



# EXAMINING THE PROCESSES OF NEW PRODUCT DEVELOPMENT AND INNOVATION: THE K. C. CONFECTIONERY CASE IN TRINIDAD AND TOBAGO

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**Abstract:** Teaching case studies are a great way to implement active learning tactics. Writers describe case studies as complex examples, giving insight into the context of a problem and illustrating the main point. It provides student-centred activities based on topics that demonstrate theoretical concepts in an applied setting. This paper is concerned with exploring and promoting the teaching of new product development (NPD) and innovation using case studies in one of the universities in Trinidad and Tobago (T&T). The aim of this paper is to create the first local teaching case study, accompanied by an instructor's manual. The outcome is a six-page case study, validated by undergraduate and postgraduate students, which examined the NPD and innovation processes at K. C. Confectionery Limited (KCC), a T&T based food and beverage manufacturing company.

**Keywords:** *Innovation, New Product Development Strategy, Teaching Case Study*

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## 1. Introduction

The case study approach is a great way to implement active learning tactics; writers describe case studies as complex examples, which give an insight into the context of a problem, as well as illustrating the main point [1]. It provides student-centred activities based on topics that demonstrate theoretical concepts in an applied setting. Case studies afford students the opportunity for the development of key skills such as communication, group working, problem solving and increase the students' enjoyment of the topic and hence their desire to learn.

Most of the context in which a student understands theoretical teaching is developed in a foreign environment. While it is critical to understand global trends and practices, it is equally important to be equipped with the knowledge of local cultural, economic and industrial positioning in today's market. Case research will provide additional opportunities for students to stay abreast of what is going on in the field. It is suggested that a scientific discipline without a large number of thoroughly executed case studies is a discipline without systematic production of exemplars, and a discipline without exemplars is an ineffective one [2].



The aim of this project is to initiate the foundation of an archive of local case studies to be published and used in the University of Trinidad and Tobago. This endeavour observes KCC in a case study that follows the strategies employed in NPD and innovation. Many of the courses in Design and Manufacturing Engineering programmes are centred on this topic therein proving its relevance and usefulness to students in bridging the gap between theory and practice. This particular study is in the management case domain, giving a written description of a real situation that involves real people in a real organisation. The unit of analysis is KCC and the study describes the NPD and innovation strategies employed by the company. The teaching case is intended to give detailed breakdown of the NPD and innovation concepts using both qualitative and quantitative data in a research design that is dependent on ‘perceptual triangulation’.

This paper begins with a brief literature review with discussions on case typologies; NPD and innovation impact. The research method approach is presented in section 3 and followed by the teaching case itself comprising of 17 sections. A brief note on the benefits obtained from a teaching case is addressed in the teaching note and final remarks are provided in the conclusion.

## **2. Literature Review**

### **2.1 The Teaching Case Study**

The three main uses of case studies are [3]:

- I. Theory Discovery: Describing novel or ignored phenomena;
- II. Theory Refinement: Illustrating how theory applies and under what circumstances;
- III. Theory Refutation: Disconfirming an established theory in a particular situation where it does not apply.

The case study embodied in this report explicitly addresses NPD and innovation strategies at KCC; therefore, it is focused on theory refinement. It is also intended as a pedagogical tool to be used as a teaching case study. Teaching case studies are reserved for teaching management concepts and are paired with a teaching note to be used as an instructor’s manual. While the case study itself tells a story, the teaching note provides notions on how exactly the case should be taught.

### **2.2 Typologies of Cases**

Depending on the type of information integrated, its structure, the research objective and intent of usage, teaching cases are allocated to eight (8) categories:

- I. Critical Incidents
- II. Descriptive Illustrations
- III. Problem Identification Cases
- IV. Decision-Focused Cases
- V. Contextual Issue Cases
- VI. Live Cases
- VII. Video and Media
- VIII. Application Cases



For this study, a descriptive illustration typology is utilised. It describes specific actions taken by an organisation. Descriptive illustrations are built such that they do not require a decision, but rather encourage students to exercise critical thinking and analysis. Its intent is to expose students to companies, policies and managerial practices [4]. This particular teaching case informs the reader about the NPD and innovation strategies at KCC.

