

Sustainability in the Fresh Produce Sector in Ireland: Do organisations believe that this can create a competitive advantage?



**Research dissertation presented in partial fulfilment of the requirements
for the degree of
MSc in International Procurement & Supply Chain Management**

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1 Candidate Declaration

Candidate Name: Seán Callaghan

I certify that the dissertation entitled:

“Sustainability in the Fresh Produce Sector in Ireland: Do organisations believe that this can create a competitive advantage?”

submitted for the degree of MSc in International Procurement & Supply Chain Management is the result of my own work and that where reference is made to the work of others, due acknowledgment is given.

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2 Acknowledgements

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3 Abstract

Sustainability in the Fresh Produce Sector in Ireland: Do organisations believe that this can create a competitive advantage?

The purpose of this dissertation is to gain an understanding of sustainability in the fresh produce sector in Ireland, and to ascertain if the use of sustainability can provide a competitive advantage for those in the industry.

In terms of the research for this dissertation the approach was very much interpretivist in terms of the primary data collection. Data was gathered through a number of semi structured interviews, questions of which were generated from the existing literature on the subject.

The research looked to identify if there is a relationship between the sustainability and competitive advantage. The research also looked to ascertain greater understanding of the sustainability methods that are used in the fresh produce industry.

Limitations to the research are evident as this is not a full study of the fresh produce sector in Ireland, due to those interviewed coming from a growing and farming element of the supply chain primarily. Due to the Covid 19 pandemic this led to restrictions on access to interviewees on a one to one basis thus also restricted access to data. Due to these limitations, recommendations for further research are provided in the conclusions.

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5 Introduction

Topic Title

Sustainability in the Fresh Produce Sector in Ireland: Do organisations believe that this can create a competitive advantage?

This study is focused on how sustainability can affect competitive advantage in the fresh produce sector in Ireland. The fresh produce sector in Ireland is competitive and due to the nature of the goods it is an industry of innovation and competitiveness (TEAGASC, 2017).

It is envisioned that this research will help to identify sustainable practices and trends that are currently used in the industry. Following on from this, it will allow the researcher to explore the differences these methods represent to the organisation. This is the element that will be able to identify the competitive advantage between the organisations and the key difference sustainability contributes to overall competitive advantage.

6 Aims & Objectives of the Research

This section will outline the main objectives, the key contextual information related to the research and the justification for this research.

6.1 Research Objectives

The research aims are designed to achieve the following:

- I. Identify the sustainable methods that organisations within this sector are using, focusing on methods that are being used to keep their organisations competitive.
- II. Address the sustainable methods being used and ascertain their importance in terms of contributing to competitiveness and innovation in the industry.
- III. Identify key competitive advantages that are being gained in this industry and the key drivers involved in this.
- IV. To gain additional understanding of the fresh produce sector in Ireland.

6.2 Research Questions

The study aims to answer the following questions:

- i. What attempts are being made by these organisations to create and implement sustainability in their organisation, so as to improve the organisation?
- ii. Are the sustainability initiatives creating a positive impact on the organisation's position within the industry?
- iii. Are the sustainability initiatives creating a competitive advantage over other competitors within the sector?

6.3 Background, Significance and Justification

The researchers own personal interest in this research derives from some experience in the sector several years ago, particularly with regards to the processing element of fresh produce prior to delivery to the retail outlets. There is a great deal of time constraints with products in this industry from my own experience and the researcher has seen first-

hand a lot of waste. This has led the study to pursue the sustainability end of the industry to gain further insight. To explore the issues in the industry, see the amount of commitment and initiative to innovate, and to find that competitive edge. This being the dissertation of a procurement degree, it acknowledges the fresh produce industry as an industry which has a significant supply chain, and it is considered that this topic will offer an insight into the challenges and opportunities which are involved in the supply chain delivery of the products within the industry.

In terms of reputation or image of the industry, food and drink in Ireland is overseen by the agency Bord Bia, who are essentially involved in the promotion of sales of Irish food and horticulture in Ireland and around the world (Bord Bia, 2020). One of the main ambitions of Bord Bia is the development of sustainability in the food and drink sector and this is undertaken in the “Origin Green” program, this is considered the only one in the world that operates at a national level and includes producers, processors and retailers all combining together to create a better future for the industry (Bord Bia, 2020).

The importance of food in society is clear to be observed, sustainability of food production is even more important, particularly with regards to the supply chain from production to retail. *“The food industry is increasingly relying on operations research techniques to achieve economic, environmental, and social sustainability”* (Zhu et al., 2018).

The motivation to explore sustainability in the fresh produce sector in Ireland is predicated on an interest to ascertain if there are current methods in place that are really offering a solution to those involved along the supply chain, such as producers, processors, and retailers. The reasoning for this particular sector within the food industry is due to the transient nature of fresh food, it provides more challenges as turnaround from source to shelves is under greater pressure due to the time constraints and “best before” and “use by” dates. Keeping food fresh and guaranteeing safety requires facilities such as warehouses, trucks and refrigeration units amongst a host of other elements (Wang, Zhao and Herty, 2018).

The sustainability aspects themselves can range from many different elements or methods, from growing techniques in the fields, to other methods in warehousing and in refrigeration, power consumption and waste. The main objective is to ascertain the new and innovative sustainable methods that are being put in place and explored. Fresh food being wholly predicated on the agricultural sector is important, and it is noted that the sustainable escalation of production in this field has become a main issue for policymakers and other international development groups (Herrero *et al.*, 2013).

7 Literature Review

7.1 Introduction

This literature review chapter will showcase the background knowledge of the topic the researcher has chosen to research. It will start by introducing the main vocabularies involved in the topic. It will provide the main terminologies associated including the term of sustainability and within an organisation, and the different areas affected directly or indirectly with sustainability. Also, to be included is the concept of competitiveness and competitive advantage in a business context, and how it is driven, or can be driven by sustainability. It is intended to provide these concepts from the literature available and deliver any distinct concepts or ideas from literature. The literature review will also provide the key elements to form the conceptual framework to the research.

The literature review will then focus on competitive advantage and what exactly this term means. This will present findings with regards to the importance of competitive advantage in terms of sustainability. The literature review will also look at the arguments that investigate whether competitive advantage is just related to an organisations internal measures or whether it is in fact affected by the wider industry itself externally, i.e. supply chain elements, suppliers, competitors, new entrants. It will consider what competitive advantage means long term and if it can be sustained, and where and how it can be lost. This information will present an overview in competitive advantage which will form the basis for the primary research when interviewing industry participants. An informed basis for competitive advantage is key in this study.

The core element of the literature review is to gain and understanding of sustainability of organisations, and how it creates the ability to develop skills, competence, and overall capability and how this can drive innovation. There will be an examination to ascertain if there is a link between ability, and how experience and expertise can help drive innovation. It will also consider differing theories that focus on the idea of innovation and how sustainability is involved in the innovation process. The literature will also

provide an overview on the importance of innovation and competence, and the role it plays overall in creating sustainability and if it leads to competitive advantage.

7.2 Sustainability Overview

This section will outline and overview the area of sustainability in organisations with relevance to competitive advantage. There will likely be information on the chosen industry however it is important here to identify the literature, regarding the concepts being studied and different industries are certainly salient in this regard also.

Sustainability has been referred to as the non-depletion of capital or 'natural capital', essentially this can be considered as the earth itself, and it is natural capital so to let it deplete would not be sustainable. Nurturing the resources of the earth is sustainable. (Dresner, 2008). There is no wholly distinct definition of sustainability however some theorists have referred to sustainability as *"providing for the needs of the present generation while not compromising the ability of future generations to meet their needs"* (WCED, 1987).

Sustainability has been defined as being split into three main elements: social, environmental, and economic factors, *"these three pillars are informally referred to as people, planet and profits."* (Andrew Beattie, 2019). Enterprise essentially relies on many more complex resources and this is made more difficult with climate change and global mega forces which present opportunities as well as risks (Purvis, Mao and Robinson, 2018). Sustainability is forming shareholder and social value while reducing the environmental footprint along the value chains (Council *et al.*, 2003). The global sustainability mega forces will present both risks and opportunities (Boonen, 2018). The successful organisations will be those that can limit the emerging risks and take advantage of the opportunities.

Sustainability could be considered as part of an overall circular economy where the resources that are used are used again and recycled to the point where there is no waste. *"It entails gradually decoupling economic activity from the consumption of finite resources, and designing waste out of the system"* (MacArthur, 2019).

Business organisations are seeking to perpetuate and grow in terms of sustainability and performance of such as potential investors and regulation strive to achieve more transparency in terms of deliverance of sustainable business practises. Global companies are not readily divulging their commercial sustainability performance (Rezaee, 2016). Sustainability for organisations has been also referred to as it being about long-term wellbeing, both for itself and for society (Revell and Blackburn, 2007).

7.3 Competence and Innovation

Improving and creating innovation and improving the ability of workers in an organisation through sustainability is key to creating a competitive advantage (Porter and Kramer, 2011). In terms of the need for innovation, it has been suggested that as today's world evolves and sustainability becomes a key word on the agenda for all organisations, innovation and the ability to take advantage of the challenges, mean that innovation itself is one of the main key drivers in terms of sustainability. It is also stated that many companies believe that the more environmentally friendly they become, the more they will erode their competitiveness. This is not the case and it is suggested that there is no alternative to sustainable development (Nidumolu, Prahalad and Ranagswami, 2009). This opinion is also shared by Martín-de Castro et al. (2013) who said that *“developing successful technological innovations is essential for creating and sustaining an organisation's competitive advantage.”*

Lack of innovation can lead to stagnation in an industry, take for example the cement industry, *“the cement industry is risk-adverse, has large existing assets, and is unaccustomed to innovation. The makeup and production method of Portland Cement, the most widely used man-made material in existence, has not changed meaningfully in 200 years.”* (Freeman, 2020). A glaring change is needed in all sectors to innovate in order to create competitive advantage and all this should be done through sustainability initiatives. From the literature above, innovation and using innovative technologies or processes can be beneficial in nature. In terms of consumers, transparency, and sustainability from the organisations they purchase from will serve to expand business, create better opportunities and lead to a more sustainable organisation overall.

According to an Accenture survey it was recorded that more than half of consumers would be willing to pay more for sustainable products (Accenture, 2019).

7.4 Competitive Advantage

This component of the literature review will look at how reputation through sustainability affects a company in terms of its competitive advantage. What this will identify is how reputation is considered amongst consumers and employees alike. There will be focus on the literature that suggests that reputation is significantly important when linked with sustainability. That customers may choose a certain organisation due to their sustainable reputation, or employees may choose to work for a particular company because of an organisation's sustainable transparency. There will also be a focus on literature that argues contrary to the ideas that area raised above. It is important that there is a balance to the literature where available, and that arguments or theories are presented appropriately.

An organisation or firm can be considered as having a created a sustainable competitive advantage, when it applies a value creating process which is not otherwise being implemented by its rivals in the industry. This added value is associated to the reputation, initiative, innovation abilities of an organisation (Barney, 1991).

In terms of competitors within an industry, if an organisation has created value and strategies over a period of time and the rivals within their market have not been able to reproduce this, then this organisation would be said to have a sustainable competitive advantage. The idea of a competitive advantage which is sustainable is not salient to the amount of time it has taken to achieve this advantage or sustain it. It is marked by the ability, or lack thereof, of competitors to identify the specific advantage and then replicate it. Once an organisation has achieved a competitive advantage, it can be easily lost once competitors have achieved replication of the competitive advantage, this is essentially the loss of a competitive advantage (Kay, 1995).

An argument of competitive advantage is that it can be heavily influenced by external factors that have been discussed at length in the Five Forces framework, which

essentially describes that the environment, and the industry itself, buyers, suppliers, new entrants and other elements are key influences of an organisations ability to perform (Porter, 1989). There is a theory that a resource-based view suggests that a competitive advantage can be achieved using the resources already available in the organisation itself and does not have to be fully reliant on external factors. It is also considered by Peteraf (1993) that deepening the understanding of the resources available to an organisation can help make competitive advantage sustainable and as such firms are deeply heterogeneous, with regards to their properties and internal capabilities.

