National College of Ireland

Project Submission Sheet

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Signature: Farooq Rasheed……

Date: 15th August 2025……

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“To understand how modern entrepreneurs in fast food industry in Ireland utilise technology to drive business Innovations”

Submitted by Farooq Rashid

MSC Entrepreneurship

Submitted to the National College of Ireland, August, 2025

Abstract

This study reflects upon the blending of innovation and technology in defining the performance of entrepreneurship in the fast-food industry in Ireland. The research aimed to know how these elements are related, how technology promotes innovation, and how the two determine business success. To accomplish it, the study was based on a blend of knowledge drawn on peer-reviewed literature (2015-2025) and interviews with fast-food entrepreneurs.

The results reflect a positive and direct correlation: the more effectively businesses embed technology with new innovative ideas, the more they are likely to perform, expand and succeed in competition. Technology has two functions. It is a viable working and imagination management tool. Entrepreneurs professed that they used technology as a means to connect customers, give the business a smoother process, as well as assist in decision making with the aid of data analysis. Meanwhile, they also addressed the challenges to change resistance, the problems of technical implementation, and keeping up-to-date costs.

There was more to performance than financial outcomes. Although the revenue growth, and the rate of returns on investment is significant, non-financial aspects such as customer satisfaction, loyalty, and social media interaction were equally good in determining success.

Overall, the study concludes that innovation and technology reinforce each other. Innovation opens the door to new opportunities, technology makes those opportunities possible, and improved performance fuels further innovation. For fast-food entrepreneurs, particularly smaller businesses, success depends on putting customers at the centre, using technology wisely, and fostering a culture open to change. Though challenges exist, the potential for long-term growth and competitiveness makes this integration essential.

Submission of Thesis and Dissertation

National College of Ireland
Research Students Declaration Form
(Thesis/Author Declaration Form)

Name: _Farooq Rasheed_____

Student Number: 23428201_____

Degree for which thesis is submitted: MSc Entrepreneurship_____

Title of Thesis: Study to understand how modern entrepreneurs in fast food industry in Ireland utilise technology to drive business innovations

Date: 15th August 2025

Material submitted for award

A. I declare that this work submitted has been composed by myself. ☐

B. I declare that all verbatim extracts contained in the thesis have been distinguished by quotation marks and the sources of information specifically acknowledged. ☐

C. I agree to my thesis being deposited in the NCI Library online open access repository NORMA. ☐

D. ***Either*** *I declare that no material contained in the thesis has been used in any other submission for an academic award.
Or *I declare that the following material contained in the thesis formed part of a submission for the award of

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Acknowledgement

I would like to express my sincere gratitude to everyone who supported me throughout this research. First and foremost, I am deeply thankful to my supervisor, Jeffrey Walsh, for their guidance, patience, and invaluable feedback, which shaped both the direction and quality of this study.

I am also grateful to the entrepreneurs and participants in the Irish fast-food industry who generously shared their time and insights, without which this research would not have been possible.

My thanks extend to National College of Ireland and the faculty members for providing the academic environment, resources, and encouragement that made this study feasible. This work is a reflection of the guidance, support, and inspiration I have received from so many, and I am truly grateful.

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1.0 INTRODUCTION

1.1 RESEARCH BACKGROUND

Entrepreneurship plays a pivotal and central role in sustaining and developing Ireland's economy, primarily driven by the robust Small and Medium-sized Enterprise (SME) sector. Empirical data from 2020 demonstrates the pervasive influence of SMEs, which constituted 99.8% of all enterprises in Ireland. These businesses collectively accounted for 68.4% of all individuals engaged in the business economy, generated approximately 41.9% of total turnover, and contributed 34.5% to the gross value added in the year 2024 (NSAI/CSO, 2024). Furthermore, SMEs consistently represent over 70% of employment across all economic sectors in the year 2024, underscoring their enduring significance in the national labour market (OECD, 2024).

Regarding individual entrepreneurial activity, self-employment remains a notable feature of the Irish workforce. As of Q2 2023, approximately 335,400 individuals were classified as self-employed in Ireland, although this figure reflected a modest decline of about 1.6% from the preceding year (CSO, 2023). Notwithstanding this slight reduction in overall self-employment, youth engagement in entrepreneurial ventures appears to be resilient. Data from Q4 2023 indicates a rise in the youth employment rate (15–24 years) to 48.5%, suggesting increasing participation in various forms of work, including early-stage business initiatives (CSO, 2023).

Institutional support is a cornerstone of Ireland's entrepreneurial ecosystem, with Enterprise Ireland (EI) playing a key role in fostering growth among high-potential and export-oriented SMEs. In 2023, companies supported by Enterprise Ireland achieved a substantial €34.57 billion in exports, marking a 2% increase over 2022, and collectively employed a record 225,500 individuals (Enterprise Ireland Annual Report 2023). The agency also demonstrated a strong commitment to nurturing new ventures, supporting 156 new start-ups with €24 million in funding, nearly achieving its set target. Notably, 55% of these supported start-ups were located outside Dublin, and women-led start-ups received particular priority, accounting for 45 approvals in pre-seed funding schemes (Ireland, 2023)

The increasing integration of digitalization into SME operational practices is another significant trend. By 2023, approximately 85% of Irish SMEs had attained a basic level of digital intensity, further facilitated by the full operationalisation of four European Digital Innovation Hubs across the country (Ireland, 2023). This progress highlights a supportive policy environment that strategically promotes technology adoption, innovation capacity, and overall export readiness within the SME sector.

Ireland's comprehensive support systems for entrepreneurs extend beyond Enterprise Ireland, encompassing Local Enterprise Offices (LEOs) and strategic initiatives. These frameworks aim to develop exporter accelerators and expand support mechanisms for firms demonstrating export potential (Ireland, 2023). International reviews by the Organisation for Economic Co-operation and Development (OECD) also commend Ireland's proactive policies designed to promote entrepreneurship among underrepresented groups, including youth, women, immigrants, and the unemployed, even while acknowledging persistent access gaps in certain regions (OECD, 2024). Within the fast-food sector specifically, entrepreneurial innovation is increasingly evident, exemplified by indigenous chains such as Supermac’s, which operates over 100 outlets and employs approximately 4,000 staff (Supermac’s corporate profile, 2019). However, this sector, along with other small food and beverage entrepreneurs, faces significant challenges from rising business costs and increased tax burdens, such as the hospitality VAT hike to 13.5% (Restaurant Association, 2024).

Considering the growth of entrepreneurial firms in the country and the support by Irish government to promote technology innovation among these firms, the fast-food restaurants in the country have well availed the opportunity and present formats which cater to the changing consumer preferences. The fast-food market in Ireland is continuously expanding with the variety of products added to the menu list of fast-food restaurants in Ireland (IDA Ireland, 2025). During the last quarter of 2024, the consumption of fast food in the country has increased by 5% as compared to 2023. At present the food traffic has been dominated by burgers along with coffee and pizzas. The international food chains are also expanding into the Irish market along with the growth of local brands (Tastewise, 2025).

According to Kantar Media’s TGI study, 79% of Irish adults eat fast food out of which 76% purchase takeaway and 44% dine in. An important trend which has shaped this consumer

behaviour among Irish fast-food consumers is the adoption of technology and innovation such as online ordering, mobile payments and other personalised offers. The social media advertising has significantly influenced consumer menu choices and has driven the demand for a unique dining experience. Business innovations like self-order kiosk systems are increasingly becoming popular among the fast-food restaurants in Ireland (Irish Food Board, 2025).

To enhance customer experience and streamline operations, in 2024, significant number of fast-food restaurants in Ireland have installed the self-order kiosk systems. For example, in 2018, McDonalds in Ireland have started to adopt this business innovation in Ireland and by the end of 2022, 95 of the company outlets have successfully completed the installation of this innovation (Association, 2024). Similarly in 2023, 60% of Burger King outlets in Ireland have kiosk systems installed especially in high traffic areas like Dublin and Galway. However, due to high cost of implementation, small scale fast-food restaurants in the country have not modernised their outlets with this innovation (Ireland, 2023).

1.2 AIMS AND OBJECTIVES

- To understand the relation between innovation, technology and entrepreneurship among the fast-food restaurants in Ireland
- To study the implication of technology in innovating the ideas presented by entrepreneurs in the fast-food restaurants in Ireland
- To understand the impacts of technology and innovation on the performance of entrepreneurs in fast food industry in Ireland

1.3 IMPORTANCE/SIGNIFICANCE

Owing to the growth of fast-food restaurants in the country, the entrepreneurs in Ireland have shifted their focus to improve the speed and service quality while scaling efficiently. Some entrepreneurs have established their marks in the country like Pat McDonagh of Supermac which is a homegrown success story in Ireland. The fast-food market in Ireland is diverse providing opportunities to established businesses as well as to existing food chains in the country. The companies in this industry are utilising technology to innovate the service offerings and compete in the marketplace (Davis, 2025). For example, Dominos in Ireland track customer preferences to make order suggestions through the use of artificial intelligence. In 2019, the MacDonald in

Ireland has acquired Dynamic Yield which is a tech savvy company and specialise in personalization and developing the decision logic technology. These entrepreneurs are not only innovating through smart drive thrust and automated inventory management but instead; to compete with the large fast food retailing companies in the country, they are using artificial intelligence to improve the delivery, improve accuracy and boost efficiency. While the challenges remain with the technology adoption, it has become clear that to technology lies central to the business strategies of fast-food entrepreneurs in Ireland (Beere, 2024).

To better understand the utilisation of technology by fast-food entrepreneurs in Ireland to drive business innovation, the implementation of self-kiosk system is taken as an example in this study. Out of 1000 fast food outlets in the country, 500 have already implemented the self-order kiosk system predominantly in larger franchises and urban centres (Rastegar, 2021). The need to adopt this business innovation is driven by rising labour costs and consumer preferences for contactless services. Moreover, it has been predicted by the industry experts that by 2027, 60% of the fast-food companies in Ireland will feature some kind of digital self-ordering solution either through a kiosk system or through mobile delivery (Abdullah, 2023).

The main objective of this study is to understand how effectively fast-food entrepreneurs in Ireland are adopting technology to drive business innovation and the success ratio of these entrepreneurs as compared to those entrepreneurs which have not focused on business innovation. The findings of this study can add value to the entrepreneurial decisions in innovating their business idea by adopting technology positively. The business entrepreneurs who are technology conscious and plan to operate in fast-food industry in Ireland can use the findings of this study to drive business innovation successfully. Furthermore, the findings of this study can also assist fast food entrepreneurs in Ireland who find it difficult to measure business performance after the implementation of technology. These entrepreneurs do not have the idea of what methods and techniques they could adopt to measure business performance which the findings of this study will help them to understand. Lastly, the findings of this study will enable the fast-food entrepreneurs in the country to link the variables of innovation, business performance and technology to devise better growth strategies.