### **2.3 The Impact of New Product Development and Innovation**

Current literature on NPD and innovation reveals that companies are dependent on the creation of new products to survive in the industry, stay relevant in their field and, most importantly, grow and prosper as a firm [5], [6]. In fact, the impact of NPD and innovation on each of these factors has resulted in a mass number of new products being introduced to the market within the last few years [5]. NPD and innovation have come to be appreciated as a long-term, strategic effort, postulating competitive advantage for corporations of varying kinds. NPD has proven to be as risky as it is important, with failure rates ranging from 30%-95% and averaging at 38% [7] The Product Development Management Association (PDMA) claims the success rate of products released to the market is below 60%. Billah, 2012 suggests failure results from weak market positioning, low product quality, low marketing investment and weak distribution [8].

### **2.4 Innovation Today**

The Organization for Economic Co-operation and Development (OECD) defines innovation as the implementation of a new or significantly improved product (good or service), process, new marketing method, or new organizational method in business practices, workplace organizations or external relations [9].

Innovation drives economic development through a dynamic process in which new technologies supersede old technologies, and helps firms gain competitive advantage [10]. It plays a key role in the highly competitive global business [11]. Innovation is related to a firm's performance in terms of revenue and growth and is regarded as an element of firms' strategy for competitive advantage [12].

### **2.5 The NPD and Innovation Phases**

There exist several models which companies use in the new product development and innovation area. Regardless of the model used, all organizations go through four phases in the design process [13]. These phases include:

- I. Fuzzy Front-End: Often called the ideation step, this is the phase where ideas for solutions to customer's problems are pitched. The term 'fuzzy' is used because it occurs before any formal development starts. It occurs in the vague period where little structure or defined direction exists. This stage of pre-development is critical. Successful completion of pre-development can take an organization seamlessly into development. The fuzzy front-end approach includes: determining the innovation goal; identifying what customers think about this goal; reviewing other market segments for possible connections or technology to get ideas; reviewing the market size; prototyping ideas (a prototype is a mockup of the proposed product, intended to verify your design. The extent of the product prototype is



dependent upon company's needs); testing ideas with customer base and planning on how to develop, mass produce, and market the new prototype.

- II. Design: Validating the manufacturing feasibility of the product and if the internal components of the design can be integrated.
- III. Implementation: Determining whether the prototype meets specified design requirements as well as how the product is delivered and for support will be provided to customers.
- IV. Fuzzy Back-End: The true commercialization phase where production and product launch happen in a structured way. The fuzzy back end is where the product truly comes to life in the marketplace, executing a company's strategic vision.

## 2.6 NPD and Innovation at KCC

KCC has recently been lauded for its innovation. Mr. Affga Khan, Chief Executive Officer credits the company's ongoing success to their ability to innovate, transform, develop and customise products to suit each market. In an address delivered this year by Senator the Honourable Paula Gopee-Scoon, Minister of Trade and Industry, stated, "As manufacturers, resourcefulness in manufacturing not only grows business but also creates and diversifies economic activity. KCC's adoption of market research, technology and innovation has led to continued business expansion. This approach fused with the competitive spirit among manufacturers must be sustained in the long run and etched into the psyche of our young and emerging entrepreneurs [12]". Hence KCC presented as an ideal candidate for this teaching case study.

## 3. Research Method

This section briefly describes the approach used in writing the teaching case study. The following steps dictate the planned method to create the descriptive illustration case study:

1. Defined the purpose and rationale for the case study.
  - Significance of NPD and innovation;
  - Used secondary sources to research and prepare information related to topic. Secondary sources include journals, articles, web data, newspapers, media interviews, research papers and other published texts;
  - Develop research questions.
2. Designed the framework of the case based on the unit of analysis, i.e. KCC, and the research purpose.
3. Data collection.
  - Primary sources included interviews, facilitated observation and inspection of data files;
  - Established credibility by triangulating with other sources.
4. Data Validation.
  - Validated primary data through an employee survey and news articles.
5. Management methods.
  - Transcribed notes from research and interviews; sorted and classified data;
  - Analysed findings based on purpose, rationale and research questions;
  - Mapped all major theoretical concepts to case findings to identify areas for critical discussion.
6. Wrote teaching case study and teaching note.



