards gaining competitive advantage over competitors.

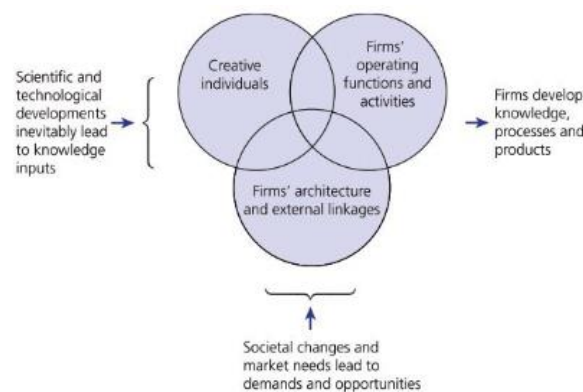
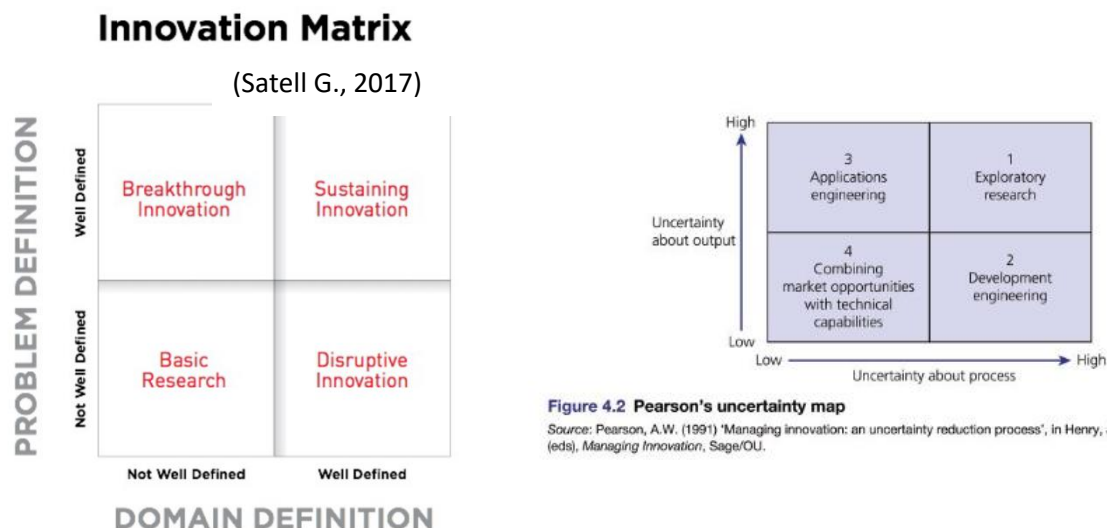


Figure 1.1 Overview of the innovation process

With respect to the best practices set out by Gregg Satell, there are various aspects of the Bisley innovation process which does follow the same methodology. (Satell G. , 2021) outlines a five-step process for innovation which is driven through identification, classification, mapping, resourcing, and designing. The process begins with PDO analysis which helps to identify problems, disruptions and opportunities that will affect the business in the short, medium, and long term in order to set innovation priorities. It was clear from the outset that this project focussed specifically on the short-term disruption caused by the pandemic.

According to Satell, innovations can be classified across three horizons in terms of capabilities and markets (existing, not yet served/deployed and new). Due to the time constraints of the project, Bisley did not have the resources to explore new capabilities in terms of radical changes to manufacturing processes therefore the uncertainties were surrounding the new market and the existing market which was currently not served due to the changing customer needs and demands. It is important to remember that innovation does not always require radical change, instead change can be incremental. Most companies struggle due to their return to using conventional thinking (Huthwaite, 2007).

In step three of the process, the innovation matrix from (Satell G. , 2017) refers to four different types of innovation, sustaining, breakthrough, disruptive and basic research. An innovation can be categorized depending on how well defined the problem is and how well the skills domain is defined. This method of mapping innovation is very similar to Pearson's uncertainty map as seen below in figure 4.2. The majority of innovations of SME's falls within the umbrella of sustaining innovation, with a small amount of breakthrough and disruptive innovation. (Satell G. , 2021) suggests implementation of the 70/20/10% rule whereby the majority of the focus is on investment into the core business. The remaining innovation capacity involves exploration into adjacent markets and capabilities. In this respect, Bisley's approach is mirroring the best practices outlined.



