

Incorporating History into Innovation: A Case Study of LEGO

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ABSTRACT

In the current global economy, innovation is a key factor for a company to survive and grow on the long run. However, few research has looked into the proper application of innovation strategies. In this paper, I propose a 2 by 2 theoretical framework in how to apply the concept of incremental innovations and drastic innovations given good or flawed business fundamentals. This paper aims to demonstrate the theoretical frame by a series of extensive case study discussion of Lego. The case study examples range from consumer responses to new products to organizational changes. This paper contributes to the literatures by building on innovation theories and discussing the application of innovation strategies in a generalized way. This paper contributes to managerial insights by outlining a generalized innovation application framework for managers' day-to-day decision making.

Keywords: “incremental innovations”, “drastic innovations”, “risk”, “consumer response”

1. INTRODUCTION

In the current global economy, innovation has become a key for businesses especially for those businesses who have a long history and want to compete in this hyper-competitive market environment. However, there are rarely researchers systematically examining how businesses can apply the concept of innovation into their big-picture business strategy. Each business might face different challenges at different timings or in different departments of its own. Aiming to connect innovation and business strategy and provide wide applications, this paper proposes a theoretical framework providing a perspective for businesses to think about how to adopt innovation strategies regardless of whether they are thriving or facing challenges. It's also applicable when each organization within the firm is facing different challenges.

Lego is a well-known toy company originated in Billund Denmark in 1932. The firm still functions well due to its successful application of innovation strategies. Lego group has released different types of products targeting at different groups of consumers. However, the innovation process is not without challenges. Similar to other firms, Lego faced an increasingly competitive market environment, the threat from the growing adoption of internet, and other substitutes and the loss of patent. Nonetheless, it has revived from these struggles

and survived business downturns because of innovation. It has successfully overcome drastically changes in the market environment and still remains the top toy manufacturer with the largest revenue today. These challenges are not only faced by Lego, but also by many of the brands with similar history. Many of these companies were replaced by other companies due to lack of innovation or slow response towards the market change. Without any innovation, current industry incumbents are likely to slowly lose profits due to the fast-changing consumer taste.

What can we learn from Lego's success and failures? How do they apply innovation onto their business strategies successfully? In this paper, I propose a theoretical framework in how to apply the concept of incremental innovations and drastic innovations on business strategies ranging from consumer-faced marketing strategies and organization strategies. This paper aims to answer the research questions: when should firms adopt incremental innovations and when should firms push for drastic innovations? In the form of a case study, this paper discusses how Lego utilized different innovations strategies to achieve business growth. This paper is the first to propose a generalized framework on innovation strategy adoption.

To be more specific, in this paper, I discovered the successful transformation of Lego from a mature brand

with declining competitiveness in the toy markets to nowadays biggest toy manufacturer around the world by adopting innovative marketing strategy. To illustrate this process, I used a series of case studies of Lego to discuss the application of corresponding innovation strategies. I discuss innovation application with ample examples, such as the case of consumer responses and organizational changes. The examples ranging from collaboration with Star War to the market entry strategy of Lego for stabilizing or increase its revenue. This case study integrates the Lego’s success in fighting with recent emerging brands, and this can provide essential and useful information to marketers.

This work contributes to several research streams including innovation and business strategy literatures. Previous research has defined innovation as the generation, development, and adaptation of an idea or behavior, new to the adopting organization (Damanpour, 1996; Higgins, 1995) [7]. One important research stream classify innovation levels into incremental innovation (Martínez-Ros & Orfila-Sintes, 2009; Tushman & Anderson, 1986) [22] and radical innovation (Assink 2006) [5]. This paper builds on this stream of literature to discuss the application of innovation strategies. However, few research studies the application of innovation strategies. Previous theories have focused how organizations should allocate available resources (Prahalad and Hamel, 1990) [16], but not on innovation strategies. In addition, it is traditionally hard for business to gauge when to apply innovation strategies (Souto 2015) [17]. Our paper contributes to this stream of literature by proposing a theoretical framework in innovation strategy application.