1.4 CONTENT OUTLINE

Discussing the overview of chapters involved in this study, it is based on six parts. The first part of this study highlights the introduction about the research topic. This section discusses the background/context of research, aims and objectives of research and provide details on why and how the findings of this study can be adopted by the fast-food entrepreneurs in the country. The second part of this study provides information about the existing literature. In the context of different entrepreneurial theories and theories of innovation, a relationship has been studied between the business innovation, technology and business performance. This part compares the approaches adopted by researchers to relate the findings of one author to the other and criticising the existing literature. The next part provides an overview of the research method followed for this study and cover different elements of the Saunder's research onion which include research strategy, research philosophy, research approach, data collection method, technique to analyse the data and ethical considerations which are followed for this study. The next part presents the findings and the data derived for this study. The findings are presented in the form of thematic analysis tables to make the information more understandable and readable. Lastly discussion has been made about the findings and conclusion is drawn from the research findings.

2.0 LITERATURE REVIEW

2.1 DEFINING ENTREPRENUERSHIP

The term entrepreneurship has been discussed in multiple contexts by multiple scholars. O'Gorman (2025) has conceptualised entrepreneurship stating that it as the systematic process through which individuals identify opportunities, strategically marshal resources, and create value, often culminating in the establishment of new ventures or the transformative evolution of existing ones (Zahra, 2024). Diandra (2020) has discussed entrepreneurship as the process of discovering, evaluating, and exploiting opportunities to create future goods and services, thereby highlighting not only the initiation of a business but also the inherent innovative and proactive behaviours essential for recognizing and leveraging market inefficiencies (Gedeon, 2020).

The foundational theories of entrepreneurship trace back to Joseph Schumpeter. Alam (2022) has empirically demonstrated how Schumpeter's idea of creative destruction plays out in corporate entrepreneurial settings, market-oriented technical opportunities and catalysing innovation actions. He presented the argument that creative destruction intensifies the transformation of obsolete offerings into new ventures while introducing the concept of "creative destruction." Joseph Schumpeter, a foundational thinker in entrepreneurship, famously describe entrepreneurs as "disruptive agents" (Azmy, 2020). His view was that these individuals don't just create new things; they actively introduce innovations that shake up established markets, driving economic progress forward. This classic perspective continues to resonate deeply in contemporary discussions, especially in modern fast-paced, technology-driven industries (Autio, 2018). It is these Schumpeterian entrepreneurs who are willing to bring together novel combinations of products, processes, or even organisational methods, ultimately boosting productivity and carving out entirely new market frontiers.

Moving to more recent studies, Chakuzira (2024) has found an even stronger emphasis on just how dynamic and multifaceted entrepreneurial activity truly is. It shows successful entrepreneurial

behaviour involves a whole suite of strategic competencies. These include taking calculated risks, making the most of available resources, and adapting quickly to changing situations. (Autio, 2018). These qualities are becoming absolutely critical for anyone navigating rapidly evolving business world. This is seen through industries such as fast food in which the incorporation of technology is immensely transforming the way operations are being fulfilled (Peneder, 2020).

Going beyond these descriptions, the huge economic benefits of entrepreneurship have documented astronomic recordings. In turn, according to Alam (2022), entrepreneurs are necessary: they provide employment opportunities, initiate competition in the market, and develop the culture of creativity, which contributes to the significant enhancement of the local and national economy (Thurik, 2018). To support this point of view, Kibassa (2022) has said that successful entrepreneurship ecosystem contributes to the spread of knowledge and makes the transformation of research and development into commodities and market services considerably faster.

Collectively, these observations give us a picture of entrepreneurship as less of a fixed doing than an ongoing activity as entrepreneurship is a dynamic capacity that is entwined with innovation, long range thinking, being prepared to calculate risks.

These entrepreneurial hallmarks are becoming increasingly visible across all modern industries (Rosado-Cubero, 2022). In the fast-food sector, for example, entrepreneurial action is tightly linked to embracing new technologies, like strategically deploying self-service kiosks to boost operational efficiency and genuinely elevate the customer experience (Azmy, 2020).

The summary of multiple definitions of entrepreneurship as extracted from different literatures is given in table 1.

Author	**Year**	**Definition**
Joseph Schumpeter	1934	Entrepreneurship is the process of creative destruction through innovation.
Peter Drucker	1985	Entrepreneurship is about exploiting change as an opportunity for a different business.

Shane & Venkataraman	2000	Entrepreneurship is the discovery, evaluation, and exploitation of future goods and services.
Gartner	1985	Entrepreneurship involves the creation of new organizations.
Knight	1921	Entrepreneurship is the act of bearing uncertainty in the pursuit of profit.
Kirzner	1973	Entrepreneurs are alert to unnoticed opportunities for arbitrage in the market.
Hisrich & Peters	2002	Entrepreneurship is the process of creating something new with value and assuming the risks.
OECD	2001	Entrepreneurship is the ability to turn ideas into action through creativity and risk-taking.
Stevenson & Jarillo	1990	Entrepreneurship is the pursuit of opportunity beyond the resources currently controlled.
McClelland	1961	Entrepreneurship is driven by a high need for achievement.
Bygrave & Hofer	1991	Entrepreneurship is creating value by bringing together resources to exploit an opportunity.

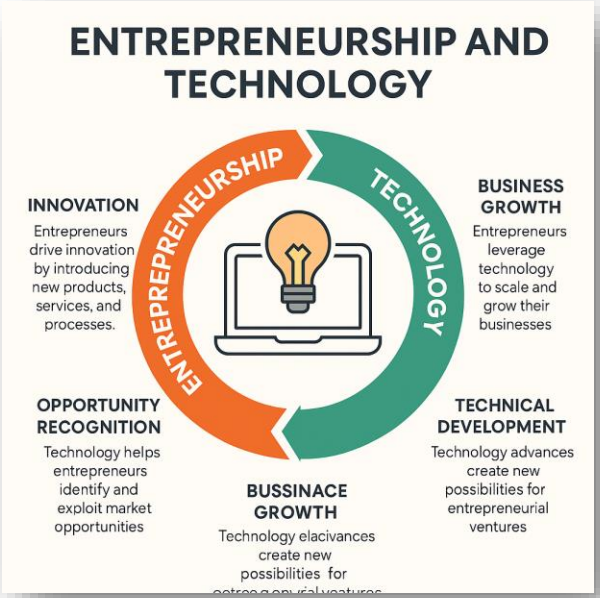
Table 1: Entrepreneurship Definitions from different Literatures

Source: Self Made

2.2 RELATIONSHIP BETWEEN ENTREPRENUERSHIP AND INFORMATION TECHNOLOGY

According to Paul (2023), one of the main factors in facilitating entrepreneurial operations through technology is the fact that technology has dramatically changed the way processes of business are handled in all business institutions. Digital tools, automation, and Information and Communication Technologies (ICTs) offer entrepreneurs unprecedented opportunities for efficiency, connectivity, and market reach (Ramdani, 2021). To further support this, Walicka (2025) has stated that these technological advancements facilitate the streamlining of operations, from supply chain

management to customer relationship management, enabling entrepreneurs to optimize resource allocation and enhance productivity. The digital transformation of SMEs, for instance, is a global phenomenon, with digital technologies providing crucial pathways for growth and competitive advantage (OECD, 2021). For entrepreneurial firms, technology can reduce barriers to entry, enable lean operations, and accelerate product development cycles (Swanson, 2024).



Liguori & Muldoonb (2024) has specifically discussed the implementation of technology in fast-food industry and concluded that in the fast-food sector, technology's impact is particularly pronounced. Digital tools such as online ordering platforms, mobile applications, and contactless payment systems have become standard, enhancing customer convenience and operational efficiency (Azmy, 2020). Extending on the findings of this research, O'Gorman (2025) has stated that automation, in the form of self-service kiosks, has revolutionized the ordering process. For example, Flipdish (2018) highlighted the benefits of the kiosks for skipping queues and improving customer experience. Similarly, McDonald's in the UK and Ireland has extensively deployed self-service kiosks, demonstrating how automation optimizes service delivery and staff deployment (Flipdish, 2018).

According to the findings of Hanoteau (2018) besides enhancing core features, these technologies also bridge into the back-of-house efficiencies such as inventory management and kitchen automation. Moreover, digital technologies facilitate the use of the open innovation strategy within SMEs, as they can effectively use external knowledge and resources. This strategic use of technology enables the entrepreneurs to increase their operations, customize contacts with customers, and gather important data to make important decisions, thus building resilience and leading them to succeed in the highly competitive market (Sutrisno, 2021). However, this has been opposed by Putro (2024) who has mentioned in his study that besides adding value to entrepreneurial businesses, technology has also led into new challenges and risks for these

businesses. Technology has lowered the barriers to entry increasing the competition into the business industry. The local market dominance has been reduced because presence of online platforms has made it easier for entrepreneurs to compete globally. Therefore, the business strategies of entrepreneurs are more focused on global level as compared to local competitors (Harb, 2022). Lastly, overreliance on technology can hinder the human creativity and interaction. Relating the findings of both authors, Autio (2023) has supported that neither entrepreneurs should over rely on technology neither they should take technology for granted. Maintaining a balance between using technology is important for entrepreneurs in any industry to succeed.

2.4 INNOVATION ADOPTION BY FAST FOOD ENTREPRENUERS IN IRELAND

Verma (2024) has defined innovation as systematic ability to develop and deliver new products, services, processes, and business models that generate substantial net new growth for customers and firms. This interdisciplinary knowledge underscores the ubiquitous nature of innovation on several aspects of a business. Innovation does not only occur as a result to entrepreneurship because it is a process and it is a source of competitive advantage and value creation (De Jong, 2022). The ability to see potentials of novelty and successfully commercialize the insights into that opportunity was the likely key to entrepreneurial success by creating a disturbance in the existing market or the creation of a new one. De Jong, Furstenthal & Roth (2022) has also emphasized the importance of the self-regulatory processes involved by entrepreneurs in the innovation ecosystems stating that internal mechanisms are imperative to exploiting new ideas and viability and success of new venture. It then implies that the process of entrepreneurship in the innovation field is greatly interlaced with responsive strategies and sturdy implementation (Kreiterling, 2023).

To discuss the idea of innovation adoption by fast food entrepreneurs in Ireland, Al-Askari (2021) has stated that innovation allows entrepreneurs to diversify their products, improve their operational costs, and to become dynamic in countering the changing consumer needs. It acts as the driver of growth where new businesses will grow and mature businesses do not lose relevance under volatile market conditions. At the same time, Krausa & McDowellb (2021) has supported his findings mentioning that innovation is especially important in industries where change occurs very fast in terms of technology or in terms of preferences by consumers hence, there might be

some form of obsolescence as a result of failure to innovate. The fast-food industry in Ireland serves as the typical example of such industry (Leemet, 2024).

2.4.1 DRIVERS OF INNOVATION ADOPTION

Specifically targeting the fast-food industry in Ireland, Kenney & Mustar (2024) has conducted primary research to understand how fast-food restaurants in Ireland are adopting and responding to innovation. These findings have revealed that innovation adoption has become important for the survival of these businesses in the present-day market. In Ireland, competition in fast food industry is intense and consumer preferences are constantly revolving over time. Therefore, to cater the industry competition, entrepreneurs in this sector are focusing on continuous innovation to enhance customer experience and remain competitive (Lipparini, 2022).

The main driving forces behind the adoption of innovation in fast food restaurants in Ireland, as studied by Paladino (2022), include labour shortage in the market, customer convenience, competitive pressure and technology advancements. Irish consumers prefer convenience along with health and sustainability. Therefore, they prefer to order from the fast-food restaurants which have a well-developed ordering system. This also considers evaluating fast food brands on the basis of their service quality and delivery time (Iyer, 2023). The availability of digital tools has made the accessibility easy to consumers and this has resulted in labour shortage in fast food industry because majority of the tasks are performed by artificial intelligence powered robot system. Thus, this proves the findings of Lestari (2020) as correct that entrepreneurs entering into this industry must possess knowledge on latest technology trends and have innovative ideas to cater these industry changes.

