

**Circular Economy and Supply Chain Sustainability- Drivers,  
Challenges and Progress of implementation in Irish SMEs**

Research dissertation presented in partial fulfilment of the requirements  
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**MSc in International Procurement and Supply Management**

Griffith College Dublin

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**Date of submission 11<sup>th</sup> September 2020**

## **Candidate Declaration**

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I certify that the dissertation entitled: Circular Economy and Supply Chain Sustainability- Drivers, Challenges and Progress of implementation in Irish SMEs

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

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## **Dedication**

For my loving mother who is always an inspiration for me.

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## **Abstract**

Sustainability and Circular Economy is one of the most favoured and among the most researched topic in academic circles and in non-academic context by governmental as well as non-governmental organisations, private corporation and by independent non-affiliated associations. This researched is intended to explore the challenges faced by the Irish SMEs in implementing sustainability and circular economy principles, evaluate the various drivers or enablers of sustainability and circular economy, and analyse its progress in their companies and supply chain. The theoretical background of the study is developed through and extensive literature review of the basic principles of these concepts as well as related concepts in terms of procurement and supply chain. To gain valuable insights and subjective knowledge about the implication of these concepts with respect to the Irish SMEs and their supply chain, data was collected by means of semi-structured interviews from a sample population seven participants from diverse background in relation to Irish SMEs. These interviews consisted of a combination of open ended, closed, and specific questions. The finding of this research illuminates how the drivers of sustainability and circular economy manifest itself in Irish SMEs and challenges faced by these enterprises in progressing towards a circular economy model or implementing sustainability. While drivers of sustainability have limited positive impact on the SMEs and their efforts to be sustainable, the challenges are at plenty and multidimensional, increasing the exposure risk of the SMEs. Being the single largest type of enterprise dominating the Irish business economy, employing the largest work force composition and accounting for half of the total Irish business turnover, the results of the study has far reaching ramifications and opens multiple avenues for further research.

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## List of Abbreviations

<b>3PL</b>	Third Party Logistics
<b>BoM</b>	Bill of Materials
<b>CE</b>	Circular Economy
<b>CEP</b>	Circular Economy Parks
<b>CSFs</b>	Critical Success Factor
<b>CSO</b>	Central Statistical Office
<b>CSP</b>	Community-centred Social Performance
<b>EIP</b>	Eco-Industrial Parks
<b>EMF</b>	Ellen MacArthur Foundation
<b>EMP</b>	Environmental Management Practices
<b>EMS</b>	Environmental Management System
<b>EOl</b>	End of Life
<b>EPR</b>	Environmental Performance
<b>ERP</b>	Enterprise Resource Planning
<b>ESP</b>	Employee-centred Social Performance
<b>ETS</b>	Emission Trading System
<b>FSC</b>	Forest Stewardship Council
<b>GLPs</b>	Green Logistics Practices
<b>GSC</b>	Green Supply Chain
<b>IBL</b>	Inbound Logistics
<b>ISME</b>	Irish Small and Medium Enterprises Association
<b>JIT</b>	Just In Time
<b>LCA</b>	Life Cycle Assessment
<b>LCC</b>	Life Cycle Cost
<b>LSPs</b>	Logistics Service Providers
<b>MRP</b>	Material Requirements Planning
<b>MRP II</b>	Manufacturing Resource Planning
<b>ODM</b>	Original Designing and Manufacturer
<b>OEM</b>	Original Equipment Manufacturer
<b>OP</b>	Operations Practices
<b>OPR</b>	Operations Performance
<b>SCI</b>	Supply Chain Integration
<b>SEAI</b>	Sustainable Energy Authority of Ireland
<b>SME</b>	Small and Medium Enterprises
<b>SP</b>	Sustainable Procurement
<b>SPC</b>	Socially inclusive Practices for Community
<b>SPE</b>	Socially inclusive Practices for Employees
<b>SSCM</b>	Sustainable Supply Chain Management
<b>TAT</b>	Turnaround Time
<b>TPM</b>	Total Productive Maintenance
<b>WEEE</b>	Waste of electrical and electronic equipment

# 1 Introduction

## 1.1 Overview

Over the years Circular economy and sustainability has gained considerable international attention from various domains ranging from Governments, environmental activists, corporate business to consumers and customers. This is driven primarily by the realisation that the rapid growth in demand coupled with the challenges for supply of resources has forced the natural world towards a tipping point (Weetman,2017). Many philosophers and scientists have warned about the dangers of irresponsible and mindless consumption of resources and dumping of waste products. Numerous scientific studies across the globe have also corroborated the same. The World commission on Environment and Development noted in its 1987 report “Many present efforts to guard and maintain human progress, to meet human needs, and to realize human ambitions are simply unsustainable - in both the rich and poor nations. They draw too heavily, too quickly, on already overdrawn environmental resource accounts to be affordable far into the future without bankrupting those accounts. They may show profit on the balance sheets of our generation, but our children will inherit the losses. We borrow environmental capital from future generations with no intention or prospect of repaying. They may damn us for our spendthrift ways, but they can never collect on our debt to them” (World Commission on Environment & Development, 1987, p.16). Environmental issues (created as a result of widespread exploitation from the linear economy model) are considered to be the top 5 risk in terms of likelihood and 3 among them are reflected among the top 5 risk in terms of impact in the recently published ‘Global Risk Report 2020’ by World Economic Forum (WEF, 2020). This report could be considered as one of the latest among a plethora of scientific reports over the past decades warning people about the impending danger. These overwhelming evidences has prompted various organisations and enterprises to adopt the famous ‘Triple Bottom Line’ framework (Profit, People and Planet).

In a circular economy, sustainability should be designed on to the product thereby increasing and sustaining value until the end of life after when they could be introduced back into the production cycle either in the same industry or another. (Szuster, 2015, p.58) explains that “sustainability refers to the integration of environmental, social and

economic responsibilities of the business”. Thus, to adopt a truly circular economy model, the supply chain must be not only sustainable, but also essentially ‘green’ from ‘cradle to cradle’. In this context, this paper aims to qualitatively study the main drivers(enablers), challenges experienced by Irish SMEs in implementing or adopting a circular economy model for supply chain sustainability and to analyse its progress.

## **1.2 Research Purpose**

In 2015 the EU commission adopted a Circular Economy Action Plan and the implementation report published in 2019 concludes that the same has “accelerated the transition towards a circular economy in Europe”(EU Commission, 2019,p.11). A survey conducted by TNS political and social as per the request of the European commission in 2017 titled ‘*Flash Eurobarometer 456 : SMEs, resource efficiency and green markets*’ (European Commission, 2018) has provided some interesting insights across EU. Even though a considerable share of SMEs in EU are taking actions (which differ from sector to sector and country to country) to be more resource efficient, they are generally less likely to do so than large companies and are most likely to say that they did not encounter any difficulties while implementing resource efficiency actions, when there are a lot of difficulties and challenges encountered. These difficulties include complexity of administrative or legal procedures, cost of environmental actions, difficulty in adapting legislation to the company, lack of specific environmental expertise, technical requirement of the legislation not being up to date, difficulty in choosing the right resource efficiency actions for the company, lack of demand for resource efficient products or services, lack of supply of required materials parts and services. In addition, investment in resource efficiency is low in general with majority investing only a small percentage of its turnover and only 41% of the SMEs believed that resource efficiency actions resulted in decreased production cost. Furthermore, SMEs generally rely on their own resources and expertise to implement resource efficiency actions and among those who take external support (22%),47% claim to have taken advice or non-financial assistance from private firms. It was also observed that majority of the SMEs neither offer green products or services nor have plans to do so.

In the light of the above facts, it could be inferred that the despite the action plan and initiatives provided by EU, Irish SMEs have not been able to respond much enthusiastically. The purpose of this research is to explore the challenges faced by the

Irish SMEs in implementing sustainability and circular economy principles, evaluate the various drivers or enablers of sustainability and circular economy, and analyse its progress in their companies and supply chain.

### **1.3 Significance of the Study**

SMEs are defined as enterprises with less than 250 persons engaged and they play an important role in the Irish economy by constituting a major share of 99.7% in terms of enterprise composition, engaging about 67.9% of the total number of persons engaged by Irish Enterprise and 50.2% of the total turnover share in Irish business (Central Statistics Office, 2012a). The responses to the survey questions of Flash Eurobarometer (European Commission, 2018) mentioned in its fact sheet for Ireland also reveals that the actions undertaken by SMEs in Ireland for resource efficiency are not focussed on certain aspects like design, selling of scrap to other companies and using renewable sources of energy and most companies claim that the resource efficiency actions undertaken have either increased production cost or have no impact in the production cost. In addition, it also reveals that the SMEs in Ireland are reluctant to invest heavily in resource efficiency and majority of them neither offer nor plan to offer green products or services.

In 2018, Sustainable Energy Authority of Ireland (SEAI) published 'ENERGY-RELATED CO<sub>2</sub> EMISSIONS IN IRELAND' (Sustainable Energy Authority of Ireland, 2018) which noted that the main drivers of CO<sub>2</sub> emission are Economic growth, lower energy prices, increased transport demand, use of peat and coal for electricity and heat production whereas the enablers for a sustainable emission practise are increased renewables for electricity, heat and transport, more efficient vehicles including electric vehicles, more efficient home and businesses. It also observed that 39% of the greenhouse gas emissions in 2017 were non-ETS emissions which includes SMEs and micro enterprises.

“Any company or body within the EU that emits a large amount of greenhouse gas emissions is included in the Emissions Trading System (ETS). This includes large industries, electricity generators, and the aviation industry. The ETS ensures that all these companies will collectively reduce their emissions by 21% by 2020 compared to 2005. All greenhouse gas emissions that are not from companies in the ETS are called non-ETS emissions. Non-ETS emissions include greenhouse gas emissions from homes,

cars, small businesses and agriculture. These are often collectively called the non-ETS sector. Non-ETS emissions are important because each country in the EU has mandatory targets to reduce these emissions in 2020 and 2030. Ireland's target for 2020 is for non-ETS emissions to be 20% lower than they were in 2005.”(SEAI, no date)

This study delves deep into the subjective areas of circular economy and sustainability in Irish SMEs beyond the statistical discoveries of the above-mentioned reports and extract more information and insights on their approach towards sustainability as well as circular economy principles. This would enable them to qualitatively identify the drivers, barriers of the same and to gauge progress. Since the definition of sustainability and the circular economy principles adopted differs according to the types of activities carried out by a company and the vision of its stakeholders, the conclusions of this study enables these SMEs to envision better strategies to boost their sustainability initiatives utilizing the various driving factors. Moreover, the conclusions regarding the challenges provide these organisations with an understanding to develop various capabilities, tools or opportunity to make policy changes to counter them or work around them to avoid any significant disruptions in progress towards a circular economy.

#### **1.4 Research Objective**

As stated in the preceding sections, the aim of the research is to explore the challenges faced by the Irish SMEs in implementing sustainability and circular economy principles, evaluate the various drivers or enablers of sustainability and circular economy, and analyse its progress in their companies and supply chain. The research objectives and questions which directly corresponds to this aim are depicted below in table 1

SI No	Research Objectives	Research Questions
1	To evaluate the most significant drivers of sustainability and circular economy in Irish SMEs	<ul style="list-style-type: none"> <li>a) What are the major drivers of sustainability and circular economy in Irish SMEs?</li> <li>b) Does these drivers works in harmony reinforcing each other or cause discord?</li> <li>c) Are SMEs focussing only on certain specific drivers and lethargic towards others?</li> </ul>
2	To explore the challenges faced by Irish SMEs in implementing sustainability and circular economy principles	<ul style="list-style-type: none"> <li>a) What are the main challenges faced by Irish SMEs in implementing sustainability and circular economy principles in their organisations?</li> <li>b) What actions are being taken to counter these challenges by the SMEs?</li> <li>c) Why are Irish SMEs reluctant to invest heavily in resource efficiency or circular economy solutions?</li> <li>d) Why majority of SMEs neither offer nor plan to offer green products and services?</li> <li>e) Why majority of SMEs claim that the resource efficiency measures taken by them have either increased production cost or have no impact on the production cost?</li> </ul>
3	To analyse and describe the progress made my SMEs in implementing sustainability and circular economy solutions	<ul style="list-style-type: none"> <li>a) How do SMEs gauge their progress in implementing sustainability and circular economy solutions?</li> <li>b) Do SMEs take initiatives to make sure there is continuous progress towards a circular economy and what all measure do they use?</li> <li>c) How do they take all the stakeholders into confidence for implementing sustainability and circular economy models; what strategies are used?</li> <li>d) How have the recent events like Brexit and the Covid-19 impacted the progress?</li> </ul>

Table 1 Research Objectives and Research Questions

## 1.5 Methodology

Since the topic of research is subjective in nature and varies according to different perspectives, the methodology adopted is tailor made to suit the purpose of the research. The study acknowledges the philosophy behind the old saying that “*what’s normal for the spider is chaos for the fly*” thereby avoids projection of popular assumptions about reality and accommodates the diversity of views. Thus, a more naturalistic approach is incorporated into the research design.

As such, a mono-method qualitative approach is taken for primary data collection by means of semi-structured interviews from a sample of seven participants. Semi-structured interviews minimise the probability of bias this researcher may have in his

mind from creeping into the questionnaires of a structured interview, enabling the participants to answer honestly. Moreover, a semi-structured interview also avoids the danger of wandering off topic as might happen with an unstructured interview. Secondary data is collected through a review of contemporary literature in the subjects which provides a direction through the conceptual framework developed.

More details regarding the methodologies and strategies used in the research are described in chapter 3. Furthermore, the chapter also describes in detail about the philosophical aspects of the research and the research strategies followed in addition to the techniques and procedures for data analysis and the ethical concerns regarding the same.

## **1.6 Structure of the Study**

The dissertation is organised into five chapters, each discussing relevant portions of the study from the initial development of topic through arrival at a logical conclusion. The first chapter is intended as an introductory chapter drawing up on the background, purpose and objectives of the research. Moreover, it outlines the significance of the study and its relevance.

The second chapter promulgates the contemporary literature in connection with circular economy and sustainability as well as the drivers, practices and challenges associated with both, which is critical in understanding the subject as well as the research questions. Furthermore, this chapter also develops a conceptual framework that guides and the research process and complements the research objectives and data collection.

The chapter on methodology and research design cast light on the philosophical aspects and influences on the research as well as the research strategies, methodological choices, techniques and procedures adopted in collection, compilation and analysis of data. In addition, this section provides justification for each of these approaches and significance in understanding the reality.

The fourth chapter presents the findings of the research and discusses the same in depth. These findings and their critical evaluations are intended to critically establish the

validity and reliability of these results based on the literature as well as the research design aspects laid forth in chapter 3 and chapter 4.

The final chapter of this research papers draws a set of conclusions from the critical analysis of the findings discussed in chapter 4. Moreover, they also highlight the implications and limitations of this study and opens an arena for future exploration.

## **2 Literature Review**

### **2.1 Overview**

This chapter is intended to provide an introduction to the key principles and concepts of sustainability, circular economy (CE) and green supply chain (GSC). Primarily, the basic principles, framework and concepts of circular economy and green supply chain are explored in section 2.2 and these concepts and frameworks are the basic steppingstones upon which the conceptual framework for research is developed. The similarities between these concepts are discussed with the help of relevant literature in the specified areas and critically analysed.

Section 2.3 discusses how circular economy and sustainability principles relate to each other, through an analysis of how the principles and dimensions of sustainability complement the circular economy practices and enablers. Also, the barriers in progressing towards a circular economy are also discussed.

Section 2.4 explores the various previous studies (including empirical quantitative data-based studies) in sustainability and circular economy conducted in other countries India, UAE, China, Italy, et cetera and in different industries like steel, automobile, meat et cetera and evaluates the conclusions drawn.

### **2.2 Sustainability and Circular Economy**

The meaning of sustainability varies from industry to industry and from department to department and hence it is extremely crucial that there should be a much broader understanding and strategic alignment about the same for all the stakeholders. Geissdoerfer *et al.*(2017) argues that the concept of sustainability is open ended, vague and having a plethora of goals as well as priorities which gets constantly adapted or reframed over time depending on different contexts and the interests of all the stakeholder associated with them. In a broad sense *sustainability* aims at benefiting what constitutes the famous *triple bottom lines* (Jeurissen, 2000; Russo, 2008), the society, the economy and the environment. Carter and Rogers(2008) provides a reference framework for sustainable operations and supply chain management, where

the bottom lines are *economic, social, and environmental*, which are also popularly interpreted as the 3Ps (*profit, people and planet*) or the 3Es (*economic, environment and equity*). Ideally a mutual balance must be kept between the three implying that the best sustainable solutions are to be found at the intersection of these 3 bottom lines. Hence, the responsibilities are not clearly defined and are shared between them making the whole concept highly subjective. Closs *et al.*(2011, p.102) suggests the need for “an integrated framework for conceptualizing sustainability” and arrives at a *4-dimensional* conceptualisation which visualises these 4 dimensions as *Environment, Education, Ethics and Economic* with each one of them depicted as consisting of various number of *sustainability categories and sub-categories* (refer table 2).

<b>4 Dimensions Of Sustainability</b>	<b>Environmental</b>	<b>Conservation</b>			<b>Usage Reduction</b>			<b>Business Practices</b>		
		Energy	Water	Nature	Waste / Recycling	Green House Gasses, Safe Disposal of waste	End of Life(EoL) Management	Packaging	Facility Construction	Sustainable Sourcing
		<b>Employee Relations</b>			<b>Talent Development</b>			<b>Business Practices</b>		
	<b>Education</b>	Workplace Safety	Work Life Balance	Healthy Lifestyle	Diversity & Inclusion	Training		Supplier Training	Business Continuity	Sustainable Workforce
		<b>Employee Relations</b>			<b>Community Involvement</b>			<b>Business Practices</b>		
	<b>Ethics</b>	Code of Conduct	Volunteerism		Avoiding Child/Forced Labour	Disaster Relief	Reducing Hunger, Poverty and Disease	Product Safety	Responsible Marketing	Product Traceability
		<b>Internal Management</b>			<b>Governance</b>			<b>External Management</b>		
	<b>Economic</b>	Strategic Sourcing	Continuous Improvement	Transportation Optimization	Government Regulations	Economic Realities	Infrastructure	Supplier Management	Market Related	Clients & Partners

Table 2 Sustainability Categories within the 4 dimensions adapted and modified from Closs *et al.*(2011, p.113)

Table 2 adapted and modified from Closs *et al.*(2011,p.113) shows the sustainability categories which constitute the *environmental, educational, ethical and economic*

dimensions. Each one of these categories and sub-categories corresponds to the varied definitions of sustainability according to the different functions involved in the value chain and supply chain. Thus the Ethical and Educational dimensions could be considered as an interpretation of the social aspect of the triple bottom line from an organisational perspective and this obviously it has the advantage of evaluating the social parameters of sustainability in line with the corporate social responsibility parameters of the organisations. At the same time, this researcher feels that how the organisation interacts and respond with the Government policies and other economic factors must be reflected in this framework and the researcher feel that such a subcategory '*Governance*' and the market issues (under external management) should be included in this framework under the *economic* dimension. For firms to progress in their sustainability initiatives against the various challenges, it is necessary that a certain level of trade-offs must be effectively managed for achieving a competitive advantage while also being committed to ethical, environmental or economic choices and values.