This study also has substantial managerial implications. For managers, they can apply this theoretical framework into their daily decision marking. The framework can help the managers with deciding how to incorporate innovations into business strategies. Furthermore, this paper can be perceived as an in-depth case study of Lego. This paper uses examples to help managers in incorporating brand and firm history into their innovation strategies. It also contributes industry-specific insights to managers who work in the related industries, such as toy industry, entertainment industry, creator community, etc.

2. PROPOSED THEORETICAL FRAMEWORK

A good innovation is not without solid foundations. The formal LEGO core values included: ‘idea’ (creativity, imagination, unlimited, discovery, and constructionism), ‘exuberance’ (enthusiasm, spontaneity, self-expression, unrestrained), and ‘value’ (quality, caring, development, innovation, and consistency). The core value of a firm has a crucial impact in every aspect of its operation, including what types of goods or

services that companies are going to deliver toward customers. The innovation strategy to be adopted should align with the corresponding core values in order to maximize its chance of success (Oliver and Roos 2003) [15]. We develop a theoretical framework based on this argument: whether the firm’s original strategy has good foundations or flawed foundations and how corresponding innovation strategy can help the firm grow.

We propose a 2 by 2 framework, shown in Figure 1. On X-axis, we have whether the existing strategy is flawed or good. On Y-axis, we have innovation level: incremental innovation and drastic innovation. A business is likely to be successful if it falls on the diagonal line. If previous strategy performs well, adopting a drastic innovation strategy might introduce unnecessary risks and might shake the foundation of the business. If the previous strategy is severely flawed, adoption incremental innovation might not result in enough improvement and thus sufficient business growth. Therefore, it is natural to think that for a previously flawed business strategy, the firm should adopt drastic changes. If the previous strategy performs well, incremental innovation is great for the firm to keep up with the ever-changing market space. Our theoretical framework helps with articulating the logic of integrating innovations into business strategies and we used case study examples from Lego to demonstrate how to apply this theoretical framework.



Fig. 1. Theoretical Framework

3. LITERATURE REVIEW

This work contributes to several research streams including innovation literature and business strategy literature. Most notably, this paper combines innovation theory with business strategy literature and uses LEGO case study materials to propose and illustrate a new theoretical framework. This novel approach helps with shedding lights into understanding how to apply innovation strategies on business practices. Specifically, the proposed theoretical framework has two dimensions:

innovation level and original strategy success level. We use LEGO case study to show that, when the current business strategy works well, it is optimal to apply incremental innovation strategies to continue the success with minimum risk. When the current business strategy is severely out-of-dated, the potential benefit of adopting a drastic innovation strategy is worth the significant risks. While there is a large literature on each topic of innovation and business strategy, few papers have look into how business should apply innovation strategies at a higher level. This is an important topic to consider as it can provide business practitioners significant insights.

Innovation is a key factor for a company to survive and grow on the long run (Tidd, 2001) [20]. Innovation is defined as the generation, development, and adaptation of an idea or behavior that is new to the adopting organization (Damanpour, 1996; Higgins, 1995) [7]. In other words, innovation can be perceived as a commercialization of an invention. The innovation level in our theoretical framework has two levels: incremental innovation and drastic innovation. The drastic innovation can be used in both describing the improvement in performance of or a drastically reduction in cause of this a product, process or services, letting company itself become a market changer (Assink 2006) [5]. In our case study, a good example is Lego's reorganization of departments, cutting the number of departments from 21 to 7 and adopting the cutting-edge supply chain software. The other innovation concept is called incremental innovation, which is defined as an innovation with a low degree of novelty with less risk and cost than drastic innovation, remaining within the boundaries of the existing market and technology or processes of an organization, but eventually, a consecutive incremental innovation toward a product could result in a drastic, even disruptive innovation (Martínez-Ros & Orfila-Sintes, 2009; Tushman & Anderson, 1986; Assink, 2006) [5][22]. In our case study, a good example is Lego collaborating with Disney extending their product line with Star War series. Our work builds on classic innovation theories and provides corresponding Lego's facts relating to the products it launched and the strategies it adopted.

