

**THE INFLUENCE OF TECHNOLOGICAL INNOVATIONS ON
ORGANIZATION'S COMPETITIVE ADVANTAGE:
CASE STUDY ON IRISH FOOD RETAIL COMPANY (TESCO)**



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ABSTRACT

It is without a doubt to say that past researchers have carried out research on the subject matter: Technological Innovation and its influence on Competitive Advantage but little or nothing had been on the subject matter. Thus, this study sees it as a need to carry out research on this subject using Irish food Retail Market and adopting Tesco which is one of the leading retail outlets as case study. with the aim to achieving this broad objective, other specific objectives were formulated and subsequently research questions and hypothesis.

The study carried out an extensive literature review on the subject matter, went further to carry out survey with the aid of questionnaires. Questionnaires were distributed to customers, friends and management of Tesco with the aim to finding out whether or not Technological innovation has helped Tesco gain relevance in the competitive market. Responses gotten from respondents via questionnaires were converted into data using simple percentage and frequency tables while hypotheses test were carried out with the aid of SPSS (Statistical Packages for Social sciences). Result gotten from both survey and test showed that relationship exists between Technological Innovation and Competitive Advantage with 90.4% and 79.4% which is high showing that indeed Technological innovations such as POS machine, website, online app among others have all contributed to the success of the firm. The result gotten from the study reveals that Technological Innovation has positive influence on Competitive Advantage.

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LIST OF ABBREVIATIONS

ASTII African Science Technology and Innovation Indicators

DPC Data Protection Commission

ICT Information Communication Technology

NEPAD New Partnership for Africa's Development

PCA Principal Component Analysis

R&D Research and Development

SEO Search Engine Optimization

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CHAPTER ONE

1 INTRODUCTION

1.1. Background to the Study

The upgrades in technology have been a significant aspect that enhances the marketing prospects of an organization. The most significant marketing capabilities are dependent on the effective utilization of technologies. It has been observed that the millennial population has more preference towards the use of technology. (Foroudi *et al.*, 2017). Furthermore, Shapira and Youtie (2016) stated that the increasing population of the millennials have caused organizations in advancing their technological competencies while operating in different market. The marketing operations of organizations are dependent on the changing preferences of the customers while assisting the same in pursuing convenience-based buying options. Therefore, the research will identify the different ways in which technology helps in improving competitive advantage of food Retail Outlet in the food Retail Industry in Ireland.

At this juncture, it is important to know what technology means and what innovation entails. Innovation as a term is not only related to products and processes, but is also related to marketing and organization (Gurhan G, Gundus U, Kemal k and Lutfihak A 2011), Schumpeter (1934) stated different types of innovation which includes new products, new methods of production, new sources of supply, the exploitation of new markets and new ways to organize business. Innovation can also be said to be the process of equipping new, improved capabilities or increased utility. Thus, innovativeness is one of the fundamental or core instruments of growth strategies to enter new markets, to increase the existing market share and to provide the company with a competitive advantage. Motivated by the increasing competition in global markets, companies have started to grasp the need and importance of innovation, since swiftly changing

technologies and severe global competition has rapidly eroded the value added of existing products and services. In addition, innovation is an invaluable component of the corporate strategies for many reasons such as to apply more productive manufacturing processes, to enhance the organization's performance in the market, to seek positive reputation in customers' perception and as a result to gain sustainable competitive advantage.

However, when the word "*technology*" is mentioned, what readily comes to mind are machines and other equipment used in production, but technology is much more than this; it refers to the complete or sum total of knowledge or ways of having things done. Technology includes inventions, techniques and the vast store of organized knowledge about everything from aerodynamics to zoology (Kontz et al, 1981). Perrow (1965) define technology as a technique or complex of techniques employed to alter material (human or non-human, mental or physical) in an anticipated manner. Technologies can only yield or lead to increased productivity or improved performance when combined effectively with other resources like human resources (Dauda & Akingbade, 2011). Technology affects the process in which products and services are designed, developed and distributed. Technology has an impact on product quality and price.

A close look at the description of technology and innovations, one is left with no choice than to go further into finding out what technological innovation is about which is the focus of this study. However, it is important to know that responsiveness of management to technological innovation is a determining factor with regards to the effectiveness of the firm's performance. A firm that does not make improvement with the change in production methods and techniques may be forced out of the market. Primitive or outdated technologies may not be efficient as new discoveries. The results of inefficiency in the use of outdated technology may include low

quality products, high prices of products, less quantities of products in the production runs, among others.

Due to strategic nature of technology, Organization's strategists constantly search the environment for technological changes that may significantly affect their organization's operations, performance and survival. Technological changes in this sense will include changes in raw materials and the equipment used for production. Such strategists realize that changing technology can offer opportunities for improving objectives attainment or threatens the existence of the firm (Glueck and Jauch, 1972). Some organizations tend to undermine the effect of technological innovation, the outcome and price for such action is low profitability and performance or even liquidation for such organizations.

Technological innovation affects the product or service life cycle. It is possible through investment in research and development to extend the life of a product that is approaching declining stage through technological innovation while on the other hand organization should take cognizance of the fact that the development of a new product may render some closely related product obsolete. It is therefore necessary for organization to constantly scan the technological environment to determine what each technology innovation will mean to existing products. However, the impact of technological innovation will vary from industry to industry because some sectors of the economy are technologically more volatile than others.

It is important to know that among Food Retail Industry in Ireland technological innovation has come to stay. The concept of technological innovations is the most important subject in attaining competitive advantage of the common marketplace (Adeoti and Adeoti, 2010; Adeoti, Odekunle and Adeyinka, 2010; Dada, Siyanbola, Ilori and Olamide, 2011; Siyanbola, 2012; Dada and Oyebisi, 2016). The first commercial introduction of a new

technology is technological innovation, which may take the form of process, product or service. This is the progressive exploitation of new ideas and a continuous process, involving not only research and development (R&D) and new technology, but also all business functions (Dada, 2014). In recent times, the competitive advantage of any firm is the level of Technological innovations it has over its competitors. Firm's competitiveness is the ability to provide products and services more effectively and efficiently than relevant competitors.

At the firm level, the ability to compete effectively in both national and international market is dependent on the firm's technological innovations which contributes to technology development, market orientation, cost reduction and quality improvement. In recent years, the relevance of technological innovation as a topical issue in policy and debate has increased (Adeoti et al., 2010). Indeed, technological innovation in SMEs which retail outlet is inclusive has been increasingly recognized as the engine for economic growth (Yeh and Chang, 2003). Using technological innovations, SMEs can improve/develop new products, process or business system that will help in meeting customer's need, stay ahead of competitors, explore new markets and grow. Technological innovation is viewed as important to a firm's survival due to an increase in the market competition. (Hult, Thomas, Robert, Hurley and Gary, 2004).

1.2. Statement of the Problem

In today's business environment, firms are faced with stiff competition from their competitors irrespective of the industry but the ability for a firm to stand out amongst its competitors gives it an edge. It is without doubt to say that one of the surest ways for a firm to achieve this is by technologically innovativeness. However, both business owners and employees in the Food Retail Industry specifically Ireland find it difficult to blend some of the factors of technological innovation (e.g. product innovation and process innovation) to influence

competitive advantage. one must have it in mind that the Food Retail Industry is noted as one of the engine of growth for employment, a creator of wealth and the threshold for sustainable development if its performance is good. It is as a result of this that this study will be looking at the influence that technological innovation has on competitive advantage on Food Retail Outlet in the in Ireland.