As opposed to the findings of Leemet (2024), Swanson (2024) has highlighted another perspective mentioning in his study that at one end where technology and innovation has facilitated entrepreneurs, at the same time, it has led them into new challenges such as high cost of investment in technology products, slow adoption of technologies due to lack of technical skills in staff members and traditional mindset of staff members can restrict the technology adoption by small entrepreneurs in this sector (Azmy, 2020). Quatraro (2023) has summed up both these perspectives stating that it is important for entrepreneurs in the Irish fast-food industry to adopt technology and innovation but large-scale businesses are excelling in technology adoption as the result of resources availability. Strategic decision making and strategic planning is equally important for

entrepreneurs in this industry to generate positive outcome from technology and innovation (Chaudhary, 2024).

2.5 THEORETICAL PERSPECTIVE ON RELATIONSHIP BETWEEN INNOVATION, TECHNOLOGY AND ENTREPRENUERSHIP

The relationship among innovation, technology, and entrepreneurship is profoundly symbiotic, with each element actively strengthening the others to propel new venture creation and growth. Entrepreneurs, in particular, are uniquely positioned to seamlessly weave innovative ideas with powerful technological capabilities, skilfully leveraging digital tools to either introduce entirely new business models or significantly enhance existing ones (Braunerhjelm, 2023). This agility, often termed a dynamic capability empowers entrepreneurial firms to adapt swiftly to evolving market landscapes and effectively seize emerging opportunities. Indeed, technology functions as a powerful enabler for innovation, furnishing the essential infrastructure and tools required to develop, rigorously test, and successfully deploy novel solutions. (Ramdani, 2021). Conversely, the keen entrepreneurial vision is absolutely crucial for discerning precisely how technology can be creatively applied to resolve challenging problems or forge new value in ways that traditional approaches simply cannot (Śledzik, 2022).

In existing literature multiple theories have been discussed in relation to innovation, technology and entrepreneurship. From theoretical point of view, the connection between these three terms is crucial in driving economic growth and social development. Discussed below are the different theories linking innovation, technology and entrepreneurship.

2.5.1 SCHUMPETERIAN THEORY OF INNOVATION AND ENTREPRENUERSHIP

This theory was proposed by Joseph Alois Schumpeter (1934) and posits that innovation is the cornerstone of entrepreneurship. Entrepreneurs utilise technology in different ways to create new products, processes and business models. He also pertained that entrepreneurship is the only way to" replaces today's Pareto optimum with tomorrow's different new thing" (Al-Askari, 2021). However, this theory has been criticised by multiple scholars in literature saying that this theory has not explained innovation exhaustively. It does not highlight the role of ownership competence,

covering the role of financial markets, and wealth and income distribution with relevance to entrepreneurship. Therefore, several scholars and economists have failed to rely on this theory of entrepreneurship while innovating their business idea (Autio, 2018).

2.5.2 DIFFUSION OF INNOVATION THEORY

This theory was proposed by Everett Rogers' in 1962 stating that how innovations must be communicated over time across different members of a social system. Entrepreneurs facilitate the adoption of innovation by working as the change agents and early adopters of innovation. Although this theory can be used by entrepreneurs to understand how technology innovations must spread across entrepreneurial initiatives, this theory has multiple limitations. It focuses on pro-innovation bias and provides an oversimplification of the innovation process. This theory does not account for cultural context and complex adoption decisions. Therefore, scholars have not considered this theory as reliable (MarcCowling, 2019).

2.5.3 DYNAMIC CAPABILITIES MODEL

Following the dynamic capabilities model, Teece, Pisano, and Shuen (1997) argue that dynamic capabilities are fundamental to entrepreneurship. These capabilities include sensing opportunities, availing them and reconfigure the assets to adjust in volatile environment. Throughout this adaptive process, innovation and technology are the key levellers (Azmy, 2020). But Paul (2023) has criticised this opinion saying that it can be a difficult task to empirically measure and define the dynamic capabilities of an entrepreneur. Secondly this model does not consider complexities in aligning the Organisational activities with Organisational design. This criticism has been accepted by author mentioning that the influence of this theory can be impacted by external and internal factors (Quatraro, 2023).

2.5.4 TECHNOLOGY ACCEPTANCE MODEL

This model was developed by Davis (1989) and explained the role of perceived usefulness and ease to adopt the technology. This is the most popular model used to understand the relationship between entrepreneurs, their customers and the technology adoption. Thus, this theory describes how users accept and implement new technologies. But just like other theories of technology and innovation, it has been criticised by multiple scholars stating that it does not take into account the impact of cultural factors in technology adoption and does not tend to explain usage behaviour of

consumer. Therefore, entrepreneurs alone cannot rely on this model because it overlooks the social and Organisational influences (Verma, 2024).

2.5.4 INNOVATION SYSTEMS THEORY

Lundvall (1992) and Nelson (1993) has proposed this theory to describe the systematic nature of innovation. This theory promotes the idea that entrepreneurship can only flourish in an environment where regional innovation systems are implemented and information knowledge can flow effectively. However, criticising this statement, Verma (2024) has mentioned in his study that this theory promotes an inward-looking perspective which can limit the technology capabilities of an entrepreneur. It does not consider the impact of political factors on entrepreneurial ideas and innovations due to which it is not suitable for entrepreneurs to rely on the results of this theory (Al-Askari, 2021).

Theory	Key Contributors	Core Ideas	Criticisms
Schumpeterian Innovation Theory	Joseph Schumpeter (1934)	Entrepreneurs drive economic change via innovation and 'creative destruction'.	Overemphasizes disruption; neglects incremental innovation and social impact.
Diffusion of Innovation Theory	Everett Rogers (1962)	Innovations spread through social systems over time via adoption stages.	Linear model; lacks consideration for feedback loops and socio-economic diversity.
Dynamic Capabilities Theory	Teece, Pisano, Shuen (1997)	Firms must adapt, reconfigure, and innovate in rapidly changing environments.	Difficult to operationalize; ambiguous measurement of capabilities.
Technology Acceptance Model (TAM)	Davis (1989)	Adoption depends on perceived usefulness and ease of use.	Simplistic; neglects external and cultural factors affecting technology acceptance.
Innovation Systems Theory	Lundvall (1992), Nelson (1993)	Innovation arises from interconnected institutions and knowledge flows.	Can be too broad; lacks clarity on specific entrepreneurial actions or roles.

Table 2: Summary of theories on innovation and entrepreneurship

Source: Made by author

2.6 IMPLICATION OF TECHNOLOGY INNOVATION BY FAST FOOD ENTREPRENUERS IN IRELAND

According to Daniel I. Prajogo (2022), technology as a revolution has far reach in the entrepreneurial field of the fast-food industry, as it has far-drawn effects to conceptualization, development, and actualization of business ideas in the field. This part reviews critically on the effects of the changes in technology in spurring innovation in the fast-food restaurants in Ireland both in terms of the type of technology that is actually adopted and the strategic adaptations of the entrepreneurs that is in response to such dynamic trends (Cainelli, 2019).

The fast-food industry in Ireland, much like its global counterparts, has undergone a significant digital transformation, driven by a suite of technological innovations aimed at enhancing efficiency, customer experience, and operational scalability (Alt, 2021). Central to this transformation are self-service kiosks, mobile applications, and advanced digital menu and ordering systems.

Self-service kiosks have become a ubiquitous feature in many fast-food outlets, fundamentally altering the customer ordering process. These kiosks allow customers to browse menus, customize orders, and make payments independently, thereby reducing wait times and improving order accuracy (Snyder, 2019). Research by Teece (2020) highlights that attributes such as perceived usefulness and ease of use significantly influence customers' continuous usage intention for these kiosks (Abdullah, 2023). Customer perception of these self-ordering systems can also impact their overall experience, with ease of use being a key factor. In the Irish context, major chains such as McDonald's Ireland have extensively implemented self-service kiosks across their outlets, aligning with the global trend towards automation in high-contact service industries, which can lead to process innovation (Blöcher, 2020). Similarly, local chains like Supermac’s and healthier fast-casual options like Freshii have also integrated these systems, reflecting a broader industry embrace of autonomous customer interfaces. The net effect of such technological adoptions within Irish fast-food industry will be to increase the efficiency of operations, cut down on labour expenditure in a few aspects, boost the satisfaction rates of customers in terms of timing and tailoring and finally boost sales (Alt, 2021).

2.7 MEASURING IMPACT OF INNOVATION AND TECHNOLOGY ON BUSINESS PERFORMANCE OF FAST FOOD ENTREPRENUERS IN IRELAND

According to Walicka (2025), the evaluation of the performance of entrepreneurial undertakings, especially, one that operates in a highly competitive field such as the fast-food industry, requires a multidimensional approach, which undertakes a wider range of indicators than merely the revenues. The major measures that are generally used to quantify the level of entrepreneurship success are profitability; which is the profit as compared to the expenditures where profitability reflects efficiency on the operations and pricing policies (Śledzik, 2022). Furthermore, Fagerberg, (2020) has elaborated that the other major measure is the revenue growth which is an indication of the increase in market share and success of the market penetration. However, this contradicts with the findings of Swanson (2024) who has stated that beyond pure financial outcomes, operational efficiency serves as a vital performance indicator. In fast-food, this can translate to reduced order processing times, faster service delivery, and optimized resource utilization (Alt, 2021).

Chesbrough (2023) has regarded customer satisfaction as a paramount in service-based industries and directly impacts repeat business and brand loyalty, thus being a critical performance metric. High levels of customer satisfaction are often linked to convenience, speed, and accuracy of service, which technology can significantly enhance (Abdullah, 2023) . Furthermore, innovation performance, measured by the frequency or impact of new product introductions, process improvements, or service models, is an indicator of a business's capacity for adaptation and sustained competitiveness. In contrast to this, according to Alam (2022), market share reflects a business's proportion of the total sales in its specific segment and is also a direct measure of competitive success driven by entrepreneurial strategy and execution. Collectively, these financial, operational, customer-centric, and innovation-focused metrics provide a comprehensive view of how entrepreneurs perform within the competitive fast-food landscape, particularly as they integrate new technologies and innovative approaches (Paul, 2023).

2.8 IMPACT OF TECHNOLOGY AND INNOVATION ON BUSINESS PERFORMANCE

Empirical evidence strongly suggests that the strategic adoption of technology and innovation has a significant positive impact on entrepreneurial performance in the Irish fast-food industry.

According to Abdullah (2023) one of the most immediate and quantifiable benefits is the improvement in operational speed and accuracy. Self-service kiosks streamline the ordering process, dramatically reducing wait times and minimizing human error in order taking. (Rastegar, 2021). This enhanced speed and precision directly contribute to higher customer throughput and improved order fulfilment. (Flipdish, 2018) .The deployment of such kiosks by major players like McDonald's in Ireland and the UK serves as a prime example of how these technological innovations are integrated to boost efficiency (Evoke Creative, 2023). Customer perception of these kiosks, especially regarding ease of use, further supports their positive impact on the overall service experience (Al-Askari, 2021).