Despite the importance of innovation implementation, only a few companies have come to understand what is necessary for successful innovation (Christensen, 2003) [6]. Innovation usually happens in one of the two scenarios: when companies respond to changes in the external environment, and when companies preemptively act to make influence the environment (Damanpour, 1996) [7]. This work contributes to the literature by synergizing two application scenarios of innovation and providing a theoretical framework in when to use innovation concept for companies.

Few research has looking into how business should include innovation strategy into their business strategies. The realization of business strategy has significant impacts, from influencing the successfulness of innovation application to changing the course of a firm. Innovation strategies are mainly realized through the generation, acquisition, combination, application, and exploitation of knowledge, as well as by making it more difficult to imitate these innovations (Information Resources Management Association, 2010). There is a limited amount of research describing how organizations initiate the changes. Capability-based theory is one of the most prominent theories describing and explaining how organizations change and develop. In general terms, organizational capabilities signify what an organization is (or is not) able to do. Organization theory has a bond with the firm's potential to allocate available resources (Prahalad and Hamel, 1990) [16]. Once firm could be clear about the number of resources and what it can achieve utilizing the resources, firm can develop in a right path, being successful.

From a business strategy perspective, it is hard for competitors to copy incremental and drastic innovation strategies, especially when the innovation strategy is based on business concept or business models (Souto, 2015) [17]. The business strategy dimension is the other important dimension of our theoretical framework. Our framework contributes to this stream of research by proposing a new theory in how firms should initiate changes and adopt innovation strategies.

With regard to the application of innovations, Assink (2006) [5] notes that "the more radical the innovation, the more difficult it is to estimate its market acceptance and potential." Building on this argument, it is natural to infer that the risk of adopting the drastic innovation strategy is high and thus the appropriate application scenario must have potential high payoff to justify the high risk. We contribute to the literature by using Lego's numerous examples to analyze both successful innovation examples and failed innovation examples to demonstrate our theoretical framework. In the last century, Lego launched lots of products with high novelty which some of those products had faced an unprofitable situation due to both the sales and costs factor. We leveraged the uncertainty naturally coming with innovations to analyze the appropriate business strategy given the circumstances and the market environment. Lego have launched highly innovative products which did not exist in the market before with success stories and failures. Lego also succeeded with operating the incremental innovation on launching new products in a bigger market which makes it relatively easier for Lego to predict the innovation outcome. Thus we are able to showcase how Lego's examples demonstrate our theoretical framework.

4. CONSUMER RESPONSE TO SUCCESSFUL INNOVATION

4.1. Star war (co-brand)

Innovation won't be successful without positive consumer response. For Lego, positive consumer response comes from innovative products. One of the success innovation stories comes from "Star War" series.

The collaboration started from 1998. Lucasfilm signed the licensing agreement with Lego with the American International Toy Fair in New York in 1999. [9][21]. At the time, there were more than 1000 different minifigures and around 700 sets related to star war launched by Lego. In addition, Lego took risk and launched products that did not exist previously, including the modern weapon, a controversial product, and the first minifigure with the real skin color, the molded short leg and the special shape of head. This is a hugely successful innovation in product collaboration and design. Since there are a large fan base in Star Wars, there were 25 million Lego Star Wars sets that been sold all around the world within one year just after the introduction of the collaboration between Lego and Lucas Film. And in 2008, Star was one of the key contributors together with Indiana Jones which boosted Lego sales with 32% [21][27].

Star War line is a successful example in extending the product lines: Lego group doesn't completely re-invent the product. They incorporate this popular IP into their high-quality products and make a win-win scenario. When it comes to product lines, Lego has reputable product quality and substantive experience in toy-making. This example shows that, when the business aspect operates well, a strategy base on incremental innovation is likely to have a success with minimum risks.