7.4.1 Reputation

When exploring competitive advantage, it is easy to associate this with primarily monetary elements, that the finances are a true reflection of competitive advantage. This is not often the case as there are many other elements, one of those elements is that of reputation. Reputation can be considered as an intangible asset as discussed by Rindova, Williamson and Petkova (2010) it is emphasized that reputation is a social cognitive concept that is separate from the elements involved to develop it, and that reputation can be characterized by two elements - quality and performance, and when formed together can help an organisation in its contribution to creating a competitive advantage.

Reputation holds significant weight in terms of an organisations overall ability to perform. Your reputation is considered as one of the most valuable things an organisation can own (Brown, 2010). What is also explored by Brown (2010) is how reputation can be managed, and how this can lead to overall competitive advantage within an industry. In order to operate a good reputation, he declares that one must build reputation, maintain it, and salvage it if necessary. The importance of sustainability with regards to reputation can be achieved with the implementation and enforcement of initiatives in sustainability in a business, with particular attention paid to employee wellbeing, cost and reputation amongst other measures can help to increase strategic competitiveness (Landrum, 2018).

It can be argued that a positive reputation can help create a competitive advantage however, for an organisation using this as a potential competitive angle, it must setup a range of procedures to aid the identity of their organisation such as character, products and services, and general behaviour, which will then need to be viewed upon favourably by the key stakeholders, and then measured to that of the competition in the industry (Dowling, 2004). To add to this idea, reputation cannot just add to the competitive advantage by way of increasing business of one organisation, it can lead to the detriment of industry rivals. This can be due to a loss of consumers who may decide to move their business to a competitor that is seen to be more motivated in sustainability. The failure to be transparent in terms of sustainability can have a negative impact on organisations and poor reputation can be associated with this (Nikolaeva and Bicho, 2011).

It has been theorised that as the awareness of the world and sustainability in business has increased, there is an increased risk that reputation can play a key role in terms of the ability of organisations to employ and retain key staff, which they believe can help nurture and grow their company. There is a real risk that employees can, and will be lost as they choose to move to a more sustainable company, this holds significant weight in terms of competitive advantage and surrendering this advantage by not being able to retain staff (Bratton and Gold, 2017).

7.5 Conclusion

The literature available was the most salient to the title in terms of looking into sustainability in the fresh produce sector and linking into sustainability as a whole and how some may interpret it. Also, the literature provided information on competitive advantage. It outlined how competitive advantage can be understood and the differences that advantage may be depending on circumstance. This is outlined through the discussion of competitive advantage being achieved through reputation or by financial measurements. It is clear that there is a different approach to each from different organisations. It is hoped that the information lending itself to this idea in the literature review can be developed through the primary research.

The literature does drill down into sustainability on a particular level; however, it appears that the idea of sustainability is mainly in overview format or in different particular industries. It is hopeful that the primary research of this dissertation can add information to the literature in terms of direct sustainable methods in the fresh produce industry in Ireland. This will likely include the direct methods that organisations are using and developing, and also their motives for doing so, which will hopefully feed into the idea of competitive advantage.

Although the literature does discuss competitive advantage, it will be likely that the findings from the primary research will have different levels of competitive advantage, and also differing opinions of what that means from those in industry. Many may not use the term competitive advantage, but it may be something that is thought about in the background or subconsciously and perhaps a different label is used by different organisations to define it. It will be important to ascertain this and relate it back to the literature where appropriate.

8 Conceptual Framework

8.1 Introduction

The purpose of the conceptual framework is to create a paradigm using the literature available and combine this with the primary research. A conceptual framework is based on information collected from the existent literature and then interview findings. The idea of a conceptual framework is to create a way of shaping the empirical findings and giving them an order, which is clear and profound.

8.2 Conceptual Framework Design

This conceptual framework is devised based on information from the existing literature and the interview conclusions. The framework itself is developed by the researcher and is primarily devised from the literature and is appropriate for qualitative analysis. The framework integrates how sustainability can be achieved in organisations, the methods that are available through the literature, examples include energy, waste, growing, and supply chain. The sustainability elements then feed into the anticipated benefits such as reputation and energy savings and other monetary savings or improvements. This then feeds into the competitive advantage element. The competitive advantage is interpreted through the interviews. This will allow the researcher to understand how the participants describe competitive advantage, how it originated, and what it exactly is in terms of their experience. Perhaps it could be solely finance related or are there other advantages gained through reputation and marketing.

There are a number of frameworks or theories that have been mentioned in the literature review thus far and most of which do lead to the conclusion that organisations can create a competitive advantage in their industry, while also creating a better society, and improve environmental conditions around them. One theory that concerns these elements is that of the “Creating Shared Value”. Porter and Kramer (2011) see that there is more than just profit to an organisation, there must be a shared value. They reveal that organisations have had a certain amount of philanthropy or charitable element to their operations, however this can cause more difficulties than advantages, there must be a more focused element to social responsibilities of an organisation and this means

a more strategic holistic outlook. There could potentially be more of an emphasis placed in terms of one's own controllable industry and this can be done through the use of innovation and addressing the main issues in society, this can also concern the use of water, waste and power and aiming to define their role in the "value chain" which will be discussed below.

There is a clear line from sustainability and reputation, and they are related to financial elements. Haanaes et al. (2011) outlines that mechanisms such as exit interviews or the number of times analysts ask to see sustainability information can be fed to create intangible metrics more tangible, and this can help create data that can tie less tangible sustainability elements or rewards, towards the finance end of an organisation. Willard (2012) suggests that by taking control of environmental and sustainable issues it can help create ways of concentrating and identifying more core business purposes. These types of core focuses could be the likes of water, waste, production, use of power and employees.

In terms of empirical data, and with regards to sustainability and competitive advantage, one of the main elements in terms of conceptual framework is "Porter's Value Framework". Porter (2008) essentially outlines value activities on a "value chain" and when combined can lead to added value or profit to an organisation. What this framework explores is that there are essentially primary activities that are core in terms of how a product is made and then there are more supportive activities which help assist the primary activities. There is another element to the value chain, and this is referred to as the "margin". What Porter presents is that the margin is where the value is created or secured. In terms of the primary and secondary activities mentioned above this can be then used to identify the value in each particular activity in an organisation, it can be used on a local level to break down to more detail where value can be captured (Porter, 2008). The value in this sense can be attributed or equated to the competitive advantage.

The above literature has helped form this conceptual framework which will be bespoke to this study. The relationship between reputation, profit and sustainability, leading to

competitive advantage will be linked up to show the elements and inputs which are involved in the overall chain of fresh produce in terms of reasoning for sustainability, the types of sustainability, how this transfers into gain for the company and how this gain can be perceived as competitive advantage.

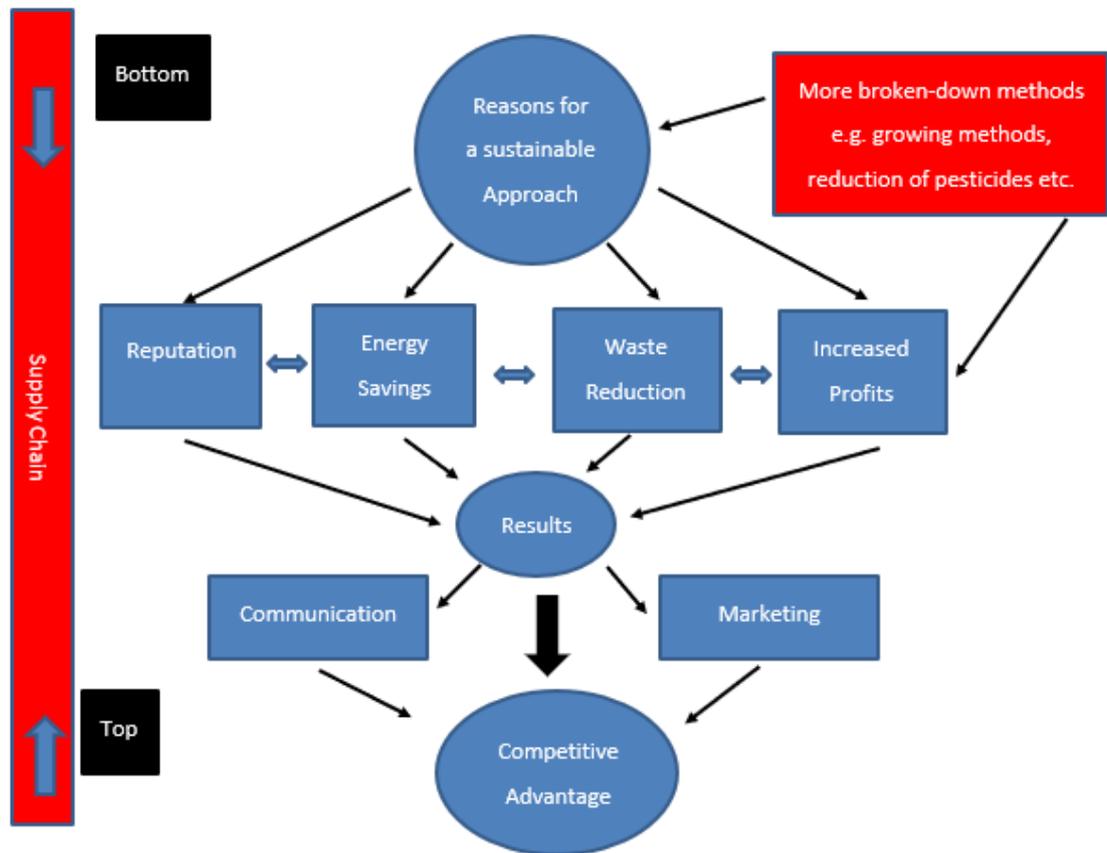


Table 1 - Conceptual Framework (Source-Researcher)

8.3 Conceptual Framework Elements

This chapter will outline the main breakdown of the conceptual framework and will encompass how sustainability leads to an overall competitive advantage.

8.3.1 **Reasons for Sustainable Approach & Supply Chain**

The conceptual framework is designed by the researcher using available literature on the subject matter and with a view of adding primary data gained through qualitative research in the dissertation. The different elements are tied to a spine of the framework, which is the supply chain, the bottom of which is the idea of sustainability and why it

may be required and the reasons. The top of the supply chain is the communication and marketing of these sustainable methods and the impact of such.

The start of the framework from the top bottom of the supply chain outlines why organisations choose to be sustainable in the first regard. It must be mentioned that these main elements can be expanded and altered from one organisation to another but in general, it is based on the literature available. As it stands there is more literature to be examined beyond this paper which will likely inform the conceptual framework further, however the researcher will endeavour to present the main elements that form the conceptual framework. **Reputation** is one of the main reasons why organisations approach sustainability, and this ties back to the literature from Brown (2010) who explains that reputation can lead to overall competitive advantage within an industry by building it and maintaining it. **Energy savings** is an approach that is key in a sustainable approach as it is a cost saving and it leads to innovation. The main objective of these reasons is that they all tie in together, energy savings can be marketed as such and this helps enhance reputation, there is a link to all the processes.

In terms of other reasons for a sustainable approach another is **waste reduction**. A reduction in waste in an organisation can lead to a reduction in costs of disposal and this in turn feeds into other elements of why having a sustainable approach is important. It is key to look at the total life cycle of tasks and products and this is important in waste management of an organisation. According to Benedict (2017) *“there are many potential benefits to application of life cycle sustainability assessment. It helps organise data in structured form, clarifies trade-offs, enables consideration of full range of impacts, stimulates innovation helps decision makers and enables comparative analyses.”*

Increased profits are another key element of the conceptual framework. There must be evidence that sustainability can lead to increased profits to allow those in organisations to feel that sustainable steps they make will lead to that competitive advantage. The “creating shared value” model from Porter (2011) highlights the positive scenarios and how organisations and communities can co-exist and profits created can contribute to all involved.