Circular economy is conceptually similar to the principles of sustainability although there are variations. Ellen MacArthur foundation defines circular economy as “an industrial economy that is restorative by intention; aims to rely on renewable energy; minimises, tracks, and eliminates the use of toxic chemicals; and eradicates waste through careful design” (Ellen MacArthur Foundation, 2013, p.22). This approach is based on a practical '*systems thinking*' where the system in consideration is a non-linear one which ideally cater towards material recovery and elimination of waste. Thus, the biological nutrients pass through a biotic loop and re-enter the biosphere, whereas technical (non-biological) nutrients circulate through the non-biotic loop without entering the biosphere, enabling the flow of goods and services through the value circle from 'cradle to cradle'. These concepts are adapted from McDonough(2002) who proposes that waste of one system becomes food for another while also acknowledging the diversity of the natural world and the efficient utilization of solar and other renewable sources of energy by living organisms.

OUTLINE OF A CIRCULAR ECONOMY

PRINCIPLE

1

Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows  
 ReSOLVE levers: regenerate, virtualise, exchange



Regenerate Substitute materials Virtualise Restore

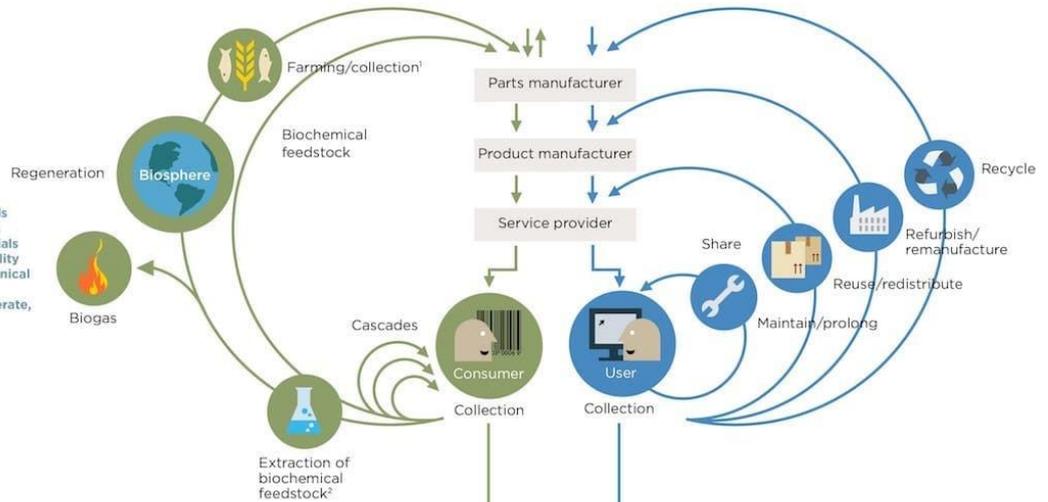
Renewables flow management

Stock management

PRINCIPLE

2

Optimise resource yields by circulating products, components and materials in use at the highest utility at all times in both technical and biological cycles  
 ReSOLVE levers: regenerate, share, optimise, loop



PRINCIPLE

3

Foster system effectiveness by revealing and designing out negative externalities  
 All ReSOLVE levers

Minimise systematic leakage and negative externalities

1. Hunting and fishing  
 2. Can take both post-harvest and post-consumer waste as an input  
 Source: Ellen MacArthur Foundation, SUN, and McKinsey Center for Business and Environment; Drawing from Braungart & McDonough, Cradle to Cradle (C2C).

Figure 2.2.1 Ellen MacArthur Foundation Circular Economy System Diagram (Ellen MacArthur Foundation, 2017)

Figure 2.1 depicts (Ellen MacArthur Foundation, 2017) the system diagram of *circular economy*. Ellen MacArthur Foundation defines that “A *circular economy* seeks to rebuild capital, whether this is financial, manufactured, human, social or natural. This ensures enhanced flows of goods and services. This system diagram illustrates the continuous flow of technical and biological materials through the *value circle*”. Thus, the technical nutrients are required to ‘close the loop’ through sharing or leasing, designing long-lasting products or prolonging product life cycle by means of proper maintenance, reuse or redistribution, refurbishing or remanufacturing and recycling. This was not the first time such a model was discussed or used. The Ricoh Comet Circle™ (Ricoh Global, 2011) implemented by Japanese multinational named Ricoh in 1994 is characterised by long use of product through proper maintenance, collection and recovery of products, parts and other materials after consumption for reuse,

refurbishment, remanufacturing and recycling (Hopkinson, 2018). However, in this model the unrecoverable items and waste were still disposed to landfill which could be considered as drawback as per the latest definitions of a circular economy. Despite this fact, it is significant that the framework designed by the company for asset recovery, served as a pioneer in bringing about a paradigm shift in perspective and culture regarding reuse and remanufacture. This framework has proved to be an indispensable factor for Ricoh, which enabled them to align their values and strategies to achieve long term goals (Hopkinson, 2018). But what distinguishes the Ellen MacArthur Foundation circular economy systems diagram is the incorporation of biomimetic perspectives and cradle to cradle design ideas. Weetman (2017) provides a generic framework for CE in relation to business and supply chain, which reiterates the definition of Circular economy as “a *truly sustainable economy*’ that works without waste, saves resources and is in synergy with the biosphere” (Open Source Circular Economy Days, 2014) wherein “emissions, by-products or damaged and unwanted goods become raw materials or nutrients for a new production cycle” (Weetman, 2017, p.29) rather than the *‘take, make and waste’* approach of linear economy.

While reviewing the literature related with circular economy, concepts like *Reduce* (waste reduction as well as reducing the usage of resources), *Reuse*, *Recycle* (3Rs) appears more often. Kirchherr *et al.*(2017)in their analysis of 114 definitions of circular economy classify these as the *‘R frameworks’*(3R, 4R, 6R etc.) and proposes that it present itself as one of the two school of thought, the other being systems. Sihvonen and Ritola(2015) suggests *‘Recover’* as the fourth *‘R’*, thus defining *4Rs* (*Reduce, Reuse, Recycle* and *Recover*) which includes material recovery to retrieve valuable or hazardous material and to ensure the quality of materials sent for recycling. Jawahir and Bradley(2016) argues that circular economy is essential “for continued economic prosperity and ecological balance to maintain the biodiversity” and “economic growth” since it is based on the principle of *6Rs*(*Reduce, Reuse, Recycle, Recover, Redesign* and *Remanufacture*) which helps in “reducing wasteful resources through effective design and implementation of products and processes for improved resource-efficiency with circular material flow involving recovery, reuse, recycling and remanufacturing of products”. These activities enable a *circular flow* or *circularity* implying that fewer natural resources are consumed thereby becoming more environmental friendly. Potting *et al.*(2017)identifies *‘10Rs’* which improve circularity strategy within a product

chain(detailed record of product from extraction of natural resources for manufacturing to disposal after waste treatment). These are ‘*Refuse, Rethink, Reduce, Re-use, Repair, Refurbish, Remanufacture, Repurpose (Redesign), Recycle and Recover*’. However, it must be noted that Potting *et al.*(2017)also includes energy recovery through incineration apart from material recovery in their definition of ‘*Recovery*’ as well as introduces Refuse -to signify making product redundant with alternatives, Rethink- to facilitate more intense use of products, Repair-for maintenance and Refurbish- to upgrade products. These Rs enable adoption of strategies suggested by Bocken *et al.*(2016) for circular product design as well as circular business models mentioned below

- ✚ *Slowing resource loops* by prolonging use of goods through design of long-life goods and product life extension by actions such as *re-use, repair, refurbish, and remanufacture*.
- ✚ *Closing resource loops* to close the loop between post-use and production through *recovery, recycling or repurpose* which.
- ✚ *Resource efficiency or narrowing resource flows* aimed at efficient use of resources through *reduce, refuse* and *rethink*

Even though Kirchherr *et al.*(2017)proposes that the ‘R’frameworks as a sperate school of thought from the systems approach, they could be considered as among the core principles or strategies for a circular economy and the systems merely define where they are put to use. This aspect is self-evident from the definition adopted by them.

“A circular economy describes an economic system that is based on business models which replace the ‘end-of-life’ concept with reducing, alternatively reusing, recycling and recovering materials in production/distribution and consumption processes, thus operating at the micro level (products, companies, consumers), meso level (eco-industrial parks) and macro level (city, region, nation and beyond), with the aim to accomplish sustainable development, which implies creating environmental quality, economic prosperity and social equity, to the benefit of current and future generations”.(Kirchherr *et al.*, 2017, pp. 224-225)

Thus, this definition and the literature discussed so far seems to validate the arguments of Whalen and Whalen(2018) that, much of the research involving CE revolves around

(i) *resource use*, (ii) *economic value* and (iii) *systems thinking*. *Resource use* involves the sustainable use of *biological* and *non-biological* nutrients. Economic values often involve environmental as well as efficiency gains while neglecting the question of increased consumption because of these gains. Systems thinking is a more holistic approach towards the various components of the natural system or world. The definitions of sustainability and circular economy contained in various literatures are consistent, with not much changes in the core principles. But the way in which each of these principles are understood, interpreted and implemented varies significantly making it subjective rather than objective. Even though circular economy and sustainability are closely related with each other, CE is primarily concerned with the economic as well as the environmental aspects. The social aspects are mostly secondary, brought about as a result of product longevity, resource efficiency, recycling or reuse practices (D'Amato *et al.*, 2017). Velenturf *et al.*, (2019, p.4) observed that CE has followed the popular main stream economic notion that enterprises were driven by profit and business expansion and that “environment benefit would come associated with economic benefit (e.g., new sales from use of wastes and/or cost savings from reduced waste management)” while “social benefits (e.g., new direct and indirect employment and a healthier living environment) are implied to be ‘given’ co-benefits”. Geissdoerfer *et al.* (2017) maintain that while circular economy prioritises financial advantage for the organisation, reduced resource consumption and pollution, the responsibility for implementation lies mainly with the business, regulators and policy makers. While it might not be disputed that both CE and sustainability work in harmony and mutually reinforce and benefit each other with one leading to the other, CE usually lacks a holistic perspective about the triple bottom lines of “environmental quality, economic prosperity and social equity” (Kirchherr *et al.*, 2017, p.227). Moreau *et al.* (2017) argues that putting people before profit, working towards equitable labour conditions, participative decision making and social well-being leads to overall democratisation of the economy and fills the gap in CE theories. This means that business owners and managers of SMEs can be motivated to adopt CE practices and align it with their social and environmental missions (Velenturf *et al.*, 2019).

### 2.3 Circular Economy, GSC and SSCM

Circular Economy (CE) is conceptually almost similar to *green supply chain (GSC)* in the sense that in a linear economy “*the traditional life cycle of a product typically begins with the concept and design and ends with the disposal of the product in a landfill*” whereas to achieve a GSC a company must maximise the use of “*good inputs, eliminate the amount of waste and optimise the production of product*”, thereby reducing “*expiration and overproduction*” and initiating action for “*reuse and recycle*” (Kumar *et al.*, 2012, p.1282). Thus, for a GSC, the product equation becomes

$$\text{Input} = \text{Waste} + \text{Product}$$

(Kumar *et al.*, 2012) argues that a company must design and re-design its products, services and processes keeping the entire supply chain (upstream, midstream and downstream) in mind using life cycle assessments, due consideration for environmental impact at each stages with measures to *reduce* waste as well as to *reuse, recycle and recover* materials and component parts. Correspondingly reverse logistics play an important role in GSC, wherein after the consumption the company recovers the product for reuse and redistribution, re-manufacturing and assembly, recycling, refurbishing and remanufacturing or safe disposal (creating a reverse logistics product flow). The importance of designing sustainability into such a process becomes an absolute necessity more than a value addition. For example, reduction in transportation distance, average fuel consumption, minimising inventory nodes and maximising container fill rates are crucial requirements for sustained operations with less environmental impact and less wastage of resources. Weetman (2017) provides a generic framework for CE from a supply chain perspective and illustrates the concepts to be followed in the design of a supply chain strategy and planning while expanding its scope to the entire supply chain namely *upstream supply chain (design, sourcing and procurement)*, *midstream supply chain (manufacturing process)* and *downstream supply chain (distribution and reverse logistics)* through the ‘8 Sustainable (8S) principles’ mentioned below.

- ✚ Simplify- The simplification of design and bill of materials (BoM) using simple and natural materials to reduce resource utilization, minimisation of waste, increase energy efficiency and resource efficiency. LCA or Life Cycle Assessment is useful tool which could aid in this regard.

- ✚ Standardise -The standardisation of design as well as BoM increases modularity and thereby helps in *Recover, Repair, Reuse, Recycle, Remake, Redesign* and *Rethink*.
- ✚ Security- Security encompasses a wide area from ensuring security of supply, availability of resource et cetera to identification of potential risks and its mitigation.
- ✚ Scale and Spread- Resilient, decentralised, distributed and short supply chains will help to reduce scale and geographic spread which in turn will increase traceability and transparency, reduce risks associated with longer supply chain, carbon footprint associated with the transportation, inventory costs and so on.
- ✚ Shared Approaches-This include sharing of infrastructure (wherever feasible in the supply chain, for example logistics or transportation sharing are cost efficient and sensible options), values (symbiosis) and information.
- ✚ Service- This include services offered to customers like repairs, refurbishments and other service aspects associated with the reverse flow of materials.
- ✚ Stewardship-This approach takes responsibility for the entire life cycle of the product and materials.
- ✚ (Value)Streams- These includes the by-products, co-products, symbiotic and circular flows in and out of the supply chain which could be considered as the nutrients (biotic and non-biotic) which constitute the ‘cyclic loops’ in Ellen MacArthur Foundation Circular Economy System Diagram (figure 2.1).

GSC Kumar et al.(2012)	CE Framework Weetman(2017)
Input = Waste+ Product	Circular Inputs
Waste Elimination	Waste= Food
Optimise Production	Product and Process Designs
Reduce Expiration	Renewable
Reduce Over Production	Use less, Use it more, Use it again
Reverse Logistics 1) Product Recovery 2) Reuse and Redistribution 3) Remanufacturing and assembly 4) Recycling, Refurbishing and Remanufacturing 5) Safe and secure Disposal	Circular Flow 1) Recover 2) Reuse 3) Remanufacture 4) Recycle 5) Safe and secure inputs

Table 3 Analogous Concepts of CE and GSC compiled by the researcher

Table 3 summarises the similar ideas in CE and GSC. Govindan and Hasanagic(2018, pp 282-283) observes that even though CE and GSC “strategies are closely related to one another”, “no clear agenda for the circular economy yet exists within the perspective of supply chain” and identifies a set of ‘clusters’ of circular economy barriers, drivers and practices (drivers and practices may be collectively called CE enablers). Ritzén and Sandström (2017)through qualitative research in the context of ‘product and service systems’ identified a set of barriers for circular economy which conceptually agrees with those put forward by Govindan and Hasanagic (2018) with the exception of those related with governmental issues. However, while the conclusion of the study by Govindan and Hasanagic (2018) implies that Governments, Organisations, Suppliers and society are stakeholders, they put the onus on Governments for the implementation of circular economy in supply chain while completely ignoring the others. This is a biased approach and a serious shortcoming in today’s world which is witnessing increased debates and considerations for making environment a ‘*persona ficta*’; a world where even school children are environmentally conscious and involved in climate activism and climate strikes (Haynes, 2019)and to underestimate the importance of organisation, suppliers and society leaves a wide aperture which need to be filled. Furthermore, the conclusions of this study are based on the secondary research done on numerous literatures (mostly in Asian & European context) thereby consolidating the drivers, challenges, and perspectives for a circular economy in terms of supply chain. A study based on an Indian perspective on sustainable supply chain management(SSCM) by Phatak and Sople(2018) has also identified certain enablers and barriers for the same. However, one important factor which Phataka and Sople (2018) seems to have overlooked is the role of ‘*Green Logistics*’ as one of the enablers especially when there are studies which highlight *green logistics* as one of the main *downstream components* of *green supply chain*(GSC) (Verma *et al.*, 2018). Verma *et al.*(2018) observes that ‘Green supply chain practices in upstream (such as ‘Green Procurement’, ‘Green Suppliers’ selection), midstream or internal (such as ‘Green Manufacturing’, ‘Green Design’ and ‘Green Information System’ and Green Packaging’) and downstream (such as ‘Green Distribution’ and ‘Green Logistics’ and ‘Reverse logistics’) of a supply chain can save resources; increase productivity, sales, market growth and market share; reduce wastage; improve efficiency, service, performance, growth, revenues and reputation. Malik and Sinha(2019)argues that in the case of Indian automobile industry, use of 3PL has resulted in inventory reduction,

space saving, reduction in transportation/IBL(inbound logistics), reduction in TAT(Turnaround Time), Safe Working, Smooth flow of production and reduction in pollution. Furthermore, a study on the logistics service industries of UAE (United Arab Emirates)by Salhieh and Abushaikha(2016) which explores the drivers for adoption of green logistics practices (GLPs) by LSPs (Logistics Service Providers) has found strong and positive correlation between the various driving forces of GLPs and GLP as well as among themselves.

<b>Green logistics practices (GLPs)</b>	<b>Green logistics driver</b>
<p><b>Transportation</b>-trucks loaded to full capacity, regular maintenance, training for fuel efficient driving, monitoring of fuel efficiency, effective routing and re-scheduling practices and use of 3PL</p>	<p><b>Legislations</b>-Involvement of authorities; penalties and punishments; extend of unethical practices in organisation and impunity; compliance with environmental law; effectiveness of legislations as a deterrent; enforcing the laws in the company</p> <p><b>Organizational Awareness</b>-Compliance with government policies and guidelines; awareness among top management and lower hierarchies; training for employees in GLPs; consideration given by the firm in planning and design for GLPs</p> <p><b>Customers</b>-Commitment and priorities of business partners, clients and customers to the cause; customer demand for sustainable alternatives; effect of the standard of living of the customers; customer willingness to bear additional cost for sustainable practices; awareness of customers regarding the legal and ethical issues associated</p>
<p><b>Packaging</b>-international standard palletization (space utilization), reusable/recyclable/ bio-degradable packaging material</p>	
<p><b>Warehousing</b>-energy efficient design, construction, operation, maintenance and management; solar energy utilization; use energy efficient equipment; proper training of warehouse staff in energy efficient practices; proper sequencing and arrangement of storage to minimise movement of vehicle and equipment</p>	

Table 4 Green Logistics Practices (GLPs)modified and adapted from Salhieh and Abushaikha(2016, pp. 63-64)and (Malik and Sinha, 2019)

In an industrial or an organisational setting, sustainability drivers and practices has huge impact on the business from a supply chain perspective. An empirical investigative study about developing sustainability in the *Italian meat supply chain* (Golini *et al.*, 2017) which analysed the industrial processor practices, drivers and other contingent variables by identifying critical issues at each stages in terms of economic, environmental and social sustainability, arrived at the conclusion that

- a) The environmental sustainability practices are often associated with a reduction in cost
- b) The social sustainability practices increased cost
- c) The various industrial processes focus on specific issues of a stage instead of collaboration with other stages which may result in improved quality and sustainability of the final product and this is due to a reactive rather than proactive approach.