Peneder (2020) has discussed direct "before/after" case studies with specific Irish fast-food examples and highlighted the concern that the widespread adoption of these technologies across the sector, including by prominent chains like Supermac’s, indicates a clear understanding among entrepreneurs that these innovations lead to improved service delivery, enhanced customer satisfaction, and ultimately, greater profitability and competitive advantage. The broader digital transformation of SMEs, driven by such innovations, underpins their strategic advantage in an increasingly connected market. (OECD, 2021)

Contrary to the findings of Śledzik (2022), Swanson (2024) has presented the other side of the mirror. His findings have revealed that despite the substantial benefits, the integration of technology and innovation into fast-food entrepreneurial ventures is not without its challenges and inherent risks. One significant hurdle is the high capital investment required for acquiring and implementing advanced technological solutions (Thurik, 2018). Installing self-service kiosks and upgrading digital infrastructure demand substantial financial outlay, which can be particularly burdensome for smaller, independent fast-food entrepreneurs or start-ups (Kansakar, 2017). The return on investment for these technologies, while often positive in the long term, may not be immediate, posing cash flow challenges in the short to medium term (Snyder, 2019).

Another critical challenge is customer resistance to change. While many consumers embrace technological convenience, a segment of the customer base may prefer traditional ordering methods or face difficulties adapting to new interfaces, such as self-service kiosks. Negative customer perception regarding the usability or personalization of these systems can hinder adoption and impact customer (Abdullah, 2023). Entrepreneurs must, therefore, invest in user-

friendly design and provide adequate support to ensure smooth transitions and avoid alienating segments of their customer base.

2.9 SUMMARY OF LITERATURE REVIEW

A critical but an interwoven relationship has been highlighted in existing literature between technology, innovation and entrepreneurship in Irish fast-food industry. Technology provides foundation to entrepreneurs in this sector to transform their business operations, enhance connectivity, improve efficiency, and get access to markets. Customer convenience is paramount to the success of fast-food entrepreneurs in Ireland and therefore to enhance customer experience, these businesses are focusing on continuous innovation through technology adoption (Askarzai & Unhelkar, 2020). For example, as MacDonald has implemented self-service ordering system, it reflects how these businesses can adopt technology to optimise the service delivery and staff deployment. However, despite these advantages, many scholars have agreed that technology also bring new challenges for fast food businesses in Ireland. It reduces the barriers to enter into new markets which has intensified the market competition and demand financial investment making it hard for entrepreneurs to survive. Furthermore, overreliance on technology can diminish human creativity. Thus, balancing the use of technology is necessary to sustain the entrepreneurial success of Irish fast-food businesses (Abdullah, 2023).

The business innovations among the fast-food restaurants in Ireland, specifically the self-ordering kiosk systems does not only improve the speed of operations but also reduce the processing time of orders resulting into increased sales volume and high market share for these businesses (Leemet, 2024).

The performance measurement requires a multidimensional approach where fast food entrepreneurs in Ireland can measure the impact of technology and innovation by defining different measurable standards. These measures could include profitability, revenue growth, operational efficiency, customer satisfaction, and innovation frequency. Thus, to sum up the findings of literature review, the success of technology adoption among the Irish fast-food restaurants depends upon the balanced integration of technology and innovation (Rastegar, 2021).

2.10 GAP IN EXISTING LITERATURE

Although the existing literature has focused on studying the relationship between technology, innovation and entrepreneurship, some notable gaps exist specifically with respect to the Irish fast-food industry. Much of the literature has focused to discuss the large-scale fast-food entrepreneurs and little focus has paid to the small businesses in this industry. This has restricted the scholars to understand the challenges experienced by small entrepreneurs in the country while starting their business in the fast-food industry. This impacts the technology integration and innovation success. The theories of innovation and entrepreneurship have not been specifically applied to the fast-food industry in Ireland. The models of technology adoption like the technology acceptance model and innovation systems model have been criticised in terms of reliability. Lastly, to measure the business performance, scholars have focused on financial measures and did not consider how innovation and technology can impact intangible outcomes such as brand reputation, entrepreneurial resilience, customer loyalty etc. Hence this study will address these gaps in literature and provide practical guidance to entrepreneurs in fast food industry in Ireland to tailor the competitive landscape and adopt business innovation like self-order kiosk systems in a better and unique way.

3.0 RESEARCH QUESTIONS

How modern entrepreneurs in fast food industry in Ireland utilise technology to drive business innovation i.e. self-service kiosks systems?

The sub questions are as listed below.

- What are the positive and negative impacts of technology on entrepreneurship among the fast-food restaurants in Ireland?
- How innovation performance is measured by fast food entrepreneurs in the modern era?
- How the variables of innovation, technology and business performance are linked together?

4.0 METHODOLOGY

The course of actions which are performed to meet the objectives for the research are termed as a research methodology. The Saunder's Research Onion is the framework used by researchers to develop the research methodologies. This model guide researchers through various decisions following a structured approach to underpin the philosophical and practical techniques. It emphasises on a sequential process and each layer of this model is built upon the other layer (Sakyi & Musona, 2020). Thus, this model help researchers to ensure a coherent and rigorous research design. The six layers of this framework are shown in figure 1.

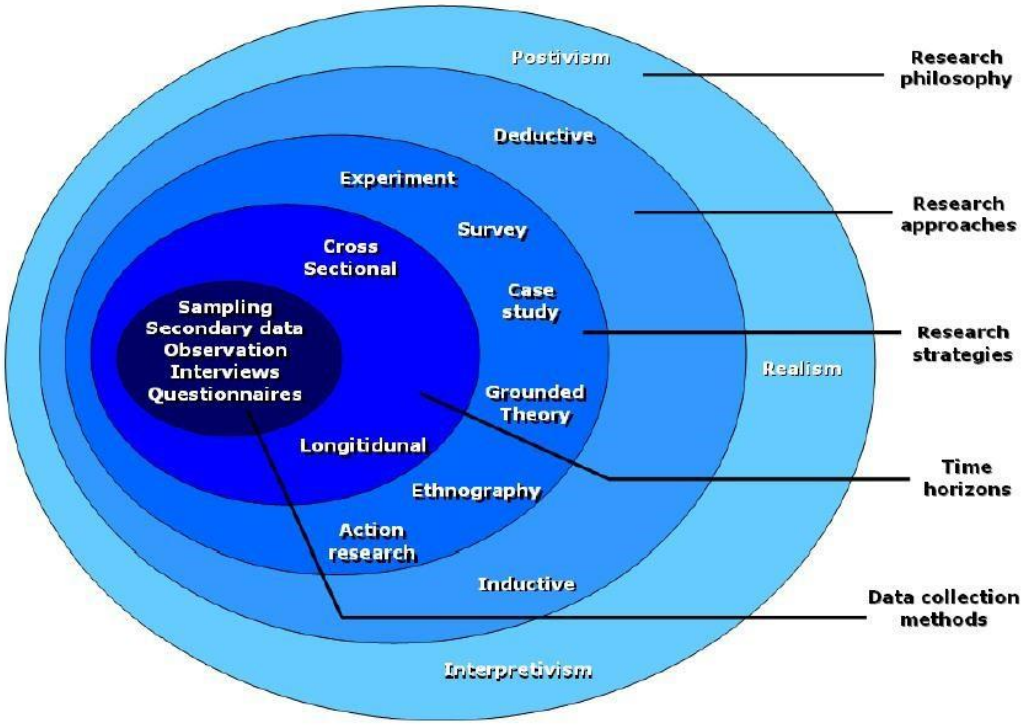


Figure 1: Research Onion by Saunder

Patel & Patel (2019)

4.1 RESEARCH PHILOSOPHY

A research philosophy is the belief which indicates the approach adopted by a researcher to generate knowledge. A researcher can choose between four types of research philosophies which include positivism, interpretivism, pragmatism and realism.

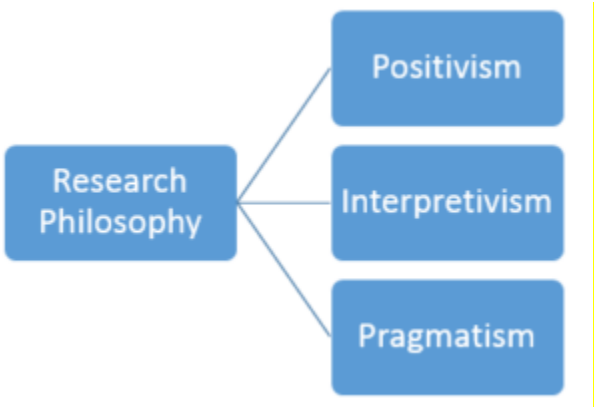


Figure 2: Types of research philosophies

Patel & Patel (2019)

Interpretivism: When the purpose of the research is to understand the phenomenon taking place in the surrounding and observing the environment to relate it to research objectives, interpretivism research philosophy is followed.

Positivism: When the research considers the world from the objective point of view, he is following the positivism research philosophy. Following this approach, the researcher does not value his own perspectives but relate the findings of his research to the real term facts and figures.

Realism: This philosophy is the combination of positivism and interpretivism research philosophy. Following the realism research philosophy, the researcher perceives the research topic and understand the humanistic point of view in a better way.

This study follows positivism research philosophy because it aims at understanding the behaviour of entrepreneurs in adopting business innovation and to relate it to technology. To support the arguments in this study, qualitative data has been used while relating it to technology and

innovation theory. Adopting this philosophy will allow researchers to access the wider data sources and understand the scientific methods in great depth. The conclusion is made from the collected information through empirical observations and objective knowledge.

Just like other research philosophies, this research philosophy has both positive and negative aspects. The results generated by adopting this philosophy are considered reliable and generalisable. Same patterns of data are used and trends are followed according to the already established set of rules and procedures. This helps the researcher to set right direction for his study. However, this research philosophy also has some disadvantages such as it does not indicate the reasons behind how, where and why the data has been gathered. Only descriptive findings are generated which does not fulfil the reliability criteria for the researcher.

4.2 RESEARCH APPROACH

A research approach, as defined by Saunder's research onion, involve combination of steps which are performed to analyse the collected information. The difference between research philosophy and approach exists in the terms that the research approach is more focussed on way the research activities are carried out and the research philosophy relates to how the research has been conducted. The four types of research approaches which are used by researchers include inductive, deductive and abductive.

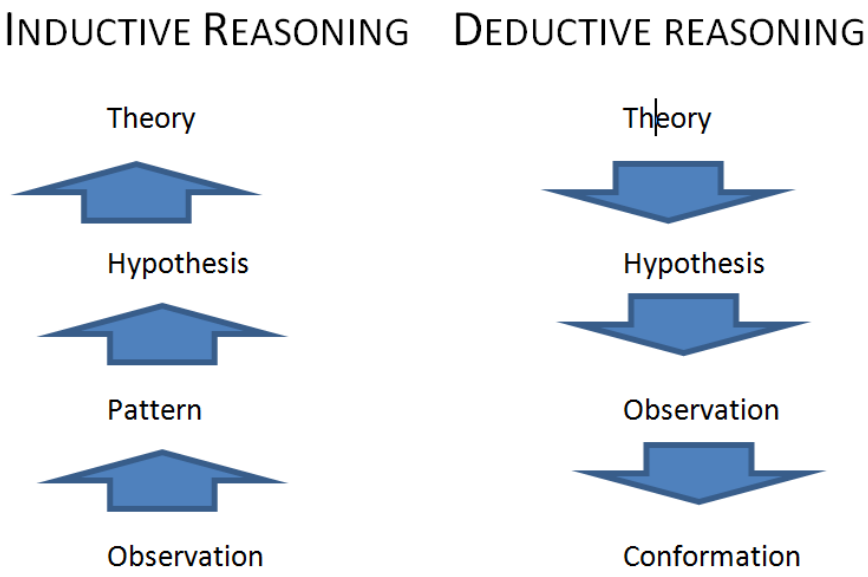


Figure 3: Types of research Approach

Source: Snyder (2019)

Inductive Approach: Following this approach, the research finds answers to the research questions using different methods and techniques.