1.3. Research objective

The primary/ main objective of this study is to determine the influence that Technological Innovation has on Competitive Advantage in the Irish Food Retail Market.

Specifically, this study will be to achieve the following objectives;

1. To determine the significant relationship that exists between technological innovation and competitive advantage.
2. To find out the influence that technological innovation has on food retail Home service delivery

1.4. Research Question

The following research questions will guide this study.

1. What is the significant relationship between technological innovation and competitive advantage of a retail outlet
2. What is the influence that technological innovation has on food retail Home service delivery

1.5. Research Hypothesis

The study will be considering/ carrying out the following hypotheses test in order to validate the relationship that exists between the independent variables and dependent variable.

Hypothesis one

H₀: There is no significant relationship between technological innovation and competitive advantage.

H₁: There is a significant relationship between technological innovation and competitive advantage.

Hypothesis two

H₀: Technological innovation has no significant influence on Home service delivery.

H₁: Technological innovation has significant influence on Home service delivery

1.6. Rationale for Research Hypothesis

Hypothesis one

H₀: There is no significant relationship between technological innovation and competitive advantage.

H₁: There is a significant relationship between technological innovation and competitive advantage.

A cursory look at researches today, one can say with certainty that although past researchers have carried out research on technological innovation as an independent variable and its influence on performance as a dependent variable, little or nothing had been carried out on technological innovation with regard to competitive advantage in particular and this makes this study and its hypothesis test distinct and worthy to carry out using Retail Industry in Ireland.

Hypothesis two

H₀: Technological innovation has no significant influence on Home service delivery.

H₁: Technological innovation has significant influence on Home service delivery

Hypothesis two and its variables are also what most researches find it difficult to contend with, past researchers tends to focus more technological innovation and firm performance e.g. (Stephen 2012) and these two variables are very broad leaving out indicators such as Home service delivery. Thus, this study sees it as set back and indicate interest in looking at the influence that technological innovation will have on Home service delivery.

1.7. Significance of the Study

The importance of this study is that it will be looking at the influence of Technological Innovation on Market's Competitive Advantage. Technological Innovation will be looked at as against competitive advantage and Home service delivery. The contributions that the above indicators have using questionnaires and how precautionary measures can be taken to reduce the menace and frustration among Food Retail Outlets in Dublin and Ireland at large so as to enable it play its role in the economy thereby leading to creation of job opportunities, better exportation, creating locally made good, among others.

To the society, food retail industry and industries at large, this study can be used as a strategic tool for them to see the need and usefulness of technological innovation leading to the plea for improved management and maintenance of sectors so as to enhance their competitive capacity leading to better economy development thus creating an enabling environment for establishment of more firms. To the government, this study will serve as yardstick for them to see the need for better government policy that will enhance the availability and capacity for

business owners to see the need for technological innovation as to aid movement of both goods and services contributing to improved employment and better economy performance. Finally, this study will be of relevance to other researchers as they can use it for their assignment serving as guide, other researcher can as well use this study as reference point citing some of its authors.

1.8. Scope of the study

This study is on the influence of Technological Innovation on Firm's Competitive Advantage, but emphasis will be on Food Retail Industry in Dublin City with Tesco Food Retail Outlet (Supermarket) as case study. Tesco is used because it is the leading supermarket in Ireland, employing 13000 people across the country and the store is one of the biggest buyers of Irish foods and drinks in the world. However, due to the size largeness of Tesco and its employee's strength, this study will focus on Tesco foods located at Jervis Shopping Centre Dublin 1. Survey research method with the aid of questionnaires which is a primary source of data collection will be adopted. Tesco foods located at Jervis Shopping Centre Dublin will be used due to its proximity and recent Covid 19 outbreak restriction on movement. It is also to be noted that a Pilot study will be conducted as this will help to determine the validity and reliability of the research instrument (questionnaire). Finally, responses gotten from the respondent who happens to be friends, customers and line managers of the firm will be converted into data using simple percentage and frequency tables while regression with the aid of Statistical Package for Social Sciences (SPSS) will be used for the test of hypotheses as indicated above.

CHAPTER TWO

2.0 LITERATURE REVIEW

This chapter will focus on the review of other literature that are relevant to the study. The chapter will focus on three major headings: The Conceptual Framework, Theoretical Framework and Empirical Framework

2.1. Conceptual Framework

2.1.1. Concept of Innovation/ Technological Innovation

The word “Innovation” has its origin from the Latin word “novus”, meaning new. Innovation is defined as the introduction of something new or a new idea, method or device (Tornatzky and Fleischer, 1990). Kamzi (2003) sees technology to include those factors that are related to knowledge applied, material and machine used in the production of goods and services which have an impact on the business of the organization while Ayres (2008) identified technology as the wealth of companies. Technology refers to all the methods available to an organization for the conversion of raw material into finished products or services (Griffin, 1996).

Onodugo (2000) sees technology as the methods and techniques employed in productive activities. The changes in technology results from breakthrough in research and development. One of the key elements that defines a society or civilization is technology. The impact technological innovation has had on the development of a company and its contributions on the economic growth of firms has been widely documented. The primary aim of technological innovation is to ensure the survival of the organization, as well as the business environment, which in turn is aimed at achieving sustainable increased market share (Abernathy & Utterback, 2005).

The market share that a company possess is hugely influenced by the technological innovation the firm has at its disposal. Howbeit, technological innovation is the process of combining and recognizing knowledge to generate new ideas. Mumford (2000); Huselid (1995) & Hitt et al (1997) argued that the development of technology has an impact on firm performance, So there is a close relationship between technological innovation and market share, due to that fact that it makes employees more effective and firm more efficient (Lawless and Anderson, 1996). Employee's performance is closely linked with technological advancement. Technological advancement can be managed effectively through employees. A firm's performance can be improved by technological advancement (Li and Deng, 1999). For the attainment of better organizational performance and survival, there is need for both technological and organizational innovation. The right and effective combination of technologies and other resources by the human resources department can only lead to increased productivity or improve market share (Dauda & Akingbade, 2011). Training programs organized by organizations help their employees to acquire new knowledge, skills and further advancement competencies (Chi et al., 1989). Resource-based theory suggests that a firm's resources are extremely important for the firm's development, and that human capital is a key resource of a firm.

Technological advancement is an important factor for influencing the improvement of performance. Studies have shown that a positive relationship exist between a firm's technological advancement and performance. One of the most important requirements for economic and industrial development of a firm is the ability to innovate successfully (Gerstenfield & Wortzel, 2007). The innovation process is fundamental to a healthy and viable organization, a company must innovate or die (Tefler, 2002). Those who do not innovate ultimately fail. Hill and Utterback (2009) viewed technological innovation as a major agent of

development and change in societies which has been linked to rising productivity, employment growth and a strong position in competitive markets, trade and improved quality of life.