#### 7. Case Validation

- Validated case study and teaching note with undergraduate and postgraduate students of Design and Manufacturing Engineering programmes.

## **4. The Teaching Case Study - Examining the Processes of New Product Development and Innovation: The K. C. Confectionery Case in Trinidad and Tobago (April 2019)**

### **4.1 Introduction**

Companies are dependent on the creation of new products and their ability to innovate to survive in the industry, stay relevant in their field and, most importantly, grow and prosper as a firm. The impact of new product development (NPD) and innovation on each of these factors has resulted in mass numbers of new products being introduced to the market within the last few years. NPD and innovation have come to be appreciated as a long term, strategic effort, postulating competitive advantage for corporations of varying kinds. Introducing a new product into the marketplace is risky business and companies more often than not experience difficulties. While it may appear easy to take one's own ideas or those of others and use them to develop new products, the process is actually quite challenging. Turning an idea into a marketable product is both complex and multifaceted. All steps must be executed correctly to create demand for products that appeal to particular markets.

There are many available templates, textbooks and even consulting firms that all suggest different ways to achieve successful NPD. As such, budding entrepreneurs have long since been curious as to what strategies successful companies are actually using. There are few companies in Trinidad and Tobago (T&T) that have been as successful in NPD and innovation as K.C. Confectionery Limited (KCC). In fact, the company credits its ongoing success to their ability to innovate and transform, develop and customise KCC's products to suit each market. All around the world, NPD is met with failure rates ranging from 30%- 95% and an average of 38%. How is it that KCC has managed to beat these odds in today's competitive and diverse market? What exactly differentiates KCC from the hundreds of other local companies that have strived for the same thing and failed to reach their goals?

### **4.2 KCC Origins and History**

KCC has made substantial economic and social contribution to T&T. They have been in the business of manufacturing sugar confectionery and bubblegum since 1922. Abdul Razack Khan and his wife Zainab started making candy in their home using a coal pot, a pair of scissors and a marble stone. When Abdul passed away in 1936, that mantle passed to his children. One of his sons, Ibrahim Khan, started using his father's bicycle to sell the candies they made and soon enough he became fondly known as the 'sweetie man'. Thus, Ibrahim Khan started the family-owned business as a cottage industry and, through diversification, developed it into a 114,000 square foot production facility in Couva, 35 years later. By the early 1990s, KCC was thriving as a fully automated modern manufacturing facility and one of the largest confectioners in the Caribbean region. Technology has allowed KCC to wrap more than a million pieces of candy in a minute, a far cry from the days when Ibrahim and his wife Korisha raced each other to hand-wrap



sweets. Together, they wrapped 800 sweets in an hour. That's how much KCC has grown in 97 years.

### **4.3 KCC Today**

KCC presently employs a human resource complement in excess of 175 members. The company produces low-cost products, securing better returns as they operate with an economy of scale philosophy. In fact, they produce the only product on the market that is still available for 50 cents TTD. With the fastest production rate of 30 tonnes of candy a day, i.e., in 8 hours, this translates into high volumes and revenue dollars. KCC is different from many local companies in that it is a high-volume, high-variety company. They currently produce 80 different individual products that fall under 4 specific category lines: hard candy, toffee, bubble gum (and chewing gum) and lollipops.