8.3.2 Results

By seeing the potential results that a sustainable approach can have, an organisation can use these results to develop a design or an approach which will help them produce a sustainable output. This can be helped by using literature available to organise this in a fashion that is focused and appropriate. 'The 7 Fronts of Sustainability' outlined by Cocklin and Stubbs (2008) is a paradigm outlining the steps required to grow into a more sustainable organisation. This model helps outline all approaches that an organisation can take in terms of where to start with sustainability and move then to a more detailed framework. In the context of this conceptual framework there is a link back to developing the process of "reasons for a sustainable approach" as outlined at the top of the conceptual framework diagram.

8.3.3 Marketing & Communication

The results of sustainable strategies should be then communicated and marketed appropriately through the organisation. Sustainable strategies should not be kept secret but should be shared and be transparent. This will lead to a sustainable marketing strategy can be implemented. Kumar et al. (2013) outlines two types of sustainable marketing types; social and ecological. Ecological is concerned with marketing of greener practises and products, and the social element is more regarding how the sustainable practises impact on the local social area, and depending on the organisation the wider community, and using the sustainable angle to market a brand as being superior than competitors. This idea is shared by Gordan et al. (2011) who outlines that using several strategies in marketing already in place, one can create a model for a sustainable marketing strategy. The categories are green, social, and critical marketing. Essentially the first type is focused on marketing sustainably produced products and their impact on consumers, critical marketing is a more holistic view on how to ideally market sustainable products or services and the social element is how the marketing can then be perceived by the general public. The implementation of key marketing and promotion or communication in this regard the researcher believes will lead to the last element of the conceptual framework which is the competitive advantage.

8.4 Reason for the Conceptual Framework

The conceptual framework will help the author identify with the key reasons for sustainability. This will be based on the findings from the literature review, including why sustainability is being considered in organisations at present and in the recent past. How these sustainability measures have been developed in terms of the different ways to implement methods depending on specific elements of an organisations processes and then leading on from this it feeds into the immediate results of the sustainable approaches. This is where the research that the author will undertake will take effect. How results are interpreted by the interviewees will feed into the conceptual framework. This will add to the questions posed by the literature review. The research data will hope to bridge the gap between what exact methods are being used currently in industry and why. It will also ascertain how organisations felt their sustainable actions worked for them in terms of results. The most important part of the conceptual framework will then entail how the results were measured by the organisation in terms of a competitive advantage. This is largely subjective in this regard, but it will help complete the framework and tie up all the different elements.

8.5 Conclusion

To conclude the chapter on the conceptual framework, it is essentially a tool that is developed by the author using the available literature and feeding in the potential elements that the literature provided. This is then married up with what the author is envisaging to receive from the interviewees. To explain in more detail, the ideas of reputation, waste and energy savings, water reduction and reputation are all from existing literature. The literature itself identifies these key areas and it is through these areas that the questions to the interviewees can be formed. It is important to rely on the literature and also to interpret it in certain ways. This conceptual framework does just that with input from the author. To that end it is hoped that the conceptual framework is a good measure for developing the research but there is also the caveat that there may be deviations as such. Depending on the flow of the interviews there may be some key elements that the conceptual framework may not have identified, by way of new methods or drivers that the literature did not identify. It is hoped that this

is not the case, or at least there are minimal deviations. As like each element of this dissertation, any new information that was not tied in with the literature will be isolated and presented in the overall findings and will add to the existing literature in this regard.

9 Methodology & Research Design

9.1 Research Paradigm & Overall Approach

This section will outline the research strategy, the research philosophy, and in terms of data, how data will be collected and how the data will be analysed. According to Crossan (2003) it is important to have a research philosophy. An understanding of philosophy for a researcher can better identify the strengths and weaknesses of different approach. When conducting research, it is integral to have a methodology and logic to this methodology (Bell, Bryman and Harley, 2018). Kuhn (1996) describes a paradigm a view that is held by a community. A paradigm can be considered as *“universally recognised scientific achievements that, for a time, provide model problems and solutions for a community of practitioners.”* (Kuhn, 1996).

The objective of this research is to examine if having a sustainable approach to an organisation can have an influence in overall competitive advantage. With regards to the philosophy of the research to be involved, it must be considered in terms of overall general research philosophy. There are two main research paradigms that are frequently used. The two paradigms that are quoted regularly are positivist and interpretivist approaches (Heshusius and Ballard, 1996).

Cassel (2017) describes positivism as a major paradigm in academic study. Particularly in terms of business and management a positivist or positivism emphasises an objectivist epistemology which looks to *“explain and predict what happens in the social world by searching for regularities and casual relationships between its constituent elements.”* (Burrell and Morgan, 1979). Essentially what this translates to is that in a social world, everything can be described and broken down into elements that are explainable. The idea of positivism is generally associated with quantitative research.

In terms of an interpretive philosophy, it is generally believed by Denzin (2017) that qualitative research is often associated with this paradigm. In its essence it is interpretive, insofar as researchers need to ascertain and process the subjective and social meanings about what is being studied. This sometimes can be referred to as being

naturalistic as the researcher needs to operate in a natural setting or situation. There is an element of needing to have and create involvement, trust, and detailed comprehension (Saunders, Lewis and Thornhill, 2015).

In terms of this dissertation, the interpretation of data can be viewed from different respects. To that end it would be considered that the researcher's interpretation of any data gathered will be subjective in nature. In terms of interviews, there is an element of subjectivity to a participant's information provided in such a setting, as there are many factors involved. It is expected that in terms of competitive advantage, this cannot be fully appreciated in terms of finance and reputation, there are many other elements to be considered. It will be an opinion of a person which can be disagreeable from others in an organisation (Saunders, Lewis and Thornhill, 2015). From the information above, it is deemed that the approach to the research will be of an interpretivist nature and the data collected will be considered qualitative in nature. Some elements of information will be linear in terms of the responses and the restrictions imposed on answers depending on the question.

9.2 Research Strategy

The primary reason for this research is to ascertain if the use of sustainable methods in an organisation creates a competitive advantage. The focus industry will be the Irish fresh produce sector with particular attention to growers and farmers to narrow down the research. The research will be interviews, the benefits of such is that they meet the requirements of qualitative data, they also allow the participant to provide information in a structured but informed environment.

The primary sector of interviewees will be those involved in the fresh produce sector as growers or famers of fresh produce or those who work closely with them. There is not a significant amount of literature available to identify a firm competitive advantage to a sole organisation in this sector, and the researcher believes that primary research would play a large role in the process of ascertaining the elements of competitive advantage that farmers and growers relate to.

A basic structure to the interview will allow for certain questions to be asked but the interviews will be organic in nature and will allow for discussion and more in-depth conversation to aid research. The questions will seek to ascertain the participants view on sustainability and what methods their company are taking in terms of sustainability. This will then lead to a discussion on competitive advantage and what the participant's views of competitive advantage are. In terms of the conceptual framework, as mentioned in a previous section, the designed framework will shape the general approach to the interviews. The above mentioned is typical of a semi-structured interview which is what will be used for this study. Essentially semi-structured is the chosen method as it follows a basic structure of questions and allows the conversation to flow naturally. The interviewer generally sets up a structure decided in advance to cover main questions, and the detailing is then teased out during the interview. Drever (1995) outlines that there is freedom in the interview to allow the interview to express themselves and how much one says during the interview. This method was mainly chosen as it is considered quite flexible for small-scale research in this regard and it better focused for studies involving smaller numbers. Another benefit of using semi structured interviews involves the analysis, as there is similarity in the questions being asked and this is an aid to the process of coding, which will be further explained below (Berg and Lune, 2011).

9.3 Data Collection Methods

This section will identify the uses and sources of primary data and refer to any ethical issues that may be encountered during the process of the dissertation.

9.3.1 Sources of Data

With regards to the sources of data, it is anticipated that the collection of data will be interpretivist and qualitative. The qualitative data will consist of interviews with participants who are involved at differing levels and professions within the chosen industry, and it is anticipated that their views will strictly be their own. The broadness of the interviewees will be conditional dependant on availability. Their opinions on competitive advantage, sustainability and the fresh produce industry will all be their own.

Source: Interviews with those involved in the fresh produce industry.

Although the questions will likely change depending on the interviewee and their role in the fresh produce sector, the below questions were used primarily in the research:

- I. What element of the fresh produce sector is your organisation involved in?
- II. Does the organisation have a specific sustainability person/team?
- III. Is there a sustainability model your organisation follows?
- IV. Was there a key reason or moment that kickstarted your organisation to think about introducing sustainability?
- V. What sustainability methods are used/encouraged in your organisation?
- VI. What is your interpretation of competitive advantage?
- VII. Are you seeing benefits of sustainability in your organisation in terms of money or other advantages?
- VIII. What is the general return on investment from these measures?
- IX. Are you aware of any organisations that are implementing sustainability in the industry and is this something that encourages you to innovate?

The interviews were conducted over the phone or via a video conferencing mode where possible due to the current restrictions imposed by the Covid 19 pandemic prohibiting non-essential journeys.

9.3.2 Access & Ethics Issues

“New sources, types of data and modes of accessing participants are all challenging and reconfiguring traditional ideas of the research relationship.” (Miller et al., 2012). In terms of access and ethical issues, an ethical form has been filled out in addition a plain language statement, these will be issued to each participant before any interviews. If an interviewee was not comfortable with the audio recording of an interview, then notes where be taken as appropriate. Prior to the commencement of an interview the interviewees were asked for their permission to record the conversation, and all participants were happy to have audio recordings taken. The participants did not have

ethical issues will be encountered. The plain language statement contained a check list of all the information interviewees needed

9.3.3 Analysis Technique

The key to the analysis technique is the use of the research data and interpreting it with good knowledge and consistently. This was aided by the literature review and the shaping of the subject matter. To analyse a large amount of qualitative data it is important to be consistent, and the coding process was used in this regard. The coding analysis technique was heavily influenced by the conceptual framework and included findings from existing literature which will feed into the conceptual framework of why organisations feel they may want to engage in sustainable activity. The methods of sustainability were examined as per the conceptual framework and added to the primary data collection during interviews. This allowed for the expansion in terms of activity modes and open a more detailed discovery of the industry.

Essentially this type of data analysis of coding is thematic in its nature. Once the transcription proceeded there was particular attention paid to speech disfluencies, linguistic fillers, words that were repeated and overlaps in the language (Schachter *et al.*, 1991). These types of elements were included as has been encouraged by qualitative studies and following the transcription the data was coded using a thematic analysis (Braun and Clarke, 2006). According to Braun and Clarke (2006), thematic analysis is a method for identifying, offering insight and organising patterns of meaning through a particular set of data. This in turn gives the author the ability to understand the data in great depth and detail.

This data analysis will help in terms of the conclusions of what really is a competitive advantage and do organisations feel that they have one because of their implementation of sustainability. The coding method is described by Auerbach, Silverstein and Silverstein (2003) as a procedure for organising the text of transcripts and looking to ascertain patterns within the text itself and trying to discover patterns within that structure. By developing patterns this will aid the creation of theory and opinion that can be created from this. In the presentation of the findings, reference will

be made to the coding and a breakdown of such will also be provided in the appendix. The table below outlines the thematic analysis that used in this study as outlined by Braun and Clarke (2006). A couple of tables were used to identify the specific themes and their occurrence in accordance with each participant. The themes naturally occurred through reading were added to the table. A second table then shows each theme and the number of times it was discussed or mentioned by the participant. This is provided in the appendix. The below table identifies some of the key elements on thematic analysis.

Phases of the Thematic Analysis	
Phase	Description
Familiarising Yourself with Your Data	Transcribing data (if necessary), reading and rereading the data, noting down initial ideas.
Generating Initial Codes	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.
Searching for Themes	Collating codes into potential themes, gathering all data relevant to each potential theme.
Reviewing Themes	Checking in the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic map of the analysis.
Defining and Naming Themes	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme.
Written Report	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis.