However, difficulties associated with technological innovation processes and industrial environmental factors made studies of the characteristics of technological innovation seem complex to carry out. Nevertheless, Lall (1980) stated that a significant amount of technological innovation is being carried out in the modern sectors of developing countries, particularly in those with relatively long experience of manufacturing and with broad-based capital good sectors

Many studies carried out prior to this have found out that there exists a positive relation between technology and business activities. A positive relationship exists between enhanced technology and business performance (Tanja et al, 2012). Adam & Farber (2000) also in his study concludes that in the organizational context, technological innovation may be linked to performance and growth through improvements in efficiency, productivity, quality, competitive positioning and market share, among others. They also found that technological innovation is positively related with performance. Imran et al. (2014) investigates the impact of technological advancement on performance and finds that technological advancement has significant impact on motivation and training of employees.

Some scholars also discriminate technological innovations covering process and product types from non-technological innovations covering marketing and organizational innovations. This study noted the classification of four types of innovation described in the Oslo Manual (OECD and Eurostat, 2005) as product, process, organization and marketing innovations. Basically, organizations are concerned with major types of technology namely; process and product technology. Product technology are concerned with how products are designed while

process technology is concerned with how products are manufactured and delivered to customers (Tate and Taylor, 1983).

2.1.2. Influence of Technological Innovation on Retail Industry

The retailing structure are presented in four segments along a continuum, namely: innovative, big middle, low-price and “in trouble”. Retailers in the innovative segment are quality conscious and consumer satisfaction. Low-price retailers are price-conscious because they see the market price as the best environment for their activities. The big middle retailers excel in the value offering market while “in trouble” retailers are unable to deliver high levels value in comparison with their competitors (Levy et al., 2005).

Generally, innovation in service industry is not usually technology based and does not attract much effort in research and development (R & D) (Trigo, 2013). This has caused the retail industries to devote their R & D efforts towards the development of new products rather than towards development of new means for improving the services deliverable to customers. Retailers usually adopt innovations developed by other parties because they lack the capability of creating their own. Thus, they mostly outsource all the activities devised in R & D.

Notwithstanding these opposing conditions, innovative technologies available for transporting merchandise and delivering services is catching up fast. This has caused the availability of many interactive and innovative systems that are able to update information on market dynamics and trends. These innovative technologies support consumers while shopping and retailers in business advancement. Even though these innovations pose challenges for the retail industry, it also creates an effective solution destined to improve the experience of consumer and retail management.

Different firms operating in the same industry possess different level of innovation. According to Cao (2014), the level of innovation by firms operating in the same industry may differ in terms of the nature and number of successful innovations. Retailers developed various innovation strategies such as the introduction of self-service technologies which helped to shift the traditional tasks executed by employees to an automated machine (Boeck & Fosso Wamba, 2010). Some other retailers developed innovations that offered new exciting shopping experiences to attract more consumers (Hristov and Reynolds, 2015). Thus, their study cut across many industries including the fashion industry. Researchers have carried so many researches in retail pertaining to store attributes and level of satisfaction of consumer such as quality of goods, product display, retail atmosphere and price of goods.

2.1.3. Role of Information Technology on Technological Innovation in the Retail Industry

The mission, objectives and strategies to achieve organizational goals are all embedded in the strategic planning (Cleland & Ireland, 2006). The strategic planning provides the blueprint that stand as a guideline for the attainment of organizational objectives. The agreement between the Information Technology and business components is essential for an organization to have maximum competitive advantage over its competitors. The dynamic interplay between a firm and its external environment helps to sustain its competitive advantage (Lewis, 2013). When things are in a state of alignment, they naturally and harmoniously work together to achieve a common goal.

Organizations are always seeking competitive advantages in the industry they function (Papulova, 2006). There are several ways to attain competitive advantage, but many organizations focus a few methods of gaining a leg up on the competition. To sustain competitive advantage in the prevailing dynamic market environment, Organizations need to embrace

Information Technology otherwise will be faced with the risk of becoming irrelevant in the long run.

Maximum competitive advantage may be attained by firms which strive to attain perfect alignment (Porter, 2008). The organization's alignment can be in the following state, Chaos; when the business alignment is in the state of chaos, there is gross misalignment between the functions and processes of the organization (Pierterse, 2010). The organization find itself in a state of total confusion because there is no strategic intent is any action undertaken. Misfit; in this state of alignment, there is a very low collaboration between the organizational functions. Most functions are aimed to achieve different goal and as such the alignment with these functions are minimal. Mixed; in this state of alignment, there exist some common goals in the business functions but most part of the business is not aligned, and it result to coincidental strategic intent in most cases (Elms & Low, 2013). Threshold; this is the lowest level alignment needed within an organization to deliver products and services.

Nevertheless, it is vital to know that there is collaboration within the organization but not to the optimal level and as such, there is great need for improvement. The business strategy is achieved when there is harmony in the business alignment. However, most projects carried out within the organization will have strategic intent. To maximize competitive advantage, the organization need to align Information Technology to its business functions (Filippone et al., 2008).

The information function should be aligned with the RBV (resource-based view) and the Business Development Model which clearly states that alignment of organization strengths defines a firm's competitive advantage. A perfect alignment between the IT function and business strategy is needed in order to attain maximum competitive advantage. Every

organization should strive to attain a perfect state of alignment between all its functions units and Information Technology.

The most recent technological innovation in business transactions is the introduction of E-commerce. It has quickly replaced the swapping of money or goods with the exchange of information from one computer to another. The introduction of E-commerce in the retail sector has helped people reach the global market easily and flourish tremendously. With the establishment of online retail stores, retail industry is now significantly influenced by technological advancements. According to Brown et al. (2013), retailers are more interested in investing in the online sector because of it is cost effective, fruitful in the long run and can reach many people at a time.

2.1.3.1. Influence of ICT adoption in Technological Innovation.

Mustapha (2015) stated that the adoption and utilization of ICT helps to improve access to information, foster effective communication, and improves process and market efficiency for organizations. The adoption of ICT can help Large and small organization in developed and developing economies to create competitive advantage and become market leaders (Elbeltagi et al., 2013). ICT can be used by organizations to carry out future research, business forecasting and to facilitate strategic planning for both process efficiency and effectiveness (Agwu & 5Murray, 2015). Organizations that adopt ICT are more likely to perform better in the market and exhibit product or service that can reach a large number of people at a time (Tarutė & Gatautis, 2014).

According to Mustafa (2015), the adoption of ICT as a business tool has some advantages such as its persistent nature as it spreads across economic sectors, its ability to improve over time and hence lower cost for users, and its ability to spawn innovation by facilitating research and

development of new products, services, or processes. It also avails to organizations the opportunities for organizational leaders to be more efficient in their operation, reduce cost, improves coordination between suppliers, increase the organization's market reach, and increase its competitive advantage in the global market (Musatapha, 2015). ICT has a had a positive effect on the productivity of firms which have adopted it. It has increased the profitability, market share, market value, customers and employees' satisfaction, and it has had a positive social and environmental impact on firms that have adopted its use (Tarutė & Gatautis, 2014). Therefore, leading to competitive advantage.