### **4.4 Target Markets**

While KCC avails itself to some local distributors, the company possesses its own sales force. Interestingly, 70% of KCC's products are exported. The major foreign markets are the United States of America, Canada, the United Kingdom, Antigua and Barbuda, Bahamas, Barbados, Belize, Dominican Republic, Dominica, Grenada and Carriacou, Guyana, St. Kitts and Nevis, Anguilla, St. Lucia, St. Vincent and the Grenadines, Jamaica, Suriname, British Virgin Islands, Curacao, Aruba and Guadeloupe. The products are sent directly to external distributors who in turn market and sell the product in their respective countries. KCC works closely with these distributors to determine the product needs and preference in their specific region. This knowledge then informs product specifications, inclusive of size, weight, packaging, colour, flavour and even name of the product. For example, Barbados has more large supermarkets, so they prefer smaller packaging such as the 100g bags, whereas Guyana has many small shops and opts for fewer bags in a bigger size of 650g. Barbados dislikes green candy whereas Jamaica loves red, green and yellow. Certain products are accepted across the board, such as the strawberry-filled candies. The real market for this product, though generally well accepted in the Caribbean, is the USA. Marketing does not just vary by country but also by local demographics, for example, the south region of Trinidad has different tastes and preferences than its northern counterpart.

### **4.5 New Product Development at KCC**

KCC has been developing new products since its inception. They have long since prided themselves in selling products that set them apart from other candy companies. KCC was the first company in the world to produce a gingermint, currently its top internationally selling product. Company director, Ashmeer Mohamed, states "One of the unique products we have is the gingermint which is made with real ginger. Ginger has a lot of medicinal properties and you find that people tend to want this product. What is the best way to enjoy something with medicinal value when it is in the form of a candy?" [14]

### **4.6 Differentiation**

A major contributing factor to the uniqueness of KCC's products is their ability to make composite products. For example, because both lollipops and bubble gum are made at KCC, they have been able to produce lollipops with a bubble gum center. Other examples include their chocolate-centred mints and strawberry-filled candies. None of KCC's competitors in the Caribbean region have



been able to produce composite products and few are able to produce bubble gum or chewing gum. Most of KCC's competition, therefore, comes from outside of the Caribbean. KCC manufactures its entire line of products in one factory, allowing them to supply a customer with a container of mixed goods. Their competitors, however, have different factories, take for example Arcor, one of the largest producers of candy in Argentina; a customer would have to buy containers of goods separately by product. Locally, Diana is KCC's biggest competitor; however, most of the real competition comes from South and Latin American producers such as Arcor, Simas, Grupo Bimbo, Colombina and Grupo Nutresa.

#### **4.7 Adaptation**

One of the main obstacles KCC faces in tailoring products for different markets in North America and Europe is the high cost. Ashmeer says, "You have to meet their rules and regulations. The nutritional information or the packaging is different from both the United States and Canada, so you have to invest in the packaging, or you have to have the packaging rights. It's a very costly exercise for a company like us exporting to the United States, exporting to Canada and England and each country requires a different packaging for the same product. So, our dinnermint must have separate packaging for the United States, Canada and for the United Kingdom."

In addition to flexibility of products, the ability to adapt packaging easily has given KCC a competitive advantage since larger competitors are unable to do so. One of KCC's popular sellers in the Caribbean was a mixed bag of candies that originally came in pink packaging. When it was shipped to Santo Domingo, however, it was discovered that pink had a particular political affiliation in that country and KCC was able to do a quick redesign to appease its customers there without losing its sales.

#### **4.8 Setting Goals**

Development of new products is key at KCC. Most of their products are geared toward children's consumption and they are always in demand for what is new and different. KCC also has to come up with unique products to ensure success in their foreign markets. Thus, KCC is always determined to work on new flavours, new packaging and new products. Each year, the company launches four new products; on special occasions they may launch even more. For example, when KCC reached its 85-year anniversary, they launched ten new products in that year and when they reached the 90-year mark they launched another ten products rather than the typical four. Innovation is therefore one of the most important concerns at KCC if they are to keep up with their targeted production rate.