In this study, it seems cost is given primary consideration and the social value it generated because of sustainability practices are overlooked. Nevertheless, the framework adopted for study is impressive in the sense that it considers all the critical points along the supply chain such as fodder suppliers, cattle breeders, slaughters, industrial processors, and meat distributors.

As similar study on the adoption of green supply chain management practices and its impact on Indian manufacturing firms (Mitra and Datta, 2014, pp.2094-2098) concluded that '*Environmentally sustainable purchasing practises*' ( of which the most meaningful factor was '*collaborative relationship with suppliers*') are positively related to '*Environmentally sustainable product design and logistics*', which in turn is positively related to '*competitiveness and economic performance*'. The study however, probably due to the questionnaire design have resulted in a conclusion that the only two meaningful factors for *sustainable purchasing practices* are '*collaborative relationships with suppliers*' and '*arms-length or transactional relationships with suppliers*' which ignores or downplays other sustainable procurement practises like risk assessment/mitigation planning, spend analysis, category management principles, e-auctions , e-tender and other transparency measures altogether. Regardless, the study provides a great deal of insight into objective data. Both these studies mentioned above are significant as they provide the impact and results of sustainability on businesses which could be applied in other industries to help investigate the drivers which cater towards similar end results.

Every organisations have certain Critical Success Factor (CSFs) which enables the successful implementation of sustainable supply chain management. Prasad *et al.*(2018, p.7) in their Indian case study defines CSFs as the "*the limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance of the organization*". The study arrives at the conclusion after empirical investigation that the *organisational* critical success factors (CSFs) has the highest significance, amongst

which *top leadership commitment and support* has a “*significant contribution in creating favourable organisational environment*”; whereas the compliance to sustainability standards “*facilitate SSCM practises*” in the firm and external factor “*do not play a very significant role in influencing sustainability practices in the organization*”, even though the impact of market and customer sensitivity cannot be neglected. At the same time it is worthwhile to note at this point that another study on the Original Equipment Manufacturing(OEM) and Original Designing and Manufacturing (ODM) companies in Thailand’s electronic industry by Salam(2011, p.88) concludes that “*in response to the external pressures and globalization, Thai electronics companies are required to comply with the concept of green procurement*” and “*whether the management do or do not adopt green procurement practices depends on product performance, purchase price, organizational environmental commitment and trading partners*“, which is in stark contrast to finding in the Indian steel industry by Prasad *et al.*(2018).

Having said about the importance of organisational factors, one should not overlook the importance of external factors, like government pressure. The study by WYSOKIŃSKA(2018) details about the initiatives and activities undertaken in the region of Lodz in Poland for implementing a bio-economy program in the pharma, cosmetic, advanced building materials, energy/power generation, IT and telecommunication industries aimed at achieving the circular economy principles of ‘*reduce, reuse, and recycle*’. Another study by Mathews *et al.*(2018) details the success story of initiatives undertaken by China’s local and provincial authorities in transforming industrial parks (or export processing zones) into ‘Eco-Industrial Parks (EIP)’ and ‘Circular Economy Parks (CEP)’, the results of which are reduced resource and energy consumption as well as reduced emissions.

Table 5 Enablers of CE/SSCM/GSC identified from literature review

Enablers of CE/SSCM/GSC	Description	Authors
<p align="center"><b>Regulations and Government Policies</b></p>	<p>Government regulations as mandatory drivers and prospects of economic benefits due to CE implementation</p>	<p align="center"><b>Govindan and Hasanagic(2018), Prasad et al.(2018) &amp; Phatak and Sople(2018)</b></p>
<p align="center"><b>Safety and health focus</b></p>	<p>The cost on public health care due to pollution and unsustainable practices</p>	<p align="center"><b>Govindan and Hasanagic(2018), Prasad et al.(2018)</b></p>
<p align="center"><b>Corporate image; Brand value; Societal and Public Concerns; Market Tendencies, Competition, Compliance to social accountability, Consumer concern, Market and social pressure</b></p>	<p>New employment opportunities due to CE especially in entry level and semi-skilled areas, attitude of society towards CE principles</p>	<p align="center"><b>Govindan and Hasanagic(2018), Prasad et al.(2018) &amp; Phatak and Sople(2018)</b></p>
<p align="center"><b>Sustainability procurement (SP) policy &amp; initiatives; Green Procurement; Supplier selection strategy; Green Suppliers, Supplier Participation and upgradation Green Design(EOL(End Of Life)/ Product extension, Life Cycle Assessment strategy), Green Manufacturing(Sustainable Manufacturing – JIT/TPM/Six sigma, Lean Manufacturing), Green Packaging Well-defined practice for sustainability tracking- Environmental Management System (EMS) or Green Information System (to analyse sustainability parameters(triple bottom line or environmental, economic &amp; social) Green Distribution Green Logistics and Reverse Logistics Contribution to resource savings, Energy savings &amp; Carbon footprint reduction; contribution to profit and resource; Compliance to environmental standard</b></p>	<p>Product design and development using the 8S principles or 10R framework; eco-efficiency in production, cleaner purchases, cooperation with other companies and the implementation of clean and green logistics systems; Reduction in environmental impact, climate change and other benefits</p>	<p align="center"><b>Govindan and Hasanagic(2018), Prasad et al.(2018), Phatak and Sople(2018) &amp; Verma et al.(2018)</b></p>

<b>Governance structure for sustainability &amp; CE</b>	laws, pilot projects, performance monitoring and other policy implementation for CE	<b>Govindan and Hasanagic(2018), Prasad et al.(2018)</b>
<b>Investor pressure; Organizational financial health, Investment in technology and resources</b>	Development of financial instruments for risk mitigation, reducing environmental impact, proper tax payments and thus decoupling economic growth from any adverse impacts; regional network, infrastructure and information systems	<b>Govindan and Hasanagic(2018), Prasad et al.(2018) &amp; Phatak and Sople(2018)</b>
<b>Top management Support-commitment, involvement and support</b>	Necessary support from top management	<b>Govindan and Hasanagic(2018), Prasad et al.(2018) &amp; Phatak and Sople(2018)</b>
<b>Organizational culture for proactive adoption of SSCM, Employee training and preparation; Sustainable Culture in Organization-involvement and participation of employees and middle management</b>	Knowledge, awareness, education and training about CE and sustainability	<b>Govindan and Hasanagic(2018), Prasad et al.(2018) &amp; Phatak and Sople(2018)</b>

Table 5 (Continued) Enablers of CE/SSCM/GSC identified from literature review

Table 6 Barriers to CE/SSCM/GSC identified from literature review

<b>Barriers to CE/SSCM/GSC</b>	<b>Description</b>	<b>Authors</b>
<b>Government - Regulation Sectoral - Less regulated industries</b>	lack of laws, policies, co-ordination from governments	<b>Govindan and Hasanagic(2018) &amp; Phatak and Sople(2018)</b>
<b>Financial, Resources- Financials, Human capital and Organisational size Poor Infrastructure-includes all infrastructure including reverse logistics</b>	Financial and economic barriers related with implementation of CE	<b>Govindan and Hasanagic(2018), (Ritzén and Sandström, 2017) &amp; Phatak and Sople(2018)</b>
<b>Technological-quality concerns, other changes in products due to increased circularity</b>	design challenges, LCC/LCA, quality management, and other technological limitations for adopting the 10R framework	<b>Govindan and Hasanagic(2018), (Ritzén and Sandström, 2017) &amp; Phatak and Sople(2018)</b>

<p><b>Insufficient Training Technological awareness and capability</b></p>	<p>lack of skill, awareness or any reliable information</p>	<p><b>Govindan and Hasanagic(2018) &amp; Phatak and Sople(2018)</b></p>
<p><b>Strategic Issues, Organisational Issues, Structural Functional issues-</b> Purchasing and supply function lack of corporate structures and processes, <b>Operational, Integration between functions-</b> related to infrastructure, responsibilities and task divisions</p>	<p>lack of support from top management or other organisational and structural issues</p>	<p><b>Govindan and Hasanagic(2018), (Ritzén and Sandström, 2017) &amp; Phatak and Sople(2018)</b></p>
<p><b>Non-Compliance to environmental standard, social accountability, Safety and health standards, Poor Supplier commitment-</b> supplier commitment to participate and contribute to Sustainable supply chain practices in his organization</p>	<p>using frameworks with less circularity or having more linearity and less sustainability</p>	<p><b>Govindan and Hasanagic(2018), Phatak and Sople(2018) &amp; Prasad et al.(2018)</b></p>
<p><b>People issues, Attitudinal (Attitude and knowledge)-</b> lack of understanding about CE</p>	<p>lack of enthusiasm and other attitude issues</p>	<p><b>Govindan and Hasanagic(2018), (Ritzén and Sandström, 2017) &amp; Phatak and Sople(2018)</b></p>
<p><b>Competitors -</b> Competitive pressures, Market Issues <b>Customers –</b> Customer preparedness to buy Sustainable product against Consumer desire for lower prices <b>Value Chain Structure-</b>losing control of its products at the point of sale</p>	<p>market issues which prevent company from taking advantage of CE principles</p>	<p><b>Govindan and Hasanagic(2018), (Ritzén and Sandström, 2017) &amp; Phatak and Sople(2018)</b></p>

Table 6(continued) Barriers to CE/SSCM/GSC identified from literature review

10 'R's	8 S Principles	Green Supply Chain/ Sustainable Supply Chain
Refuse	Simplify	Circular Inputs / Input=Waste+Product / Waste=Food
Rethink	Standardise	Circular Flow
Reduce	Security	Life Cycle Assessment
Re-use	Scale and Spread	Life Cycle Cost
Repair	Shared Approaches	End of Life Management
Refurbish	Service	Sustainable/Green Procurement
Remanufacture	Stewardship	Sustainable / Green Product Design
Repurpose (Redesign)	Value Streams	Sustainable/ Green Process Design
Recycle		Green Manufacturing
Recover		Green Packaging
		Green Information System/ Environmental Management System
		Green Distribution, Logistics and Reverse Logistics
		Socially inclusive Practices for Employees
		Socially inclusive Practices for Community
		Operations Practices
		Supply Chain Integration
		Environmental Performance
		Social Performances
		Operations Performance

Table 7 Themes associated with CE compiled from the literature reviewed

Table 5 (Enablers of CE/SSCM/GSC) and Table 6(Barriers to CE/SSCM/GSC) are compiled by the researcher based on the literature reviewed. These are simply the most widely encountered factors while reviewing the literatures and are intended to identify the 'a priori' themes associated with sustainability and circular economy which could be used for formulating research questions and subsequent analysis of the responses. In addition, table 7 summarises the various themes associated with CE which were already discussed in detail.

## 2.4 Sustainability and Circular Economy in SMEs

SMEs have a different profile with a diverse set of resources, capabilities, competencies and priorities (RCCPs) than other industries. They are often characterised by fewer shareholders, less formal business culture, simple organisational as well as capital structure, high level of social capital (high external relationships, mutual trust, reliability, reciprocity and aid with respect to the community or society), more dependence on business networks, less visibility in media and minimal to nil lobbying power with governments (Loucks *et al.*, 2010). Hence the strategies adopted for implementing CE and sustainability and its results might be different depending on how they utilise their resources and capabilities for the same.

Rizos *et al.*(2016) based on sizable case studies conducted in UK, Netherlands, Estonia, Belgium, Greece and Germany, identified *Lack of support supply and demand network, Lack of capital, Lack of government support, Administrative burden, Lack of technical know-how, Lack of information* and *Company environmental culture* (arranged in decreasing order or percentage mentions by SMEs) as the main barriers; whereas *Company environmental culture, Networking, Support from the demand network, Financially attractive, Recognition, Personal knowledge and Government support* as the main enablers (arranged in decreasing order of percentage mentions by SMEs). Most of these enablers and barriers are comparable with those already summarised in table 5 and table 6 which were compiled by from earlier literatures to guide the direction of this research. This study by Rizos *et al.*(2016) is particularly significant piece of literature for this research study on Irish SMEs, due to the fact that both studies are undertaken in Europe and all the countries with the exception of UK (given the uncertainties of Brexit) are members of the European Union and hence compliance to the EU directives and action plans and other regulatory obligations will not differ extensively.

Burlea-Schiopoiu and Mihai (2019) in a study on Romanian SMEs had found significant positive correlation among CSR budgets, innovation budget and training budget of SMEs as well as a strong influence of these factors on the gross profit, profit per employee and total expenditure. Interestingly, another empirical study by (Das, 2018) has made some significant observation in Indian organisations.

“Environmental Management Practices (EMP) does not automatically lead to firm competitiveness” or Operations Performance (OPR). “EMP adopted by a firm along” with OPR “must first lead to improved Environmental Performance (EPR) in terms of reduction in adverse environmental impact” to improve competitiveness.

“Community initiatives undertaken by a firm” in the form of Socially inclusive Practice for Community (SPC) “does not automatically lead to firm competitiveness. The competitiveness would only be realised when community initiatives result in improved Community-centred Social Performance (CSP)”.

“Operations Practices (OP) adopted by a firm in terms of lean production and JIT inventory control technique would not naturally lead to competitiveness. It is only achieved when OP gives rise to improved Operations Performance (OPR) in terms of reduction in cost and improvement in efficiency”

- (Das, 2018, p.5709)

It is noteworthy that Salhieh and Abushaikha(2016, p.62) argues, “*in order for organizations to adopt green business practices in the logistics service industry, the total strength of all driving forces must be greater than the total strength of all restraining forces (paradoxes)*”. This could be true for other industries as well and appears to agree with the observations of (Das, 2018), especially in the backdrop of the contradictory results of Prasad *et al.*(2018) and Salam(2011) discussed earlier.

(Mathews *et al.*, 2018) explain in brief about the ‘*reverse salients*’ in a system which acts as a barrier to progress and how it could be overcome by ‘*network governance*’. ‘*Reverse Salient*’ is a concept introduced by Thomas Hughes in 1983, referring to under-performing systemic members which retards and hampers the development of the overall system performance (Barnes, 1984). Network governance is a concept which calls for decentralised governance devoid of bureaucratic red tapes and increased negotiation, trust and interdependence (Sørensen and Torfing, 2016).

“In discussing the systemic transition to a circular economy, we can recognize the challenge of inducing companies to form interlinkages (and eventually “loops”) that enable them to use one firm’s waste as another’s resource input, as well as to pool their resources into combined flows of energy, water/steam, and waste disposal that can be shared by numerous firms. Identifying and acting on such loops and common pathways

may be viewed as a fundamental reverse salient and one that has no prospect of solution in the absence of firms enjoying prior interfirm relations and examples of cooperation. Hence, we pose the systemic solution being sought in China, starting with an introduction of innovative forms of network governance that enable firms to find ways to cooperate and overcome opportunistic firm behaviour that blocks industrial symbiosis” - (Mathews *et al.*, 2018, p.160)

The significance of SMEs in Irish economy was already explained in section 1.3 of this document. Irish Small And Medium Enterprises Association (2015) in their report ‘*SMEs and CSR Assessing the Level of Corporate Social Responsibility Activities and Knowledge in Irish Small and Medium Enterprises*’ revealed that most of the Irish SMEs are seriously involved in CSR (Corporate Social Responsibility) practices either knowingly or unknowingly and they also specify that 94 % of the SMEs in Ireland are involved in waste reduction as well as recycling and 84 % of them actively support the learning and development of their employees. The sustainability actions or responses of Irish SMEs are concentrated or clustered in the resource efficiency actions like reducing waste and reducing consumption of energy, water, minerals and recycling (European Commission, 2018). This might mean that the other 8Rs in the 10R frameworks (Potting *et al.*, n.d.) mentioned in section 2.2 remains unexplored or underutilised. How the enablers and barriers of CE and sustainability as mentioned in the table 5 and table 6 manifests itself in the context of SMEs with respect to the sustainability dimensions (table 2) and the triple bottom line in Ireland as well as how they design, evaluate, internalise and implement these CE and sustainability principles need to be analysed. Moreover, how they utilise their resources, capabilities, strategies for cooperation and how they identify the reverse salient and overcome them through network governance engagements also need to be explored.

## **2.5 Conceptual Framework**

Literature reviewed so far provides a generic understanding about the drivers and challenges for supply chain sustainability and circular economy and it is possible to argue that there could be a mutually re-enforcing relationship between sustainability and circular economy, the end result of which is beneficial for the *people, profit and planet*, the *triple bottom line* which could be considered the *holy trinity* of modern business.

Such a highly subjective area which spread across a broad spectrum of ideas and concepts, implies that there could also be potential conflict of interests depending on various context and scenarios of application and should be analysed as such. As a result, various organisations and different departments within each organisation may have different views about sustainability and CE Hence a fluid and flexible framework with a top to down approach is required for describing, exploring, and evaluating the same. Although plenty of literatures are available in the fields relating with sustainability, circular economy and SMEs, no significant qualitative academic study seems to be initiated in the context of SMEs in the Republic of Ireland. What are these specific drivers in terms of the supply chain of SMEs based in Ireland from a supply chain perspective, how do they interact with each other and with the organisational strategies and how much do they aid in progressing towards a CE and the what are the challenges faced by these firms. These questions need to be explored, analysed and evaluated and Fig 2.2 depicts the basic conceptual framework for to guide the research.

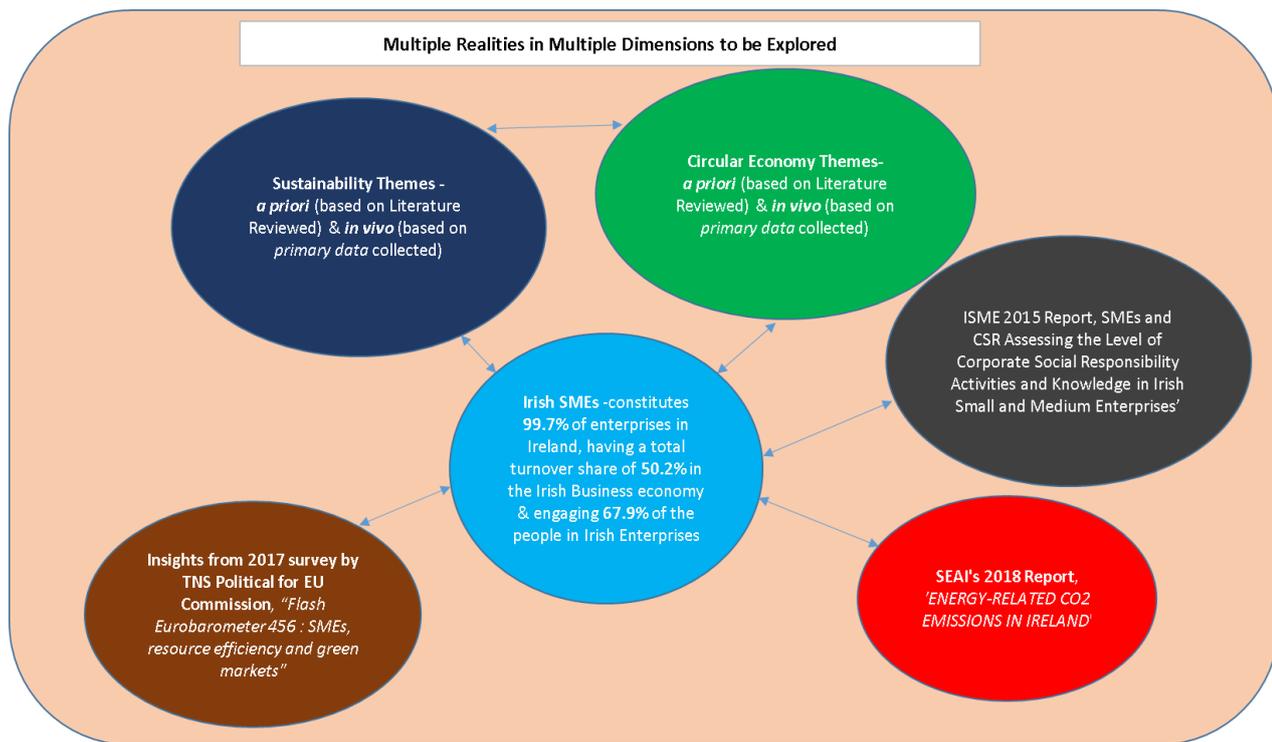


Figure 2.5.1 Basic Conceptual Framework for the research

Sustainability and CE make up the two faces of a coin which encompasses the principles, dimensions or themes of sustainability and its subcategories based on the

literature reviewed (table 2) on one end and the themes based on circular economy, its enablers and barriers(table 5) and (table 6) on the other end. These could be thought of as themes or patterns around which the realities regarding *sustainability* and *CE* are organised for the various SMEs, their departments and stakeholders. These themes are analysed in the light of insights derived from the following documents which were mentioned in introduction section and literature review section of this paper as well as the primary data collected as part of this research.