Deductive Approach: In this research approach, the research hypothesis is developed by researcher and is tested against the aims and objectives. It helps to prove whether the hypothesis is true or not.

Abductive Approach: In this research approach, the research hypothesis is supported by relevant facts and figures while the main objective of the researcher is to find answers to the research questions.

For this study abductive research approach is chosen over other approaches because it involves the development of research questions at the beginning of this study and later on analysis is performed to find answers to these questions. The entire discussion in this study is supported with relevant facts provided that aims and objectives of research are fulfilled. Due to this, this approach is marked suitable for this study.

Considering the advantages and drawbacks of this research approach, the greatest advantage of using this approach is that the requirements are already defined and produced results are fully reliable. Concise research instructions are followed while confirming the existing theories and frameworks (Askarzai & Unhelkar, 2020). But at the same time, the research must consider the drawbacks of using this approach because biases or assumptions can influence the research results. Researchers following this approach have limited creativity to deduce results from the collected statistics and this makes this approach unsuitable for studying subjective experiences (Melnikovas, 2018).

4.3 RESEARCH STRATEGY

A researcher must wisely choose a research strategy it helps to define how the research activities are performed. Research strategies are categorized into three categories named as quantitative research, qualitative research and the mixed method research (Askarzai & Unhelkar, 2020).

This study has used the quantitative research approach where the findings are supported with relevant data and figures. In contrast to this, qualitative research method involves relevant theories and frameworks to study the research objectives (Patel & Patel, 2019).

For this study, following quantitative research, practical aspects of entrepreneurial behaviour are taken into account to understand their decision-making criteria. But the researcher must also consider the disadvantages of this research strategy. Sometimes, it becomes a challenge for the researcher to collect the information. Participants may not be willing to respond. The collected information may not support complicated issues and lastly, this method can be costly creating hinderances and complicating the study.

4.4 DATA COLLECTION

While conducting research, the researcher experiences multiple types of data and can choose between these data types. General types of data include descriptive data, observational data, experimental data and derived data.

Descriptive Data is the one which include defining the basic characteristics of the data and including examples covering the basic view of the data (Mohajan, 2017).

Observational Data is the one that is collected from observational events and phenomenon which have not been manipulated or occurring naturally (Mohajan, 2017).

Experimental Data is the type of data collection in which the researcher himself is involved in the data collection process explaining the difference between the actual and altered data variables (Mohajan, 2017).

Derived Data is derived from the base data and is extracted based on the collected information (Mohajan, 2017).

Since this research circulates around understanding the impact of technology and business innovation on the performance of fast-food entrepreneurs in Ireland, most data used in this study is derived in nature. Empirical theories and frameworks have been used to support the statements from the descriptive data. To derive new information from the already existing data, review of literature has been conducted (Patel & Patel, 2019).

To collect primary information, interviews has been conducted with ten fast food entrepreneurs from Ireland. These interviews have been conducted online using the Zoom Meetings application and transcript has been generated to conducted thematic analysis. Therefore, data used in this research is derived in nature.

For this study, secondary data was gathered by reviewing journal articles focused on entrepreneurship. The research also predetermined such inclusion and exclusion criteria so that the quality and relevance could be guaranteed. The articles were not more than ten years old (2015-2025), and only peer-reviewed ones were accepted. With the use of a compare-and-contrast methodology, the paper has studied the chosen literature and has established patterns, distinctions, and insights that may have helped to draw conclusions.

4.5 DATA ANALYSIS

The interpretation of data is an essential component of any study since it allows moving beyond the raw data into something understandable. Descriptive analysis was utilized in the course of this work, with the primary data being examined in order to facilitate the comprehension of the key traits and trends in the information (Patel & Patel, 2019).

There was a use of thematic analysis when it approached the secondary data. This approach is concerned with mining patterns and themes in the data that can be used to derive sense out of a complicated data. The steps involve the familiarization with the data, coding of data, formulating themes, checking the themes, clarity of themes and lastly provision of the findings. Thematically, it is quite helpful to interpret qualitative information but may be subjective, quite time-consuming, and in some cases oversimplified results of the information presented in the data (Sakyi & Musona, 2020).

4.6 ETHICS CONSIDERATION

As a researcher conducts a research study, it is critical to undertake an ethical approach and see to it that all the research activities are carried out with the laid down ethical principles in mind. Any unethical conduct adopted in the informed process may be doubtful in the mind of other researchers and it may also result in unreliable findings in other future research. That is why it is highly necessary to uphold the ethical norms during the study (Melnikovas, 2018).

For this study, secondary data was collected exclusively from peer-reviewed journal articles published in reputable journals, and any information suspected of being biased was excluded. In the case of primary data collection through interviews, participants' consent was obtained beforehand, and no interviewee was compelled to participate or record the discussion.

All data gathered for this study has been kept completely secure and has been used solely for the purposes of this research. Importantly, no personal information about the interviewees has been collected or disclosed.

4.7 LIMITATIONS OF RESEARCH

Each research study has its limitations and the current one is not an exception. The time factor was one of the key issues concerning this research. The subject of the research is rather extensive and it will need significant time to perform interviews, study the previous literature, and to obtain valuable information. It was especially difficult to find the participants, arrange interviews, and motivate them to give considered answers to the questions. Because of this, the conditions were limited, where further more substantial reading of the subject and investigation was made, which might have capped the thoroughness of the findings.

5.0 FINDINGS AND ANALYSIS

This is the part of dissertation that refers to present the findings of this study. Thematic analysis and corelation analysis method has been adopted to analyse the data which was gathered through interviewing of fast food entrepreneurs in Ireland.

5.1 THEMATIC ANALYSIS

It is a qualitative research technique that is applied to tendencies of meanings in qualitative data that are determined, examined and interpreted. Such a method is appropriate to interpret complex data such as the interview scripts that have been utilized in this research study. It is founded on six procedures that contain familiarisation of data code, theme generation, review of theme, thematic definition and meaning, and reporting (Ghanad, 2023). These are depicted in figure 4.

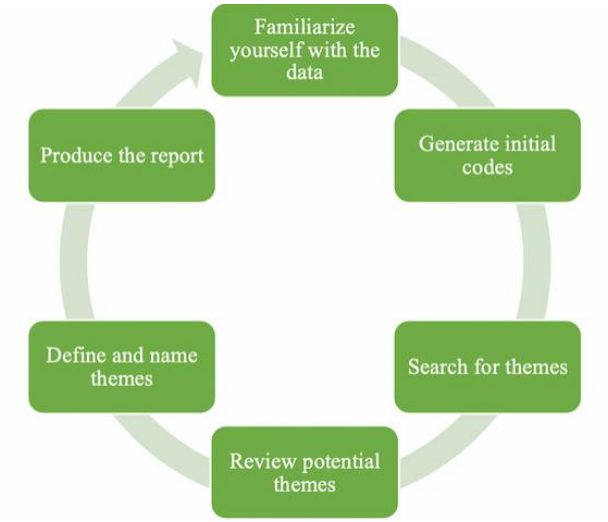


Figure 4: Stages of thematic analysis process

Source: Ghanad (2023)

Applying this technique to the data collected for this study, following themes are generated through automated coding using the NVivo 15 software. The initial coding and the final coding are given in appendix 1 and appendix 2 below respectively.

The table 3 below summarises the themes and the codes.

Theme	Relevant Codes	Description	Sample Quotations
Technology Adoption	- Use of self-service kiosks	Tools and platforms implemented to support operations, ordering, and data management.	"We've adopted self-service kiosks and mobile ordering platforms… upgraded POS systems for better inventory tracking." (Interview 4)
	- Mobile ordering apps		
	- Backend analytics systems		
	- Payment tech		
Business Innovation Practices	- Menu personalization	New methods and ideas introduced to improve customer experience and operational efficiency.	"We're planning… personalised promotions based on past orders… testing AI-based forecasting tools." (Interview 5)
	- Dynamic pricing/promotions		
	- Process redesign		
	- Experimentation with tech		
Business Performance	- Increased sales/revenue	Outcomes and KPIs reflecting operational success and financial health.	"Order accuracy has improved… speed has increased… upselling has improved." (Interview 1)
	- Reduced wait times		
	- Higher order accuracy		
	- Staff productivity		
Technology-Driven Innovation	- Real-time data feedback	Technology acting as an enabler and accelerator for innovation efforts.	"We use heatmaps and behaviour tracking to refine product placement and campaigns." (Interview 2)
	- Quick testing of ideas		
	- Enhanced customer interaction		
Customer Experience Enhancement	- Personalized menu recommendations	Innovation and technology combining to improve how customers engage with the business.	"Customers enjoy browsing the menu at their own pace and customizing their meals without feeling rushed." (Interview 7)
	- Faster ordering processes		
	- Improved satisfaction scores		
	- Real-time inventory tracking		
	- Reduced errors		
Innovation Impact on Performance	- Increased average transaction value	The measurable effect of innovation on business outcomes.	"Upsell success has doubled… error rate decreased by nearly 40%." (Interview 8)
	- Boost in repeat customers		
	- Efficient service flow		
Challenges & Limitations	- Initial technology investment costs	Barriers encountered when implementing new technologies or innovations.	"Some staff were concerned about being replaced by machines… we spent time explaining tech supports the team." (Interview 5)
	- Staff training needs		
	- Resistance to change		

Table 3: Summary of themes and codes

Source: Author

Theme 1: Drivers of technology adoption

From all the interviews, the most prominent theme which has emerged was related to motivational factors which encourage entrepreneurs in the Irish fast-food industry to adopt technology. Most of the participants have agreed that they prefer to adopt latest technology to enhance the operational efficiency of the system and meet the evolving needs of customers. Some issues which have been highlighted by participants include long waiting time in ques, human errors in taking orders, and increasing labour costs which serves as the key pain points of these entrepreneurs. The adoption of digital solutions has resolved these pain points to some extent. Another major driver for these entrepreneurs to adopt technology was the shift in consumer behaviour of fast-food consumers. This has been reflected in the quotation below extracted from interview 3. It has clearly revealed that by implementing the kiosk ordering systems, the fast-food entrepreneurs have been able to optimise the customer service and reduce the waiting time for customers.