2.1.4. Sustainable Competitive Advantage

An organization can sustain its competitive advantage when its rival organizations cannot match up with the resources of the organization (Grant 2010) or when it is difficult for the rival firms to emulate the organization's process or methods of carrying its business activities (Hill and Jones 2009). The organization's competitive advantage is said to be "sustainable" when attempts by other firms to emulate the organization's line of actions has come to an end without distracting the organization's competitive advantage or when is it expensive to imitate. The main objective of a company's strategy and generation of superior profitability is the pursuit for sustainable competitive advantage (Hill and Jones, 2009).

Sustainable has been viewed by Porter, (2004) to mean the protection of resources for a long period of time into the future (Thompson, Peteraf, Gamble and Strickland, 2012). Competitive advantage means that the firm can produce goods or services that the consumers perceive to be more valuable and satisfying than those produced by its competitors (Saloner, Andrea, & Joel, 2001). According to Wheelan and Hunger (2010), sustainable competitive advantage can also be seen along the indicators of durability and imitability. Durability

determines how long the competitive advantage can be sustained. Imitability examines the ability of competitors to duplicate the competitive resources and competitive capabilities upon which the competitive advantage is built.

Durability signifies the pace at which an organization's competitive resources and competitive capabilities become outdated as a result of innovations and new technology (Wheelen and Hunger, 2010). The longer it takes for competitors to achieve imitation, the higher the probability of the firm to remain ahead of the competition (Thompson et al., 2012). Maximum competitive benefit is derived from the company's ability to delay imitations or duplication of its competitive resources.

Most scholars agree that the core competencies are the direct source of sustainable competitive advantage while other sources of sustained competitive advantage exist (Grant, 2010). These core competencies which are technologies and special skills that allow a company to provide a specific value added to the customers were highlighted by Lynch (2009). They provide the foundation of core products and services which are the main activities of the company.

2.1.5. Technology improving the quality of marketing in Ireland

The development of ICT (Information and Communication Technologies) has attracted the attention of the organizations from different parts of the world to expand in the Irish markets. The marketing capabilities of the organizations are specifically reliant on even communication of the companies with the customers. The improvements in the communication channels through application of distinguished media vehicles allow an organization in improving the marketing efforts (Hockenberry, 2019). It has been noted that the present generation of customers prefer information while making a decision of purchase. In this connection the improvements in ICT

has helped Irish organizations in improving the scope of marketing through increased user-engagements. An example, through the inclusion of ICT the technological capabilities of *Barry's Tea* were improved which has helped the business in maximizing networking-based operations with the different importers (Schmidt 2017). This has helped Barry's Tea to become one of the largest tea importers in Ireland. In this connection, the organization developed the ICT apparatus with the purpose of engaging the customers in the different processes while improving their marketing skills.

Moreover, it has been noted that the organizations in Ireland have taken the initiative of developing SEO activities with the purpose of improving their brand position and availability in the search engines. The increased availability of the organizations in different digital and social media platforms assures the customers of the quality of the proposition that would be delivered by the same (Hristov Ivanov & Pavlova Pavlova, (2017). An example, *Eddie Rocket's* have taken the initiative of improving their availability in different search engines and social media platforms through allied SEO activities (Mummalaneni, Meng and Elliott 2016). The SEO services help organizations to gain increased exposure in the target market while improving their links of communication with the customers. The improvement in marketing communication techniques assisted the venture in retaining the trust and loyalty of the customers while increasing the scope of target market for the business. The development of efficient marketing communication techniques, while infusing relevant technologies, supports an organization in improving the market reach and sales volume (Pereira, 2019).

The large number of data thefts suffered by organizations in Ireland affected the capability of business in retaining their brand value. There were a total number of 6,700 data breaches in the year 2019 as reported by Ireland's Data Protection Commission (DPC) (Taylor,

2020). The data thefts affected the capability of the organizations in providing the consumers with secured payment options which also affected the interest of customers. According to Taylor (2020), the data thefts also affected the online buying behavior of the customers in Ireland which minimized by 3.2% within few months after being notified. Attention of the prospective and potential customer base was affected negatively by the data theft which created fear in the mind of existing and potential customers. The data thefts affected the marketing capability of the organizations in Ireland while drawing back and retaining the attention of the prospective and potential customer base towards their online offerings.

2.2. Theoretical Framework

Drawing from that work of Ifeanyi (2015), the theory of this study will be the theory of diffusion of innovations. The theory of diffusion of innovation is a theory that seeks to explain how, why, and at what rate new ideas and technology spread through culture. Everett Rogers, a professor of communication studies, popularized the theory in his book *Diffusion of Innovations*; the book was first published in 1962. Rogers argues that diffusion is the process by which an innovation is communicated through certain channels over time among the participants in a social system. The origins of the diffusion of innovations theory are varied and span multiple disciplines. Rogers proposes that four main elements influence the spread of a new idea: the innovation itself, communication channels, time, and a social system. This process relies heavily on human capital. The innovation must be widely adopted in order to survive.

2.3. Empirical Framework

Ifeanyi O (2015) In a study appraises the effect of technological innovation on performance of Nigeria manufacturing firms. The purpose of the study was to determine whether there is technological innovation in some performing manufacturing firms in Nigeria and the extent it has contributed to their performances. The study population were 8725 being the total staff strength of ten manufacturing firms spread across ten sub sectors of manufacturing sector in Nigeria Stock Exchange while the sample size was extracted from the population using Taro Yameni method. Structured questionnaires were used to generate the primary data. The study used descriptive type of survey design while t-statistics was adopted for hypotheses testing. The result of the study revealed that Process innovation has significant positive effect on the performance of manufacturing firms; that Product Innovation has significant positive effect on the performance of manufacturing firms; that Organizational structure has significant positive effect on the performance of manufacturing firms; and that employee development significantly affect firm's performance positively. As a result of the above findings, the study concludes that even though most firms in the manufacturing sector are not performing, the result from selected few performing manufacturing firms used in Ifeanyi's study attest to presence of technological innovation which is a critical success factor behind their success. The study therefore recommends that Nigeria manufacturing firms should give more serious attention to technological innovation, endeavor to lay more emphasis on employee development as it is an indispensable factor that facilitates technological innovation and that manufacturing firms should adopt appropriate structure because appropriate structure provides a solid foundation for company's operation and technology.

Vera (2013) is of the opinion that technological innovation is one of the driving and fundamental instruments of growth strategies. The main objective of Vera's study was to provide the understanding on ways which technological innovation capabilities affect the efficiency and potential of firm's performance. The study drew on the theoretical literature and empirical studies on innovation, management and capabilities of technology in an effort to explore the role of technological innovation on new product development. The study posits the importance of technological innovation as an essential ingredient of competitive advantage for new product development. Vera's study is different from previous research, due to the fact that it focuses on an integrated framework of potential influence on innovation incorporating other variables. Adopting the Principal Component Analysis (PCA) approach, Vera was able to reduce the larger set of variables into a more manageable set of scales. Also, a PCA with varimax rotation was conducted to find out the underlying dimensions of innovations and firm performance. SPSS was used for window 12.0 software pack as statistical analysis tool for all the data, and Pearson's analysis to verify the relationship between technological innovation and new product development, and t-test to verify the hypotheses. Constructed research variables for measurement (α) was used to measure the internal consistency of the study. For Cooper and Emory (1995) if Cronbach's alpha (α) is between 0.70-0.98, then the reliability is higher but if it is lower than 0.35, then the results are not reliable and should be refused. For this study, Cronbach's α was above 0.80, indicating that the results of the survey were all well within the parameters of reliability. The survey findings verify the existence of correlation between technological innovation and firm performance on new product development.