- 1) Insights from the survey “Flash Eurobarometer 456 : SMEs, resource efficiency and green markets” (European Commission, 2018)
- 2) Insights from the report ‘SMEs and CSR Assessing the Level of Corporate Social Responsibility Activities and Knowledge in Irish Small and Medium Enterprises’ (Irish Small And Medium Enterprises Association ,2015)
- 3) ‘ENERGY-RELATED CO2 EMISSIONS IN IRELAND’ published by Sustainable Energy Authority of Ireland (SEAI) (Sustainable Energy Authority of Ireland, 2018)
- 4) Turnover share of SMEs in Irish Business (Central Statistics Office, 2012a)
- 5) Composition of Persons Engaged by Irish SMEs (Central Statistics Office, 2012a)
- 6) Enterprise composition of Irish Business Economy (Central Statistics Office, 2012a)
- 7) The primary data collected as part of this study

All these reports projects various realities associated with the same entity, the SMEs in Ireland. An interpretive study is carried out on the 7 main insights from the *Eurobarometer 456 survey* (described in section 1.2 of this document) as well as the highlights of ISME report (mentioned in section 2.4) based on the themes identified from the literature reviewed (*a priori* themes) to ascertain the social construct of reality as to answer the research questions formulated in section 1.4. Tables 2, 5, 6 and 7 provides the a priori themes in terms of sustainability and CE. Over the course of the study many more themes are identified (*in vivo* themes), which results in existing themes to be expanded or collapsed or revised to suit the various contexts thereby shaping the conclusions.

## **2.6 Conclusion**

The previous sections have explored in detail about the various aspects of concepts like sustainability, circular economy (CE), green supply chain (GSC) and importance of sustainable supply chain management (SSCM). Ideas like *Reduce (wastage and*

*resource consumption*), *Recover*, *Repair*, *Reuse*, *Recycle*, *Remake*, *Redesign* and *Rethink* could be considered indispensable to circular economy, GSC and sustainability. Also, it is observed that the dimensions of sustainability as well as enablers and barriers of CE and SSCM are organised around closely related themes which means that these concepts were a combination of related ideas and could reinforce each other immensely.

But when the empirical studies on sustainability, circular economy and sustainable supply chain management are examined, their conclusions seem to vary extensively and at times are contradictory. This suggests that these quantitative studies present observed facts objectively without any subjective analysis of the same and hence a subjective analysis is required to fill the gap and paint a realistic picture. Moreover, it also points to the fact that context matters and hence each case should be analysed based on social constructivism as well as the different perceptions of various stakeholders involved. This realisation has helped in developing a conceptual framework to analyse the topic in the context of Irish SMEs in the light pre-existing notions, studies, reports and any primary data collected. The next section details about the research philosophies, methodologies and design to achieve the objectives of the research.

### 3 Methodology and Research Design

#### 3.1 Overview

This chapter explains in detail the philosophical as well as methodological underpinnings of the study undertaken and discusses the research strategy the study follows. The famous ‘research onion’ (Saunders *et al.*, 2019) provides a framework to present these aspects and approaches in details and justify them.

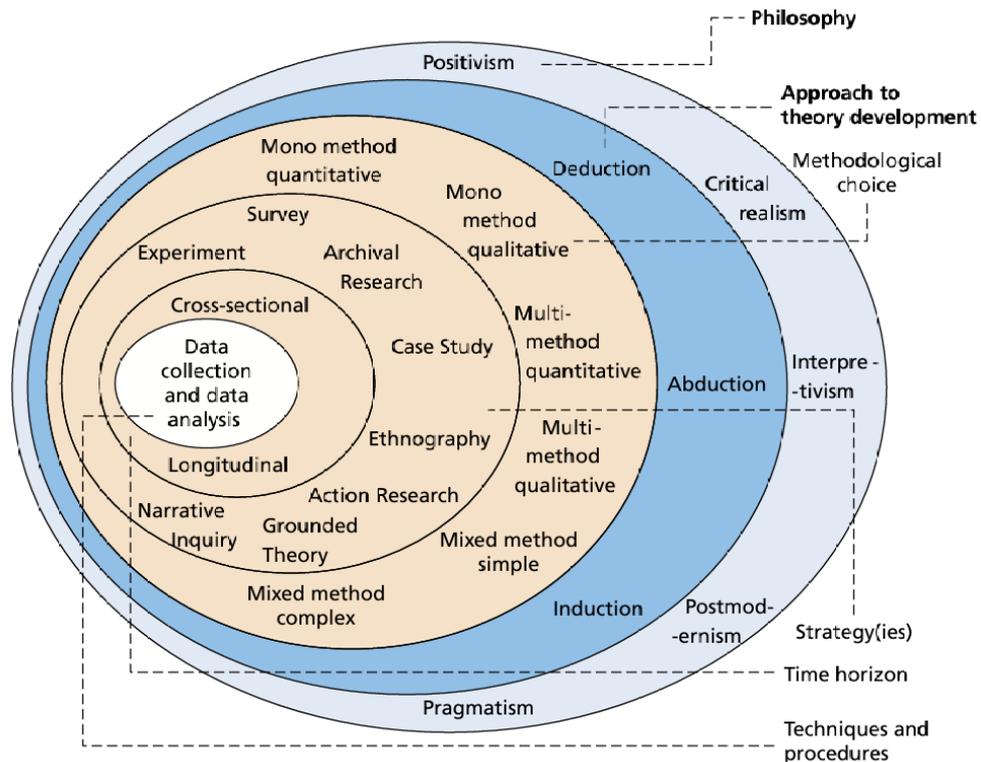


Figure 3.1.1 Research Onion adapted from Saunders *et al.*, (2019, p.130)

Figure 3.1 (Saunders *et al.*, 2019, p.130) shows the ‘research onion’ the layers (scales or leaves or skin) of which represents the research philosophy, approaches, methodology, strategies, time horizon and techniques and procedures for data analysis. The following sections explain each of them in detail.

#### 3.2 Research Philosophy and Approach

*Ontology*, which “refers to the assumptions about nature of reality” determines how one visualises the “world of business, management”, organisations, individuals, their professional lives among other things (Saunders *et al.*, 2019, p.133). The various studies mentioned in the literature review points to the fact that *sustainability* and *circular economy* are highly eclectic subject areas and individual perceptions, reactions and responses towards them are varied and diverse, necessitating the researcher to study and

analyse these factors based on the geographical, political, cultural, social, environmental and economic contexts. This implies that there are *multiple socially constructed realities* associated with sustainability and CE or the *social construct of realities* related with sustainability and CE make up a *heterogeneous* scenario literally defined by the old saying “*Normal is an illusion; what’s normal for the spider is chaos for the fly*”. *Ontologically*, this *subjectivism* encompasses a *social constructionism* where *multiple realities* are constructed through social interactions (Saunders *et al.*, 2019).

The multidisciplinary characteristics of business and management implies *epistemology*, which deals with the legitimacy of knowledge in the sense what constitutes knowledge and how it is being dealt with ranges from “numerical data to textual and visual data, from facts to opinions, and including narratives and stories” (Saunders *et al.*, 2019, p.133). Objective quantitative studies have provided indispensable information about various factors affecting and influencing *sustainability* and *CE*. But such an approach often fails to comprehend how those factors interact among each other and with other people as well as stakeholders involved in the wider canvas of real world. To put it another way, a quantitative research experiences insurmountable limitation in the exploration, explanation, analysis and evaluation of the various factors involved in *sustainability* and *CE* as well as in understanding the intricate, intertwined or perhaps skewed relationships that exists between them beyond statistics and probabilities. The contradictory results pointed out in the literature review section of this document validates this point. Whereas, an *interpretive* study based on *phenomenology* and *hermeneutics* focuses on opinions, perceptions, narratives and interpretations of participants to provide a new understandings or a world view (Saunders *et al.*, 2019).

The approach towards theory development is based on *abductive reasoning* rather than following the rigid frameworks and methodologies of *deductive reasoning* or loose structure of *inductive reasoning* in contemplating the research questions. Hence the subjects of research are treated as human participants rather than objects, allowing for the researcher to empathise with their perception and social construct of realities based on the context (explore the phenomenon) as well as draw inferences from existing theories to identify themes and patterns thereby providing more creative engagement instead of the mechanistic ways to ascertain facts (Saunders *et al.*, 2019). But being an *interpretivist* study, the *abductive* approach is oriented and inclined towards the *inductive* style along the spectrum giving it more weightage than *deductive* style.

The research topic reflects the civic, social, environmental and ethical conscience and commitments which a modern-day business must possess vis-à-vis the economics of profit, so that the future generations, the rightful heirs are not deprived of the resources. This imparts the research an *anthropological* dimension in addition to the academics and economic perspectives.

### **3.3 Research Strategy**

As discussed in the previous section, the research philosophy adopted for the dissertation is '*interpretivism*' and the approach for theory development is through '*induction*'. This section discusses about the methodological choices, strategies, data collection and analysis used for designing the research. Being an interpretive study there are various methods of primary data collection that could be utilized such as interviews, questionnaires, case studies and so on or a combination of more than one method. But given the short time frame of this academic research and the subjective nature of the research questions to be analysed, a *mono-method qualitative* methodology is adopted for the study.

The qualitative study involves a combination of exploration, analysis and evaluation of sustainability and circular economy from supply chain perspective for a specific category of enterprises within the geographical confines of Ireland. As such, using a single rigid strategy might not be feasible to get in depth knowledge within a short time span and hence a multi-pronged strategy is adopted. Given, the philosophical orientations (as discussed in section 3.2), the strategy utilized is a combination of *Grounded Theory* and *Narrative Analysis*.

The *naturalistic* or *phenomenological* aspect of the study assumes that the knowledge in pursuit could be harvested from the essences of people's experiences which could not be reduced to the abstract physical laws (Merriam and Tisdell, 2015). The approach to theory development being inclined towards *inductive reasoning* implies that the theory that emerges is '*grounded*' in these data (Merriam and Tisdell, 2015), which is diabolically opposite to the deductive approach where hypothesis are deduced from existing theory and tested (Saunders *et al.*, 2019). In this study no *hypothesis* is proposed or tested but at the same time certain inferences are drawn from existing theories to

develop an initial framework for analysis in the form of *a priori themes*, which uses some amount of *deductive reasoning*. As the study progresses, *in vivo themes* are to be discovered, incorporated and processed as a result of more *focussed coding*. Given the range and diversity which the study hopes to achieve within the given time frame, *theoretical saturation* is not sought after.

Being a subjective area, context matters immensely while collecting, analysing and interpreting data related to *sustainability* and *CE*. Thus, *hermeneutics* play an important role in providing an interpretive understanding of the intricate meaning with special attention to the context (Merriam and Tisdell, 2015). Here, the *chronology* or *sequence of events* are crucial necessitating a *narrative analysis*, where researcher “gain access to deeper social or organisational realities” and meaning from the perspective of the *narrators* (the participants) as they define the *narrative* of “an account of an experience that is told in a sequenced way, indicating the flow of related events” and how things unravelled (Saunders *et al.*, 2019, pp.208-210). This essentially follows the *inductive reasoning*, giving it a *holistic* approach in contextualising knowledge and human intentions by acknowledging the “*cognitive, affective* and *motivational* dimensions of meaning making” (Merriam and Tisdell, 2015).

### **3.4 Collection Primary Data**

#### *3.4.1 Sources*

In order to answer the research questions, data was collected through *primary research* and *secondary research*. Primary research involved collection of data from a sample taken from a *target population*. The population in question are SMEs in Ireland, those who are involved with the SMEs in Ireland, people employed by SMEs, people in the academia who could be considered subject matter experts on sustainability or circular economy or procurement and supply chain management, procurement professionals, supply chain managers, supplier relationship managers in companies which utilize the services of SMEs or have SMEs as their suppliers and so on. *Non-probability sampling* (*Non-random sampling*) technique, *purposive heterogeneous sampling* were used to ensure diversity or maximum variation as it “illuminate *key themes*” (*in vivo themes*) useful for the research (Saunders *et al.*, 2019, pp.315-323). Furthermore, the

interpretivist nature of the study results in a very small sample size. In this study a *sample population* of seven *participants*, hereafter referred to as *subjects* or *respondents* were selected from the target population. A *semi-structured interview* (telephone or internet mediated) with each one of the subjects were used for primary data collection. This provided the flexibility to utilize the *a priori themes* as well as helps the discovery of *in vivo themes* from the *narrative* of the participants(*narrators*)(Saunders *et al.*, 2019). Data for secondary research are collected from books, journals, articles, databases, academic magazines, internet sources like news portals, government websites, websites of non-governmental independent organisations providing analytical services or promoting sustainability/CE or independent watchdog or observers like WEF (World Economic Forum) and so on.

As described in the previous section, data for primary research were collected through *semi-structured interviews* to focus the interaction and discussion around the *sustainability and circular economy* as well as to facilitate *narration* by the participants. Thus, the *a priori themes* (the triple bottom lines as well as table2, table 5, table 6 and table 7) are used to initiate as well as to advance the interview and as the interview progresses, *open ended questions* helps in obtaining *in vivo themes*. A list of *a priori themes* are provided to the participant in advance and the *open-ended questions* help overcome the bias in the mind of the interviewee to some extent. These questions are *probing, specific and closed type questions* (Saunders *et al.*, 2019). A summary of the factors to which the question relate to is provided in table 8

Table 8 Summary of factors to which the questions relate to

<b>Questions Relating To</b>	<b>Details</b>	<b>Literature</b>
<b>Compliance to Sustainability Standard, environmental sustainability practice &amp; SSCM practices-</b>	What are they; how do they facilitate such practices in the company; what are its impact on cost, revenues, profit; what are the perceived value generated due to these; how does the organisation gauge them	(Prasad et al., 2018) (Golini et al., 2017)
<b>Environmental Management Practices and Environmental performance of firm-</b>	What are the practices; how to they gauge the environmental performances; what are the results in terms of reduction in adverse impact to the environment	(Das, 2018)

<p><b>Environmentally sustainable product design, procurement and purchasing practises and logistics-</b></p>	<p>How does the company engage in such principles -LCA, LCC assessment, EoL management practises in company, supplier relationships, practices in transportation, packaging and warehousing to improve efficiency, conservation and sustainability etc. ; does such practices improve competitiveness and economic performances (cost, revenues, profit etc)</p>	<p>(Mitra and Datta, 2014) (Salhieh and Abushaikha, 2016) Malik and Sinha(2019)</p>
<p><b>Pressure from External Factors(globalisation, Brexit, Covid-19 and other factors beyond the control, market, customers, clients, partners etc.)-</b></p>	<p>How does the company respond to such factors in terms of sustainable practices; how does it affect the company's compliance to such standards; how CE could help in risk assessment and mitigation</p>	<p>(Prasad et al., 2018) Salam(2011) (Salhieh and Abushaikha, 2016)</p>
<p><b>Government (Legislations, Regulation, Policies and other initiatives such as involvement of local authorities and departments)-</b></p>	<p>how they help companies to move towards CE and improve sustainability; is there a positive response towards it; how they are evaluating the impact; do they want the government to do more or want less interference</p>	<p>WYSOKIŃSKA(2018) Mathews et al.(2018) (Salhieh and Abushaikha, 2016)</p>
<p><b>Organisational Practices, Industrial Processes, Reverse Salients and Network Governance-</b></p>	<p>Organisation awareness, top management commitment, support and favourable organisational environment; Operational Practices; adoption of lean process like JIT, TPM etc; how does they impact competitiveness of the company and its economic performances; does organisational culture impact the progress to CE; under-performing systemic members which retards and hampers the development of the overall system performance- what are they, how to overcome it, initiatives and approaches; collaboration and interdependence and trust build up with other industries and companies,</p>	<p>(Golini et al., 2017) (Salhieh and Abushaikha, 2016) (Prasad et al., 2018) Salam(2011) (Das, 2018) Mathews et al.(2018) (Sørensen and Torfing, 2016)</p>
<p><b>Social Sustainability Practices -</b></p>	<p>what are they; its impact on cost, revenues and profit. The perceived value generated due to these.</p>	<p>(Golini et al., 2017)</p>

Table 8 Summary of factors to which the questions relate to

*Probing type questions* were intended to explore facts or information. For example, questions like “how would you define sustainability in the context of your organisation?”, help reveal a lot about the perceptions about the topic from the participants viewpoint. Moreover, it helps in providing insights on how a participant analysis the aspects of the themes associated with the research question. For instance, questions like “how could your organisation or SMEs in a broader perspective achieve supply chain sustainability and progress towards a circular economy?” requires the interviewer to analyse the situation and provide an answer.

*Specific and closed questions* are more centred and focussed on the themes to get more detailed insights. As an illustration, enquiring about “So basically there is limited programs for talent and skill development. Is that what you mean?” will shower light on the assessment of the participant regarding the theme in question. Furthermore, responses to these questions could help in evaluating certain criteria during analysis.

#### 3.4.2 Access and Ethical Issues

Given nature of the topic and the geo-political area it intends to focus on, the unprecedented circumstances with respect to Covid-19 pandemic, the fact that researcher is an *external researcher* and negotiation requirement for *multi-organisational access* and *individual-person access* or *elite-person access* at each stage, the same were negotiated and mediated through websites, telephones, social media and other platforms of communication (*internet mediated access*) as well as approaching these businesses directly. As the sample size is small, the same was initially thought to be achievable without much significant issues, but the circumstances related with Covid-19 pandemic had an adverse impact on it. Saunders *et al.*(2019) suggests approaching personal connections, LinkedIn connections, alumni network of colleges, course advisors, to build up trust and gain access. No stone was left unturned in this regard. Moreover, the *research ethics* plays an important role in overcoming organisational as well as personal concerns related to *sensitivity*, *confidentiality* and *anonymity* and establishing credibility.