"We were getting long lines during busy hours. Kiosks help break that bottleneck." (Interview 3)

Theme 2: Impact on Customer Experience and Behaviour

This theme relates to understanding the impact of technology and innovation on customer behaviour and customer experience for the fast-food entrepreneurs in Ireland. Being in the services industry, these restaurants are focused on providing exceptional customer service because their performance directly relates to customer satisfaction levels (Abdullah, 2023). Majority of the participants in the interviews have agreed that the implementation of self-service kiosk systems and mobile ordering system has helped them to enhance the customer experience. Participants have claimed that customers enjoy the convenience when they get the food ordered at their doorstep. This saves them the time to travel to the restaurant and they have become more exploratory in their food choices. However, some of the participants who were above 60 years of age prefer the dine in service facility. The reason is these individuals do not possess much knowledge about the new methods of self-ordering system. Thus, the differences in customer behaviour exists. The quotation from interview 4 and interview 2 has supported the findings of this theme.

- *"We keep one regular counter open for people who still want face-to-face ordering."* (Interview 4)

- *"We underestimated the learning curve for customers over 60."* (Interview 2)

Theme 3: Challenges in implementation

While majority of the participants have agreed that technology adoption has facilitated them in multiple ways, some of the participants have also highlighted the challenges that they face in implementing these up-to-date technology and innovation solutions. The emergence of technical issues like software glitches, initial customer confusion, high set up costs create challenges for fast food entrepreneurs in Ireland (Azmy, 2020). Also, from the perspective of employees, some participants have highlighted that on implementing innovative technology solutions, the employees become insecure considering themselves to be replaced by technology. High rate of job insecurity among employees impacts their performance and ultimately this can harm the business performance.

- *"Some older customers were confused by the new system."* (Interview 5)
- *"We had to explain that the goal was to support them, not replace them."* (Interview 4)

Theme 4: Innovation impact on business performance

Some of the participants have stated that by adopting business innovations like kiosk self-ordering system and mobile applications, they have been able to optimise their operations while some claimed that the data collected from kiosks and apps help them to improve the menu choices according to customer preferences, personalise the promotional plans, and make informed stock planning. This has allowed these businesses to be more responsive and targeted in their offering.

- *"We found that our spicy chicken burger sold better when shown earlier on the screen."* (Interview 4)
- *"We're planning to experiment with personalised promotions."* (Interview 1)

Theme 5: Future of fast-food entrepreneurs with technology and innovation adoption

The participants have shown retrospective opinions and provide practical recommendations for new entrants into this industry. The common lessons that all participants have learnt is that before implementing any technology for business innovation, they must provide adequate training to staff members, make investment in clear signage and conduct pilot tests before completing the implementation. While some participants have advised that technology must not be adopted only for aligning with industry practices. To implement any business innovation, suitable technology must be adopted according to customer centric needs.

- *"I would've spent more time teaching customers how to use the kiosks."* (Interview 3)
- *"We should have tested the technology in a quieter store."* (Interview 4)
- *"Don't invest in flashy tools just to keep up."* (Interview 1)

5.2. QUALITATIVE CORELATION ANALYSIS

Qualitative corelation analysis is the method to study relationship between different qualitative variables rather than the numerical values. This method helps to examine the different characteristics of data in relation to each other. This method does not produce corelation coefficient as in quantitative data but can revealed patterns and associations in data (Ghanad, 2023).

1. Technology Adoption ↔ Operational Efficiency (entrepreneurship)

Correlation: Strong Positive

The results of interviews have revealed a strong positive relation between adoption of digital technologies and business innovations like kiosks systems and mobile apps to increase the speed, accuracy and order throughout of the fast-food restaurants in Ireland. The most common reason for investing in such technologies and undertake business innovation was the operational issues like human errors. It encourages the entrepreneurs in Irish fast-food industry to make initial investment into technology (Alt, 2021).

2. Customer Expectations ↔ Technology Deployment

Correlation: Strong Positive

A direct link has been established from interviews between the changing demographics of young fast-food consumers and self-service technologies implemented by fast food restaurants in Ireland. Increased personalisation and convenience serve as the motivating forces for fast food entrepreneurs in Ireland to adopt technology (Beere, 2024).

3. Technology and innovation ↔ Business performance of entrepreneurs

Correlation: Strong Positive

The results of interviews have shown that those fast-food entrepreneurs in Ireland have achieved success in comparatively less time who has focused on business innovation and technology adoption. The reason is these entrepreneurs are in the better state to address the consumer demands and needs as compared to those who do not have enough resources to implement any business innovation. Improvement in digital customer interface like kiosk systems has led to increase in average transaction values of these businesses. Enhancing digital customer experience directly boosts sales, suggesting ROI in user-friendly interface design (OECD, 2024).

6.0 DISCUSSION

This chapter discuss details about the analysis of the collected information and the relation to the research objectives and research questions.

6.1 RELATING TO RESEARCH OBJECTIVES

Research Objective 1: To understand the relation between innovation, technology and entrepreneurial performance among the fast-food restaurants in Ireland (relevance to theme 1 and theme 4)

This objective relates to **theme 1 and theme 4** of this study. The findings of this study have revealed a positive relation between business innovation, technology and entrepreneurial business performance of fast-food restaurants in Ireland. Corelating this to the literature by Paladino (2022) it can be said that technology has changed the way entrepreneurs tend to think and adopt business innovation in fast-food industry in Ireland. The new business ventures in this industry priortise customer experience and customer demands in order to succeed. This argument has also been supported in the literature by Hanoteau (2022) who has mentioned that previously, the competitive advantage was reserved for only larger firms in the service industry but emergence of business innovation and technological ideas have provided enough room to small scale entrepreneurs in the service industry to enhance their innovative capacity and deliver better customer satisfaction. The same perspective has been supported by participants as their responses have clearly revealed that those entrepreneurs have achieved success in comparatively less time who has paid attention to integrate technology and business innovation together to their business idea (theme 1) (Rosado-Cubero, 2022).

Furthermore, the role of organisational culture cannot be denied in implementation of any business innovation in Irish fast-food industry. The success of technology and innovation depends on the alignment between the organisational culture and the technology adoption. If the adopted technology is not aligned with the organisational culture, it can result into larger number of hinderances rather than increasing the possibilities for success (Rosado-Cubero, 2022). The results of corelation analysis have shown a strong positive corelation between innovation, technology and entrepreneurial performance. This means that those Irish entrepreneurs in fast food industry have performed well who rely on technology trends and innovate their services according to modern

trends such as the adoption of self-service kiosk systems and mobile ordering app. This is aligned with the findings of literature review (Sutrisno, 2021). While quoting the example of giant fast-food restaurants in Ireland, Walicka (2025) has revealed that MacDonalds and Supermac have integrated the self-ordering system which has given them competitive edge in the market but at the same time, this has created a new challenge for entrepreneurs starting business on a small scale. Therefore, to compete with these industry giants, it is important that entrepreneurs must innovate their business ideas and propose new solutions to the underlying customer problems to capture their attention (Rastegar, 2021).

In the service-based industry, such as in Irish fast-food industry, most of the businesses are data-informed as it has been proved in the literature by Diandra (2020). This means that fast food entrepreneurs are now encouraged to optimise the menu options based on customer driven information and data collected from self-service systems and mobile applications. This relates to the dynamic capabilities model discussed widely in literature proposing that dynamic capabilities provide base to entrepreneurship. Therefore, to positively adopt technology and business innovation, the fast-food entrepreneurs in Irish fast-food industry must first assess their dynamic capabilities. Only then they will be able to exhibit positive entrepreneurial performance (Iyer, 2023).

Research Objective 2: To study the implication of technology in innovating the ideas presented by entrepreneurs in the fast-food restaurants in Ireland (relevance to theme 2 and theme 3)

Relating this objective to theme 2 and theme 3 from the thematic analysis above, it can be said that the variables of technology and business innovation are linked together. These results are aligned with the findings of literature by MarcCowling (2019) who has mentioned in his research that technology is the cornerstone of any business innovation. No business can succeed till it has a supportive technology infrastructure. The results of interviews have also indicated that Irish fast food industry shape customer experiences and customer behaviour based on technology and business innovation. The entrepreneurs in this industry work to implement unique technology solutions to underlying customer problems which forms the basis for business innovation (Krausa & McDowellb, 2021). The correlation between technology, innovation and business performance indicate that the findings of Kreiterling (2023) are correct who has concluded that by integrating

digital tools to lead the process innovation, data-driven decision making and accelerated time-to-market for new menu items or services, provides the source of competitive advantage to fast food entrepreneurs in Irish market. However, contradictions have been found in the literature by Quatraro (2023), which relates to the theme 4 of this study. His findings support that no entrepreneur in this industry can succeed till he has been successful in overcoming the staff resistance to change. Any business innovation can succeed only when the employees are trained to make best out of that innovation. Therefore, thinking of implementation challenges are more crucial to the success of a business innovation in Irish fast-food industry. Contrasting the views of Paul (2023), and the findings of this study, it can be said that overcoming hurdles must be the part of business strategies defined by entrepreneurs in any service-based industry. When the entrepreneurs ignore the technical challenges, they tend to create trouble for themselves at a later stage in implementing any business innovation (Abdullah, 2023).

Research Objective 3: To understand the impacts of technology and innovation on the performance of entrepreneurs in fast food industry in Ireland (relevance to theme 4 and theme 5).

The theme 4 and theme 5 of this study state that entrepreneurs in Irish fast-food industry must not adopt technology only for aligning the industry practices. Instead, their aim should be customer centric and they must work to provide convenience to customers in one way or the other. Relating this to the findings by Śledzik (2022), the performance of fast-food restaurants in Ireland depends on how well the entrepreneur has addressed the customer needs, overcome implementation challenges and addressed the staff resistance to change. Quatraro (2023) has highlighted the role of organisational culture in implementing any business innovation. Since change lies at the forefront of entrepreneurship, therefore it is important that entrepreneurs have practiced. His findings are also aligned with the clauses of technology acceptance model discussed in literature review chapter. It outlines how technology enables incremental and radical innovations in entrepreneurial contexts. These capabilities allow fast-food entrepreneurs to reimagine offerings, customer experiences, and value delivery. Thus, the results of corelation analysis, indicating a positive relation between technology adoption, business innovation and entrepreneurial performance seems correct (Ramdani, 2021).

Discussing the perspective of Fagerberg (2020) who has mentioned that the fast-food entrepreneurs in Ireland must adopt the right set of financial and non-financial measures to evaluate their performance. His findings have clarified that relying only on financial sources of information is not appropriate for these entrepreneurs because there are some parameters which cannot be measured quantitatively. The same has been supported in the results of interviews where participants have stated that they prefer to evaluate the business performance through both financial and non-financial measures. So, for example, delivering exceptional customer experience is central to the success of entrepreneurs in Irish fast-food industry (MarcCowling, 2019). Therefore, customer satisfaction is the most important criteria for entrepreneurs in this industry to evaluate their performance. Since it is the non-financial measure, interviewees have stated that they prefer to relate customer satisfaction with annual sales to evaluate the performance of venture in a better way. Lastly, the results of interviews have also thrown light on how these entrepreneurs tend to use customer information from mobile applications and self-ordering systems to enhance the business performance (Melnikovas, 2018). Relating it to findings of Ramdani (2021) from literature review, present day entrepreneurs in any service-based industry tend to make data driven decisions ensuring accuracy in decisions. The emergence of artificial intelligence has made it possible for these businesses to rely on up-to-date technologies supporting their business needs and decisions. That is why it will not be wrong to say that the decision-making strategies impact the business performance of entrepreneurs in the Irish fast-food industry (Paladino, 2022).