Table 2 Phases of Thematic Analysis – Braun and Clarke (2006)

9.4 Conclusion

The approach was to interview those in the main production of fresh food as it was anticipated that they are using a nice broad use of sustainable methods in terms of technology, reputation, waste, and power reduction. A number of requests were sent out to over 20 organisations in this regard. From this, the author achieved five interviews in total, four interviews with fresh produce growers/farmers, and one interview with a restaurant of whom worked closely with their local suppliers/farmers.

Of those interviewed, the growers were happy to speak about their methods and approach to sustainability and also their interpretation on competitive advantage. Of all of the organisations interviewed, most of them are best in class in Ireland, with two of them being in the top 2 in their field. Of the two who are the top 2 in their field, one was a strawberry grower, and another was an apple grower. I was grateful to get their time and expertise. The collection of data was all done through phone conversation except one, which was conducted through a zoom meeting. All have been transcribed. The detail of this data will be discussed in Chapter 9.

10 Presentation of the Findings

10.1 Introduction

Following the literature review, the objective of the research was to identify and speak to those directly in the fresh produce sector in Ireland. The researcher wanted to speak to growers/farmers as it was believed they would have a range of sustainability methods from growing to packaging to power and waste reduction. The researcher also wanted to focus the study so as not to try and cover too broad a spectrum in the Irish fresh produce sector. Of the 5 interviewees, 4 of them are growers and or farmers, and one of them is currently an Origin Green ambassador for Bord Bia and formerly worked for a major restaurant in the west of Ireland, who dealt with local farmers closely to supply their restaurant. It was this restaurant element that offered the greatest insight in terms of the next level of the supply chain and sustainability in that regard. The interviews were all semi-structured in nature and for the most part covered the main questions the researcher wanted to ask as outlined in the previous chapter. Although not using the exact words as in the listed questions, as general conversation does not lend itself to stringent questions, the general response was similar and through the analysis it can be observed that there is use of repetitive elements. There are some differing views from each interviewee also. The findings and thoughts will be presented in this chapter with a conclusion on such also.

10.2 Potential Outcome of Research

The potential outcome of this research it first and foremost to identify sustainable methods of organisations within the fresh produce sector in Ireland. With this information the researcher expects that the research will gain an insight into methods that were otherwise not available in the available literature. It is hoped that the availability of these new methods will benefit the industry as it offers more transparency. It is anticipated that the discussion on sustainability will inform the researcher of the innovations that are involved in organisations and the willingness for organisations to create and be innovative. It is important for the researcher to understand why organisations are interested in sustainability methods in the first

instance, and why they have chosen to take a sustainable approach. It is hoped to map out a process from point choosing the sustainability methods, through the elements of different outcomes and results and then onto the communication and marketing of sustainability as per the conceptual framework.

With regards to competitive advantage and what that entails, it is anticipated that with the research, a true definition of what the organisations within this industry believe is a competitive advantage will provide interesting reading. It will enable to researcher to define the fine lines between competitive organisations and how simple sustainable changes or decisions or approaches have made a large difference to an organisation.

As a researcher it is expected that the information gained and analysed will allow the creation of valid conclusions in terms of whether sustainability is creating innovation and encouraging organisations to use it as a competitive advantage. It will demonstrate an insight into the challenges that those in the industry are facing. It will make conclusions and recommendations to the industry on where improvements or changes could be made in terms of their approach to sustainability.

10.3 Thematic Findings

10.3.1 Sustainability in General

The strongest theme that emerged from the interviews was the broad spectrum of sustainability. Given that this was the main area of focus from the interviews this was not surprising. However, sustainability was always spoken about in a positive light and as a tool for improvement. Each interviewee had different thoughts on sustainability but there was a common theme that each of them had their own process and their own thoughts on their process. They each had certain reasons for their process as they were coming from different angles. But there were definite overlaps in their answers too. Participant 5 remarked on what his restaurant used in terms of sustainability. And how the owner of the restaurant was self-educated in terms of sustainability and had created his own approach to how the restaurant was run. This is what sustainability is in essence, its interpreted in different ways by different people and there is no right or wrong way to approach it:

“He is self-educated in sustainability, he reads a lot, he’s very educated and he had he keeps everything really simple. He has a friend who was involved in a farming consultancy around Europe, and he set up a small farm about 20 miles away. I’d say 90% of the fruit and veg comes from that farm, and they only use local native ingredients. So every Thursday you go out, or their farm would come in and get crates of fresh produce, that’s all put on the menu throughout the year, and then every week, they take back or food waste, so it all gets composted back down, he minimizes single use plastic. It’s all induction, so there’s no heat no gas being wasted nothing like that.” (Participant 5, 2020).

“It’s called the Nordic food manifesto. it’s 7 rules about eating what’s in season. You only eat from what’s around you. The only things he buys in are the wine, the coffee and sugar price” (Participant 5, 2020).

When Participant 5 was asked about what the sustainable methods for the restaurant were, he remarked that “local” was the key:

“Keeping it local and then, letting the seasons dictate what’s happening. If we have an asparagus dish we’re going to put on in February, but it’s a bad year, they don’t show up till March, then you know they will go on our plate in March. He doesn’t buy them the month earlier; you have to adapt with the farm and try to pull something else out of the ground and things like that.” (Participant 5, 2020).

10.3.2 Habitats & The Local Environment

In terms of sustainability Participant 4 outlined some of the methods his organisation uses, and similar to Participant 5’s above, there is a real element of working with what you have and the environment around you locally:

“The majority of pest species in orchards will be controlled without the use of chemical interventions, so it would be either by predicting when something is coming, introducing predators, creating habitats so you could kind of look at the orchard as a bit of an ecology or a habitat rather than a crop.” (Participant 4, 2020).

Participant 4 went on to speak about the sustainability they are implementing in their soil on the orchards and how their methods have changed to make it more sustainable:

“So in our orchards we are beginning to quantify what is happening with our salt carbon, and there’s been a few studies going on and Apple orchards, it’s not just Ireland, but in

other countries too, there's questions in terms of carbon, if you cultivate the soil you cause a loss of carbon from the soil, so if you're growing a tillage crop year after year you're losing carbon from the soil. You've got to have a system where some of the time you're cropping and then some of the time where you are carbon building like permanent crops such as grassland.” (Participant 4, 2020).

Participant 4 was particularly concerned with the carbon issue and the impact methane has on sustainability too in that regard:

“Grass is carbon suppressed but you lose a lot with the methane that the cattle end up creating when they are after feeding on the land. The grass itself is suppressed but the overall circuit isn't. And we are beginning to look at trying to optimize that, and I suppose overall, those are some of the biological parts. It's quite a complex story. No matter what way you approach sustainability, we have a carbon problem, so it really doesn't matter, the only way it will be fully achieved is through farmers as they have the most amount of land and they have the largest amount of carbon. So that will mean encouraging practices that sequester carbon and discourage practices that leads to the loss of carbon from soil to air ultimately. We are only scraping the surface of that really.” (Participant 4, 2020).

Participant 4 also went on the speak about the advantages of supporting natural habitats instead of more industrial measures of yesteryear:

“The other part of the integrated soil production side is the biodiversity side because we have a problem with carbon and biodiversity. If we can create a habitat in an orchard rather than trying to solve every problem by eliminating, it you're building complexity into the system. And complex systems are more stable than simple systems. The more complex your ecosystem, the less likely there is for something to get thrown out because of it. The more complexity obviously it is harder to manage the more resilient it is to change.” (Participant 4, 2020).

The above quote is similarly approached by other interviewees. With Participant 1 and Participant 2 paying particular attention to the use of habitats as a sustainable method for protecting crops and also creating natural living conditions for local insects and animals. Participant 1 in particular says that animals will naturally come to it:

“It's very important to protect nature and the environment.” (Participant 2, 2020).

“Crops, the oilseed rape, and the hedges and the brambles, we'd also have a very active hedgerow management plan, we try and keep the hedgerows, we keep areas of the farm wild, that allow for habitats. And also, on the water then we'd have a lot of ducks,

waterfowl and, pheasants around this area. The, the whole area here would be a sanctuary it is closed off to hunting or shooting.” (Participant 1, 2020).

“Yeah it’s amazing, how quickly it’ll populate again, you know, if you reduce, if you create the habitat you don’t to go and source it, or populate anything, birds and mammals will come back to it.” (Participant 1, 2020).

10.3.3 Packaging

From those interviewed Participant 3 and Participant 2 were very much willing to share about their packaging of their products and the impact that has had on their sustainability:

“Most of our packaging on the cider front it’s glass, everything’s recyclable, cardboard boxes, glass bottles, and caps, paper labels. We don’t use PVC, you know, we’re phasing out using PVC wraps, that would have been applicable to, say apples, when you’re selling to supermarkets, a lot of the product is kind of wrapped individually and labelled, when I say individually, a pack of 4 apples together.” (Participant 3, 2020).

Then the apples that they sit into, or the cardboard are recyclable. And then they sit into reusable plastic supermarket crates. Anything else that I might do for fresh markets, is all cardboard packaging, so in terms of packaging, our footprint is, is pretty sustainable (Participant 3, 2020).

Participant 3 went on to mention that the sustainable packaging they use was costing them more but was willing to make a trade-off for the environment:

“Other things, like the replacement of an old PVC type package to a new compostable type package, is now going to cost us. That is probably going to cost us, somewhere in the region of 10 grand extra this year. On that packaging, a supermarket won’t pay for it. So, there’s swings and roundabouts. You gain on some things and you lose on others but ultimately, if you can do it, you should do it. And it’s a better thing all round. I, I’ve a couple of young kids and you’ve got to be conscious of not trying to destroy the world on them.” (Participant 3, 2020).

Participant 2 shared similar concerns with regards to the use of their sustainable compostable packaging which contained strawberries which were in a punnet with no cover or lid, and that there were certain drawbacks as well as advantages:

“They are prepared to give you more for it, we’d have to get more for it as well, but they are prepared to give more for it. We have our logo on every punnet, so they really know what they’re buying and they’re happy to pay for it, and they can see every berry. But I suppose it will probably never catch on in the supermarkets, for the simple reason that it’s open, and people will maybe interfere with it, or take one out and put one in, and that’s what the supermarket would find a problem.” (Participant 2, 2020).

“We tried the compostable punnet last year, where you could seal it, but the problem was, when that went into the supermarkets, the sales dropped, because the people couldn’t see the fruit.” (Participant 2, 2020).

The main issue with packing in a more environmentally friendly manner is the cost this incurs, similar to Participant 3’s issue:

“If you used plastic on the same punnet, you could easily sell it for 5 or 6 cents a punnet cheaper.” (Participant 2, 2020).

10.3.4 Energy, Heat & Power Savings

One key theme that was noted during the interviews when discussing sustainability measures that each organisation was taking was with regards to energy and power savings and the advantages and disadvantages of each:

“We’ve got a new pack house here, and the two things we did in it, we put solar panels on the roof, 100 K/watt solar panels, so basically there’s more facing west. So that’s working extremely well. I’d say if you went down to our pack house today and looked in the AC shed; I’d say there’s probably 80% of our power today is being generated by solar panels.” (Participant 2, 2020).

“Now that won’t happen tonight, naturally, from the sun goes down, they don’t generate any power for you.” (Participant 2, 2020).

Participant 4 mentioned the energy savings his organisation is trying to make in conjunction with being sustainable but also mentioned the potential drawbacks and challenges associated with it:

“On the more technological side of things we have to cool our apples after harvests to store them, so they are kept cold to stay longer. Let let's say we run cold stores with sub solar PV panels now, this supplements the power coming from the grid. We are looking

at technical developments like that, and these are the things that people think of a bit more with regards to sustainability, they think about reducing the amount of heat they are using or changing the fuel source.” (Participant 4, 2020).

Participant 4 continued:

“There’s a company, they are called “XXXX” in Templederry and they are a community based organization not-for-profit electricity supplier, and they supply electricity, they have a wind farm and any money they make on that, they use on other community based energy projects. Any hot water that we need that aren’t fulfilled by the hot water solar panels that we use. We have researched into a pellet system, we used to use not natural gas but propane gas for heating, Calor Gas. But most of those things, they are good but sometimes they are not as good as they look. When we switched to wood pellets a number of years ago, its grand but it’s doesn’t get rid of your carbon footprint associated with your heating, it does cut it of course. It’s a case of one step forward and one step back sometimes.” (Participant 4, 2020).