Dada (2016) also carried out research using the Food and beverage industrial sector which is one of the largest employers of labour in Nigeria. Studies have established the existence

of some innovations in the industry. The study focuses on the link between technological innovations and competitions of food and beverage companies. Multistage sampling technique was employed to elicit information from one hundred and fifty firms in Lagos, Ogun and Oyo States, Southwestern Nigeria with a response rate of 64%. Both descriptive and appropriate inferential statistical analyses were used for the data. Using a standard framework, results revealed the existence of five types of innovations (product, process, market, strategic and behavioral) in the firms. The companies reached a moderate level of innovation (3.20) on a 5-point Likert scale. Process innovation was found to be highest (3.45), followed by product innovation (3.21), and the lowest for market innovation (3.02). The analysis of the data further revealed a high (3.95) level of competitions among the enterprises. Product quality (4.21) and firm's flexibility (3.82) respectively contributed the highest and lowest levels of competitions of the industry. A Pearson correlation coefficient value of 0.55 indicated a positive correlation of medium intensity, statistically significant at the 0.01 ($\alpha = 0.01$, $\rho \neq 0$) confidence level ($0 \leq r \leq 1$). This shows that the higher the overall innovations, the higher the level of competitions of the companies. The paper concludes that the technological innovations in the food and beverage firms generated high competitions among the companies. Strategies should therefore be geared towards continuous expansion of innovations in the industry.

Adedamola, Oluseye and Yusuf (2013) used econometric model to analyze the impact of technological innovation and R&D on firm performance in the Nigerian service sector. The sector is attracting interest in policy circle because it has become the fastest growing sector globally. The analysis was based on data obtained from the Nigeria's innovation survey, 2008 undertaken among 500 enterprises in the service sector with about 41% response rate. The instrument was guided by the third edition of the Oslo Manual standardized through validation

workshops under the NEPAD ASTII initiative. The result shows that technological acquisition, training and in-house R&D positively influence technological innovation while government support and embodied knowledge are insignificant. Also, technology innovation and R&D have positive impact on firms' performance. The study offers an opportunity to understanding the impact of technology innovation and R&D on performance of service firms in developing country context.

Stephen (2012) in a study evaluated the impact of technology innovation on the performance of indigenous textile weaving firms in south-western Nigeria. Primary data were collected through structured questionnaire administered on indigenous weavers in the study area. Results of correlation analysis showed the relationship between business performance and source of raw material ($r=0.17$, $t=2.84$, $p<0.01$); product innovations ($r=0.10$, $t=1.65$, $p<0.05$); investment in technology innovations ($r=0.19$, $t=3.25$, $p<0.01$); business advisory services ($r=0.11$; $t=1.74$, $p<0.05$); reduction of tax ($r=0.11$; $t=1.73$, $p<0.05$), export incentives ($r=0.13$; $t=2.09$, $p<0.01$); and total capital investment ($r=0.21$; $t=3.55$, $p<0.01$). Factors with negative effect are cost of R&D ($r=-0.19$; $t=3.24$, $p<0.01$); threats by competitors ($r=-0.18$; $t=3.06$, $p<0.01$) and production of quality products ($r=-0.09$; $t=1.64$, $p<0.05$). Regression analysis and its impact on business performance were local marketing, ($\beta=17.95$, $z=11.18$, $p<0.01$); national marketing, ($\beta=18.35$, $z=1.64$, $p<0.01$); product innovations, ($\beta=3.17$, $z=3.03$, $p<0.01$); total capital invested ($\beta=2.68$, $z=10.19$, $p<0.01$) and experience in business, ($\beta=2.66$, $z=2.96$, $p<0.01$). Factors with negative effect were payment of tax, ($\beta=-17.46$, $z=-21.31$, $p<0.01$); regional marketing, ($\beta=-17.38$, $z=-18.08$, $p<0.01$); local competition, ($\beta=-16.53$, $z=-9.02$, $p<0.01$). The study concluded that sale of products in the domestic market; product innovations; total capital invested and years of experience in business were the factors responsible for the resilience and sustenance of

indigenous textile weaving firms. However, factors such as payment of tax, sale of products in regional market, local competition, trade liberalization and cost of R&D are the major constraints in the performance of firms in the industry.

CHAPTER THREE

3 RESEARCH METHODOLOGY

3.1. Introduction

This chapter was concerned with the research procedure, philosophy and methodology of the study. It discusses the research design, population size, sampling and sampling size, sources of data, data collection instrument, data analysis techniques and limitations of methodology.

3.2. Research design

Kothari, (2009), sees research design as the method or strategy of investigating conceived idea to obtain answers to research and to control variances. Research design is also the process of conducting a research. It is concerned with the relationship between the two constructs of the research topic and it includes the plan structure and strategy of an investigator. In view of this definition, this study will be adopting survey research method using friends, customers and Line managers of Tesco foods located at Jervis Shopping Centre Dublin 1 as case study into finding out the influence that Technological Innovation has on Competitive Advantage.

3.3. Research philosophy

The research was conducted with the implementation of positivism philosophy, as it enables in gaining a specific knowledge on the different technological phenomenon and the way it influences the success factors of the marketing operations that are initiated by the organizations. The knowledge on the influence of technological innovations on organization's competitive advantage will be based on the observation of impacts it creates in the buying behavior of the customers. Therefore, the implementation of the positivism philosophy in the

research would enrich the study through assessing the influence that technology has on the marketing operations while affecting the buying intent of the end users.

3.4. Research approach

The research was conducted through a deductive approach where data points was deduced from different relevant and reliable sources. The data on the influence of technological innovation on the success factors of the marketing operations will be retrieved through the utilization of the deductive approach. Therefore, the imposition of the deductive approach in the research would minimize the chances of biases in the study.

3.5. Population of study

The population of the study explains the area(s) to be covered for a research work. The population study means collection of all considerable elements, subject or observation relating to a particular phenomenon that is of interest to the research work and the population that was used for the gathering of relevant information needed for this research work. Thus, the study population will comprise of friends, customers and employees of Tesco foods located at Jervis Shopping Centre Dublin 1. The study will focus on 65 respondents.

3.6. Sample technique

The research technique employed in this study was the convenience sampling. The convenient sampling is used due to the recent pandemic (Covid 19), thus picking a logical geographical location that will not expose the researcher to this pandemic and will still meet the needed respondents.

3.7. Data collection methods

The data was collected by questionnaire which was directly administered by the researcher to the respondents and collected. The listed questions will base on the assumptions that the responses should be significant for testing the necessary degree of hypothesis. The use of questionnaire will be a primary source of data collection.

3.8. Research instrument

The research instrument to be used for this work is a semi-structured questionnaire. The items were constructed to elicit response from the respondents. The questionnaire format chosen to carry out this research will be the 5-point scale of strongly agree (SA) agree (A), Undecided (U), disagree (D), strongly disagree (SD). It means that the respondent is to choose an option of their choice.