4.2. Bionicle (original product)

Another example of product line success extension story comes from Bionicle. As a new product line, the main innovation aspect is in the format of the product. Lego's success in launching co-branded Star War series had proven making modern weapons could be a potentially great selling point. Despite the potential concern that this line of product may not be perfectly align with Lego's value proposition, this product is a success as it possesses previous desirable product characteristics.

Apart from the Star War co-branded product, this Lego's original product also made a great contribution toward Lego's survival in the competitive market. In the early 2000s, when Lego was suffering immensely due to the reduction in cash [10], one of Lego's original IP called the Bionicle initially launched its first set to test

the market in European and Australia. Then this product line made a great success in mid 2001, earned £100 million for Lego when sets from that IP sold in North America. Also, it ranked at the first place in 2003 and 2006, in terms of the sales and popularity, becoming one of the greatest themes that Lego had launched. Especially in 2003, it accounted for around a quarter of the Lego's turnover, during this decade Lego's survive would largely depends on the existence of this IP [28].

Bionicle case elaborates several key elements of a successful new product launch. First, Lego conducts the innovation through the product format. The demand for a similar toy function was likely consistent. In addition, they developed the product with known desirable product feature based on previous success product collaboration. Second, Lego tested the market and when the initial launch is successful, Lego expanded this product line into multiple markets. This case study elaborates how Lego applies the concept of incremental innovation as it takes small steps in product line innovation and test the market with minimum risks. The benefit from such strategy has a large up-side and limited risks.

4.3. Lego movie, video games

With Lego as a successful IP and the overall market trends in moving digitally, it's natural for Lego to want to expand their footprints into movie industry and video game industry.

In 2014, "The Lego Movie" created under the collaboration with Warner Bros giving Lego a considerable big box office with more than 469 million worldwide, becoming the fifth grossing film during that year [2]. After that, more Lego films and TV series in extending its original toys, including the The Lego Batman Movie and The Lego Ninjago Movie [8][25].

Starting from 1995, there are 85 video games has been created by Lego, including both Lego's original IP (e.g. Chima, City, Ninjago etc.) and licensed properties (Lego Star War, Lego Bat Man, Indiana Jones), dabbling in wide range of forms of game (e.g. simulation strategy game, real time strategy game, racing game, action adventure game and MMORPG etc.) LEGO games performed well in terms of market share on Nintendo DS/ Sony PSP platforms [24]. Its games regularly make the top 10-30 rank in Western Europe and the US. It is a successful strategy for Lego to couple with well-known media property has proven successful. Pirates of the Caribbean is one of such examples [12].

The high boxing revenue from the movies and high rankings from the video games show that collaborating with reputable media companies to extend IP and create new products with current good brand equity is a successful application of incremental innovation strategy. Movies and video games might be perceived as

a different form of entertainment compared with Lego bricks. The new entertaining format provides a digital experience of Lego bricks. The collaboration safely extends Lego's IP conforming to the market trend and thus showcasing a successful business strategy in incremental innovation. By developing movies and video games, it allows the company to continue its focus on its physical product while diversifying into alternative revenue sources, as manufacturers of traditional games have struggled to appeal to children who play more and more digitally.

4.4. Digitalization

Besides extension in product line and entertainment formats, extension in consumption space showcases another Lego's success incremental innovation strategy. The digitalization process, the transforming of Lego society and sales channel, also brought a substantial benefit toward the recent growth.

Starting from late 1990s, Lego begin its digitalization, producing several generations of fan-based interactive websites and digital games [12]. For the online application for individual consumers, they received 5.3 million downloads in 2020 for a Lego Building Instructions App [11]. At the same time, they improved the LEGO® MINDSTORMS® and relaunched it with better accessibility for children. For the transformation of shopping form from physical to digital, the change in consumer shopping habits with the development of digital economy is one of the key driving factors. More and more consumers start to shop online. This means that there are significant changes in sales channel landscape. Since the late 2019, due to the outbreak of the pandemic, although many physical Lego stores cannot operate normally, more consumers are motivated to buy Lego products online. As a result, the sales increased by 21% in 2020 and overall revenue increased by 13% compared with 2019. The number of visits to Lego.com last year doubled from the year prior, as many of Lego's physical stores were forced to temporarily close. It was increasingly common for consumers to do online shopping, and the pandemic accelerated this online shopping tendency [23].