Participant 1 spoke about the use of wind energy in his organisation and how it has achieved a great return on investment:

The turbine was the big step for us, that was twelve years ago, it was around 2009, it was commissioned. As the site has grown in the last ten years, we consume more power, but the turbine is giving us roughly around 40% of our annual usage. Is created through the turbine. So, now, you can, and we do source green energy from our energy provider as well, we, we get a certificate to say that all the energy we purchase through our, the additional 60% would be coming from a green source, so would be coming from wind source or hydro, depending on what it is. But we can say that we’re a 100% green energy business, from our own turbine and plus what we’re sourcing.” (Participant 1, 2020).

Participant 1 mentioned that there was a significant return on the investment in the turbine. Something which Participant 3 mentioned his organisation may not have the ability to do as the scale of the organisation that Participant 1 works for is much larger:

It was a big investment at the time, it was well over a million euros. Back in 2009 an energy project or green energy project, the capital cost is quite significant. But again, we would have wanted to be seen to be making steps in the right direction, to be seen to be doing what we could from a sustainability point of view. And it’s been a great, it’s been one of the best things we’ve done here in our business; it’s paid for itself now, it’s paid off about two years ago.” (Participant 1, 2020).

Participant 3 in comparison has a differing outlook from his perspective:

And X (a large grower) is the perfect grower. He's very forward thinking. But there are those differentiators, in that the people who have run their businesses efficiently and have made a few quid, can actually afford to put those kind of systems in, which will make them more efficient, which will make them more sustainable into the future. And the fellow who is just getting by, hand to mouth, he's gone. He just cannot put that technology in. he can't. He can't afford it, he can't get the loans for it, he can't wait for the return, and it's great for the guy who's there, and can do it, it's going to kill everybody else.” (Participant 3, 2020).

In terms of heat on Participant 2's farm he is using a heat recovery system to get the most out of his energy and use it to aid the employees:

“What we were doing the pack house, we were doing big grow rooms, we choose to put in a heat recovery system, connect the heat from the grow room for heating water for the staff.” (Participant 2 2020).

10.3.5 Waste

Another theme that was picked up through our discussions on sustainability was that of waste reduction which was shared by a number of those interviewed. I asked Participant 5 if there was any waste in terms of food in his restaurant:

“Well so you'd try not to, so meat and fish he works with local fishmongers, and then he buys from the a local farmer and from another local farm producer, so they only produce it gets, and he, the waste, he'll try and ferment it into sauces if he can. But then, you have to go to compost and then the normal brown bin, that's just meat that's been cooked off people's plates because it can attract rats. Anything else just goes back to the farm.” (Participant 5, 2020).

Similarly, I asked Participant 1 whether there was much waste in his organisation:

“We would always consider ourselves certainly as a zero-waste business, because, I spoke to you about what, what we do with our primary, with our retail packs, what goes into them, what doesn't go into retail packs will go for processing. What we would get, we would be feeding or selling, cattle feed, animal feed, depending on, on who's hierarchy of waste you look at. Some people include animal feed as a use, rather than as a waste. And we would say the same ourselves because you are recovering the energy of the produce is being recovered into the, in the animal as is, they produce milk or meat, you know, so it's really not a waste as such, so we would be very, what we would consider, a zero-waste business.” (Participant 1, 2020).

The above from Participants 1 and 5 are in line with current literature in terms of the importance of waste reduction in sustainability as MacArthur (2019) suggests that sustainability should be part of a circular economy and attention should be paid to designing waste out of an organisations systems.

10.3.6 Water Reduction

Another theme that was picked up was that of water use and water reduction. Those interviewed mentioned this on occasion with some having implemented some measures and some not, but all were aware of the fact. Participant 2 was very impressive in his description of the methods he uses to reduce water waste when growing strawberries:

“There’s none of these overhead sprinklers in our place. You could walk our farm all day long and you would never see one bit of water anywhere, being put on, you, it just wouldn’t be seen. And you could walk through every house with your slippers. It’s a complete oasis. That’d be day and night, winter, and summer. All the water is all drip fed into the root, so then any runoff that comes from that is collected.” (Participant 2, 2020).

When suggested to Participant 2 that this is surely creating a reduction in his water bill he responded:

“Oh absolutely! Sure, you’re so efficient with your electricity and your water. And even at night, we pump a lot of our water, into the reservoir, with the cheap electricity, to save energy and save costs.” (Participant 2, 2020)

Participant 2 then went on to describe how high tech the system is to reduce water waste:

The whole farm system is all computerised. And every plot in it is fed at different levels, depending on the state of growth they’re at. It’s totally computerised. If you look at today where there’s a big uptake on water. The sort of fruit that, uses a lot of root, they will be fed every two hours for five minutes, and daylight hours only. (Participant 2, 2020)

The above quotes from the participants regarding the reduction of water are very much in tune with what the existing literature suggested with Willard (2012) suggesting taking

control of the environment and sustainable issues with particular focus on water, waste, production, and power.

10.3.7 Competitive Advantage

As a key subject of this dissertation, it was important to get each interviewee thought on whether sustainability was creating or improving their own organisations competitive advantage in the fresh produce sector in Ireland. Some had differing views:

“It’s very difficult to say whether there’s a commercial advantage, or a commercial benefit to being either Bord Bia approved or Origin Green approved, what Bord Bia will do, it is quite a standard, everybody wants to be, any of the veg producers, if you’re talking to any veg producers, you need to nearly be Bord Bia approved before you can even, open a conversation on getting new markets. But it doesn’t particularly add any value to your crop, like they won’t say okay, you’re Origin Green or your Bord Bia approved, we’re giving you another 10%, that doesn’t happen.” (Participant 1, 2020).

“So, are we more competitive in some ways? I would say yes because insecticides for example, in an orchard of our scale, they could easily throw 5, 10 thousand onto an annual bill, we’re saving that.” (Participant 3, 2020).

I asked Participant 2 if he felt that his sustainable methods were giving him any sort of competitive advantage:

“Without it we would go out of business. It’s absolutely essential, you’d be going nowhere. In the area of growth and development, and meeting consumer needs, It’s vital. You have to be up there at the best.” (Participant 2, 2020).

The above statement agrees with the literature where Landrum (2018) states that there should be implementation and enforcement of sustainability initiatives with cost and reputation amongst other measures can help to increase strategic competitiveness.

Participant 4 had a view on his apple farm and their competitive advantage and how difficult it is producing apples in Ireland:

“We don’t really compete with each other because we have such a small a share of the marketplace. We wouldn’t consider ourselves competitors with other apple growers within the country. We do compete, but it doesn’t really feel like that, we are more together than we are apart. You probably get the impression that it has become a very technically complex thing to grow apples, even compared to 30 years ago when you could probably grow them out of a manual, and if you had this problem you spray them with this solution. All that is gone now, and it’s become a quite interesting, it’s become quite a complex thing to do. I have another company here on the farm where we make bottled products such as juices. And I could probably run that company with probably 10% of the effort of growing apples.” (Participant 4, 2020).

I asked Participant 5 what his interpretation of competitive advantage is from the point of view of his restaurant working sustainably:

“My interpretation of a competitive advantage is what are you doing that is benefiting you like. So, the restaurant is working hard, they are agile, and people want to eat in the restaurant because that. What are we doing that’s different? Like The restaurant will use scape, the big ugly green that grows out of the top of garlic. No one eats that, the restaurant will use every bit of every bit of food they can, it makes you come up with new dishes and you you’ll eat things early you’ll eat things late. That gives them an advantage. Like when you buy things from a truck, no one knows, you’re limited to, those limits, you just get what you see on their website.” (Participant 5, 2020).

Participant 5 then went on to describe what the owner of the restaurant sees as his main competitive advantage:

“His big competitive advantage and why he does well is, the restaurant is a Michelin star restaurant first, and then it's sustainable second. You can open a restaurant like that and charge 100 euro and it's really sustainable but if it tastes terrible no one will come back. So, the owners unique selling point is that he's got a brilliant taste in food, it's the best food and that he is sustainable, that's his unique selling point that's why people eat there. Then everything comes after that, its huge competitive advantage. But you wouldn't survive without the initial food, you need to be a good restaurant first.” (Participant 5, 2020).

The above statement from Participant 5 is very much supported by the literature as Nikolaeva and Bicho (2011) state that consumers may decide to move their business to an organisation that is sustainable and this can be at the detriment to others who aren’t sustainable, this in turn creates a competitive advantage over non-sustainable organisations.

Participant 5 then described that competitive advantage cannot just be measured just in monetary terms and that its multi-faceted:

“The benefits of sustainability in terms of money or other advantages. Yeah of course it's easier to publicize, it's a nice story as well. People want to do a bit of gardening as well and everyone wants to taste good, and as well as the food, when you put in the effort with your producers you do get much better food. There's probably 100 things from when you put a seed in the ground, there's 100 steps to when it touches the consumers plate, and when you do it sustainably, or with more care all those hundred things are going react a little differently. So, food gets picked on Thursday morning and it's on peoples plate that night in the restaurant. It's fresher, the chefs care about it more and know more about it. Your waiter will tell you more about it. Lots and lots of small steps that add up to your big unique competitive advantage there. And it's much better for the planet as well.” (Participant 5, 2020).

The points that Participant 5, Participant 2 and Participant 3 make with regards to competitive advantage all agree with that of the literature in terms insofar that it is not just monetary elements that identify competitive advantage, there are other elements that cannot be quantified in such easy terms and it is often subjective. (Rindova, Williamson and Petkova, 2010).

10.3.8 Consumers

One theme that was spoken throughout many of the interviews was the of the consumers. The growers explained their reasoning for the decision's consumers may make and what they think of consumers and how it shapes their own decision-making process with regards to sustainability:

“So, the consumer is fickle. And we do predominantly brambly apples, cooking apple, and we also have some eating apples, dessert apples. If you look at the highest selling dessert apple in the country, it isn't grown here. So, if the consumer likes it, Pink Lady, for example, then that's it, they'll go for it. We cannot grow that variety here, successfully. The consumer is inclined to buy Irish, there's no doubt, and I think the sustainability message that comes with that, because of the likes of Bord Bia, and the push to have growers being more sustainable, all through the horticultural sector, certainly is important.” (Participant 3, 2020).

“I think most consumers are very well intentioned, and do want to buy Irish, but I think there's a lot of them, a percentage are very well educated as to what's happening in the market place and what their values are. But we deal with Aldi, they are quite good to deal with, in very many ways. If they put on a special of cooking apples or parsnips or whatever, they throw them out at ridiculous prices. Now, the grower doesn't have to

contribute to that, but when they put them out at ridiculous prices, people just go bananas for them.” (Participant 3, 2020).

“So, there’s a lot of the market that is just purely price driven and then the more educated, more discerning consumer will go and seek out local, go and seek out Irish, and, and in terms of local, the island of Ireland is local, as far as I’m concerned. They will actively seek that out, and yes, we do get support in that regard. There’s no doubt. I don’t think it’s going to change the way horticulture in general is going, in terms of consolidation of growers, I think the days where small growers, those days are numbered. Whether they, you know, maybe some of those people will go fully organic and sell in the local farmers markets and they’ll get a turn out of it, but they’ll be working every day of the week. They’ll be working all week on their farms and be working all weekend at the farmers markets trying to get a living.” (Participant 3, 2020).

There is a slightly different interpretation of consumers from Participant 2 who believes that they are much more enthused in sustainability than Participant 3:

“The consumer is getting very assertive around, looking after the environment and sustainability and the planet, and all of that as we all know, for us to feature, as being a company of, with integrity, it’s just a basic component of what we need to do.” (Participant 2, 2020).