3.9. Pilot study

For the pilot study of this research, the researcher will consider 10 persons which will include friends and customers of Tesco.

3.9.1. Validity of the research instrument

The validity of this study will be drawn from pre-study which will determine how well the research questions are able to measure the relationship between Technological Innovation and Competitive Advantage of the study and this will further determine the reliability of the study.

3.9.2. Reliability of the research instrument

According to Asikia (2004), reliability is defined as the consistency between independent measurements of the same phenomenon. The reliability of a test refers to the degree of consistency and precision (accuracy) with which the test measures what it purports to measure that is, how repeatable or consistent the researcher's measures are or the degree to which the test measures the same time after time and item after item. The reliability of the research instrument was based on the result gotten from the pilot study and this was used to judge the content of the research question in order to determine whether there will be adjustment.

3.10. Data analysis

For the research objective, information gotten and converted into data was analyzed using simple percentage and frequency table to get respondents perception about the subject matter. while regression with the aid of Statistical Package for Social Sciences (SPSS) was used for the test of hypothesis.

3.11. Ethics

The essence of this study is to find out the influence of Technological Innovation on Competitive Advantage within the Irish Food Retail Market in fulfillment of an academic pursuit. Thus, the questionnaire was used for academic purpose only.

CHAPTER FOUR

4 DATA PRESENTATION, ANALYSIS AND INTERPRETATION

The essence of this chapter was to present and discuss the analysis of the data collected from the questionnaires survey. Frequency, percentage and simple regression were used to analyze data generated. The result obtained from the analysis form the basis upon which conclusions are drawn from the study.

Table 4.1: Questionnaires distributions.

Number of questionnaires distributed	65
Number of questionnaires retrieved	61
Number of questionnaires not retrieved	4

Source: Researcher's Field Survey, 2020

Drawing from the table above, it can be said that of the total copies of questionnaires distributed, 65 which represented a 100%, 61(94%) which is very much valid was successfully retrieved and used for this study but 4(6%) was not returned and thus was not used.

4.1. DATA PRESENTATION

Data will be presented in frequency and percentage tables as this will aid the study in converting respondents' responses into data.

Research question one: What is the significant relationship between technological innovation and competitive advantage of a retail outlet

Table 4.2 Research question one:

	SA	A	UD	D	SD
The use of POS machines has made shopping easy	30 (49%)	26 (43%)	0 (0%)	2 (3%)	3 (5%)
Tesco shop card has over the years helped to give consumers bonuses leading to more sales of its products	20 (32%)	35 (58%)	0 (0%)	5 (8%)	1 (2%)
The Scan Pay Go app used by Tesco has helped to improve its competitive edge in the Irish retail industry	21 (34%)	25 (41%)	1 (2%)	5 (8%)	9 (15%)
Tesco online app, has contributed to the increase in sales of its product	29 (48%)	19 (31%)	2 (3%)	5 (8%)	6 (10%)
Tesco online app, has made shopping convenient despite Covid 19 restrictions on movement	26 (43%)	30 (49%)	0 (0%)	3 (5%)	2 (3%)
The development of app has eased ability to search for specific product	20 (33%)	32 (52%)	1 (2%)	3 (5%)	5 (8%)
Tesco uses state-of-art technology to improve customers shopping experience	36 (59%)	19 (31%)	1 (2%)	3 (5%)	2 (3%)
Shoppers list is easily coordinated with the help of online app.	21 (34%)	37 (60%)	0 (0%)	2 (3%)	1 (2%)
Loyalty cards used by Tesco has made the firm competitive	25 (40%)	20 (33%)	2 (3%)	6 (10%)	8 (14%)

Source: Researcher's Field Survey, 2020

The table above showing the significant relationship between technological innovation and competitive advantage of a food retail outlet, indicates that most of the respondent strongly agrees and agrees to the fact that the use of POS machines has made shopping easy. Also, most of the respondent strongly agrees and agree to the fact that Tesco shop card has over the years helped to give consumers bonuses leading to more sales of its products. As regard to The Scan Pay Go app used by Tesco has helped to improve its competitive edge in the Irish retail industry, most of the respondent strongly agrees and agrees. The Tesco online app is not left out as majority of the respondents about 92% of them strongly agree and agrees to the said fact. For the development of app making it easy to search for specific product in Tesco about 33% strongly agree and 52% agree. Regarding Tesco using state-of-art technology to improve customers shopping experience

majority of the respondents said YES, that it's a good one. For Shoppers list being easily coordinated with the help of online app, majority of the respondents agrees that it has been really made easy and finally Loyalty cards been used by its customers is believed to be impactful and well acceptable by its customers.

Restatement of Hypothesis one and Test

H₀: There is no significant relationship between technological innovation and competitive advantage.

H₁: There is a significant relationship between technological innovation and competitive advantage.

Result of Regression Analysis of relationship between technological innovation and competitive advantage.

Table 4.3 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.951(a)	.904	.898	.30218

a Predictors: (Constant), The Scan Pay Go app used by Tesco has helped to improve its competitive edge in the Irish retail industry (Q3)

Table 4.4 ANOVA(b)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	14.553	1	14.553	159.370	.000(a)
	Residual	1.552	59	.091		
	Total	16.105	60			

a Predictors: (Constant), The Scan Pay Go app used by Tesco has helped to improve its competitive edge in the Irish retail industry (Q3)

b Dependent Variable: It is easy for customers to download Tesco online app to coordinate on a shopping list (Q8)

Table 4.5 Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	.644	.299		2.154	.046
	The Scan Pay Go app used by Tesco has helped to improve its competitive edge in the Irish food retail industry (Q3)	.851	.067	.951	12.624	.000

a Dependent Variable: It is easy for customers to download Tesco online app to coordinate on a shopping list (Q8)

Table 4.6 Model Summary

N	Df	Correlation (R)	Co-efficient (R2)	Sig level	T-cal	T-tab	F-cal	Remark
61	60	0.951	0.904	0.000	12.624	2.000	159.370	Sig

Source: Researcher’s Field Survey, 2020

$$Y = a + bx + e \text{ which can also be represented as } (CA = a_0 + a_1TI + e)$$

Where Y (CA) = dependent variable (Competitive Advantage)

a = intercept

bx (a₂TI) = Partial slope coefficient of Technological Innovation

e = Stochastic error term which represent other independent variables not included in the model

4.1.1 Interpretation

Since the result gotten shows that the $R = 95.1\%$, $R^2 = 90.4\%$ which is high and moderate, and t-calculated value is 12.624 which is greater than t-tabulated of 2.000 under 60 degrees of freedom at 0.000 significant level less than the generally 0.05 level of significance. Consequently, the null hypothesis was rejected and the alternative accepted owing to the fact that there is a significant relationship between technological innovation and competitive advantage at Tesco Retail Outlet.

4.1.2 Discussion of findings

From the findings above, it can be deduced that there is a significant relationship between technological innovation and competitive advantage at Tesco. The implication of this is that effective technological innovation will affect or influence firms' competitive advantage. In view of the findings, there is no doubt in saying that any firm that seeks to be on top of its game with the bid to having competitive edge over its competitors must see to it that it employ effective technological innovation as this has been proven to be a sure way to increasing customers satisfaction and meeting their demands.