Those online communication platforms not only provide opportunities for consumer to interact with each other, but also provide Lego many useful information from consumer interactions. These online platforms also promote consumer spending. The Lego Ideas, an online platform for consumer themselves to design and vote for the potential fan-made products, is launched by Lego Group in 2008. If the consumer design received 10,000 or more votes, the design would be reviewed by an official LEGO review board. As a result, this type of products would be more likely to be welcomed by consumers due to its crowdsourcing nature. This innovation strategy performed well in the market. This

site not only works as a crowdsource platform, but also allows the company to be informed with current consumer trends and interests [3].

On the one hand, Lego strives to innovate the offline shopping experience to create a differentiation in shopping experience and to attract all generations. On the other hand, young-generation consumers are not the only consumer group, adult market is also considerably large as more popular elements are added in Lego toys. More adults might purchase Lego sets for gifts to others online. Thus, Lego carefully designs the online shopping portal with the adult consumer group in mind. There are more reasons for Lego to prioritize online sales channels. Online sites are generally less costly than physical store. In addition, the consumer demand generated by physical stores are declining, especially during the prevalence of the pandemic. Therefore, the online shopping experience may attract more consumer in this special period.

The above examples showcase the successful application of the incremental innovation concept. This innovation strategy is an incrementation innovation strategy because underlying infrastructures are not new. When Lego started to build up an online system, there was already a big ecommerce market, a market change in form of purchasing and a previous existed online community in Lego product design. There is no drastic change within its core product, the underlying technology, nor the toy industry. However, the profit from this incremental innovation application would be more than most of these drastic innovations due to the end products' widely desired characteristics. As a toy brand, "experience" is important and offline retailers can provide more physical experience for consumers. With proper strategy and development, online sales channel may even provide better shopping experience in some cases.

5. CONSUMER RESPONSE TO FAILED INNOVATION

The path to success is not without failures. There are plenty of failed examples due to insufficient innovation from Lego to demonstrate the proposed theoretical framework. Prominent examples include Fiber Optic Multi Set from Technic product.

The Fiber Optic Multi Set came from Technic product lines. This set contains special technology that is able to transfer the solar energy into the kinetic energy, allowing the blade on the top of helicopter to rotate in a normal condition. The innovative concept is good and was attractive to fan customers initially. However, the management team was not aware the cost of making this optic fiber and eventually there is a considerable loss per set of this product being produced. Lego soon recognized the failure of this product line and

stopped the production and the development of this product [26].

The Scala from Belville series for girls is also a failed product [9]. Scala is a product line was developed to target girls' market, failed to succeed with a poor sale. The reason why Scala didn't success is likely that it did not inherit desirable product features of Lego. It didn't have the component of Lego's famous key "bricking" experience. It drastically innovates on both product format and entertainment values. It didn't continue Lego's strength in product values. Since the shapes of Scala series are different, children find it hard to incorporate them into Lego ecosystem. As a result, these types of products were unpopular with disappointment sales. In addition, its incompatible size and shape with Lego's traditional bricks increase the manufacturing cost. Due to the expansion of the variety of Lego's products, the requirement for the molding machines in different kinds surged, and for the common popular bricks' machines, on average there are usually cost around \$50,000, for the more special and complicated one, the cost would soar up to \$30,000 [1].