#### **4.9 Managing New Product Development and Innovation**

Research and development is a semi-formal function housed within the quality control department, consisting of marketing, manufacturing and the quality operations of the company. The CEO, Mr. Affga Khan is the head of the quality control department and ultimately has the final say concerning the release of a new product. Creativity is universally encouraged across the company, meaning that any of their employees can make a recommendation for a new product based on their own ideas. Due to the fact that the company is involved in so many different markets, market surveys play an important role in the development of new products. Seasonal events influence product specifications such as the red, white and black lollipops produced close to Independence



Day in T&T or the heart shaped lollipops sold for Valentine’s Day. The 2018 Christmas season saw one of the package designs involved a reindeer pulling a sleigh, which lit up in different colors. At duty free concessions at airports, the company sells a product called “Sweet Pan” and when the candies are done the customer remains with a steelpan-shaped souvenir. Even the promotional calendars produced by the company are lauded for their creativity and beauty. The 2019 calendar was in the shape of a bubble gum machine. Sporting events also influence product packaging and design.

#### 4.10 The Process

The Quality Control department leads the NPD process which involves an assembly of individuals from all departments. Post idea generation, the product concept is developed within the quality control department and a data sheet is created that enlists the product name and what it constitutes. The Logistics Department implements this form and it is then passed on to the CEO who will deem the product suitable for the market. At this point, plans will be made to fund, produce and distribute the product. All products are made to abide by universal food safety standards such as GMP, HACCP, ISO 22000 as well as fulfilling the requirements of the local food and drug act. Fig. 1 illustrates KCC’s NPD process.

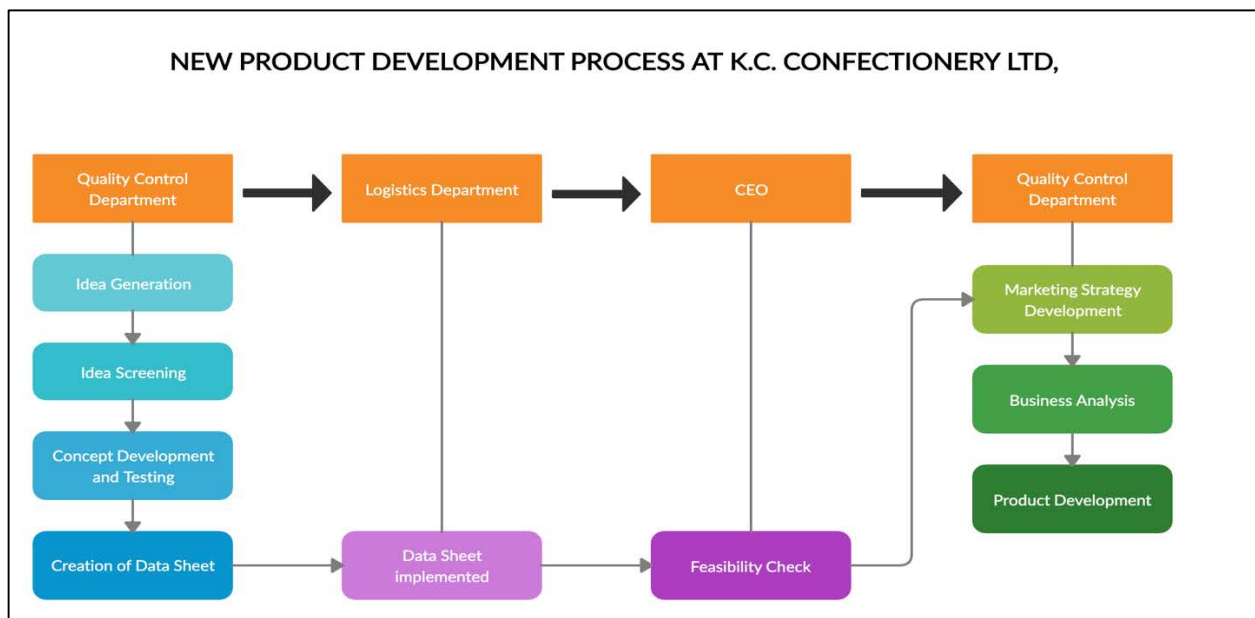


Figure 1: New product development process at KCC

#### 4.11 Employee Involvement

Ashmeer says that employees at every level – many of whom have 30 to 40 years of experience with the company – are empowered to make their own decisions so they feel like they have a stake in the company. For instance, department heads meet once a week to determine what products will be produced in the week ahead. Mohamed explains this not only gives employees decision-making power, but it helps the company identify potential managers and executives from within its own workforce. They are trained to make informed decisions, as well. Mohamed says the company





delivers regular formal and informal training both in classroom settings as well as on the job. Topics include good manufacturing processes, ISO refresher courses and management training.