It is important to know that the findings of hypothesis one of this study coincides with that of Vera (2013) who is of the opinion that technological innovation is one of the driving and fundamental instruments of growth strategies. The study drew on the theoretical literature and empirical studies on innovation, management and capabilities of technology in an effort to explore the role of technological innovation on new product development. The study posits the importance of technological innovation as an essential ingredient of competitive advantage for new product development. SPSS was used for window 12.0 software pack as statistical analysis tool for all the data, and Pearson's analysis to verify the relationship between

technological innovation and new product development, and t-test to verify the hypotheses. Constructed research variables for measurement (α) was used to measure the internal consistence of the study. For Cooper and Emory (1995) if Cronbach's alpha (α) is between 0.70-0.98, then the reliability is higher but if it is lower than 0.35, then the results are not reliable and should be refused. For Vera's study, Cronbach's α was above 0.80, indicating that the results of the survey were all well within the parameters of reliability. The survey findings verify the existence of correlation between technological innovation and firm performance on new product development.

Research question two: What is the influence that technological innovation has on Food retail Home service delivery?

Table 4.7

	SA	S	UD	D	SD
The use of Customers Data has aided better Home service delivery.	19 (31%)	26 (42%)	3 (5%)	9 (15%)	4 (7%)
Tesco Customer Data has helped the firm to keep track of its loyal customers, thus serving them better.	32 (52%)	16 (26%)	0 (0%)	8 (14%)	5 (8%)
Tesco use of Customer's information has helped the firm to keep track of its potential customers.	30 (49%)	21 (34%)	1 (2%)	3 (5%)	6 (10%)
Pricing display on Tesco's website has influenced Tesco's customers product knowledge	29 (48%)	25 (40%)	0 (0%)	5 (8%)	2 (3%)
The use of Customers Data by Tesco has created clear, informed and actionable decision leading to customized home service delivery.	20 (33%)	31 (50%)	1 (2%)	4 (7%)	5 (8%)
Through Tesco website, customer's know about range of products.	33 (54%)	22 (36%)	0 (0%)	2 (3%)	4 (7%)
Display on website has enhanced offline buyers to visit store	27 (44%)	23 (37%)	1 (2%)	6 (10%)	4 (7%)
Tesco website has influenced home service delivery	26 (42%)	30 (49%)	0 (0%)	3 (5%)	2 (3%)

Source: Researcher's Field Survey, 2020

The table above showing what the influence of technological innovation has on retail service delivery shows that 73% of the respondent are of the opinion that the use of Customers Data has aided better Home service delivery. Also, majority of the respondent strongly agrees and agrees to the fact that Tesco Customer Data has helped the firm to keep track of its loyal customers, thus serving them better. 83% of the respondent have brought it to this research knowledge that Tesco Customer information collection and usage as Data has helped the firm to keep track of its potential customers, making them become loyal. Majority of the respondent strongly agrees and agrees to the fact that Tesco use of Customer's information has helped the firm to keep track of its potential customers. 83% of persons involved in this study said YES to the fact that the use of

Pricing display on Tesco's website has influenced Tesco's customers product knowledge. 90% of the respondent strongly agrees and agrees to the fact that Through Tesco website, customer's know about range of products. 81% of the respondent agrees and strongly agrees that Display on website has enhanced offline buyers to visit store. And finally, 91% of the respondent testified to fact that Tesco website has influenced home service delivery.

18. Where would you rank Tesco in terms of technological innovation among other competitors (example Dunes store, Lidl, Aldi and Supervalu) from 1 to 4. 1 being the highest and 4 the lowest.

Question	Number In Ranking	Percentage (%)
Where would you rank Tesco in terms of technological innovation among other competitors (example Dunes store, Lidl, Aldi and Supervalu) from 1 to 4. Note: 1 being the highest and 4 the lowest.	1	39 (63%)
	2	16 (26%)
	3	4 (7%)
	4	2 (3%)
	61	100

Source: Researcher's Field Survey, 2020

From all indication, it can be said that Tesco is indeed a firm to reckon with when it comes to issue of technological innovation. This is because majority of the people that were involved in this study are of the opinion that Tesco beats its rival when it comes to technological innovation. Although few persons have contrary opinion as regard Tesco technological innovation but a higher percentage of them chose 1 and 2 as indicated in the table above. With this, one can tell without been remorseful that Technological Innovations is one of the strategy Tesco adopts to become the largest food retail outlet in Ireland which provides them a competitive advantage and better home service delivery.

Restatement of Hypothesis two

H₀: Technological innovation has no significant influence on Home service delivery.

H₁: Technological innovation has significant influence on Home service delivery

Result of Regression Analysis on Technological innovation and its significant influence on Home service delivery

Table 4.8 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.891(a)	.794	.791	.33136

a Predictors: (Constant), The use of Data Analytics by Tesco, has aided in better Home service delivery (Q13).

Table 4.9 ANOVA(b)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	27.579	1	27.579	251.171	.000(a)
	Residual	7.137	59	.110		
	Total	34.716	60			

a Predictors: (Constant), The use of Data Analytics by Tesco, has aided in better service delivery (Q13).

b Dependent Variable: It is convenient to stop by and order for fresh item at Tesco because customers already have ideas of what they offer via internet display of product and prices (Q16)

Table 4.10 Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	1.863	.170		10.965	.000
	The use of Data Analytics by Tesco, has aided in better service delivery (Q13)	.639	.040	.891	15.848	.000

a Dependent Variable: b Dependent Variable: It is convenient to stop by and order for fresh item at Tesco because customers already have ideas of what they offer via internet display of product and prices (Q16)

Table 4.11 Model Summary

N	Df	Correlation (r)	Co-efficient (R2)	Sig Level	t-cal	t-tab	F-cal	Remark
61	60	0.891	0.794	0.000	15.848	2.000	251.171	Sig

Source: Researcher’s Field Survey, 2020

$Y = a + bx + e$ which can also be represented as $(SD= a_0 + a_1TI + e)$

Where y (SD) = dependent variable (Home Service Delivery)

a = intercept

bx (a_2TI)= Partial slope coefficient of Technological Innovation

e = Stochastic error term which represent other independent variables not included in the model

4.1.3 Interpretation

The result gotten shows that the $R = 89.1\%$, $R^2 = 79.4$ moderately high, and t-calculated value is 15.848 which is greater than t-tabulated of 2.000 under 60 degrees of freedom at 0.000 significant level less than the generally 0.05 level of significance, consequently the null hypothesis was rejected and the alternative accepted owing to the fact that Technological innovation has significant influence on service delivery

4.1.4 Discussion of Findings

From the above point of view, it can be said that Technological innovation has significant influence on service delivery. The implication of this is that management of firm such as Tesco must see to it that it is always innovative with regards to its technological advancement as this is one sure method that has proven to be positively impactful to customers/ consumers satisfaction with regards to service delivery. Thus, all hands must be on deck to see to it that its technology is not taken for granted but rather supported. This study also corroborates with that of Ifeanyi O (2015) who in a study appraises the effect of technological innovation on performance of Nigeria manufacturing firms. The purpose of the study was to determine whether there is technological innovation in some performing manufacturing firms in Nigeria and the extent it has contributed to their performances. The study population were 8725 being the total staff strength of ten manufacturing firms spread across ten sub sectors of manufacturing sector in Nigeria Stock Exchange while the sample size was extracted from the population using Taro Yameni method. Structured questionnaires were used to generate the primary data. The study used descriptive type of survey design while t-statistics was adopted for hypotheses testing. The result of the study revealed that technological innovation has significant impact on performance, the study concludes that even though most firms in the manufacturing sector are not performing, the result

from selected few performing manufacturing firms used in the study attest to presence of technological innovation which is a critical success factor behind their success. The study therefore recommends that Nigeria manufacturing firms should give more serious attention to technological innovation, endeavor to lay more emphasis on employee development as it is an indispensable factor that facilitates technological innovation and that manufacturing firms should adopt appropriate structure because appropriate structure provides a solid foundation for company's operation and technology.