Much of the existing literature agreed that in terms of best practices, consideration should be given to talent – ie, the people who have the expertise and experience to solve a problem as well as the information needed to solve a problem. Open innovation strategies have various benefits including knowledge sharing and crowdsourcing to build value into a product solution (Bilgrim, 2011). This understanding has been used to develop and execute other processes such as the scrum (Coach, 2020) or sprint (Knapp, 2016) processes. Products are developed starting with the absolute minimum functionality, i.e the must haves and not the nice to haves. First prototypes are built quickly, and work is carried out in short bursts; updates are based on feedback directly from customers (Harris, 2021). In this respect, the approach to innovation Bisley took did not follow what is widely considered as best practice. It would have been beneficial to collect “real data” from customers to ensure thorough understanding of their product requirements. Unfortunately, as (Huthwaite, 2007) states, “most corporate metrics are really history lessons”. It is clear that “real time measurement” could be used as an area of improvement.

The fifth and final step within the process is the design. According to (Satell G. , 2017), capabilities, markets, organizational structures, and business model needs to be considered to create, deliver, and capture value. Whilst the core team followed best practices in terms of considering these elements, the manner in which this was communicated to the wider organisation could have been improved. In order to implement long term, successful change within an organisation, a key determinant is the “buy-in” and support of stakeholders. Innovation, lean and eco-design initiatives all require collaborative, cross-functional learning to move towards a common long-term goal. As shown in figure 4.1 from (Bessant, 2014), a disjointed approach can lead to the business pulling in very different directions – which will stifle innovation.

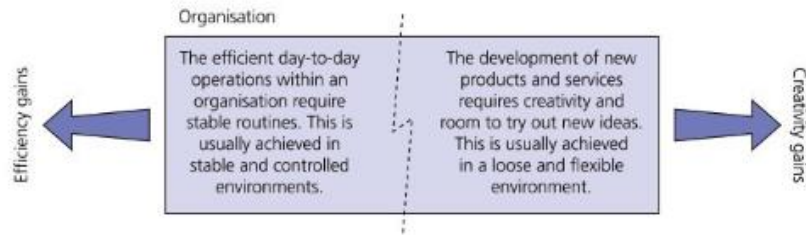


Figure 4.1 Managing the tension between the need for creativity and efficiency

3.2 Critique of the whole innovation process – an evaluation of its success

In every industry, but particularly within the manufacturing sector, companies are faced with competition. What differentiates them is production capability. Companies with a competitive advantage are able to consistently provide products that are competitive with regard to quality (better), price (cheaper), time (faster), and response to change (agile) (Nicholas, 2018) (Harris, 2022).

In many respects, the innovation of the Belong product range can be considered successful. The company was able to introduce a large variety of products to market in a reduced timescale. This not only increased sales, but also increased the brand reputation and customer's perception of its ability to react with agility to the changes in their demands. This was achieved through use of existing plant, processes and skills and technology.

The company recognised that one of its core strengths was in-house powder coating and this has been utilized to introduce mass customization - a technique used to incorporate the flexibility and personalization of custom-made products with low unit costs associated with mass production (Yi Wang, 2017). The innovative business model and marketing strategy has identified gaps in the market and opportunities for the company to explore with future product innovations and developments.

Nevertheless, there were aspects of the innovation that we less successful. It is important to learn from these experiences and identify improvements for future innovation projects. Generally, there is opportunity to be more proactive in the effort to minimise waste. As (Huthwaite, 2007) addresses, this doesn't mean the "fire-fighting" of lean and six sigma on the factory floor. Instead, it is the fire prevention of lower cost and better quality through smarter, innovative thinking. Some of the design concepts were not designed with manufacturing in mind.

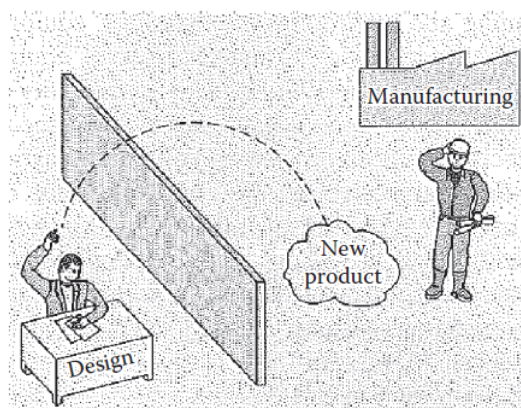


Figure 4.2 Over-the-wall product design.

(Nicholas, 2018)

Whilst designs should challenge the “status-quo” of manufacturing processes and stretch capabilities, design for manufacture should be built into a product, as should quality. In this regard, knowledge and information sharing across various departments could have highlighted these issues earlier in the process.

These production issues can have a detrimental impact on only on the financial success of the innovation, but also the environmental and societal impact too. More innovative thinking can achieve environmental benefits such as a more circular economy rather than the traditional linear (Dahmani N, 2021) and ensure that the frugality of the solution is considered (Albert, 2019).

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