#### **4.12 Innovation Outside of New Product Development**

Innovation is not just centered on bringing forth new products; innovation is necessary for packaging as well as manufacturing. Technology plays an important role in the innovative process. The new technology at KCC is not only the fastest but also generates, retains and preserves flavour better. New equipment is imported from different parts of the world and combined to effectively produce one particular product. KCC was the first company in the English-speaking Caribbean to convert from cellophane use to polypropylene, which required special equipment. They were also the first manufacturer in T&T to convert to natural gas in an attempt to be more eco-friendly.

Innovation is needed for safety concerns as well. The temporary tattoo transfer that accompanies some of the candies must be dermatologically approved, packaging and wrapping must be food grade, and even the grease they use on the machinery can be consumed safely. The company opted to use paper lollipop sticks as opposed to the traditional plastic stick which, although more expensive, is safer for both children and the environment. Innovation was key in accomplishing all these things. Innovative products are the livelihood of the company, as KCC's products are non-essential, and hence they must rely on differentiation, constantly bringing out new products on the market to stay relevant and profitable.

#### **4.13 Success Factors**

Company Director, Ashmeer Mohamed, describes KCC's ability to explore a wide range of external markets as a major contributing factor to their success in NPD and innovation. Another factor is their relationship with customers and good rapport with distributors. Ashmeer says, "What we've developed is a loyal customer base... most of the customers we deal with have been with us for over 20 years. We have no formal written agreements; just verbal agreements about doing business, which appears to be working well."

No two markets are identical and market surveys help KCC to connect with the culture of the countries they are involved with, which in turn helps to create products that are perfectly suited for their different tastes. Occasionally, already existing products are re-packaged to cater to the needs of an entirely new market. For example, chocolate-centred mints are often used in Caribbean hotels as an alternative to the traditional 'chocolate on a pillow' concept because of the warm tropical climate and short shelf life of plain chocolate products. Originally, this type of mint came in a clear wrapper but since it was considered to be a more up-market product and visually, people typically associate chocolate with foil, the decision was made to switch to foil wrapping, even though production would be more costly.

#### **4.14 Time Is Money**

Speed and flexibility of introducing new products to the market is of high importance to KCC. The longer it takes to put the product on the market, the more it will cost the company. Some of the packaging is done abroad and takes three months to be delivered after the initial order is placed. In general, it takes between six to nine months to bring a new product to the market. The length of time to bring a product from idea to fruition is considered a constraint because it is a very costly



process and adversely affects cash flow. Therefore, the number of products released is limited. Another constraint involves capital expenditure. For example, no single machine at KCC costs less than TT\$500,000 (US\$1.00 = TT\$6.7955), so when a new product involves new equipment, it presents temporal and financial constraints as confectionery machines are not manufactured for stock; an order must be first placed and the machines are then made specifically for the company. Even the standard machines require additional molds to accommodate any product change and these molds start at TT\$200,000.

#### **4.15 Marketing and Networking**

From time to time, KCC partakes in market presentations where they have opportunities to showcase their new products. Since 99% of company orders are by containers, they have developed a system of adding a few cases of their new products for customers to try. Marketing efforts also involve product launches, samples, brochures and social media releases. After the release of a new product, KCC relies on customer feedback to test the success of the product. Due to the fact that KCC strives to maintain quality products at a low price, one of the innovative shortcomings that KCC experiences is a lack of direct advertisement for their products. While the company utilises billboards and engages in promotional activity, it has only recently established a presence on social media forums. According to Ashmeer, the internal strategic determinant of NPD and innovation is simple: innovate or die. He states that without it, you can expect no growth or competitive success. KCC frequents exhibitions that feature an outlet in which only new products are showcased. Additionally, cooperation with network partners such as CARIRI and other food and beverage organisations are religiously pursued. Each formula used in the products is unique to KCC and their products are trademarked to provide some legal protection. The process in bringing about a new product varies for each category of product [14].