CHAPTER FIVE

5 SUMMARY, CONCLUSION AND RECOMMENDATION

5.1. Summary of The Study

In bringing out the relationship that exist between technological innovation and competitive advantage in food retail outlet in Ireland and Dublin precisely, this study deem it fit to slit it chapters, thus making each chapter responsible for a particular finding which is its broad objective. With the aim to achieving this broad objective, specific objectives were formulated which also brought about the need to formulate the research question, hypothesis all curled from the statement of the problem. Furthermore, this study came up with research questions, research objectives all in the bid to answering the curiosity of the broad objective, it is however important to know that two research hypothesis tests were also formulated and subsequently tested.

Additionally, the third chapter is the methodology chapter and it emphasized on the research design that was adopted and it was indicated there that descriptive survey research design was adopted. The study population was drawn from Tesco's workers, friends and customers of the firm, questionnaires were drafted and distributed among the persons and feedback gotten from the questionnaires were converted into data using simple percentage and frequency tables while the study hypotheses test were carried out using regression with the aid of SPSS.

The findings of this study in chapter four support the claim that technological innovations performed in Tesco retail outlet have positive and significant impacts on competitive advantage and Home service delivery. It is also worthy to note that there are also various associations between all variables tested, that is, technological innovation & competitive advantage and technological innovation & Home service delivery. Thus, hypotheses H1a, H1b, are supported. Based on this finding, it can be said that Tesco firm has over the years gained customers

recognition and acceptance when compared to other competitors as this can be seen from the chapter four analysis.

Also, it is important to know that the findings of this study coincide with the findings of Onodugo (2000) who sees technology as the methods and techniques employed in productive activities and that the changes in technology results from breakthrough in research and development. which is because the impact of technological innovation has had on the development of a company and its contributions on the economic growth of firms has been widely documented. The study also corroborates with that of Abernathy & Utterback, (2005) who opine that the essence of technological innovation is to ensure the survival of the organization, as well as the business environment, which in turn is aimed at achieving sustainable increased market share.

Lastly, the findings of this study support the fact that technological innovation as an adopted strategy is an important major driver of firm performance with respect to competitive advantage and Home service delivery, thus should be developed, adopted and implemented due to the fact that it has been proven in this study to be an integral part of the Tesco's business strategy that made it stand out amongst its competitors.

5.2. Conclusion

Drawing from the finding in chapter four, it can be said boldly that technology has come to stay and should be embraced by firms that means well for themselves, this is due to that fact that having a clear understanding of the exact nature of technological innovations to be developed, adopted and implemented will enable firms to prioritize their market, production and technology strategies which will eventually lead to competitive edge and better service delivery. It can

further be concluded that; there is a significant relationship between technological innovation and competitive advantage and that technological innovation has significant influence on Home service delivery.

5.3. Recommendation

Since it has been found out that there is a significant relationship between technological innovation and competitive advantage in Tesco Retail Outlet, real investment plan must be considered for technological innovations as this was supported by most of the respondents who strongly agrees and agrees to the fact that Tesco shop card has over the years helped to give consumers bonuses leading to more sales of its products and also that The Scan Pay Go app used by Tesco has helped to improve its competitive edge in the Irish food retail industry

Result from chapter four have shown that there is a significant relationship between technological innovation and Home service delivery; Thus, firms such as Tesco that seeks to have better Home service delivery over its competitors must see to it that they do not take technological innovation for granted because any disruption in the technological innovation advancement will go a long way to negatively affecting the service delivery success of the firm.

5.4. Suggestion for Further Study

Result gotten from this study is applicable to Tesco Retail Outlet which find itself in the food and beverage sector and may not necessarily be applied to other industry outside food and beverages. It is therefore suggested that other researcher can broaden the scope of this study by looking at the effect of technological innovation on profit making of firms in manufacturing industry.

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Appendix A

Department of Business Studies,
National College of Ireland
Dublin City.
June 2020.

Dear Respondent,

I am a master's degree student of National College of Ireland, carrying out a research on the topic: The influence of **Technological Innovations on organization's Competitive Advantage** in Dublin City using Tesco foods located at Jervis Shopping Centre Dublin 1 as case study.

The questions below are prepared in order to get information from you.

Please note that your suggestions and contributions will be treated with utmost confidentiality.

Thank you in anticipation of your cooperation and support.

Alex

Researcher

Appendix B

Research Questionnaire

Instruction:

Please read the following statements carefully and Tick appropriately to show the degree of your agreement on the scale of 5 to 1 where, **Strongly Agree (SA)**, **Agree (A)**, **Undecided (UD)**,

Disagree (D), **Strongly Disagree (SD)**.

Research question one: What is the significant relationship between technological innovation and competitive advantage of a retail outlet

		1 SA	2 A	3 UD	4 D	5 SD
1	The use of POS machines has made shopping easy					
2	Tesco shop card has over the years helped to give consumers bonuses leading to more sales of its products					
3	The Scan Pay Go app used by Tesco has helped to improve its competitive edge in the Irish food retail industry					
4	Tesco online app, has contributed to the increase in sales of its product					
5	Tesco online app, has made shopping convenient despite Covid 19 restrictions on movement					
6	The development of app has eased ability to search for specific product.					
7	Tesco uses state-of-art technology to improve customers shopping experience					
8	Shoppers list is easily coordinated with the help of online app,					
9	Loyalty cards used by Tesco has made the firm competitive					

Research question two: What is the influence that technological innovation has on Food retail service delivery?

		1 SA	2 S	3 UD	4 D	5 SD
10	The use of Customers Data has aided better Home service delivery.					
11	Tesco Customer Data has helped the firm to keep track of its loyal customers, thus serving them better.					
12	Tesco's Use of Customer's information has helped the firm to keep track of its potential customers.					
13	Pricing display on Tesco's website has influenced customers product knowledge.					
14	The use of Customers Data by Tesco has created clear, informed and actionable decision leading to customized service delivery.					
15	Through Tesco website, customer's know about range of products.					
16	Display on website has enhanced offline buyers to visit store					
17	Tesco website has influenced home service delivery					
18	Where would you rank Tesco in terms of technological innovation among other competitors (example Dunes store, Lidl, Aldi and Supervalu) from 1 to 4. 1 being the highest and 4 the lowest.					