As mentioned, the common traits among the above failure examples is that Lego enters into an area they are not traditionally good at with limited profit potential. In the Fiber Optic Multi Set example, the brick component with high technology is not Lego's strength and this innovation is too costly with a small market demand. The Scala series didn't leverage Lego's key "bricking" experience. Lego failed to test these innovative ideas and carefully evaluated the strategy before launching these projects at a large scale. The innovative products may not always have a positive correlation with the revenue as the Fiber Optic Multi Set has a great innovation but failed due to cost. As for the cost, to attain the high profit, Lego needs either the mass production to reach economies of scale or the limited molding machine to reduce the cost. These two examples all have their own drastic part of innovation component without continuing the fundamental Lego experience. The above examples support our proposed theoretical framework that it is risky to conduct drastic innovation strategies when the original strategy or product experience is good.

6. ORGANISATIONAL AND ENTRY STRATEGY

6.1. Entering the new market

Lego also largely depends on internationalization in previous decades to expand its business away from the brink of bankruptcy in the turn of century. Although, as a result, it experienced a double-digit growth, there is a concern of saturation of the market emerged in recent years due to the psychic distance. To break this dilemma, Lego opens its third-largest global factory (in the city of

Jiaxing) positioned Lego to supply products not only for the Chinese market, but other Asian markets too, including Japan and South Korea [14].

This is an application of extending concept/incremental innovation because some cities in China share similarities with other regions (e.g. some cities in US) and LEGO can apply their market entry strategies and achieve success in a new market. Apart from the similarity, the psychic different is still a common phenomenon which will affect consumer demands toward Lego's products. In addition, with the support of the local factories, Lego is able to reduce transportation cost and allows for more localized product designs.

6.2. Change in Strategy, Improve efficiency

The heavy cost in supply chain and major issues across the company motivates Lego to completely reorganize the firm and improve cross-group communication. they have multiple issues across the company.

Lego was facing a few major issues given its inefficient operation system. First, the supply chain management is not up-to-date and thus caused a few failed product lines and wasted more-than-necessary cost when producing some of the toys. Second, with the promotion of technologies, Lego's internal communication is burdened by its out-of-dated tech interface. Consumers are spoiled to have new things at a faster speed. With delayed communication, Lego's innovation speed cannot keep it up. Thirdly, there are 21 organizations. With a large number of internal organizations, the cross-group communication becomes inefficient. To make the matter worse, these three major issues are correlated with each other.

To overturn the situation, beginning in 2004, LEGO restructured its Enterprise IT system in order to improve data-sharing across the company [12]. The complicated user interface is replaced with a simple, app-styled model which ensured each employee only operated apps applicable to his/her specific job. This decluttered the internal company site and allowed employees to quickly access required information. The major reorganization happens when Lego decides to cut the number of organizations from 21 to 7, which makes the communication easier and more efficient. It also promotes the communication of ideas and thus the speed of innovation. LEGO also adjusted its IT hiring policies and implemented a system of rotating its employees throughout the organization in order to build wider industry exposure. The inclusion of cutting-edge technology also helps with supply chain management and inventory management, which helps with reducing the cost and improve profitability directly (Andersen and Ross 2016) [4].

The decision of heavily reorganizing the firm and adopting cutting-edge IT system is necessary in this case in improving Lego's operating efficiency, at the same time lowering the average cost. Also, Lego's management organization structure has been out of dated. It will bring much more profit from reorganization and adopt new technology to cut down product line cost and increase profits. This uses the concept of radical innovation because the old way doesn't work well anymore and basically they need to a complete change. As a result, workers remain may cooperate and communicate more efficiently, and increase company's output and therefore raise the revenue.

7. CONCLUSION

We proposed a 2 by 2 theoretical framework and use an extensive discussion of Lego case studies to show that when the business fundamentals are good, it is appropriate to apply incremental innovation strategies, while the business fundamentals are flawed, it is appropriate to apply drastic innovation strategies. Despite ample research defining the concept of innovation and discussing the importance of innovation, few researches has discussed how to incorporate innovation into business strategies. With growing importance of innovations, many businesses would need guidance in how to conduct innovations. I use Lego's examples to elaborate the innovation application framework. Future research could collect more data in order to test the robustness of the framework.

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