To conclude this discussion, it can be said that the results of corelation analysis and the thematic analysis are aligned with the existing literature. The existence of a few contradictions in what scholars have discovered and what interviewees have revealed can be overcome with further research in this area and covering more narrow aspects of how business innovation and technology relates to entrepreneurial performance of fast-food restaurants in Ireland (Verma, 2024).

6.2 RELATING TO RESEARCH QUESTIONS

- **What are the positive and negative impacts of technology on entrepreneurship among the fast-food restaurants in Ireland?**

  Before implementing any kind of technology, it is important for an entrepreneur to consider both its positive and negative impacts on the business performance. This specifically applies to service-based industries such as the fast-food industry in Ireland. The intersection of

technology and entrepreneurship in the Irish context has revealed a multifaceted landscape where both complexities and opportunities exist side by side (Walicka, 2025). Considering the positive impacts of technology on the entrepreneurship in the Irish fast-food industry, it can be said that technology has improved the entrepreneurial potential in fast food ventures. To improve service delivery and streamline day to day operations, fast food entrepreneurs in Ireland are leveraging technologies like automated point-of-sale systems, kitchen automation, AI-driven inventory management, and mobile ordering platforms (Abdullah, 2023). Studies by Teece (2020) suggests that by adopting digital technologies, these businesses have been able to cut down the operational costs, improve turnaround time for customers, and manage operations with minimal number of human errors. Furthermore, market access and customer reach has become easier by adopting business innovations and technology empowering small firms to compete with the industry giants (Sutrisno, 2021).

Along with opportunities, there come challenges which are highlighted in literature as well as evident from the findings of this study. One of the most common challenge facing entrepreneurs in Ireland is to get access to the market capital particular for independent and emerging entrepreneurs in the sector. This limits the abilities of entrepreneurs to adopt ad utilise technology in the most sophisticated way. Furtehrmore, technology advancements in the country can make the systems obsolete in no time frame. Technology driven automation in the industry has resulted into human displacement. While this has added value to the businesses, at the same time, it has led to social tensions and reduce employment opportunities for young generation individuals in the country (Mohajan, 2017).

To conclude, at one end where technology has added undeniable benefits to the fast-food industry in Ireland, at the same time, the implementation of these technologies is not without risk. Thus, the existing literature and findings of this study underscores the significance of a balanced strategic approach. Hence there is need to develop best practice models that are inclusive, sustainable, and adaptable to the rapidly evolving digital landscape of food entrepreneurship (Paladino, 2022).

- **How innovation performance is measured by fast food entrepreneurs in the modern era?**

  In the modern era, it is quite critical to assess the performance of Irish entrepreneurs in the fast-food industry. To assess their innovative outcomes, the entrepreneurs in this industry are using the combination of both qualitative and quantitative measures. One of the most common

approaches adopted by entrepreneurs in this industry is the product innovation success (Kansakar, 2017). This could include tracking the new menu items, better food options, and culturally adopted offerings which are better suited to consumer taste. However, to assess the success of product innovation, these businesses tend to use metrics such as new product sales ratios, customer acceptance rates, and repeat purchase behaviours which are all non-financial measures. Also, these entrepreneurs tend to use customer feedback, sales data, and social media engagement to evaluate how well the new menu items are performing and how they could enhance the brand loyalty among customers (Iyer, 2023).

The other measures which are used by entrepreneurs in the fast-food industry in Ireland to assess the performance of business innovation include customer satisfaction and experience. An enhanced dining experience, quicker service, or personalized menu recommendations are seen as signs of successful innovation from the customer's perspective. On a broader scale, financial performance remains a traditional but essential indicator (Paladino, 2022). Entrepreneurs measure return on investment (ROI), revenue growth, profit margins, and market share as reflections of innovation success. Innovations that lead to cost savings, increased footfall, or higher customer retention are typically regarded as effective. Scholars such as Crossan & Apaydin (2021) emphasize the need to align innovation strategies with financial goals to ensure long-term sustainability (O'Gorman, 2025).

In conclusion, fast-food entrepreneurs in the modern era use a combination of product, process, customer, and financial metrics to evaluate innovation performance. While the increasing availability of data and digital tools enhances measurement capabilities, challenges remain around interpretation and consistency. Future research may explore more standardized frameworks to help entrepreneurs accurately assess and compare their innovation efforts (Rosado-Cubero, 2022).

- **How the variables of innovation, technology and business performance are linked together**

  The relationship between innovation, technology, and business performance has been extensively explored in contemporary literature, particularly in the context of rapidly evolving industries such as fast food, retail, and services. These three variables are highly interdependent, where innovation often acts as a catalyst, technology serves as an enabler, and business performance reflects the outcome (Rastegar, 2021).

Innovation refers to the creation or improvement of products, services, processes, or business models that offer new value to customers or improve operational efficiency. It is also common knowledge that innovation is critical in helping firms to stay competitive, cope up with the changing markets and lead to growth. According to Schumpeterian theory, innovation is a primary driver of entrepreneurial success and economic development, often leading to disruptive changes in industries (Braunerhjelm, 2023).

Technology, on the other hand, is the tool or platform through which innovation is executed. It enables faster, more efficient, and scalable implementation of innovative ideas. For example, digital ordering systems, artificial intelligence (AI), and automation technologies are widely used in fast-food chains to innovate both customer service and backend operations. Literature by Prajogo and Ahmed (2006) suggests that technological capabilities are a foundational component that supports and amplifies a firm's innovation efforts (Leemet, 2024).

The third variable, business performance, includes metrics such as revenue growth, market share, customer satisfaction, and operational efficiency. Research has consistently shown a positive correlation between innovation and business performance, particularly when supported by appropriate technological infrastructure (Ramdani, 2021). In a study by Cainelli, Evangelista, and Savona (2006), firms that integrated innovation and technology strategically reported higher productivity and profitability compared to those that did not.

The linkage between these three elements can be conceptualized in a causal flow. Innovation stimulates new ideas and business models; technology allows those ideas to be implemented efficiently; and the result is improved business performance. For instance, a fast-food entrepreneur may innovate by introducing a plant-based menu line (innovation), using a mobile app to promote and order the new items (technology), which leads to increased sales and customer engagement (business performance) (Gedeon, 2020).

Moreover, the feedback loop is also important—improved business performance often allows for greater investment in innovation and technology, creating a virtuous cycle. Studies by Teece (2010) highlight that dynamic capabilities, such as the ability to integrate, build, and reconfigure internal and external competences (including technological assets), are vital for sustaining performance in competitive markets (Kreiterling, 2023).

However, the literature also warns of certain contingencies and challenges. Not all technological investments lead to improved innovation or business performance. The success

of the triad depends on strategic alignment, employee training, organizational culture, and market readiness. Inappropriately applied technology or poorly managed innovation can result in sunk costs, customer confusion, or operational disruption (Krausa & McDowellb, 2021).

In conclusion, innovation, technology, and business performance are tightly interconnected variables. Innovation drives the need for technological solutions, technology facilitates the practical realization of innovation, and the synergy between the two significantly enhances business performance. (MarcCowling, 2019). In the case of entrepreneurs particularly in such businesses as fast food, it is critical to manage and orient these three variables in such a way that they lead to sustainable growth and competitive advantage

7.0 CONCLUSION

The paper has attempted to identify how innovation, technology and entrepreneurship performance are related in the Irish fast-food industry with special consideration on how each variable affects the other to ultimately impact businesses. The implications of the findings are significant to both the practices and the scholars that reflect the enormous role of technology and innovation in forming entrepreneurial success within a highly competitive service sector.

In respect to the first research aim that aimed at exploring the relationship between innovation, technology and entrepreneurial performance, the study established a positive relationship which was evident between the variables. Those fast-food entrepreneurs that manage to combine technology and innovative practices during its implementation are likely to achieve better performance and faster growth. Such a conclusion coincides with Paladino (2022), who pointed out that adoption of technologies has changed the thinking of entrepreneurs and promoted the emergence of new business models. In line with this, Hanoteau (2022) insisted that technological innovation enables smaller companies to compete with other industry leaders, as it improves the customer experience and satisfaction. This was also heard by participants in this research who stated that individuals who adopted new technologies and embrace innovative ideas were successful much faster.

Organizational culture was also defined as the key driver that would contribute to innovation. Technology cannot be the only assuring method of business; it has to fit the culture and company practices. The lack of alignment may only present barriers, instead of opportunities, to growth. They established that there was a positive relationship between innovation, technology, and entrepreneurial performance and this relationship was strong. As an illustration, the introduction of self-service terminals and order-on-the-go programs has assisted fast-food restaurants such as McDonalds and Supermac to acquire a competitive advantage besides posing threats to a smaller business owner. To compete effectively, small business owners need to identify unique ways to solve customer problems through innovative solutions (Rastegar, 2021).

The second objective examined the implications of technology in facilitating innovation. The findings show that technology acts as both an enabler and a driver of innovation. Entrepreneurs in the Irish fast-food sector use technological tools to improve customer experience, streamline operations, and make data-informed decisions. MarcCowling (2019) and Krausa & McDowellb

(2021) emphasize that technology forms the backbone of business innovation. However, challenges such as staff resistance to change and implementation hurdles were also highlighted, underscoring the importance of planning for organizational adoption alongside technological advancement. Ignoring these challenges can compromise the effectiveness of innovation efforts (Abdullah, 2023).

The third objective focused on the impact of innovation and technology on entrepreneurial performance. The study revealed that performance is not just about adopting new tools or following industry trends, it is fundamentally customer-centric. Fast-food entrepreneurs achieve higher performance when they address customer needs, overcome resistance to change, and integrate technology meaningfully into their operations. Both financial and non-financial measures are used to evaluate performance, with customer satisfaction emerging as a central indicator. Entrepreneurs leverage data from mobile apps and self-service systems to enhance decision-making, optimize menu offerings, and ultimately improve business outcomes (Melnikovas, 2018; Paladino, 2022).

The study also addressed the research questions in depth. Regarding the impacts of technology, it was clear that while technology offers benefits such as cost reduction, operational efficiency, and improved customer reach, it also carries risks, including potential employee displacement and the need for ongoing investment to stay up-to-date (Mohajan, 2017). Entrepreneurs need a balanced, strategic approach to harness the advantages of technology while mitigating associated risks.

Speaking about the measurement of innovation performance, contemporary Irish fast-food entrepreneurs integrate qualitative and quantitative indications. They are the success of product innovation, customer satisfaction, repeat purchase behaviour, social media engagement and the financial factors which are the growth in revenue and ROI. Assessing the financial and non-financial consequences, the entrepreneurs can understand fully the extent to which innovation helps them to achieve success in business (Crossan & Apaydin, 2021).

Lastly, the research validated the correlation that existed between innovation, technology, and business performance. It is the innovation that requires the technological solutions, technology allows the innovations to be implemented and a combination of the two increases the overall performance. Investing in technologies, successful entrepreneurs in the fast-food industry can manage to find a balance among these factors and offer innovative services and products, which,

in its turn, enhances customer engagement, profitability and growth (MarcCowling, 2019; Rastegar, 2021).