#### **4.16 The Role of Technology**

All of the company's machinery is automated, so any change in product confers a change in machinery, i.e., a new product shape requires a new piece of machinery which equates to capital expenditure. All equipment at the factory is state of the art, mostly imported from Germany. Every 3-5 years, KCC invests in a new piece of equipment that will provide a different function for a new product line. In 1985, KCC manufactured Hacks (now discontinued) under a license from Cadbury. Cadbury was still using a batch production system at the time while KCC was fully automated. The company had signed a memorandum of understanding (MOU) for a technology transfer from Cadbury but it ended up having a reverse result. Ashmeer states, "They had to come to us to find out how to manufacture like we did because they were on an old batch system,... so; technology flowed to Cadbury rather than the other way around" [14].

#### **4.17 Yesterday's Success Is Tomorrow's Failure**

KCC competes on a global level and it is their innovation as it relates to its ability to consistently produce successful new products that allows the company to achieve this international status. They have established a reputation in their field of business for high quality at low cost. KCC has won several awards including having the largest range of mints. They are notable for their unique flavour because they blend their own oils. Few companies in Trinidad can claim an existence close to 100 years. Ashmeer Mohamed stated, "In my time spent in exports at KCC, my mantra was: 'yesterday's success is tomorrow's failure'. What you did yesterday and what you're doing today



may not be successful tomorrow. You have to continue to change and innovate, striving for greater achievement if you want to progress. As times change your products must also adapt.”

## 5. Discussion

KCC is a local company that has made an incredible economic and social contribution to T&T. The company have been in the business of manufacturing sugar confectionery and bubblegum since 1922, starting off as a mere cottage industry and now thriving as a fully automated modern manufacturing facility and one of the largest confectioners in the Caribbean region. This case study explores the strategies used by the company in becoming one of the most lauded and successful companies in innovation and new product development.

This case serves a number of educational purposes, depending on the emphasis in discussion and the guidelines for student preparation. It is ideally designed for undergraduate courses that highlights innovation strategies and new product introduction. The case explores the strategic determinants of new product development and innovation, inclusive of technology, market orientation, learning processes, cooperation and networking, financial resources and managerial efficiency. This conversation will help students better understand exactly how multifaceted the NPD process is as well as the key roles each contributing factor plays a company’s visible success. KCC does not abide by the standard teachings typically found on new product development and innovation. They, in fact, do not have specialized departments for new product development and innovation and their methods are largely semiformal.

Relationships are an important factor throughout the case. Attention should be paid to the culture created at KCC amongst staff and management as well as the involvement of employees at all levels in the creative process. Discussion of the company’s ability to work through networks of suppliers to improve competitiveness and innovation is useful to demonstrate business strategy and supplier alliances. Another area of pedagogical emphasis is reaction to regulation and environmentally responsible product design.

The feedback from the survey of undergraduate and postgraduate students revealed that the case study was objectively written and easy to read. The storytelling was progressive with clear identification of the issues and the related NPD concepts.

## 6. Conclusion

A teaching case study of the descriptive illustration type was developed at KCC entitled: *Examining the Processes of New Product Development and Innovation: The K. C. Confectionery Case in Trinidad and Tobago*, which covers the strategies employed in new product development and innovation at that company. The case study is comprised of a length of 6 pages to account for the education level of the students who will be utilising it. The study shows that KCC does not abide by the traditionally taught methods set for new product development and innovation and reveals the factors that contribute to the company’s success such as relationships, differentiation and flexibility. The case study is meant to be thought provoking and move students away from the mentality that there is a formula for new product development and innovation. It allows students to recognise how multifaceted the process is and to factor out the characteristics of a successful business where new product and innovation is concerned. Students will understand that the NPD



process will manifest differently depending on the individual company's environment. Suggested questions that will allow for discovery and expression of the students' own ideas of what constitutes successful new product and innovation are made available by contacting the authors.

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