This research is ethically carried out adhering to the guidelines set out by *Griffith College Research Ethics Committee*. Participation in the research is *voluntary* with participants possessing the right to withdraw from the study at any stage and *informed*

*consent* are obtained before proceeding to data collection. All arrangements were put in place to protect the *confidentiality* of data or other *sensitive* information. *Personal details* and *privacy data* are not be used in the study and names are changed or redacted if direct references are required and in addition to the same sensitive information that could compromise the confidentiality of the subjects were completely redacted. Furthermore, all data collected will be destroyed and disposed as soon as the purpose of the research is achieved, by the end of December 2020.

**N.B.**Please refer *Appendix B* and *Appendix C* for details of *plain language statement* and *informed consent form* for participants.

### **3.5 Approach to Data Analysis**

The primary data collected through semi-structured interviews are transcribed. *Data sampling* is used to transcribe relevant “sections of the interview recordings pertinent to the research” (Saunders *et al.*, 2019,pp,644-646). Data is fragmented by means of coding to reorganise and process them into analytical categories, to identify themes or patterns by simplification or reducing them for further analysis. These codes are a combination of both *theory-driven (a priori)* or *data-driven (in vivo)* and corresponds to the themes which are refined, analysed and evaluated. While attempting the same extreme care is taken to preserve the *sequential* or *chronological* aspects of the *narrative* data pertinent to these themes in line with *narrative analysis* and hence the technique could be categorised as a form of *Thematic Narrative Analysis* described by Saunders *et al.*(2019).

### **3.6 Conclusion**

Based on the conclusions arrived at the end of the literature review, it was observed that the study is subjective in nature and should be analysed as such based on social constructivism and the various perceptions and realities about sustainability and circular economy. As such to undertake the research as per the direction pointed out by means of the conceptual framework (figure 2.2), a suitable methodology and strategy with a compatible philosophical underpinning is devised which could be summarised as shown in table 9.

<b>Philosophical Assumptions and approach</b>	<b>Subjectivism</b>
<i>Ontology</i>	<i>Social Constructionism with multiple realities</i>
<i>Epistemology</i>	<i>Interpretivism based on phenomenology (naturalistic) and hermeneutics</i>
<i>Axiology</i>	<i>Value bound and ethical</i>
<i>Theory Development</i>	<i>Abductive Reasoning more oriented towards an inductive approach</i>
<b>Research Design Factors</b>	<b>Details</b>
<i>Methodological Choice</i>	<i>Mono-method qualitative study</i>
<i>Strategies</i>	<i>A combination of Grounded Theory and Narrative Analysis</i>
<i>Time Horizon</i>	<i>Cross-sectional</i>
<i>Techniques and procedures</i>	<i>Semi-Structured Interviews (telephone or internet based) and Thematic Narrative Analysis</i>
<i>Sampling</i>	<i>Non probabilistic (non -random) Heterogeneous purposive sampling with certain elements of theoretical sampling where theoretical sensitivity and saturation is not ensured</i>

Table 9 Summary of Research Philosophy and other Design Factors

Table 9 is intended as a summary in words to describe the ‘research onion’ adapted for the study in words as envisioned by this researcher.

## **4 Presentation and Discussion of the Findings**

### **4.1 Overview**

This chapter presents and discusses the information collected through semi structured interview as discussed in the previous chapter. A total of seven participants hereafter referred to as subjects (of the study), associated with SMEs were interviewed for gaining insights into the concepts and practices in terms of sustainability and CE from a supply chain perspective. Subject S is an employee of a long established (operating for more than 20 years) company involved in distributing industrial electrical equipment and components. Subject G is also an employee of an outsource resource providing company to which a major green electricity provider has outsourced its outbound sales campaign. Subject D is the Director of a long time established (over 35 years) commercial wide format print business. Subject D2 is a highly experienced professional in procurement and supply chain management who has worked in senior procurement roles for more than 35 years in public sector companies. He also lectures in many third level educational institutions in Ireland and runs a professional consultancy offering a wide variety of services for other businesses. Subject G2 is one of the owners of a family owned office supplies business which is operational for the last 30 years. Subject O owns a business which provides services like cleaning and water jetting. Subject R is the owner of a start-up distillery business and an experienced professional who has worked in senior technical roles in reputed distilleries. Transcripts of the interviews are available in the appendices of this document.

### **4.2 Findings**

It should be noted that given the diverse range of industries as well as scale at which the SMEs operates, the definitions of sustainability and associated principles widely vary within the industry and this was reflected in how the subjects (participants) responded to the questions during the interview. Also, it was evident from their answers that many of the subjects either use or offer a few sustainable products or services as part of their business interactions.

#### 4.2.1 *Interpreting Sustainability and CE*

The subjects had a fairly good idea about sustainability but when asked about how they defined or interpreted sustainability, those who ran a business generally associated it with certain type of activities connected with their business whereas employees defined them with respect to aspects that they personally admire. Subject R defined sustainability in terms reduced energy consumption, reduced usage and ethical sourcing of resources ([Subject R: 6 - 6](#)). Subject R is involved with manufacturing and is more diligent in about energy consumption and ethical sourcing. Subject D2 associated sustainability as something which if not taken aboard and accounted for, is an expensive cost. In other words he means being unsustainable will be expensive in long-term and the more unsustainable an organisation becomes, the more risk it takes with respect to a cost which could have been avoided ([Subject D2: 2 - 2](#)). It should be noted here that Subject D2 runs a consultancy service and some of his services include advising clients on how to reduce their various costs and overheads. For Subject G2, who runs an office supplies business, sustainable usually implies “*sustainable usually means recycled or can be recycled*” ([Subject G2: 15 – 15](#)). For Subject O who runs a cleaning company with a variety of services, sustainability is synonymous with *safe and eco-friendly* as that what was his customers expected his business to be ([Subject O: 22 – 22](#)). Subject S who happens to be an employee in the sales department of an electrical distributor interprets sustainability as ‘*renewable, replenishable, recyclable, abundant and environmentally sound*’ ([Subject S: 9 - 9](#)). And Subject G, who also happened to be an employee defined sustainability as *getting the best out of something for a longer period* instead of *getting most out of something* ([Subject G: 46 – 46](#)) which in other words implied enhancing usage without exploiting. At the same time, Subject D when presented with the same question seemed to talk about the present situations and how they were forced to adapt to the changing times. This might be due to either him not understanding the question or may be because his interpretation of sustainability is adapting to the various challenges and threats. Except for a few who interpreted CE similarly to sustainability, most did not provide any remarks on CE. The findings in this regard is consistent with what Geissdoerfer et al.(2017) has argued and also mostly associated with the environmental aspect rather than the social and economic bottom lines defined by Carter and Rogers(2008).

#### 4.2.2 *Reduce, re-use and recycle*

Most of the subjects perceive that they have made a positive effort to ‘re-use’ or ‘recycle’ certain raw materials or products they deal with in their businesses as well as safe disposal of waste. The type of activities ranges from *recycling of machines or equipment* they use (by the end of their useful life) to basic activities like *recycling of waste* materials like packaging materials and other stationeries. Subject D claims to recycle 90% of his waste and even takes initiative to recycle his plastic waste through city council ([Subject D: 13 - 13](#)). He also claims of utilizing the EoL management process for the machines used in his business with the support of the supplier wherein most of them re-used and are recycled including parts ([Subject D: 47 – 47](#); [Subject D: 49 - 49](#); [Subject D: 53 - 53](#); [Subject D: 54 – 55](#)). But it seems that subject G has only basic initiatives with respect to recycling activities like recycling packaging boxes, printed paper, old company files and so on ([Subject G2: 41 – 41](#); [Subject G2: 43 – 43](#); [Subject G2: 45 – 45](#)). But it should also be noted that being an office supplies business, there are limited scope for any significant initiatives. Subject O also believes that he undertake a proactive approach to frequently make use of the EoL management process of OEM under the *WEEE directive* (European Commission, 2020) to send back the machines used for his cleaning, water jetting and other services for parts recovery and recycling ([Subject O: 50 - 50](#)). Moreover, he also put in his best effort to recycle day to day stuff like plastics, cardboards et cetera ([Subject O: 48 – 48](#)). Subject R is delighted about the initiative he took in getting an old factory refurbished for his startup business ([Subject R: 56 - 56](#)). But possibly due to long life (15 to 20 years) of the machinery and equipment used, the subject appears unperturbed about the course of action by to be undertaken by EoL of these equipment, but he appear to be confident enough to be able clam that he might re-use some of them after refurbishing and sell the others. As far as the re-use and recycling initiatives of Subject S and the organisation which employs him is considered, they re-use the cardboard boxes and also accept back products from customers as part of the *WEEE initiative* ([Subject S: 45 – 45](#); [Subject S: 29 – 29](#); [Subject S: 33 - 33](#)) and considers it part of the business operations.

At the same time when asked about what are the limitations they experienced and observed during their efforts in recovery, re-use and recycling, there were different set of reasons which each one of the subjects considered as prominent and it depended on the kind of product or service they provided and these observations included *customer*

*reluctance* to use certain recovery options, *technological or infrastructural limitations* and *lack of resources* for such initiatives ([Subject G2: 19 – 19](#); [Subject O: 52 – 52](#); [Subject O: 54 – 54](#); [Subject R: 22 - 22](#)).

#### 4.2.3 *Resource efficiency*

The subjects believe that they are making sound efforts and progress in their attempts to become more resource efficient in their day to day operations. These include having *limited number employees*, *using courier service (3PL)* for deliveries, *reduced* use of own transportation, *reduced consumption* of electricity, water or other resources, *reduced inventory*, or not using any complicated warehouse operations, *providing on demand services*, reducing printing or wasting paper and so on. Subject S is convinced that his organisation is quite small and runs a very *lean operation* ([Subject S: 35 - 35](#)), but by lean he implies reduced man power or employee count, unsophisticated and simple processes for order taking and processing (by means of email), reducing consumption of energy, resources, reducing waste and keeping their overheads low ([Subject S: 37 – 37](#); [Subject S: 73 - 73](#)). For subject D, 95% of their business is *print on demand*, which implies they do not have much inventory at hand (reduced warehousing requirements) and put minimum use of own transportation for delivery by relying on overnight courier services (3PL) ([Subject D: 45 – 45](#); [Subject D: 37 – 37](#); [Subject D: 39 – 39](#)). Moreover, they choose not to indulge too much in logistic activities so as not to incur any *additional cost* and not to put *additional stress* on their staff ([Subject D: 41 – 41](#)). The considerations in terms of *economic cost* as well as on the *employee relations* are evident. Since Subject D2 is involved in consultancy business, he avoids printing, making use of online platforms for delivering training and consultation for clients and making use to technology to avoid the need for paper based documents ([Subject D2: 4 - 4](#)). Subject O makes a conscious effort to *reduce* the use of fossil fuel based pumps and increase the use to electric pumps to be more resource efficient ([Subject O: 26 - 26](#)). Subject R uses a combination of *own transportation* for delivery inside the city and *3PL* for delivery outside of the city and believes that it is a more efficient utilization of the transportation available to him all the while monitoring the inventory level of raw materials as well as finished products so as to keep the inventory level at a lower scale ([Subject R: 44 – 44](#); [Subject R: 32 - 32](#)).

#### 4.2.4 *Standards, certification or compliance schemes*

Although not common, a few of the subjects were involved with practices such as use of certain standards like the ISO 9000 family (ISO, no date) or following a code of practice by certain independent trade associations, buying products having certain certification like certification by FSC (FSC United States, no date) or being compliant with WEEE directive (European Commission, 2020). Adherence to standards, like the ISO 9000 which is basically a standard for quality management, is not directly relatable with sustainability. Other standards like the FSC, used by Subject G2 ([Subject G2: 13 - 15](#)) for purchasing products and WEEE, utilized by Subject O and Subject S for sending back products to OEM for recycling are product specific certification and initiatives respectively which are oriented towards sustainability as well as CE principles and objectives. The code of practice used by Subject O ([Subject O: 10 – 10](#); [Subject O: 12 - 12](#)) is service specific and is intended more towards providing quality service for consumer satisfaction. Among these standards there is a general positive understanding, appreciation and enthusiasm about the WEEE directive from Subject O ([Subject O: 50 - 50](#)) and Subject S ([Subject S: 45 – 45](#); [Subject S: 29 – 29](#); [Subject S: 33 - 33](#)) whereas there either a lack of understanding or knowledge about other standards or apathy towards it. While Subject G2 is not sure about the particular series of ISO certification he is using ([Subject G2: 9 - 9](#)) Subject D used to have some kind of ISO standard in use a few years ago, but choose not to renew it because of *cost considerations* and also due to the fact that none of the companies (suppliers or customers) he dealt with demanded for one ([Subject D: 15 – 15](#); [Subject D: 19 - 19](#)).

#### 4.2.5 *Suppliers selection and supplier relations*

No complex procedures are employed in supplier selection hence their procurement initiatives could not be termed as ‘green procurement’ or essentially a sustainable procurement initiative. None of the subjects had a dedicated procurement department or supply chain managers who advised on supply chain decision. The general criteria for sourcing decision appear to be *the best product for the best price*. While most of the subjects (five out of seven) deemed it necessary to have some kind a *background check* on the origin of products, only two among those five considered it essential to have a conscious check for *environmental* as well as *social* and *ethical* considerations before selecting a supplier. Subject O was decided to source locally from a company in Cork

after being convinced that their products were eco-friendly and were having good standards and quality ([Subject O: 8 – 8](#)). Similarly, Subject R source most of their raw materials from European countries to ensure compliance with ethically and socially sustainable supply chain practices and when they had to source from India they did a very diligent background check and found that the suppliers were extremely committed to CSR and the local farmers who supplied unprocessed goods to the suppliers were also cared for and provided with educational incentives ([Subject R: 14 – 14](#); [Subject R: 16 - 16](#)). In addition to this, Subject R also sources services locally from Ireland to support other small businesses ([Subject R: 18- 18](#)). Subject D and Subject S also get a back ground verification done about the origin of the product as well as who is supplying them ([Subject D: 29 – 29](#); [Subject D: 31 – 31](#); [Subject S: 87 - 87](#)). At the same time, Subject D get the background check done by their immediate supplier who attests to the credibility and authenticity of the origin and background. Similarly, Subject R did not feel that he should require one of the suppliers to provide documentary proof for an ISO certification because he knew the supplier ([Subject R: 12 – 12](#)). Thus, it seems that the SMEs trust their suppliers to be compliant and to keep up with the sustainability trends and take the responsibility to ensure it along the supply chain. Thus, the SMEs seldom put forward any requirement in this regard and Subject S even remarked that since some of their suppliers are big companied and they may not be a big enough company, there is a possibility that such demands could be ignored ([Subject S: 17 – 17](#); [Subject S: 25 – 25](#)).

Most of the subjects has a good friendly and co-operative and long-term relationship with their suppliers, but there are exceptions and this relationship is not free of challenges or issues. Subject D believes strongly in long term relationships which friendly and collaborative. He also believes that at times this could be challenging that better price and quality of the service offered by the supplier plays a crucial role in how *collaborative* or friendly the relationship is build up over a long number of years ([Subject D: 32 – 32](#); [Subject D: 34 – 34](#)). His collaborative relationship has helped him in initiating contingency planning for Brexit as well as initiating a move to provide a possible green product in future ([Subject D: 62 - 62](#); [Subject D: 82 - 82](#)). At the same time, he also monitors and attempts to gauge the various characteristics of different suppliers like pricing, rate of increase in price, quality and so on ([Subject D: 25 - 25](#)). On a different note, Subject D uses a combination of both *arms-length transactional*

relationship (for better evaluation) and *collaborative* tactics like certain elements of vendor managed inventory ([Subject G2: 93 – 93](#)). Similarly, Subject S also implies a preference for a mix of both sort of relationships for supply chain sustainability([Subject S: 17 – 17](#); Subject [S: 27 - 27](#) ) while Subject R puts strong emphasis on *relationship building* and *collaboration* with the various suppliers ([Subject R: 34 – 34](#)).

Certain ‘green initiatives’ of the suppliers may push the SMEs to resort to unsustainable practices. For example, Subject G2 had to purchase packaging materials for delivery when the supplier started avoiding packaging material altogether and started using crates which they took back each time they come back for subsequent delivery ([Subject G2: 72 - 72](#)). Subject D2 who is an experienced professional and academician interpret this as being a cost which belongs to the whole supply chain which could have been avoided had the major suppliers taken enough responsibility and ownership to drive sustainability through the entire supply chain ([Subject D2: 14 – 14](#); Subject [D2: 16 - 16](#)).

#### 4.2.6 *Training and talent development*

There were discernable evidences of general positive perception regarding the importance of training and talent development programs being presented to the employees for increasing the productivity of the work force from the answers given by the subjects to questions related with the same. Although many of the training programs put in place by the organisations of the subjects were not explicitly oriented towards developing sustainability or CE or creating awareness about the it, some kind of *knowledge enhancement* and *skillset development* was definitely intended with such trainings. While Subject D was explicitly proactive about such initiatives by frequently and actively utilizing the courses offered by the print federation for knowledge enhancement and skillset development of the employees ([Subject D: 57 – 57](#); [Subject D: 59 – 59](#)), Subject O intended both *knowledge enhancement* by utilizing the training offered by water jetting associations and *regulatory compliance* trainings related with health and safety ([Subject O: 6 – 6](#); [Subject O: 16 - 16](#)). For Subject G2, the training programs were intended for *compliance with regulations* like health and safety ([Subject G2: 9 – 9](#); [Subject G2: 37 – 37](#)). Subject S was dismissive about any such serious training programs([Subject S: 51 – 52](#)) and Subject G was critical about *limited opportunities* presented to employees to get trained and the effectiveness of these

programs in terms of the *lack of personal development* and a *lack feeling of accomplishment* ([Subject G: 38 – 38](#); [Subject G: 40 – 40](#); [Subject G: 42 – 42](#))

#### 4.2.7 *Economic implications, strategic focus and customer relations*

There is a deep-rooted conviction among the Subjects that customers prefer cheap products and lack of demand or interest for sustainable alternatives. This combined with the increased demand for faster deliveries, same day deliveries and increased competition drives forces the subjects to resort to unsustainable practices. Thus customer demand and price are huge concerns for SMEs and are often challenging for their business ([Subject S: 65 - 65](#); [Subject S: 82 - 82](#); [Subject D: 65 – 65](#); [Subject G2: 15 – 15](#)). Customer compliance with sustainability options already available are also a concern ([Subject S: 76 – 78](#); [Subject G2: 21 - 21](#)) as often the onus is put on the businesses rather than the end user of a product or service to comply with sustainable practices and hence sincere efforts are seldom taken to sensitize or educate customers. Subject D being an exception in this regard in building a solid customer relation ([Subject D: 67 – 67](#); [Subject D: 65 – 65](#); [Subject D: 69– 69](#)).