On the whole, this research supports the fact that innovation and technology give good results when combined to bring success to entrepreneurs in the fast food industry in Ireland. The findings highlight the necessity of a customer-centric approach, organizational alignment, and strategic planning to maximize the benefits of technological adoption. While challenges exist, particularly regarding implementation and staff adaptation, the positive impact of innovation and technology on business performance is clear. Future research could further explore specific mechanisms through which small-scale entrepreneurs can compete with larger industry players and develop standardized frameworks to assess innovation outcomes more effectively.

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8.0 APPENDICES

8.1 APPENDIX 1: INITIAL CODING

1. Technologies Recently Adopted

Common themes:

- All four restaurants have adopted **self-service kiosks**, **mobile ordering apps**, and **digital POS systems**.
- Most use **cloud-based staff scheduling** and **inventory tools**.
- Some added **digital kitchen display systems (KDS)** and **real-time order tracking** (Interview 2, 4).

Unique implementations:

- **Interview 2**: Added a **digital ops supervisor** role and integrated **real-time delivery tracking**.
- **Interview 4**: Emphasized seamless integration across all platforms (app, kiosks, POS).

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2. Digital Transformation Strategy

Shared goals:

- Improve **efficiency**, **customer autonomy**, and **accuracy**.
- Enhance **customer experience** without replacing staff.

Strategic approach:

- **Interviews 1 & 4**: Emphasize **gradual implementation** with pilot testing.
- **Interview 2**: Driven by operational simplification and customer control.
- **Interview 3**: More reactive and modest—focused on catching up with industry norms.

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3. Motivations for Technology Adoption

Universal drivers:

- **Customer demand for speed, convenience, and contactless options**.
- **Labour shortages** and **staff cost management**.

- **COVID-19** as a catalyst.

Notable points:

- **Interview 2**: Stressed **operational scalability** and cost efficiency.
- **Interview 3**: Heavily motivated by long queues and customer impatience.

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4. Implementation of Self-Service Kiosks

- Rollouts began between **early 2022 to mid-2023**.
- Primary goals: **Reduce queues**, **increase speed and accuracy**, and **boost upselling**.

Impact Observed:

- Clear **uptake by younger customers**.
- Increased **customization** and **average order values**.
- Notable **drop in order errors**.

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5. Changes in Customer Behaviour

Common shifts:

- Customers spend more time browsing, try new items, and customize orders more.
- **Older customers need assistance**, while **younger customers adapt quickly**.

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6. Impact on Order Accuracy, Speed & Upselling

All interviews report:

- **Fewer order mistakes** due to direct customer input.
- **Faster service** during peak times.
- **Higher order values** due to upselling prompts like “Add fries?” or “Make it a meal?”

Interview 2: Reported a **40% drop in errors** and **doubled upsell success**.

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7. Challenges During Rollout

Shared obstacles:

- **Older customers struggling** with kiosks.
- **Technical bugs** (e.g., sync issues, freezing interfaces).
- **Staff anxiety** over job security.

Lessons learned:

- Importance of **customer education**, clear **signage**, and **staff reassurance**.
- **Testing tech in a less busy store first** (Interview 4).

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8. Use of Customer Data

All restaurants use data from kiosks and apps for:

- **Menu optimization** (placement, item removal).
- **Promotion planning** and **seasonal campaigns**.
- **Loyalty and rewards programs** (ongoing or planned).

Interview 2 & 4: Emphasized **screen heatmaps** and **behaviour tracking**.

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9. Staff Role Transformation

Observed trends:

- Less focus on cashiering; more on **food prep, tech support**, and **customer assistance**.
- New roles like **digital ops supervisors** or **tech-savvy assistants**.
- Use of **digital scheduling** for smoother workforce management.

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10. Staff Training

Training approaches:

- **Hands-on onboarding** with kiosks and POS systems.
- **Ongoing refreshers**, especially post-updates.
- Some assign **tech leaders** within the team to support others.

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11. Customer Responses by Demographics

- **Under 40s and tourists**: Tech-savvy and prefer digital.
- **60+ customers**: Need support, prefer traditional counter service.
- All restaurants kept at least one **staffed till** to serve all preferences.

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12. Technology as a Competitive Advantage

Unanimous agreement:

- Tech improves **speed**, **efficiency**, **customer experience**, and **reputation**.
- Especially critical in **urban and competitive markets** like Ireland.

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13. Future Technology Plans (Next 1–2 Years)

Planned innovations:

- **Loyalty programs & personalization** (all four).
- **AI-based forecasting & meal suggestions** (1 & 4).
- **Smart kitchen automation**: Fryers, sauce mixers, timers (2 & 4).
- **Voice or facial recognition** (Interview 2).
- **QR-code ordering at tables** (Interview 3).

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14. What They'd Do Differently

Common regrets:

- Underestimating the **learning curve** for customers.
- Inadequate **staff/customer onboarding** before launch.
- Rolling out in **high-traffic stores without testing** (Interview 4).
- **Better communication** could have minimized pushback and confusion.

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15. Advice to Other Operators

Key recommendations:

- **Start small**, test thoroughly.

- Train staff well and **support customers**.
- Choose **solutions based on actual needs**, not trends.
- Use data for **strategic planning**, not just operations.
- Ensure **tech supports people**, not replaces them.

8.2 FINAL CODING

Theme 1: Drivers of Technology Adoption

All participants highlighted **multiple motivations** for implementing digital technologies:

- **Operational Efficiency**: Long queues, order inaccuracies, and staff shortages were frequently cited.
    - *"We were getting long lines during busy hours."* (Interview 3)
    - *"Mainly operational inefficiencies and rising labour costs."* (Interview 2)
- **Customer Expectations**: Fast, customizable, and contactless service has become a standard.
    - *"Customers now expect kiosks, especially in city-centre locations."* (Interview 2)
- **Competitive Pressure**: Participants emphasized staying competitive within the evolving Irish fast-food landscape.
    - *"If you don't use tech, you fall behind."* (Interview 3)
    - *"We didn't want to fall behind."* (Interview 1)
- **Pandemic Influence**: COVID-19 accelerated the shift toward low-touch, tech-enabled solutions.
    - *"During COVID, many people didn't want to stand close to others."* (Interview 3)

Theme 2: Impact on Customer Experience and Behaviour

Digital tools, particularly **self-service kiosks**, have transformed the customer experience:

- **Increased Autonomy & Convenience**:
    - Customers enjoy browsing and customizing at their own pace.
        - *"They like being able to scroll through the menu and take their time."* (Interview 4)
- **Generational Differences**:

    - Younger customers adapt quickly; older customers often need support.
        - *"We keep one regular counter open for people who still want face-to-face ordering."* (Interview 4)
        - *"We underestimated the learning curve for customers over 60."* (Interview 2)
- **Higher Engagement with Menu**:
    - Kiosks led to more menu exploration and item experimentation.
        - *"Customers tend to try things they wouldn't if speaking directly to a cashier."* (Interview 2)

Theme 3: Operational Benefits

Participants reported clear operational improvements:

- **Order Accuracy**:
    - All noted a reduction in mistakes.
        - *"Order accuracy has improved... less room for miscommunication."* (Interview 1)
- **Service Speed**:
    - Increased throughput, especially during peak hours.
        - *"Service is faster because we don't have lines of people waiting."* (Interview 4)
- **Upselling**:
    - Automated prompts led to a measurable increase in average order value.
        - *"Upsell success has doubled."* (Interview 2)
        - *"We've seen about a 10–12% increase in order value."* (Interview 4)

Theme 4: Staff Role Evolution and Training

Technology shifted the nature of staff responsibilities:

- **Shift from Transactional to Supportive Roles**:

    - Staff are now more involved in customer support, food quality, and digital operations.
        - *"Fewer people are stuck behind tills... more are available to help where it matters."* (Interview 1)

- **New Roles**:
    - Creation of tech-specific positions (e.g., digital operations supervisor).
        - *"We restructured the team to include a digital ops supervisor."* (Interview 2)

- **Training Emphasis**:
    - All restaurants provide **hands-on training** and refreshers, highlighting the importance of staff readiness.
        - *"Managers receive more in-depth training, especially on data interpretation."* (Interview 2)

Theme 5: Challenges in Implementation

Participants were candid about implementation challenges:

- **Technical Glitches**:
    - Common at launch (e.g., freezing, syncing issues).
        - *"Software freezing or not syncing with the kitchen display."* (Interview 1)

- **Customer Confusion**:
    - Especially among older demographics.
        - *"Some older customers were confused by the new system."* (Interview 4)

- **Staff Concerns**:
    - Fear of being replaced was noted and addressed through communication.
        - *"We had to explain that the goal was to support them, not replace them."* (Interview 4)

Theme 6: Use of Data and Analytics

Most businesses are now **data-informed**:

- **Menu Optimization**:
    - Data drives decisions on menu placement and promotional timing.
        - *"We found that our spicy chicken burger sold better when shown earlier on the screen."* (Interview 4)
- **Marketing Personalization**:
    - Promotions and loyalty programs are increasingly tailored.
        - *"We're planning to experiment with personalised promotions."* (Interview 1)

Theme 7: Future Plans and Vision

All interviewees plan to expand their digital capabilities:

- **AI and Automation**:
    - Interest in predictive tools and kitchen automation is growing.
        - *"AI-based forecasting tools… smart fryers and timers."* (Interview 1)
        - *"Machines that portion fries or mix sauces."* (Interview 4)
- **Enhanced Loyalty and Personalization**:
    - Plans for smarter loyalty programs and user-driven promotions.
        - *"We're looking at facial recognition for loyalty redemption."* (Interview 2)
- **Improved Apps and In-Store Tech**:
    - App upgrades and table QR ordering are among future steps.
        - *"Improve our mobile app and maybe try QR code ordering."* (Interview 3)

Theme 8: Lessons Learned & Advice to Others

All interviewees shared reflective insights and practical advice:

- **Prioritize Customer and Staff Education**:
    - Multiple participants would have invested more in onboarding and signage.

        - *"I would've spent more time teaching customers how to use the kiosks."* (Interview 3)

- **Start Small and Test Thoroughly**:
    - Test rollouts in less busy environments were recommended.
        - *"We should have tested the technology in a quieter store."* (Interview 4)
- **Align Tech with Customer Needs**:
    - Avoid tech for tech's sake—solve real pain points.
        - *"Don't invest in flashy tools just to keep up."* (Interview 1)

8.3 INTERVIEW QUESTIONS

1. What technologies have you recently adopted in your restaurant operations?
2. Can you describe your overall digital transformation strategy (if any)?
3. What motivated the adoption of new technologies like self-service kiosks or mobile ordering?
4. When did you implement self-service kiosks, and what was the goal?
5. How has customer behaviour changed since introducing the kiosks?
6. Have kiosks impacted order accuracy, speed, or upselling opportunities?
7. What challenges did you face during the rollout of the kiosk system (technical, staff training, customer adoption)?
8. Are you using customer data from kiosks to inform product or marketing decisions?
9. How has technology changed staff roles or workflows in your restaurant?
10. What kind of training do staff receive to work with new systems like kiosks or POS software?
11. How do customers typically respond to new technology? Are there generational or demographic differences?
12. Do you see technology as a driver of competitive advantage in the Irish fast-food market?
13. What are your next steps in technology adoption over the next 1–2 years?
14. Looking back, what would you have done differently in your tech adoption journey?
15. What advice would you give to other restaurant operators in Ireland considering similar technology upgrades