The above statement from Participant 2 is very much akin to what the literature is presenting with regards to the ever-growing consciousness consumers have towards buying sustainably made food. As Accenture (2019) recorded in a survey that more than half of consumers would be willing to pay more for sustainable products.

When I asked Participant 4 if he is looking at consumers and trying to understand the way they think with regards to apples and the associated air miles with some, he responded stating that perhaps consumers do not truly know the whole supply chain process and what is good or bad:

“There has been a lot of interest in Irish apples in the last year which hasn’t happened in the last 40 or 50 years, because are going in giving them grief about having apples from the other end of the planet. Which is understandable but it’s not always the worst scenario. You can move apples from New Zealand to Ireland by boat with a carbon equivalent similar to moving from Italy to Ireland by truck. Most people haven’t got a concept at all of what’s good and what’s bad. If you have to move a raspberry or a strawberry to Ireland from Florida, that’s going to happen by plane, that will have 40 or

50 times the energy use from aviation fuel that you never get from eating that fruit and its absolutely ludicrous. With something like an apple, you can bring it a long distance and I won't say a great carbon footprint but nothing near as bad as something that was flown. Most people haven't got a concept of what's involved in the food supply chain. It's an extremely difficult job to try and communicate that to people, so in general they feel closer is better, and further is worse. And that's I suppose in general, true, but there's a lot of nuance in that that can't be explained by that general look." (Participant 4, 2020).

Participant 5 from the restaurant angle was asked whether he thought that consumers would think a restaurant like the one he worked in would have something special due to its sustainability he responded:

"We got this beautiful produce and then you need to skill to be able to work with that so you learn it's all the same as it is similar to the restaurants except your food just change and you'll use bits of food you haven't used before. Then for consumers to see that if you look at 100 restaurants and 98 of them are buying from the same producers in Ireland. The two that are making their own food but like let's say The restaurant and Ballymaloe House say, even in regards of journalists will want to write articles about them, people will want to tell their friends they were there, more people want to talk about it on Instagram, and it will win more awards and it's just different. People, want new things, people watch, people are curious, so when you stand out like that for good, it always benefits if you do it well." (Participant 5, 2020).

The above statements from those interviewed do very much fall in line with the literature in terms of the importance the consumer role plays with regards to sustainability and competitive advantage and reputation as Dowling (2004) maintains that good reputation can help create a competitive advantage but there must be a range of procedures setup to aid this.

Participant 1 spoke about consumers at length and especially with regards to the genesis of his organisation and the key was really to look at the consumer and adapt:

"The way potatoes were being sold at retail level was changing. The introduction of the washed potato was starting to come in. In the eighties people were now buying smaller format packs, so I suppose going back to that time, the early eighties, it was common for households to buy a 25kg bag of potatoes, maybe, at a time. Probably it was potatoes every day, for every dinner, every day of the week. And it was probably a good value bag of food for the week. But that all was changing with the way consumers were starting to buy potatoes. So, there was an opening at the time, as we talked about supermarkets entering into the country, people were starting to shop under one roof in the major supermarkets. So instead of going down the main street of your town and visiting your

grocer and your butcher and your, your green grocer, you were able to buy all this produce now under one roof in supermarkets” (Participant 1, 2020).

One of the sections of Participant 1’s organisation are involved in the prepared foods section for the main retailers and Participant 1 mentioned how the prepared foods industry was emerging at the time. He mentioned that this has meant that otherwise waste food: misshapen or poor in aesthetics that would not normally be sold at a retailer, can be used in prepared foods, and leave virtually no waste:

“The changes that we saw, maybe, in the late eighties, in the way food, in the way potatoes were being sold. There was another change happening in the late nineties, where people now were consuming food in a different way again, where they wanted to be more in the prepared meals, so they wanted to go in and buy semi-prepared meals or prepared maybe ingredients of a meal”. (Participant 1, 2020)

10.3.9 Origin Green

To tie in with the literature with regards to fresh food sustainability, the subject of Origin Green was regularly mentioned throughout the interviews with contrasting opinions from each interviewee. Some felt it was helpful in some ways in terms of getting the retailers interested but it appears that there is not much information about Origin Green being passed down to the consumer level:

“It’s a little bit difficult, the Origin Green piece is, although we have Bord Bia stamp, you’d have that Bord Bia stamp on a lot produce that’s grown at farmer levels, but there is no Origin Green stamp. Origin Green is very much B to B, so, it’s not consumer facing. That makes sense, so, lots of people wouldn’t, lots of consumers wouldn’t even know what Origin Green is, they wouldn’t know what it stands for, they wouldn’t know what businesses are approved Origin Green companies, what they do any different to another, so. It’s one of the downfalls really of the Origin Green piece, is that it never really translated through to the consumer. Now where it has come through is on the B to B level, so when we are looking for customers or we are going to Tesco saying look, you know, why do you want to stay with my company or what, you know, that’s what we would be doing. A lot of our sustainability stuff is passed on so our customers, our supermarkets are demanding it from us, because customers are demanding it from them, so they want to see that their produce, again, you have to remember, we’re producing own brand Tesco products.” (Participant 1, 2020).

Participant 1 continued to speak about Origin Green and how it may have missed a step with making that jump into the consumers' minds:

"There was a, you may remember, oh it's probably 18 months ago, there was actually an Origin Green tv ad, run for a while. And that, there, there was a big push at the time to try and bring Origin Green back down to a consumer facing, certificate, or a stamp, that people would recognise, as being, this product stamped Origin Green is Origin Green for the reasons that it is. So, it's sustainably produced, people monitor water use and energy use in the production of this product, but, it never really flew. It was more like an old ad, there was a high-level drone, you could see cows, maybe filing in through a gate, and you could see a guy cutting corn. But it could have been a Tourism Ireland ad at the same time, it is the same type of feel to it. It never got traction. So there's always been that trouble of how Origin Green translates down to, to the consumer." (Participant 1, 2020).

Although Participant 1 mentioned above that there are some limitations thus far with the ability for the Origin Green programme to break into the consumer psyche, he did say that it has been very helpful in other aspects and that his organisation have benefited from their involvement with it:

"We were lucky enough to be asked to be a pilot company, so along with five other, four other companies, we were one of five, we were a pilot company for the Origin Green programme. So that would have kick started that really in 2011. And, so to date, I came into the business here in 2015, and I took over that, that portfolio, of the sustainability aspect of the business, and looking after our Origin Green programme and monitoring our steps and our progress. We were the first company in the country to enter into our second year of the Origin Green charter, a five-year programme." (Participant 1, 2020).

Participant 1 went on to describe the amount of work that is involved to be Origin Green approved, and how difficult it is to continuously improve year on year, in an industry that is very much predicated on weather conditions to achieve its product:

"Yeah, there will be a lot of, disillusionment with the Origin Green, it's a huge amount of work and, and you know, I look after the programme here, but that's my job, I can just imagine growers who are trying to manage staff, who are trying to get orders out, who are trying to be sitting down and to be organising sustainability studies and it's a very difficult process. But it's a demand now that it's nearly like the new norm, I suppose, five, six, seven years ago, Origin Green was quite a status, to be an Origin Green company, but there's a lot of companies now are Origin Green. They've filtered down right to quite small companies, and I think the impact of it has kind of gone a little bit. Then we will on a dry year, so, I have to explain all that when it comes to our Origin Green. Another good example was 2018 when we had that two-month heat wave. We had a spike in our energy use here because we're keeping potatoes in fridges over the summer to use this

time of the year, July, and August. But we had 4 fridges here running flat out when it was 26, 28, 30 degrees outside, trying to keep fridges down to 4 degrees inside, so our energy use spiked at that time. And I again had to explain that. There's a lot of environmental aspects can impact on, on our sustainability goals.” (Participant 1, 2020).

In contrast to some of the points that Participant 1 made, Participant 2 was mostly supportive of the Origin Green programme and its ability to create the best in class in fresh produce:

“Origin Green is our umbrella, we were actually one of the first, in Bord Bia to be registered. Origin Green are absolutely our anchor team, they're absolutely doing amazing work. In the promotion of our industry and what they're doing for wholesome food, people aren't really aware of the effort that goes in. And everybody, for their shopping should be looking for the Bord Bia logo - Quality Assured. That's what you should be always looking for. Because once it's Bord Bia, you can rest assured, the people that producing it, are of the highest level. That's our experience now. And you see the Origin Green is constantly improving every year. You use, say, 200,000 gallons of water last year, they'll expect you to reduce on that this year. That's what it's all about. And we've a Bord Bia audit every year, which is really strict. And you'd have around 400 questions in that audit.” (Participant 2 2020).

Participant 5 in his current role as an Origin Green Ambassador for Bord Bia outlined his role for Bord Bia currently and what it is about:

“It's just kind of an umbrella for all the standards to go under, like you have the beef standard, the lamb standards, egg, horticulture. It's essentially the marketing of all of them it's selling them to the world. It just shows what happens in Ireland and how robust it is. The biggest strength I think is the amount of auditing and the amount of data, and amount of detail that happens in the standards. I'm an Origin Green ambassador for Bord Bia. I undertake a Master's in Business Sustainability from Smurfit University in Dublin, and as part of this I'm just doing three international placements with leading organizations in the food and drinks industry. It's a two way placement in that I go to (a company) and the Company will receive me as a free resource, and I'm able to bring the knowledge and the work Bord Bia and the Irish industry has done to them, and I also take back to Ireland what's happening in industry and where their strong points are.” (Participant 5, 2020).

Participant 5 then outlined the benefits of being Origin Green approved in terms of overseas exports for the likes of growers:

“What happens is if you're trying to sell it to France. If you're selling something under accreditation and it passed the first 2 tests and then it fails one, then you know nobody will look at you on the global scale anymore. So, you need something that's robust, that

will stand up to scrutiny. That's why Ireland is just now getting into so many global markets because it's our food is very transparent, it's very safe, and stable.” (Participant 5, 2020).

Although the literature on Origin Green is limited all of the above from the participants regarding Origin Green do link back to the overall reason for Bord Bia's implementation of it. As Bord Bia (2020) outline one of the main ambitions is to development sustainability in the food and drink sector through Origin Green at a national level including producers, processors and retailers. However, there is some negative elements relating to Origin Green from the growers, primarily with the promoting of Origin Green down to a consumer level.

10.3.10 Reputation

Reputation was one element of the research that did come across in an indirect way mostly as it was presented to those interviewed in a subtle manner, it was important to gauge the interviewees interpretation of reputation with regards to sustainability and it was common throughout that they believed it important to be sustainable for their organisations reputation. Participant 1 spoke of how the wind turbine at his organisation seems to create a positive effect on the business and reputation:

“The turbine is a great symbol, it's a great, you don't have to explain to people what a turbine is, it's sticking up there, it's 60 metres tall, it's going around, so people can see it, it's a very visual, but it does a great job, we're, we're lucky enough to be quite elevated here, the site is very elevated to the south, so if you stand here and you look down across at night time you can see all the lights of Dublin. We do get a lot of wind here and we do get good yields from our turbine.” (Participant 1, 2020).

An interesting take on reputation came from Participant 5 as he mentioned hoe restaurants which are largely appearing online as being sustainable are sometimes not as transparent as they could be and largely use sustainability to suit their needs in marketing terms:

“Sustainability in the restaurant industry more people are getting more into it. But there's also a lot of people who are, you need to be careful because is easy let's say, it's easy to say, you're saying you're sustainable and to do things. You'll see restaurants out

there now and there's one in particular and they're very sustainable technically, and then they have a big like 4 litre Jeep with branded on their stuff all over it.” (Participant 5, 2020).

“An awful lot of people are saying they are sustainable now, and their Instagram is sustainable. So, their Instagram and website look sustainable, and that's what awards we get measured on. So, it's great to see it has trend, but there's an awful lot of people who are saying they're doing it, and if you look outside their Instagram or website they don't care.” (Participant 5, 2020).

“People can't just say I'm sustainable and they get a good rating and that's it. You need to look at them and say, no, your emissions are still through the roof, so you need to push even harder. I think if I were to encourage others to innovate, it would be to make it stricter, to push harder on businesses to push to push harder to give more knowledge so that they can grow. Because in the food industry in Ireland there is a lack of knowledge on what to do.” (Participant 5, 2020).