The *economic cost* associated sustainability or sustainable initiatives is a major *fear factor* for most of the Subjects. These is an overwhelming evidence of a general perception among the subjects that sustainability is either costly or is not affordable with no real *short-term return* or *short-term competitive advantage* ([Subject G2: 15 – 15](#); [Subject G2: 17 – 17](#); [Subject G2: 19 – 19](#); [Subject G2: 51 - 51](#); [Subject D: 24 – 24](#); [Subject D2: 8 - 8](#)). As a result, they either hesitate to act or terminate any previously taken steps in that direction ([Subject D: 15 – 15](#); [Subject D: 19 - 19](#)). This gives rise to a *fear of revenue loss* or *market loss* or both due to increased *economic cost*.

Subject D argues that the *capital cost* for investing in sustainable solutions (for example electric vehicles) is higher and small and medium enterprises are *frightened* of the same and does not make a decision as they are primarily more focused on cash flows and hence prefer lower costs (lower capital cost) without taking into account the various running costs associated with it eventually resulting in more cash flowing out. Thus, the more reluctant they are to make a decision the worst scenario is building up. The big businesses have the resources (financial as well as human resources) available to analyse the feasibility or capital investment with respect to the *running cost* as well as cash flows whereas SMEs often lack the same. Even within the SMEs there are firms

having huge turn over who could afford such capital investment. But the smaller companies just do not have the resources at their disposal to think, evaluate, analyse and act strategically. They are often focused on *survival* or *short-term objectives* and unless forced, they do not think strategically and adopt sustainable or CE principles which they deem not to have any short-term competitive advantage. In this respect Subject R, Subject D, and Subject D2 have established processes to monitor and gauge some of their performance and have dynamic plan for the future such as up-scaling business, changing business models and other strategies to match various challenges .

#### 4.2.8 *Government and other external influences*

The views about government regulations and schemes varied from person to person according to the context in which they were spoken. Certain initiatives were appreciated by the subjects, all the while being critical of them and wanting more support. The positive perceptions were mostly about various government initiatives and schemes in terms of funds and grants for SMEs through Enterprise Ireland or Local Enterprise Offices or Bord Bia as well as the WEEE initiative. Subject D2, Subject R and Subject S had expressed mostly positive views about these schemes in relation to their business and how it could help them to be more oriented towards sustainable practices ([Subject D2: 32 – 32](#); [Subject R: 36 – 36](#); [Subject R: 40 – 40](#); [Subject S: 8 – 8](#); [Subject S: 83 – 83](#)). At the same time there were criticism about the *bureaucracy* and *red tape-ism* involved in getting funds and grants as well as the lack of will in implementing or enacting circular economy or sustainability initiatives more strongly while providing active subsidies to SMEs for pushing sustainability initiatives so that the they are not penalised unfairly and the large companies with huge capital resources do not get an undue advantage ([Subject G2: 81 – 81](#); [Subject G2: 82 – 82](#); [Subject O: 34 – 34](#); [Subject O: 60 – 60](#); [Subject O: 64 – 64](#); [Subject D: 12 – 12](#); [Subject D: 74 - 74](#)). However, such notions about bureaucracy and red tape-ism are were dismissed by Subject D2 as being exaggerated and suggests that only a normal delay associated with processing times are involved ([Subject D2: 32 – 32](#)). But almost all the subjects believes that the government could play a crucial role in progressing towards a CE if they provided a lot more help and support to the SMEs and at the same time introduce more regulations which Subject D2 termed as a *carrot and stick approach* ([Subject R: 42 – 42](#); [Subject O: 58 – 58](#); [Subject O: 56 – 56](#); [Subject D: 71 – 71](#); [Subject D: 73 – 73](#); [Subject S: 83 – 83](#); [Subject D2: 8 - 8](#); [Subject D2: 10 - 10](#)).

With respect to other external factors, Covid-19 pandemic has had the greatest impact on SMEs. All the subjects have experienced slowdown in business, reduction in sales, revenue losses, fear, job losses and most importantly they had to alter and re-organise their way of working to counter some of its impact. This included working from home, practicing less interaction with suppliers or customers affecting their services, reduced deliveries from suppliers and so on. Subject G was temporarily laid off from work, but due to the small size of business, the firms which the other subjects represented had kept the work force intact. At the same time, things were not so good for other SMEs across the country. Some of the points worth consideration is the fact that Subject D decided to change his business model and strategies by initiating plans to change incorporate B2C and B2B on a 50-50 basis and to given more importance to IT and to increase their online presence([Subject D: 7 - 7](#); [Subject D: 13 – 13](#); [Subject D: 61 – 61](#); [Subject D: 79 – 79](#); [Subject D: 73 - 73](#) ). Whereas, Subject R launched the firm and sale of its product by altering the launching strategy of sale of their particular brand of alcoholic drink through pubs (which were closed due to lockdown) to sale of entire bottle of the alcohol through off licenses ([Subject R: 24 - 26](#)).

With respect Brexit, although there still exist uncertainties, the subjects are expecting an impact where some of the products are coming through UK and there is not a lot evidence of contingency planning in that regard. Subject D2 views it as an added cost with respect to any new changes, whereas for Subject O, he needs to find new sources of equipment and chemicals he uses. Even though it poses a challenge to Subject D, as some of his supplies comes from UK, he has already initiated contingency plans by pulling out of UK market as well as making alternate arrangements with the suppliers to bring supplies directly from France, Italy and Portugal, price being the only concern. Subject D2 explains that as far as he is aware many of the small industries are yet to seriously consider Brexit but is hopeful that some sort of a deal will be made.

### **4.3 Discussion**

These research finding will help in evaluating the drivers or enablers of sustainability and CE in Irish SMEs, explore the challenges faced by these SMEs and describe the progress made by them in this regard. All of the subjects are sympathetic towards the concepts and principles of sustainability and CE but interprets it differently. The only

difference here is that while subjects who are employees, provided an interpretation about sustainability in terms of their personal preferences whereas owners or directors of the organisation provided an interpretation in line with institutional goals and priorities, similar to the what was described by Geissdoerfer et al.(2017).

It was found that the subjects associated with various SMEs had a general perception that the attempts to bring about more *resource efficiency* by *reduced consumption* of resources, *reduced waste*, *re-use* of certain kind of raw material, *reduced inventory*, use of *less resource intensive logistics operations*, *reduced* use of *own transportation* combined with use of *3PL* (courier services or distributors) and by initiatives for *recycling* had helped induce elements of sustainability into their businesses. Thus it is evident that SMEs view the most basic R framework consisting of *Reduce*, *Reuse*, *Recycle* (3Rs) as described by Kirchherr et al.(2017), as an *enabler* or *driver* of their *resource efficiency*, *sustainability* and *CE* initiatives. The re-use and recycling initiatives varies from industry to industry, remain most basic and are often driven by cost advantages, compliance with various regulations and policies (the WEEE initiative for example) and because the suppliers or sellers are proactive in recovering certain products for recycling (like the machinery and equipment supplied) or providing certified supplies (for instance the FSC certification). Personal convictions play only a supplementary role to the extent in making use of available opportunities to the advantage of business and seldom results in actions being initiated to bring about any drastic changes. Every action is initiated at the behest of organisational priorities. There are no evidences to suggest any efforts being made in the direction of other seven *Rs* described in *10 R framework* by Potting et al.(2017). With respect to the realization of logistic practices by the subjects, they remain incomparable with the scale of what was describe projected by Salhieh and Abushaikha(2016)and Malik and Sinha(2019) as essential for GSC and SSCM. Nevertheless, the practices adopted by the subjects could have significance considering the size of the enterprise and geographical area in which they operate. But in the absence of any effort by them to monitor and gauge the cost implications or its impact on the revenue or profit, it could not be conclusively stated. Although the use of standards or using green labels are not prevalent among the SMEs interviewed, some of them adhere to certain code of practice or demand certain certification for a few of their products. But the WEEE directive is perceived as being a success and hence is an appreciation of policy implementation by EU or the Irish

Government. The *supplier selection* criteria put more emphasis on *long-term stable relationships* and *supplier relationship* itself is co-operative and friendly which are essential factors for any stable and sustainable supply chain operations without putting much stress on the SMEs themselves. The SMEs cater to the need of the customer and takes extensive care to cater to their requirement in providing products and services. Thus, there is an attempt to build customer relations and gain market by providing better services to customer.

The *training programs* provided by the company like *health and safety*, even though are not directly related with sustainability, enables *safe practices at workplaces* and those talent development programs could be beneficial for the employees to excel in the job at hand. The training and talent development initiatives except for a few are often most basic ones intended to provide compliance with regulations (like the health and safety or manual handling) as well as those designed to help the organisational business priorities. The *human development* or *individual development* part of the same is mostly ignored wherein the employees may not feel a *sense of accomplishment* or having personally achieved something as remarked by Subject G. The SMEs also shy away from attempting the use of any ISO or similar standards.

Despite criticisms, it could be seen that the government policies, regulations, and support has provided a great deal of benefits for the SMEs. There is strong evidence in the findings to suggest that government through administrative bodies like Enterprise Ireland as well as Local Enterprise offices have helped the SMEs immensely by means of funds, grants and providing other type of services. Thus the *3Rs* which brings in *conservational dimension* (or *environmental* )along with, supplier relations, supplier management and customer relationships which brings an *economic dimensions* and a safe and secure workplace as well as training for mentoring a sustainable work force brings about an *educational dimension* which corresponds to three out of the four dimensions of sustainability as defined by Closs et al.(2011) depicted in table 2. But it is surprising that none of the subjects provided enough insights into the *ethical* or *social* aspects of sustainability for a detailed analysis. Unlike the findings of Burlea-Schiopoiu and Mihai (2019) in which CSR and training initiatives had strong implications in terms of profit in the Romanian SMEs, the findings of this study did not indicate any tremendous CSR initiatives or employee training initiatives beyond the regulatory ones. Perhaps taken out individually the SMEs may not perceive or evaluate their contribution

society in great detail and hence they may not introspected deeply about how they can bring about more social value through their business beyond the job creation and spending money in the community about which they might be having only a modest view as suggested by the ISME report (Irish Small And Medium Enterprises Association , 2015). The lack of proper monitoring frameworks for any sustainability initiatives could also contribute towards this.

One of the reasons why SMEs are not oriented towards sustainability or CE solutions or not moving higher up in adopting a *IOR framework* is because of the *economic cost* implication of sustainability. There is an overwhelming *fear* to invest time effort and money in such solutions because most of these SMEs are smaller companies which are primarily focused on cash flows and any significant diversion of money to invest in such solutions are perceived to pose a possibility of a high exposure of risk as there is *no short term returns* or *no short term competitive advantage* for such actions. Thus, sustainability cannot be isolated from the *economic cost* associated with it. In addition, these firms are so tactically engaged in their day to day activities that they neglect *strategic thinking* for *tactical advantage* in short term. They seldom possess the resources required to pursue a strategy, implement changes, monitor the progress, re-evaluate, make corrective changes, and re-apply.

There is also a *lack of customer demand or interest* in availing sustainable products and services the customers often have a preference of commodities that are *cheap*, provide the best value for money. But this value seldom includes the value of *environmental* or *social* sustainability and is rather associated with the *economic* value in terms of money spend by the customer themselves. Moreover, *customer requirements* like speedy deliveries and same day delivery forces the SMEs to use unsustainable means and practices in terms of transportation. These types of consumer centric behaviours are so strong that one of the participants of the study even remarked that they cannot force customers to buy green. The *fear or losing customers* and *market* to other competitors forces the SMEs not to take any drastic measures in terms of implementing any Green Supply Chain Management practices. Thus, the attempt to gain customers and build market for products and services comes at the cost of reduced supply chain sustainability.

The SMEs often *trust* their suppliers to do the right decision in terms of supply chain sustainability in an *ethical dimension*. The lack of *contingency planning* in terms of *Brexit* as well as relying on the suppliers for conducting a diligent *background check* on products sources from other countries like China to ensure *ethical practices* like proper working conditions and proper quality assurances and standards attest to the fact that the SME put the onus of their supplies when in come to major supply chain decision. At this instant is must be noted that unavailability of a dedicated *procurement and supply chain management team* could amplify these concerns depending on the circumstances. Although the relationships with suppliers are friendly and co-operative, the *extend of collaboration* is more result oriented or '*getting the job/deal done*' and not oriented towards sustainability or CE in most cases and there is no evidence that such an agenda even comes up in their mutual discussions. Since most of the suppliers are large companies, the SMEs lack enough *bargaining power* in terms of mandating sustainable practices or implementing CE policies. This coupled with the facts the there are no customer demand for sustainable products being delivered in a sustainable way, many a times the main point of contention remains *the best product for the best price*. Lack of *ownership of supply chain* by certain large suppliers results in the pushing the *cost* of sustainable practices or green initiatives of these suppliers downward through the supply chain without supporting the SMEs to implement similar changes. The best example would be a supplier avoiding use of packaging material altogether and delivering in crates which are taken back, forcing the SMEs to purchase their own packaging materials (which often might be unsustainable or not bio-degradable) as their customers or clients in the last mile portion of the supply chain prefers commodities to be delivered with packaging for practical reasons. This adds up the operational cost of SMEs without making any impact on the supply chain sustainability. As Subject D2 remarked this is a cost which belongs to the entire supply chain and hence could be categorised as an *economic cost* as mentioned previously and as these costs build up those further down at the lower extremes of the supply chain becomes more and more vulnerable.

There is a *lethargy* highly prevalent among the SMEs regarding the government funds or grants or other helpful services through Enterprise Ireland or Local Enterprise offices due to the perception about *administrative delays, red tape-ism, bureaucracy* involved in securing funds and grants from government and this prevents them from initiating

actions to secure necessary funding for implementing a CE model. Also, in the absence of strong lobbying organisations to safeguard the interests of the SMEs, they could feel that any regulations or policy changes from government to implement sustainable solutions or CE models would result in an increase in the *economic cost*. At the same time they prefer strong legislations which penalises unsustainable practice and at the same time introduce subsidies and economic support to offset any increase in the economic cost due such an adoption of policy, which Subject D terms as a '*carrot and stick*' approach. For example, they claim that they are willing to phase out diesel trucks in exchange for an electric van or regulating the use of fossil fuel based trucks for deliveries if the government could device a scheme to bear any additional *economic cost* required for the same. But they do not want such a scheme to be implemented in any way that it gives an undue advantage for big companies. This obviously has practical difficulties as well as technological limitations for implementing such a '*carrot and stick*' approach because of various commitments in relation to trade treaties and other bilateral agreements which obviously provide loop holes for any large companies with enough resources to work around any such regulations. Thus, building up trust and working together with the government organisation for initiating sustainability actions could be a challenging.

There are similarities and differences between the findings of this this study and those of Rizos et al.(2016). Both studies agree that *lack of customer demand or interest* and *lack of bargaining power in supply chain* as major barriers for CE and sustainability. While Rizos et al.(2016) identifies *Lack of capital* as a barrier, this study suggest the *economic cost* of sustainable alternatives or solutions as one of the barriers. Even though it could be argued that both are same, the *economic cost* of sustainability signifies much more than a mere cost of *Capital*. To make it lucid, it is an inclusive term which could be expanded to cover the hidden costs normally not considered while choosing sustainable alternatives. For example, when recycled paper which are presumed to be environmentally sustainable costs more than the normal ones, it signifies some costs which are not normally considered while discussing sustainability or CE. Moreover, this economic cost also includes various other factors like the additional burden on SMEs due to the sustainability initiatives of some suppliers who chooses to go green as discussed earlier. The next barrier defined by Rizos et al.(2016), *Lack of government support* which in the case of Irish SMEs is not a complete lack of

support. As evident from findings, the government is providing support through various bodies and there is a widely positive perception about the same. But the criticisms are mainly about a perceived complication in availing such benefit and the lack of strong regulations with subsidies, the practical considerations of which are beyond the scope of this study. None of the other barrier identified by Rizos et al.(2016) (*Administrative burden, Lack of technical know-how, Lack of information and Company environmental culture*) are found as a significant barrier in the Irish in the sense that no direct implications could be drawn. While this study identifies a strong ‘driver’ towards sustainable practices in the form of *government initiatives and regulations*, which most Irish SMEs practices diligently, Rizos et al.(2016) mentions it as one of the least significant driver. The *Company environmental culture* in Rizos et al.(2016) is reflected as the ‘*3R framework*’ which is extensively practiced by most Irish SMEs as a basic requirement. The enabler ‘*Networking*’ in Rizos et al.(2016) gets reflected as *collaborative relationship* between suppliers and Irish SMEs in the findings of this study but the other enablers like *Financially attractive, Recognition, Personal knowledge* lacks a strong enough effect in the sustainability initiatives of Irish SMEs in the sense that no strong themes surrounding the same were found in the qualitative study.

Unexpected loss in revenues and drop in sales due to the Covid-19 pandemic have put the SMEs in an extremely precarious situation wherein their immediate tactical response will be to reduce operating costs to counter the same. Since the pandemic is wreaking havoc across the globe, the governments, businesses including banking institutions, and other financial organisations are too overwhelmed to effectively address and cater to the issues faced by SMEs. Thus, the priorities get centred around *short-term survival* instead of a *long-term growth* or strategy that they neglect sustainability initiatives to focus on survival tactics. Moreover, no matter what actions are initiated, the absence of a suitable process to gauge or measure the performance of each initiative in terms of the environmental, social and economic actions or practices as suggested by Das(2018), no appropriate strategy could be formulated.

#### **4.4 Conclusion**

The findings presented in the chapter are a result of the analysis of the data collected through semi structured interviews as mentioned in the chapter 3. The literature

reviewed as well as the *a priori* themes identifies in chapter 2 has extensively helped in framing interview questions as well coding the data collected as well as analysing the same. As mentioned in the conceptual framework although *in vivo* themes were present in the interview data but the same were not abundant as initially expected. The thematic narrative analysis has provided much flexibility to categorise data based on the narration into themes without loss of continuity since the questions and responses were always open ended. The narrations from the subject where crucial and hence to keep the originality of the context, extensive portions of individual responses are reproduced in the findings section. Moreover, the transcripts of the interviews are included in the appendices of this document.

As opposed to a quantitative study which could present specific objective data, the results of this research are subjective, and the findings open further avenues for both qualitative as well as quantitative data. The next chapter provides the concluding thought and implications about the findings.

## 5 Concluding Thoughts on the Contribution of this Research, its Limitations and Suggestions for Further Research

### 5.1 Implications of Findings for the Research Questions

The aims of the research are to explore the challenges faced by the Irish SMEs in implementing sustainability and circular economy principles, evaluate the various drivers or enablers of sustainability and circular economy, and analyse its progress. While this research cannot pinpoint objectively the drivers of sustainability in Irish SMEs, the finds of the research sheds lights on how the widely perceived drivers of sustainability manifests themselves in the day to day operations of the SMEs. While facts stated in objective quantitative data reports and surveys mentioned earlier in this study like the survey by Irish Small And Medium Enterprises Association (2015) (section 2.4 of the present study) or the survey '*Flash Eurobarometer 456 : SMEs, resource efficiency and green markets*' (European Commission, 2018) (section 1.2 of the present study) are true, this study finds that most of the drivers of sustainability or CE like *resource efficiency, reduce, re-use, recycle* etcetera are practices at a very average or above average level by SMEs. Moreover, well-co-ordinated and well managed practices such as green logistics practices (GLPs), sustainable procurement (SP) or green procurement, sustainable/green product or process design, performance monitoring or green information system, use of a proper lean process are either non-existent or very minimal.

The strong negative perceptions regarding the *economic cost* of being sustainable as generates *fear* about investing in sustainable solutions or processes or CE business models which is also amplified by the *fear or losing customers* and *market* or due to the lack of *customer interest* or demand as well as the increased customer expectations regarding the kind of fast and convenient services they require. In addition, due to the *lethargic attitude* of the SMEs created as result of the perceptions of *administrative delays, red tape-ism, bureaucracy* again discourages them from seeking financial assistance for implementing such solutions. These factors combined by the *imbalance in bargaining power* with large companies and lack of strong initiatives by much bigger companies to take ownership of the entire supply change results in the additional cost of their green initiatives being pushed down the supply chain, making the SMEs more

vulnerable. Thus, these challenges along with the absence of strong drivers of sustainability as well as processes to gauge the performances, it is not surprising that a significant percentage of the SMEs in the EU Commission's survey appeared to believe that resource efficiency action either increased cost or did not have an impact on the cost. Despite these facts the certain well-planned government regulations, supplier initiatives or customer demands could drive sustainability and CE implementations more effectively as the SMEs view these such initiatives more favourably and chances of compliance are high.

There is a *lack of strategic thinking* and preference for short-term returns and achievements among the SMEs. The Covid-19 pandemic has exposed this vulnerability and the lack of strong contingency plans in terms of Brexit may make things more difficult for the SMEs. On the bright side, the pandemic may have prompted at least a few SMEs to evaluate their business strategies, make changes and alter their business models for better days to come.

## **5.2 Contributions and Limitations of the Research**

This research illuminated the situation of Irish SMEs in terms of sustainability and CE from a supply chain perspective. A much deeper understanding about the perception of SMEs about these concepts are presented in the study with more qualitative emphasis on the driver and challenges in implementing sustainability as experienced by the SMEs. Thus, since this research is interpretive and exploratory in nature, the subjective data collected is so vast that each of the findings opens further avenues for more in-depth analysis and research which could be qualitative or quantitative. This research could supplement quantitative or qualitative research done earlier in this field as well as help or guide future quantitative or qualitative research in this topic. In either way it brings in a different perspective about the ground realities and could help the SMEs to introspect on their approach towards sustainability and circular economy principles. As a result, these companies will be better equipped to boost their sustainability initiatives utilizing the various driving factors. Moreover, the conclusions regarding the challenges will provide these organisations with an understanding to develop various capabilities, necessary tools or make policy changes to counter them or work around them.

Despite the contributions mentioned earlier, this work has serious limitations in terms of its scope for generalisation as well as applicability for policy decision. Primarily, being an interpretive study, the sample population chose is extremely small and in this study most of the subjects interviewed belongs to the ‘micro’ classification of the SME (see appendix A) and hence the realities associated with other size categories might be different. Another disadvantage of a small sample population is the limited representation in terms of the type of industry and type of participants. For example, industries which are involved in production of commodities are not adequately represented in the sample and the same applies to others as well. Majority of the participants are owners or managing directors of the firm whereas only two of them qualify as representing employees. Thirdly, there is a serious underrepresentation of ‘women’ participants to the extend that none of the subjects are women. These is not a deliberate omissions as this researcher has tried communicating with potential women participants, employees, and other categories of SMEs, but the unprecedented circumstances brought about by the pandemic and subsequent closing of businesses have resulted in finding participants extremely difficult which resulted in these unintended outcome. But this will have serious implication as the perspectives of a gender, or a group of people are not represented at all. This concern is further validated by the observations made by Subject O (Subject O, Pos. 36-38) and supported by Subject D2 (Subject D2, Pos. 26-28) about a male-female divide in perceptions and actions. Also, the time constraints on the research have put restriction in terms of more in-depth analysis and further validation in terms of findings through more reliable methods. Last but not the least, Covid-19 pandemic has affected the way interview were conducted. Most of the interviews were telephonic and two were internet mediated (zoom based) and thus lacked the vigour of face to face interaction in a real world setting. Also, since the pandemic people were extremely uncomfortable with the uncertainties presented by the same that the interview time were limited and often done on short notice.

### **5.3 Recommendations for Practice**

In order to successfully implement sustainability and CE models in a small and medium enterprise an organisational specific approach and a comprehensive plan need to be developed in relation to the particular type of organisation, its profile, business models, suppliers, customer base or target customers and market requirements. Incorporating a *strategic focus* in the middle of the day to chores of survival tactics with limited

resources could be challenging. The first and foremost is to have a self-reflection and evaluation to begin with. Greater co-operation and communication with suppliers and customers to build up a *collaborative relationship* will help to a greater extent as it will help in building up trust between the parties involved to convince them to be a part of any initiative taken towards sustainability. Secondly, a *continuous monitoring*, gauging, evaluation and reporting of various initiatives or actions or processes intended at improving sustainability should be devised so that a proper harmonisation could be achieved among the various drivers of sustainability. Use of sustainability standards like the ISO would help in proper reporting and standardisation of such initiatives for comparison. Training programs should be intended at *professional development, knowledge enhancement, talent development, skillset development* as well as *individual development* of the work force. Finally, being proactive in securing funds, grants and other support provided by the government through various administrative bodies are crucial to offset the economic cost which most of the SMEs fear.

#### **5.4 Recommendations for Future Research**

As already explain, since this research is interpretive in nature, it opens vast avenues for further research. The core concepts of the topic itself is wide and attract significance in today's world. As such, recommendations for future research directly follow from the limitations of this research. Future research could be oriented specifically in any of the multi-dimensions in which this research was based or could expand this research to make it more applicable or suitable for generalisation.

In case of the former, where more specific dimensions are enquired there are huge possibilities both in terms of the core concepts on which the research is based or on specific findings of the research. While this research is based on the general concepts of CE and sustainability, a more specific research could be initiated on any of the aspects of these concepts like the 10 R framework or social dimension of sustainability. In terms of the findings of the results there are possibilities to investigate further in to each one of the findings. For example, supplier relation dynamics or economic implications of sustainability could be interesting topics to pursue. In terms of participants an employer specific or employee specific research could be carried out and in terms of type of industry, say for example a research on craft beer manufacturing SMEs or other SMEs in the food and beverages industry would be compelling. Moreover, a gender specific

quantitative comparison research could also be carried out to find out whether there is really a difference in perception based on the gender or not.

In the case a more general approach is followed, the research could be expanded by including more participants (and more gender inclusive) and using quantitative methods or qualitative methods or even both and including a much more diversity in terms of type of categories of SMEs or type of subjects employees or employers, managers and so forth. Furthermore, more flexibility in terms of time for completion of the same will be an added advantage to reach at a more general conclusions applicable to the entire SMEs.

## **5.5 Final Conclusion and Reflections**

The entire dissertation process and the extensive and intensive work associated with it provided the researcher with a huge learning experience, both in terms of the literature as well the topic and in terms of the real-life business implications. In addition, the methodology used, and the work involved in data collection were also beneficial for personal development of the author.

As far as the findings of the research is concerned, the same was totally unexpected, but objectives of the research were achieved while opening new avenues for further research. The insights gained into the inner workings and perceptions of small and medium enterprises in Ireland, especially the ‘micro’ category has entirely changed the perceptions of the researcher and was prompted to look beyond the academic literature for more real life experiences and insights. Running companies, especially with minimal resources and commitment to customers, suppliers, employees, environment, society as well as to oneself is a challenging. The risk exposure in such a business is always high and hence every decision whether tactical or strategic has to be made with utmost caution and despite these facts how strategic thinking still remains to be properly incorporated presents a itself as a wild jigsaw puzzle.

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## Appendices

### *Appendix A – Enterprise Size Classification*

**Table A.1 Employment size classification in Ireland**

<b>Employment Size Class</b>	<b>Description</b>
<b>Small and medium enterprises (SMEs)</b>	Less than 250 persons engaged
<b>Micro</b>	Less than 10 persons engaged
<b>Small</b>	Between 10 and 49 persons engaged
<b>Medium</b>	Between 50 and 249 persons engaged
<b>Large</b>	Greater than 249 persons engaged

Source : (Central Statistics Office, 2012b)

## **I. Introduction to the Research Study**

The research titled ‘Circular Economy and Supply Chain Sustainability- Drivers, Challenges and Progress of implementation in Irish SMEs’, is an academic research study undertaken by Sarath Rajan as part of his MSc in International Procurement and Supply Management under the guidance of Graduate Business School, Griffith College Dublin. The objectives of this study are to explore the main drivers(enablers) and challenges experienced by Irish SMEs in implementing or adopting a circular economy model in terms of a sustainable supply chain perspective and to describe the progress made by them. Sarath Rajan can be contacted at sarath.rajan@student.griffith.ie.

## **II. Details of what involvement in the Research Study is required**

Participants will be required to attend Interviews, share responses to the research questionnaires, provide documents or other resources and data related to the research study. It is possible that the researcher may request follow up interviews. All information shared by the participants will be recorded electronically or in appropriate formats suitable for its study, analysis, and evaluation for the purpose of the research. These data will be obtained only with the informed consent of the participants, stored securely for the duration of the research, and will be destroyed as soon as the purpose of research is served, by end of December 2020. Moreover, participation in the research study is voluntary and the participants have the right to withdraw from the research at any stage in case they desire to do so.

## **III. Potential risks to participants from involvement in the Research Study**

Risks which may happen inadvertently includes possible leakage of the information they provided along with their identities. However, extreme care and precautions will be taken to mitigate these risks or minimize its impact. Personal details will not be used, names will be changed if direct referenced are required, thereby protecting the identity of participants, and ensuring confidentiality. Furthermore, all the data collected will be disposed as soon as the purpose of the research is served.

## **IV. Benefits (direct or indirect) to participants from involvement in the Research Study**

The intended outcome of the study hopes to provide insights into the barriers and drivers in progressing towards a circular economy and supply chain sustainability for Irish SMEs(Small

and Medium Enterprises), so that the knowledge gained can be used to take informed decisions regarding policy changes or other necessary measures for organizational development.

#### **V. Arrangements made to protect confidentiality of data**

In order to ensure confidentiality, personal details will not be used and only data relevant to the research will be collected. These data will be used only for the research purpose mentioned above and will be destroyed as soon as the research objectives are achieved. As such, under no circumstances will the researcher or Griffith College Dublin be held legally responsible for any eventualities or damages arising out of any accidental or non-deliberate disclosure or leakage of information or unintentional disclosure of personal identity.

#### **VI. Data is to be destroyed after a minimum period**

The data will be destroyed after the completion of the academic research and soon after achieving research objectives by the end of December 2020.

#### **VII. Involvement in the Research Study is voluntary**

The participation in the research is voluntary and they will not be coerced in any way to associate with the study. Moreover, the participants have the freedom to withdraw from the study at any stage, in case they desire to do so.

#### **VIII. Any other relevant information**

The sample size of the study may be small, which may have certain implications like limitations regarding the anonymity and privacy even though extreme caution and care will be undertaken to maintain the same. Personal details will not be used for the research and the data collected strictly pertains to the area of the research intended and will be used for the sole purpose of research only. After the research objectives are achieved, these data will be destroyed. As such, the researcher or Griffith College Dublin shall not be held legally responsible for any eventualities or damages arising out of any accidental or non-deliberate disclosure or leakage of information or unintentional disclosure of personal identity in any way.

If participants have concerns about this study and wish to contact an independent person.

Please contact:

Dr Garrett Ryan,

Griffith College Research Ethics Committee

South Circular Road, Dublin 8, Ireland

Mail: [garrett.ryan@griffith.ie](mailto:garrett.ryan@griffith.ie)

Tel: +353 1 4163324

*Appendix C – Informed Consent Form*

**I. Research Study Title**

*The study in which I am being requested to participate have the title ‘Circular Economy and Supply Chain Sustainability- Drivers, Challenges and Progress of implementation in Irish SMEs’. It is an academic research study undertaken by Sarath Rajan as part of his MSc in International Procurement and Supply Management under the guidance of Graduate Business School, Griffith College Dublin.*

**II. Clarification of the purpose of the research**

*The objectives of this study are to explore the main drivers(enablers) and challenges experienced by Irish SMEs in implementing or adopting a circular economy model in terms of a sustainable supply chain perspective and to describe the progress made by them.*

**III. Confirmation of requirements as highlighted in the Plain Language Statement**

As stated in the Plain Language Statement, requirements for participants may include involvement in interviews, completion of questionnaire, audio/video-taping or other means of collecting or recording data related with the study.

**Participant – please complete the following (Circle Yes or No for each question)**

*I have read the Plain Language Statement (or had it read to me) Yes/No*

*I understand the information provided Yes/No*

*I have had an opportunity to ask questions and discuss this study Yes/No*

*I have received satisfactory answers to all my questions Yes/No*

*I am aware that my interview will be recorded (audio/video) Yes/No*

*I understand the information provided by me will be studied and analysed Yes/No*

*I understand that I may be requested to attend follow up interviews Yes/No*

*I understand that I may be required to share relevant data/documents Yes/No*

*I understand that any information provided by me will be stored Yes/No*

**IV. Confirmation that involvement in the Research Study is voluntary**

*I am fully aware that my participation in the research is voluntary and I can withdraw from the Research Study at any stage.*

**V. Advice as to arrangements to be made to protect confidentiality of data, including that confidentiality of information provided is subject to legal limitations**

*I am aware that my personal details will not be used and only data relevant to the research will be collected I have also been informed that these data will be used only for the research purpose mentioned above and will be destroyed as soon as the research objectives are achieved. I also understand that all efforts will be made to ensure the confidentiality of the data provided by me and as such under no circumstances will the researcher or Griffith College Dublin be held legally responsible for any eventualities or damages arising out of any accidental or non-deliberate disclosure or leakage of information or unintentional disclosure of personal identity.*

**VI. Any other relevant information**

*I am aware that the sample size of the study may be small which may have certain implications like limitations regarding the anonymity and privacy even though extreme caution and care will be undertaken to maintain the same. I am also aware that my personal details will not be used and only data relevant to the research will be collected. I have also been informed that these data will be used only for the research purpose mentioned above and will be destroyed as soon as the research objectives are achieved. I also understand that all efforts will be made to ensure the confidentiality of the data provided by me and as such under no circumstances will the researcher or Griffith College Dublin be held legally responsible for any eventualities or damages arising out of any accidental or non-deliberate disclosure or leakage of information or unintentional disclosure of personal identity.*

**VII. Signature:**

*I have read and understood the information in this form. My questions and concerns have been answered by the researchers, and I have a copy of this consent form. Therefore, I consent to take part in this research project*

**Participants Signature:**

**Name in Block Capitals:**

**Witness:**

**Date:**

*Appendix D – Interview Subject D*

- 1 [0:00:00]
- 2 **I:** [0:00:20] Can you tell me a little bit about your company and its business?
- 3 **R:** [0:00:24] Em, (Company name redacted) is a long-time established business, established over 35 years, would be a (live on) digital wide format printers. We're based in (place name and address redacted) where all our production is done.
- 4 **I:** [0:00:47] Have you been familiar with the concepts of sustainability and circular economy? What is your understanding or how do you define those concepts?
- 5 **R:** [0:01:03] Um, presently is that what you mean is it?
- 6 **I:** [0:01:09] Yeah
- 7 **R:** [0:01:09] Yeah look, the economy at the moment like all businesses are going through challenging time and certainly um we'd see that our business will change drastically and in the long run in the coming months or in the coming years we () saying we'd have to diversify, but we see more and more of our business hands on hands be doing online and we also have to offer our customers um a greater mix of perks and that's what we are working on at the moment. But certainly, the major challenge that we see at the moment is that um we are presently developing a website where we can do business with um B2B and B2C and we hope to get to close to business there. We have seen a big share and since the Covid and that we've seen nearly close on 50% of a reduction in sales and we didn't see this coming and we want to be paid for us, but not;- towards the payment that always should've been. So, we'll have a lot of work to do probably by this time next year to get us back to where were. Um, (), IT and other business is going to the most important part of it not our printing capacity. It's the IT and it is going to be the major part of our business which has to be worked on.
- 8 **I:** [0:02:58] So right now what is your business. Is it B2C or B2B what approach are you taking now?

9 **R:** [0:03:04] Yeah we'd have a mix of on B2B will be 60% and B2C will be 40%. What we do see is we think that there is always be a mix going forward of B2C 50%, B2B 50%. We are just trying to get a 50-50 mix on it. We do see that the larger companies, um going a different route with regard to marketing, um their advertising spend would be reduced from print. Um you see they've been turning to online, online campaigns so far either through Facebook, Instagram, um (a whole lot so) that's we just see () you know.

10 **I:** [0:03:59] Mmhm, so what products and services do you offer to your customers?

11 **R:** [0:04:04] Um, what we do on to our customers is various, we could start off with the general stationery, that could be from business cards to () compliment slips, up to docket books, various picture size, docket books regard to could be A4, could be B8, could be A5 and then we do a lot of um magazine works so () , it could be A4 page, 8 page A4s we do a lot of that and then we do um a lot of what could be considered self-publishers who come in and they are after writing a book from the history or they have something that they'd like to - like one week ago , our client asked for 10 copies of that of a few hundred pages or 200. Um we do see that that ended () and we would hope to grow that because we have the capacity to print and to finish them further all that further works. We also do a lot of um, excuse me lot of wide format printing which enables us to do large size um point of sale posters , um display units, um also on that we do a lot of label printing on the wide format machine. So mix is wider and varied and we could cover most markets um so that would be it in general.

12 **I:** [0:05:50] Okay okay okay, that's great. And do you think that do you offer products and services , do you think that they are eco-friendly or are they green products? How do you think or how do you um evaluate your products are they more eco-friendly or do you use recycled papers for printing or do you, you know do you have a proper plan for reduction of waste or you know to minimising the use of resources or any plans to be resource efficient ? Do you follow any such practices in your company?

13 **R:** [0:06:34] Yeah, we had plans early in the year, a couple of things is that revamping the whole factory in regard to lighting system which would be eco-friendly system and we are actually starting to get a grant for that, hasn't completed because of the Covid situation now it has gone () on that what I've been saying is that its getting , um our all electricity and lighting systems, it's an eco-friendly that there would be no long um in regard to production end, we use um a prime recycled paper, one that's available. We are conscious of the

environment and we do ask customers that look try and avoiding laminating on certain product because they are not used finished, we would like (can't be ) recycled and so forth and 90% of our waste is actually recycled and we have a company that comes in and recycles um all our wastes and we also dispose our own plastics through a sorts of county council where all of our plastics are recycled. Um we are very conscious, as a small company, we are extremely conscious of the environment and that the printing industry needs to look in regard to that.

14 **I:** [0:08:02] And do you have any sort of international standards like the ISO standards or any other eco-labels or anything associated with your company?