The above statements from Participant 1 and Participant 5 agree with the literature in terms of reputation and it being an intangible asset and it is not often just about monetary elements. (Rindova, Williamson and Petkova, 2010).

10.3.11 Covid 19 Impact

As it was topical and there was genuine difficulty for business in Ireland with the Covid 19 pandemic, the researcher asked how each felt they have managed in their organisation over the past number of months. Participant 3 mentioned that his cider business suffered somewhat but that the apple business was doing well:

“The business, we've got a couple of elements to it, in that we have the drink side of it, which actually died a death, because we were badly placed, it was kind of like musical chairs, we were between distributors when the whole thing came down. So that would have hurt it. But in terms of the farm end of things, even though we were locked into prices that weren't great, demand was huge. Because people were at home, they weren't eating through the food service restaurant sector; our sales doubled. We were as close to capacity as ever we've been, in terms of trying to get the product out. We happen to have a product that seemed to suit COVID, i.e., it was Brambly apple, it was wrapped, so people saw it as quite safe to buy. Then they were going to peel it anyway. And the amount of home baking that went on, as you know, you're hearing this kind of, out and about with the flour guy, not being able to keep up, he couldn't buy yeast anywhere because people were making their own bread. Mothers were teaching kids home baking, people were looking for something to do, they wanted a treat, they wanted a dessert and an apple pie filled the gap.” (Participant 3, 2020).

Although business has been good in terms of demand for product in the shops, Participant 3 went on to mention that all of the restrictions and risk mitigation has an impact on the organisation and the constant threat to employee wellbeing is a challenge:

“So, we benefited from it, in that regard. But now, obviously, our worry is, we’ve a harvest, starting next month, and we’re worried about the people that are coming to do the harvest, because there are no Irish workers to do this harvest and that’s bringing in imported migrant labour.” (Participant 3, 2020).

“So, we had to set up systems now. We have accommodation here for them, which is good, that they don’t actually have to leave. If they get their shopping brought in and so on and so forth, and the facilities are here for them, then they don’t need to leave the premises.” (Participant 3, 2020).

“But we still have to worry about them coming in healthy, remaining healthy whilst they’re here, and accommodation. It’s impossible to negate all risk. It’s a big worry coming in, and my father is still an active part of the business, he’s 81 years of age, I don’t want me to have an interaction with somebody who’s ill, and then pass it to him, so it’s a huge concern. And it’s new, and there’s no controlling all the risk. You have to just take measures. We spent quite a bit of money already on bits and pieces to help this, that’s what you have to do. One of the guys has been with us for maybe 40 years, and he’s kind of looking at me, he’s got diabetes, he’s overweight, he’s in an at risk category, he’s looking at me saying we need to, we need to plan these things out so I don’t get sick.” (Participant 3, 2020).

When speaking to Participant 4 with regards to whether there was much of an impact on his business because of Covid his response was similar to Participant 3:

“Not much no, on the juice side of things, all our shops stopped, and that line of supply is gone, and the pubs that we make cider for are gone too. No but not too bad actually. The demand for fruit was actually up and it put a scare on the supermarkets and its showing that long supply chains are slightly less resilient than short supply chains. And it gave another reason to be interested in Irish supply. My main problem this year was a bit of frost in May which is an occupational hazard for anyone growing apples in Ireland. That would have the potential to cause as much damage as covid.” (Participant 4, 2020).

When speaking to Participant 1 about Covid he was similar in his answer mentioning that business has been doing well with more people at home buying from supermarkets whilst restaurants and the likes were closed. And in addition to this, there has been a lot of additional measures to mitigate risks which cost time and money to enable:

“We had a good year; sales are definitely up. You’re purchasing everything through the supermarkets to consume at home, so we would have seen a huge jump in sales, from Paddy’s Day, right the way through until the end of May. Real significant jump in sales, and it was a good time, but we’ve a huge cost incurred in the business then as well, when we had to implement all these protocols, and extra security, really. Probably everything we’ve known as normal is turned upside-down. So, you’re trying to manage staff in pods, you’re trying to manage canteen times. Extra cleaning staff, there’s been huge turmoil I suppose, in the business. But it’s been good, touch wood we’ve had no issues, we’ve had no cases in, on our site, we’ve plus 350 people working on the site and we’ve had no cases.” (Participant 1, 2020).

When talking to the Participant 2’s regarding the impact that Covid 19 has had on their business, similar to the other participants they have said that sales have improved with the changing conditions:

“Last year then was a huge success, and this year because of COVID we said now we had it ordered again (the open punnet), and we felt because it was an open punnet, is this going to sell now, because of COVID, and it’s absolutely the reverse it’s gone through the roof again.” (Participant 2, 2020).

10.4 Conclusion

To conclude this chapter, the findings were deemed very informative and provided great detail and contrast from one interview to the next. There were very clear themes that were developed from the research and some common points that were made by those interviewed provided new and engaging information whilst other themes and thoughts did concur with the existing literature. A discussion of the findings will further examine the overall topic question in the next chapter.

11 Discussion of the Findings

11.1 Introduction

The research was designed to ascertain if being sustainable in fresh produce was creating a competitive advantage. In order to determine this a number of interviews of those in industry were carried out. These interviews allowed for fuller understanding of the idea of sustainability and the elements involved within that sphere. The purpose of this chapter is to look at the similarities and differences between the participants that were outlined in the previous chapter and discuss their meaning and relevance and provide conclusions.

11.2 Discussion

From the interviews conducted there is evidence to suggest that all those that participated are very much interested in sustainability in their field. The key element of competitive advantage is mentioned by the participants and it is linked to what each of them do in their own right. Similar to the literature there is a sense that the competitive advantage is sometimes difficult to see or acknowledge and that sustainability is very much in its infancy. To that end the participants believe that the sustainability is creating an advantage, but it is not yet fully fulfilled. Time will tell in this regard.

With regards to sustainability in general, the researcher found the methods and processes to be firmly impressive in their nature with many using substantial amounts of technology and with others providing more natural solutions. These methods such as creating natural habitats and solving more holistic issues such as carbon drains are interesting and informative. It was difficult to find much literature that drilled down into the detail that was found through this research. As each participant responded, it was clear that there is an element of the smaller growers and farmers finding it more difficult to implement sustainability as their margins are so much finer. However, the larger companies are having difficulty too with achieving improvements year on year as they find it more difficult to find more ways to be sustainable.

The challenges Covid 19 has created for the industry was very relevant and presented the nature of the fresh produce industry and the willingness to adapt to the surrounds and problem solve. Many of the participants did say that their business has benefited this year due to the pandemic and the change of consumer needs due to government restrictions and this element was informative and showcased the adaptability of the industry to any challenges that may present themselves.

11.3 Conclusion

The objective of the dissertation was to find information on whether sustainability can help create a competitive advantage for those in the fresh produce industry. Essentially the evidence suggests that it does, either directly or indirectly. Ultimately sustainability does create positivity and it has shown from the research that it does impact on consumers and reputation which are major elements that contribute to competitive advantage.

From the evidence there appears to be a consensus that consumers are interested in sustainability and the environment and do want to make their purchases with concern to the environment. This is however skewed by the participants viewpoint which is very much from the producer side of things and there is definitely a lack of knowledge from the consumer according to the grower, of the real complexity of the supply chains and this can lead to misinformation.

The research does show that there are difficulties with implementing sustainability in the industry, particularly for smaller industry, with some making a trade off in financial terms to make a more sustainable product. Some of the main sustainably initiatives are the reduction of power, waste and heating on their farms and the use of solar panels and any electricity coming from sustainable sources. Every one of the participants had implemented some sustainability measure whether big or small.

12 Concluding Thoughts on the Research

12.1 Contributions & Limitations to the Research

The research itself did look at the fresh produce sector in Ireland but early on in the study it was realised that the study had to either focus in on a particular element or get a small amount of information from a broad spectrum of persons involved in the industry. This was also predicated on the participation of various industry people that were written to. It happened that the most accessible organisations were growers and farmers, and this led to the research being focused on that particular element of the industry. To that end, there is limitations to the research in that regard with many other elements of the supply chain that were not covered in the research.

12.2 Recommendations for Future Research

Future research on this topic is recommended. The main focus on the research would be to include other elements of the supply chain in the fresh produce industry in Ireland from processing, to production, retailers and consumers to gain a full understanding on their interpretation on competitive advantage and its relation to sustainability in this sector.

Perhaps some of this research could be quantitative in its nature, especially with relation to the consumers elements but it is suggested that similar research to this dissertation would be beneficial for improving knowledge of sustainability methods that are used in the industry and the various challenges and opportunities that are presenting themselves to each part of the fresh produce supply chain.

12.3 Final Conclusions and Reflections

The research was important in terms of fulfilling the research objectives. With that the final chapter outlines the benefits of this research and the limitations also. The researcher recommended additional research in the industry and that particular focus is applied to gaining a full picture of the industry.

From this process, the researcher has learned that not only is sustainability in the fresh produce industry beneficial and integral to the environment, it has also appeared to become somewhat of a prerequisite as all the participants have implemented it in some form. Through sustainability a competitive advantage can be achieved but as sustainability becomes the new normal, it is possible that the competitive advantage may be lost without perpetual continuous improvement and innovation.

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14 Appendices

14.1 Appendix A – Coding Process

Overview of the coding table. Breakdown of the table in the below pages.

Themes	Code	Participants Quotes Relating to Theme				
		EM	JH	SM	NC	C&E
Sustainability	1			He is self-educated in sustainability, he reads a lot, he's very educated and he had he keeps everything really simple		
Habitats & environment	2	Creating habitats so you could kind of look at the orchard as a bit of an ecology or a habitat rather than a crop	Crops, the oilseed rape, and the hedges and the brambles, we'd also have a very active hedgerow management plan, we try and keep the hedgerows, we keep areas of the farm wild, that allow for habitats			It's very important to protect nature and the environment.
Packaging	4				Most of our packaging on the cider front it's glass, everything's recyclable, cardboard boxes, glass bottles, and caps, paper labels. We don't use PVC	We tried the compostable punnet last year, where you could seal it, but the problem was, when that went into the supermarkets, the sales dropped, because the people couldn't see the fruit.
Energy, Heat, Power	5	Let let's say we run cold stores with sub solar PV panels now, this supplements the power coming from the grid.	The turbine is giving us roughly around 40% of our annual usage. Is created through the turbine. But we can say that we're a 100% green energy business, from our own turbine and plus what we're sourcing.		But there are those differentiators, in that the people who have run their businesses efficiently and have made a few quid, can actually afford to put those kind of systems in, which will make them more efficient, which will make them more sustainable into the future.	80% of our power today is being generated by solar panels.
Waste	6		We would say the same ourselves because you are recovering the energy of the produce is being recovered into the, in the animal as is, they produce milk or meat, you know, so it's really not a waste as such, so we would be very, what we would consider, a zero-waste business.	They only produce it gets, and he, the waste, he'll try and ferment it into sauces if he can. But then, you have to go to compost and then the normal brown bin, that's just meat that's been cooked off people's plates cause it can attract rats. Anything else just goes back to the farm.		
Water	7					All the water is all drip fed into the root, so then any runoff that comes from that is collected. And even at night, we pump a lot of our water, into the reservoir, with the cheap electricity, to save energy and save costs.
Competitive Advantage	8	We don't really compete with each other because we have such a small a share of the marketplace. We wouldn't consider ourselves competitors with other apple growers within the country. We do compete, but it doesn't really feel like that, we are more together than we are apart.	It's very difficult to say whether there's a commercial advantage, or a commercial benefit to being either Bord Bia approved or Origin Green approved, what Bord Bia will do, it is quite a standard	His big competitive advantage and why he does well is, Leaf is a Michelin star restaurant first, and then it's sustainable second. You can open a restaurant like Leaf and charge 100 euro and it's really sustainable but if it tastes terrible no one will come back. So the owners unique selling point is that he's got a brilliant taste in food, it's the best food and that he is sustainable, that's his unique selling point that's why people eat there.	So, are we more competitive in some ways? I would say yes because insecticides for example, in an orchard of our scale, they could easily throw 5, 10 thousand onto an annual bill, we're saving that.	Without it we would go out of business. It's absolutely essential, you'd be going nowhere. In the area of growth and development, and meeting consumer needs, it's vital. You have to be up there at the best.
Consumers	9	Most people haven't got a concept of what's involved in the food supply chain. It's an extremely difficult job to try and communicate that to people, so in general they feel closer is better, and further is worse. And that's I suppose in general, true, but there's a lot of nuance in that that can't be explained by that general look.	The changes that we saw, maybe, in the late eighties, in the way food, in the way potatoes were being sold. There was another change happening in the late nineties, where people now were consuming food in a different way again, where they wanted to be more in the prepared meals, so they wanted to go in and buy semi-prepared meals or prepared maybe ingredients of a meal.	People, want new things, people watch, people are curious, so when you stand out like that for good, it always benefits if you do it well.	So, the consumer is fickle. And, we do predominantly brambly apples, cooking apple, and we also have some eating apples, dessert apples. If you look at the highest selling dessert apple in the country, it isn't grown here. So, if the consumer likes it, Pink Lady, for example, then that's it, they'll go for it.	The consumer is getting very assertive around, looking after the environment and sustainability and the planet, and all of that as we all know, for us to feature, as being a company of, with integrity, it's just a basic component of what we need to do.
Origin Green	10		Origin Green is very much B to B, so, it's not consumer facing. That makes sense, so, lots of people wouldn't, lots of consumers wouldn't even know what Origin Green is, they wouldn't know what it stands for, they wouldn't know what businesses are approved Origin Green companies, what they do any different to another, so. It's one of the downfalls really of the Origin Green piece, is that it never really translated through to the consumer.	It's just kind of an umbrella for all the standards to go under, like you have the beef standard, the lamb standards, egg, horticulture. It's essentially the marketing of all of them it's selling them to the world. It just shows what happens in Ireland and how robust it is. The biggest strength I think is the amount of auditing and the amount of data, and amount of detail that happens in the standards.		Origin Green is our umbrella, we were actually one of the first, in Bord Bia to be registered. Origin Green are absolutely our anchor team, they're absolutely doing amazing work. In the promotion of our industry and what they're doing for wholesome food, people aren't really aware of the effort that goes in. And everybody, for their shopping should be looking for the Bord Bia logo - Quality Assured.
Reputation	11		The turbine is a great symbol, it's a great, you don't have to explain to people what a turbine is, it's sticking up there, it's 60 metres tall, it's going around, so people can see it, it's a very visual, but it does a great job, we're, we're lucky enough to be quite elevated here, the site is very elevated to the south, so if you stand here and you look down across at night time you can see all the lights of Dublin.	An awful lot of people are saying they are sustainable now, and their Instagram is sustainable. So, their Instagram and website look sustainable, and that's what awards we get measured on. So, it's great to see it has trend, but there's an awful lot of people who are saying they're doing it, and if you look outside their Instagram or website they don't care.		
Covid 19 Impact	12	Not much no, on the juice side of things, all our shops stopped, and that line of supply is gone, and the pubs that we make cider for are gone too. No but not too bad actually. The demand for fruit was actually up and it put a scare on the supermarkets and its showing that long supply chains are slightly less resilient than short supply chains.	We had a good year, sales are definitely up. You're purchasing everything through the supermarkets to consume at home, so yeah we would have seen a huge jump in sales, from Paddy's Day, right the way through till the end of May. Real significant jump in sales, and it was a good time, but, we've a huge cost incurred in the business then as well, when we had to implement all these protocols, and extra security, really.	Last year then was a huge success, and this year because of COVID we said now we had it ordered again (the open punnet), and we felt because it was an open punnet, is this going to sell now, because of COVID, and it's absolutely the reverse it's gone through the roof again.	We were as close to capacity as ever we've been, in terms of trying to get the product out. We happen to have a product that seemed to suit COVID, i.e., it was Brambly apple, it was wrapped, so people saw it as quite safe to buy.	

		Participants Quotes Relating to Theme				
Themes	Code	Participant 4	Participant 1	Participant 5	Participant 3	Participant 2
Sustainability	1			<i>He is self-educated in sustainability, he reads a lot, he's very educated and he had he keeps everything really simple</i>		
Habitats & environment	2	<i>Creating habitats so you could kind of look at the orchard as a bit of an ecology or a habitat rather than a crop</i>	<i>Crops, the oilseed rape, and the hedges and the brambles, we'd also have a very active hedgerow management plan, we try and keep the hedgerows, we keep areas of the farm wild, that allow for habitats</i>			<i>It's very important to protect nature and the environment.</i>
Packaging	4				<i>Most of our packaging on the cider front it's glass, everything's recyclable, cardboard boxes, glass bottles, and caps, paper labels. We don't use PVC</i>	<i>We tried the compostable punnet last year, where you could seal it, but the problem was, when that went into the supermarkets, the sales dropped, because the people couldn't see the fruit.</i>
Energy, Heat, Power	5	<i>Let let's say we run cold stores with sub solar PV panels now, this supplements the power coming from the grid.</i>	<i>The turbine is giving us roughly around 40% of our annual usage. Is created through the turbine. But we can say that we're a 100% green energy business, from our own turbine and plus what we're sourcing.</i>		<i>But there are those differentiators, in that the people who have run their businesses efficiently and have made a few quid, can actually afford to put those kind of systems in, which will make them more efficient, which will make them more</i>	<i>80% of our power today is being generated by solar panels.</i>

					sustainable into the future.	
Waste	6		<i>We would say the same ourselves because you are recovering the energy of the produce is being recovered into the, in the animal as is, they produce milk or meat, you know, so it's really not a waste as such, so we would be very, what we would consider, a zero-waste business.</i>	<i>They only produce it gets, and he, the waste, he'll try and ferment it into sauces if he can. But then, you have to go to compost and then the normal brown bin, that's just meat that's been cooked off people's plates cause it can attract rats. Anything else just goes back to the farm.</i>		
Water	7				<i>All the water is all drip fed into the root, so then any runoff that comes from that is collected. And even at night, we pump a lot of our water, into the reservoir, with the cheap electricity, to save energy and save costs.</i>	
Competitive Advantage	8	<i>We don't really compete with each other because we have such a small a share of the marketplace. We wouldn't consider ourselves competitors with other apple growers within the country. We do compete, but it doesn't really feel like that, we are more together than we are apart.</i>	<i>It's very difficult to say whether there's a commercial advantage, or a commercial benefit to being either Bord Bia approved or Origin Green approved, what Bord Bia will do, it is quite a standard</i>	<i>His big competitive advantage and why he does well is, The restaurant is a Michelin star restaurant first, and then it's sustainable second. You can open a restaurant like My restaurant and charge 100 euro and it's really sustainable but if it tastes terrible no one will come back. So the owners unique selling point is that</i>	<i>So, are we more competitive in some ways? I would say yes because insecticides for example, in an orchard of our scale, they could easily throw 5, 10 thousand onto an annual bill, we're saving that.</i>	<i>Without it we would go out of business. It's absolutely essential, you'd be going nowhere. In the area of growth and development, and meeting consumer needs, it's vital. You have to be up there at the best.</i>

				<p>he's got a brilliant taste in food, it's the best food and that he is sustainable, that's his unique selling point that's why people eat there.</p>	
Consumers	9	<p>Most people haven't got a concept of what's involved in the food supply chain. It's an extremely difficult job to try and communicate that to people, so in general they feel closer is better, and further is worse. And that's I suppose in general, true, but there's a lot of nuance in that that can't be explained by that general look.</p>	<p>The changes that we saw, maybe, in the late eighties, in the way food, in the way potatoes were being sold. There was another change happening in the late nineties, where people now were consuming food in a different way again, where they wanted to be more in the prepared meals, so they wanted to go in and buy semi-prepared meals or prepared maybe ingredients of a meal.</p>	<p>People, want new things, people watch, people are curious, so when you stand out like that for good, it always benefits if you do it well.</p>	<p>So, the consumer is fickle. And, we do predominantly bramby apples, cooking apple, and we also have some eating apples, dessert apples. If you look at the highest selling dessert apple in the country, it isn't grown here. So, if the consumer likes it, Pink Lady, for example, then that's it, they'll go for it.</p>
Origin Green	10		<p>Origin Green is very much B to B, so, it's not consumer facing. That makes sense, so, lots of people wouldn't, lots of consumers wouldn't even know what Origin Green is, they wouldn't know what it stands for, they wouldn't know what businesses are approved Origin Green companies, what they do any different</p>	<p>It's just kind of an umbrella for all the standards to go under, like you have the beef standard, the lamb standards, egg, horticulture. It's essentially the marketing of all of them it's selling them to the world. It just shows what happens in Ireland and how robust it is. The biggest strength I think is the amount of</p>	<p>Origin Green is our umbrella, we were actually one of the first, in Bord Bia to be registered. Origin Green are absolutely our anchor team, they're absolutely doing amazing work. In the promotion of our industry and what they're doing for wholesome food, people aren't really aware of the effort that goes in. And everybody, for their shopping should be looking for the Bord Bia logo - Quality Assured.</p>

			<i>to another, so. It's one of the downfalls really of the Origin Green piece, is that it never really translated through to the consumer.</i>	<i>auditing and the amount of data, and amount of detail that happens in the standards.</i>	
Reputation	11		<i>The turbine is a great symbol, it's a great, you don't have to explain to people what a turbine is, it's sticking up there, it's 60 metres tall, it's going around, so people can see it, it's a very visual, but it does a great job, we're, we're lucky enough to be quite elevated here, the site is very elevated to the south, so if you stand here and you look down across at night time you can see all the lights of Dublin.</i>	<i>An awful lot of people are saying they are sustainable now, and their Instagram is sustainable. So, their Instagram and website look sustainable, and that's what awards we get measured on. So, it's great to see it has trend, but there's an awful lot of people who are saying they're doing it, and if you look outside their Instagram or website they don't care.</i>	
Covid 19 Impact	12	<i>Not much no, on the juice side of things, all our shops stopped, and that line of supply is gone, and the pubs that we make cider for are gone too. No but not too bad actually. The demand for fruit was actually up and it put a scare on the supermarkets and its showing that long supply chains are slightly less resilient than short supply chains.</i>	<i>We had a good year, sales are definitely up. You're purchasing everything through the supermarkets to consume at home, so yeah we would have seen a huge jump in sales, from Paddy's Day, right the way through til the end of May. Real significant jump in sales, and it was a good time, but, we've a huge cost incurred in the business then as well,</i>	<i>Last year then was a huge success, and this year because of COVID we said now we had it ordered again (the open punnet), and we felt because it was an open punnet, is this going to sell now, because of COVID, and it's absolutely the reverse it's gone through the roof again.</i>	<i>We were as close to capacity as ever we've been, in terms of trying to get the product out. We happen to have a product that seemed to suit COVID, i.e., it was Brambly apple, it was wrapped, so people saw it as quite safe to buy.</i>

when we had to implement all these protocols, and extra security, really.

The below table outlines the frequency which each theme was mentioned overall by all participants. Note: synonyms are also considered when associating a theme.

Thematic Frequency Table

	Frequency of theme					
Theme	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5	Total per Theme
Sustainability	9	3	9	4	23	48
Habitats & Environment	4	6	3	5	0	18
Packaging	19	12	11	0	0	42
Energy, Heat, Power	11	7	3	7	1	29
Waste	5	1	1	0	3	10
Water	6	8	2	2	0	18
Competitive Advantage	2	1	3	3	6	15
Consumers	2	4	11	2	2	21
Origin Green	21	5	0	0	3	29
Reputation	1	0	2	0	2	5
Covid 19 Impact	1	2	1	2	0	6
Total per Participant	81	49	46	25	40	