15 **R:** [0:08:17] No, we don't have at present. We did have up to before years ago and then we just didn't renew it um because of the cost that was didn't want um um the um the cost of it. And number 2 is that the multinationals are that we are doing business with never requested a a anything. So initially we , on regard to probably ten years ago the idea was that okay to deal with multinationals, and they are gonna come in , they are gonna need look on this far. Um that changed (and although I don't want to change) they never looked for. So we just has no point throwing money at this and nobody, there is nobody asking about it you know. So so and ISO needs to be something that probably needs to be resurrected but the multinationals we -say "look and we are only going to you with people that have a, an ISO and presently its just all (liquid).

16 **I:** [0:09:20] So so can I say that um one of the constraints for implementing such standards in your organisation is cost and the other one being your suppliers or the companies you are and your customers who, with whom you are dealing; they are not insisting on having such a standard in your company?

17 **R:** [0:09:44] No, they are not no, no and that goes for all the multinationals. The multi customer we deal with, the (suitcase)that they are only interested in, this may be quite far found, is that can you print job, can you give it at this price and that will be genuinely the question that played out.

18 **I:** [0:10:08] Okay okay okay.

19 **R:** [0:10:09] They'd never ask "have you got an ISO?"

20 **I:** [0:10:14] Okay okay and how about your customers does your customer demands that you provide them with products which are eco-friendly or um which has a green label associated with it or do they want um a reduced cost. How is your customer's um approach towards ?

21 **R:** [0:10:38] They were not, the customers were very good, very (shy and they don't ) look for a green label as we would call it . They they, but to do so then they certainly expect and expect it the way we sell them, ask for any sort of green label (whether) in paper or in finishing and so forth. The only reason why we would've asked um we would have done a tender for a paper which had to be cancelled, and they would've had um two sections on it um, a price for a standard paper and a section for recycled paper, pricing . So, recycling paper always comes in there.

22 **I:** [0:11:25] And um let me ask you something, that how do you gauge the performance of the company in terms of its environmental commitment or you know following such sustainable practices. Do you have any process in place to, you know measure your performance and evaluate yourself that that since we since we are following these sustainable practices, we have been able to reduce our expenses or reduce our cost . Is there any such sort or process in your company which regularly monitors um all those aspects?

23 **R:** [0:12:03] Is that, a cost based or is this to do with the environment?

24 [0:12:09] **I:** Umm, it is really with the with both, like your cost based as well as your environmental performance. You have to be like I mean, if you can device a process which could, um evaluate your performance in terms of the environmental aspect as well as with your cost and revenues-is there some sort of process um which you follow through which you monitor continuously about these things?

25 **R:** [0:12:42] Yeah well in regard to um how do we manage the company, is that we basically manage the company through software, we have software that, we have all the different machines on it in regard to their every rates, what it's costing us per hour, plus we have um all our um staff and other systems regarding what they are costing per hour and then we would have cost per running of the extra factory service; the way your different things built into the software that allows us to um monitor and we gauge um, where are we going from month to month with regard to cost basis and so forth. Um we would have a cost based on different suppliers which we monitor month by month on variables, by their

pricing and goings. They're never going down, they always going up, that's price, price by price is there. Um but like every weekend we'd contact with our customers, or in per year we've to you know cost increasing (to them)customer. In regard to suppliers we have to go look in strictly. pick'em in and match the price that we've given to our customers. So, it's um monitoring stuff is a challenge in itself.

26 **I:** [0:14:19] And how do you select your suppliers, do you offer, do you ask for tenders or you know or do you conduct auctions. What is the procedures for supplier selection that you adopt?

27 **R:** [0:14:38] Um, supplier selection is based on price and and products. There are certain products that you can only buy of certain suppliers, So you'd have to go to them and there would be other products where there would be other 4 or 5 suppliers that you can actually go to and just see the price so that you can and get from them. Then you have different brands, you'd have a say what we call the wide format um you got a PVC material, which is very expensive. In different customers are different brands and you are always looking and trying and get the best price of the best brand.

28 **I:** [0:15:16] And di you have any sustainable criteria or environmental criteria which is build up into your supplier selection? Like for example do you trace where those materials are from, are they um following you know the best labour practices, or there is no child labour or modern-day slavery involved. Are you looking for such factors while selecting your suppliers or do you just, it's just about the product you require and cost? How do you

29 **R:** [0:15:51] Um, we try and get a background about the product in most(), from where they are coming from, and whose supplying it, now we are very much conscious of of which do the right thing and technique, I need the price that we take in from say obviously it's China are from where um which we generally get a background of where the product was manufactured and so forth. And there is who are suppliers to the guy product coming in all the, all the suppliers they actually do a diligent background, from where they are getting theirs and their supplier is from. So in the printing industry, um (companies) with whom we deal with, they would be very conscious of um of doing the right thing and they do look into the background from the manufacturers and so forth and I know it for its fact somewhere suppliers go to both India and and go to China and look at the actual um manufacturing base before they decide on buying anything you know.?

30 **I:** [0:16:57] Okay so do, if it traced back to China, do you pay a visit to evaluate or how do you?

31 **R:** [0:17:04] No no we get our suppliers. Our suppliers actually go out and they do a background. And because they will be going out for um 20 or 30 different printers you know, um while each printer going out you know, that we wouldn't be big enough to be able to do that. Whereas they'll be going out on our behalf.

32 **I:** [0:17:29] Okay okay thats good. And what sort of relationship do you have with your um suppliers, is it um a collaborative relationship with co-operation or just an arm's length transaction where you do the business -that's it. How do you define the relationship with suppliers?

33 [0:17:48] **R:** Well the suppliers can be um difficult, they can be challenging because the supplier is trying to get the best price they that they can get and we're trying to get the best price that we can get. Suppliers could be challenging and but most suppliers that we would have, deal with, we'd have along, stay in relationship with them, so will be very, on a very friendly basis. Um but it can be challenging at time when we have the price increase and things like that. We'd see dealing with supplier, it's the, one of the, we're not tenuring supplier for one year, it's a long tern relationship you know.

34 **I:** [0:18:31] Mmhm, okay okay. So basically you like you negotiate and you co-operate most of the times or do you have a, you have can I say that its a little bit inclined towards collaboration than the arm's length strategy?

35 **R:** [0:18:51] Oh yes, it's more of a collaboration. It's that you know, basically, it's a partnership you know and that's the way you look at it to our suppliers. And then now and then there is always new suppliers trying to get in the (void), we do () product from. But in here we build up a relationship with certain suppliers over long number of years, you intend to stay with them if you get the price that you require and if you get a good service, you generally go back to them you know.

36 **I:** [0:19:28] Yeah yeah, that's perfectly normal I know. And what about logistics and logistics distribution or reverse logistics. Do you happen in any such things with respect to your products and services?

37 **R:** [0:19:46] Well we, in regard to we have some with the large companies that we deal with, we keeps storage for them in regard to some of the materials, plus the materials another, most of them we use overnight couriers and we send them throughout various places around the company and then we also have one, a few customers who use very light warehouses. Well for them logistics are we just run from their locations to these logistic houses.

38 **I:** [0:20:26] So what about transportation? Do you have your own vehicle for transportation or do you um hire a third-party logistics provider? How does it work?

39 **R:** [0:20:39] Yeah, we have our own logistics, we have two vans on the roads and we'll only do deliveries in the Dublin area. Other than that we send out um over night by couriers which we use a company called (company name redacted) and they will do all our what we call our country. runs.

40 **I:** [0:21:02] And do you have any facility for inventory like warehouses or something which you own? Do you have your own warehouse or do you?

41 **R:** [0:21:14] Yeah, we have our own warehouse, again as I said we give a (priority) services to customers, we try and avoid that because um it details somebody else, it details one of our member staffs have to look after logistics and that we just, we just try to avoid that because it's another cost effort. We're not into logistics at all because of our business so.

42 **I:** [0:21:47] So do you have just in time system devised for your particular line of business so that you keep your inventory to the minimum and you can reduce the cost associated with it?

43 **R:** [0:22:03] Um, I don't, I try to understand the question. Are you saying that we are cost of time in motion or?

44 **I:** [0:22:11] Yeah like certain companies adopt a just in time process wherein they keep their inventory to the minimum that means almost nil inventory, so that products or any other services which they require arrive you know at the particular time, for example if, if you want to deliver a particular product to a customer, you schedule the arrival and everything with your supplier such a manner that you don't have to keep it in your

warehouse. You can directly cross dock into your transportation vehicle and just directly take it to the customer.

45 **R:** [0:22:52] Well 95% of our product line could be called print on demand. So in another words we have very little on our shelves, they are going to the customers very little, um because we are not like say a grocery business where you are doing the same products all the time. Our products would be specifically branded products and it's a print on demand and we've no need for a having any major logistics in the warehouse for a project like that.

46 **I:** [0:23:37] So again coming back to the equipment you use, the machinery you use. What happens to these machinery you know during their end of life and?

47 **R:** [0:23:48] Yeah, all most of our machines are, we are having within, they are recycled um most of them are recycled. Then there, one or two companies that we are dealing with, they actually take the machines back and they actually recycle the parts out of these machines. We use them, we re-use them and for other machines and electronic and we (remove) them and again they are all recycled. There is nothing basically involved in that I'd say dumped. All our machines are recycled.

48 **I:** [0:24:28] Wow that's great. So, this was, you took an initiative to provide you know like, to make this happen? The initiative for the recycle was it proposed by you or the company, was it negotiated by you or the company had had this proposal, your supplier whoever supplies this machinery?

49 **R:** [0:24:52] Yeah, what it means is that when we're looking at machines, it would have come always come up with conversations, um okay end of life, what happens with end of life her you know and the company will come back and say "look we take take machines back, recycle them and we take the parts back to the warehouses, take the parts out and we build the machine again and the puts the parts into that machine. Um so in fairness that the companies that we buy machines are, they're very um proactive in that from the beginning.

50 **I:** [0:25:29] Mmhm and do you involve in any you know sort of sales of printers and all those kind of things to any customers who demands it or you are just printing for them.?

51 **R:** [0:25:42] Oh we just do the printing for them; we don't get involved with I mean supplying machines or that whatsoever. It's all printing that we do.

52 **I:** [0:25:53] What about the printing cartridges? Are they recyclable? What happens to them?

53 **R:** [0:25:58] Yeah, most of them are recyclable, some of them are um major companies um, we deal with Canon and Nikon, they will be our major () and they have recycling situation where we box up our own cartridges and they are all taken away for recycling.

54 **I:** [0:26:20] And do you think that these kind of practices like the recycling, it is actually reducing your cost. Do you have any cost benefits um when you recycle these kind of stuff like cartridges as well as the machinery.

55 **R:** [0:26:36] Yeah, if these major companies don't take back them, we have to dispose them off from our cost, the cost of that so we're doing a savings there. So I'm not sure what cost are that we'd be looking at because we've always done it the right way and it cannot cost us, but if we were to recycle them outside, yes it would be a major cost.

56 **I:** [0:27:03] Okay and your staff, do you have any regular training program for them so that you know they can be more efficient, effective, they can develop their skills um you know they get trained in the new software versions, you know every aspect of their job, they have the latest, they are staying up to date and they are being more resource efficient. Do you provide any such sort of training to your employees.?

57 **R:** [0:27:32] Yeah, well there is an ongoing training for five three times a year and in regards to basic new standards coming out and new ideas, as far as the graphic design is concerned, we have online courses going on for the time preparing our staff and all so training just an ongoing thing.

58 **I:** [0:27:56] And do you organise this kind of training or I mean do you do you provide the training by yourself or do you appoint an external training provider or training partner for such training?

59 **R:** [0:28:08] So, in our industry it's gonna be called the print federation and the print federation they organise training courses from very basic up to more challenging courses. So, they have a complete full suite of a um of training courses and they come up with new training courses all the time. So, it's up to us to see what we need and we can pick out what they are doing and then we go to training.

60 **I:** [0:28:41] Ok and with respect to the external factors, like Brexit and the latest Covid-19 pandemic, how do you think those kind of stuff has affected your business as well as your initiatives to be more sustainable in your business and you know like more eco-friendly being more people friendly and at the same time making profit as well. So how does you can manage all three, these commitments in the face of the pandemic situation as well as the Brexit?

61 **R:** [0:29:19] Yeah, well look certainly as the Brexit is concerned we would've done some extra work up to an year ago when Brexit coming on we just eh pulled out of the English market, because there's two points in regard to (thing) which inspired we'll find it difficult to paid at one stage and then we would've, they has been put the Brexit coming along that we wouldn't be aware it going and even now we aren't aware it's going. So we further Brexit may be challenging, um some of our supplies come in from the UK, so that's gonna be a challenge, we don't know where that's going to go. The Covid situation is making people's work difficult and our graphic designers work from home. So, we have stretched our factory to the point that um everything is completely different. Well, we have an online presence where um devised on a what's called a web to print situation for we are going to collage all our customers to um editing online and push start the business that way. To begin we gonna have to do the shooting up the stocks immediately to get to that point.

62 **I:** [0:30:46] Mmhm and do you have any contingency plans for the Brexit situation? Like do you, have you started finding alternate supply, alternate sources of supply from elsewhere other than UK or?

63 **R:** [0:31:03] Yeah we have been with our suppliers with regard to supplies, you know what I mean from UK and they have, they have alternatives arranged already in regard to bringing stuff in directly from France and Italy and Portugal. Um relying on UK if things are not basically one hundred percent. So, we depend a lot on our suppliers and they've already been in negotiations. Our wild card is the price tag, they don't really ()

64 **I:** [0:31:38] Mm, so what about your competitions? How do you create more value to the customers or how do you differentiate your business, with from you competitors ?

65 **R:** [0:31:57] Um we'll be very much hands-on in relationship with our customers. We're accosting and contacting with the customers who are actually, we constantly inform them what's going on in regard to the print industry, what's new and think like that, we constantly

talk to the customers , we'll be ringing them and telling them what's going on in regard to the process and so forth that we're doing. Um other than that price is a huge factor in dealing with the customers and it's challenging.

66 **I:** [0:32:38] And do you think that if you provide recyclable papers which I think is slightly more costly than the other sort of paper, so on a cost basis if the customer is considering purely based on the cost, does it prove to be challenging to you to compete with others in the industry who provide you know a low cost alternative instead of recycled paper?

67 **R:** [0:33:03] Um the customer know it. They go always for the cheaper option. Recycled paper is not, recycled is not a cheap option. Um but we do say to the customers, look these papers are from a renewable forests, would you have cared to work on it, whereas you know look Sweden is cutting down 200 trees a day, it's planting 400 new trees a day, so it do deal with the () where the paper that is 3 euros 5 now fully recycled. It comes from new renewable forests and that allows the time, that all the time works for the customers.

68 **I:** [0:33:47] Okay you believe that actually, you know providing more information to the customer and sensitising them has helped your business to be more competitive in um terms of you know the cost based of the customer?

69 **R:** [0:34:05] Yes, yes the customers, it looks like all customers, you need to build up a relationship and it takes years to build up a relationship with the customers, you know you are not just gonna knock on the door and the customers gonna give you a ten thousand euro order. You need to take years to take up that ten-thousand-euro order. But you need to be () and (), you know getting small orders at the start and then building it up, you know. You are not initially gonna go in and be the number one printer, you know we are the number ones of the tier of print. You have to, you have to develop a long-term relationship.

70 **I:** [0:34:44] Mhm and how do you the government can help small businesses, small and medium enterprises like yours achieve more, create more values to the customers or being more you know eco-friendly, and more like delivering more to the society. How do you think that um the government can help you?

71 **R:** [0:35:08] Well, the VAT rate has to be brought back down. VAT rate is just ridiculous. The print industry, its only 3% you know it's just crazy stuff. Also you know they have to make more training classes available to the companies, locals. They need, if they want to

make an eco-friendly um factory or warehouse, they are gonna have to be planned for the you know the books because as far our industry is concerned, it's not in its, the magazines and all in it to do that sort of things you know.

72 **I:** [0:35:41] And do you think- the EU has various funds and various you know sort of monetary helps for making small businesses more sustainable or to make them follow sustainable practices. Do you think that um you are- the small businesses in Ireland and especially businesses in your industry are able to avail these kind of supports, these kind of funding from the EU and all?

73 **R:** [0:36:10] I mean, I presume that the EU and most of the governments have give them plans for small companies, small enterprises to get them up and running during this unbelievable situation of everybody find themselves in. Um I think that a lot of very small companies will not survive through this epidemic. There is just no way because their overhead is so vast that they just round them and walk away and it's a pity really because the small businesses are the backbone of the economy. And unfortunately I'd see is that where Ireland is a small maggots where we see it, but the EU as a whole doesn't see it and Ireland is probably unique in that it has more small enterprises than any other country in the world nearly, you know per head the capital. So grants need to be given to these small companies to keep them going you know because if you don't give them grant, you're gonna have to hand it out in different ways, you know through social welfare or various different things.

74 **I:** [0:37:43] And do you think that you'll be able to secure such grants with much ease or do you think that there will be you know bureaucratic delays or you know it's inaccessible to you or what kind of feeling do you have about these grants from governments and EU?

75 **R:** [0:38:04] The problem you have in dealing with trying to get grants and trying to get certain things is that the amount of paperwork that has to be done, the amount of red tape involved and so it's just time consuming that you can't concentrate on your business. And all that need to be just curtailed in regard to the relevant information that's looking for.

76 **I:** [0:38:33] Okay and what about the social aspects? Um do you, I'm asking you whether do you think that the company should be more committed to the society, the local community and they should try to create more jobs in the society, to increase the standard of living in the society. What is your view about that?

77 **R:** [0:38:57] Well, it is actually. We have always inspired people from the community and we've always try to look for people that live locally in the community, that are spending their money in the (), but I also think that large multinationals need to look out at small companies in the community and support them because if we don't, and that is a (book bearer) of mine because I know that we're a small company we employ from within community and all the money is spend in the community and the large companies that live their, that are working in the community do not support in anyway, they say they do but they certainly don't um support smaller companies. And trying to deal with these companies is, it's mostly harder, it's - situation where and what I say might be wrong, it's based around the price and it's price and price alone.

78 **I:** [0:40:01] And sue to the pandemic, does your company had to lay off people or do you keep your employees in your company?

79 **R:** [0:40:15] Yeah we were extremely lucky in that we had working to keep everybody (), there is (number redacted )people working from home, which worked out well and we're extremely lucky upto this point at the moment to keep everybody on board. And we have a fairly large area where um social distancing was not an issue that worked very well, so um in the meantime we were looking after people who took their holidays. So by large we're doing ok, we could be doing better but we're in a stable situation at the moment.

80 **I:** [0:40:58] Okay that's great, that's wonderful. And what do you think about the globalisation wherein the multinationals coming in. Do you see it as a threat or do you see it as an opportunity?

81 **R:** [0:41:11] Um I think the multinationals coming in as certainly not a threat, I think I see them as something that was badly needed. We have a large population that are, that often need work though I just think it's gone, so I didn't see multinationals coming in, it's certainly it's something that um I've no issue with um ()

82 **I:** [0:41:41] Okay and do you have any future plan any future green products to offer or any future green services which you think is necessary or inevitable, in future?

83 **R:** [0:41:59] We haven't really looked that way because um we are top of one of the major suppliers at the moment and the biggest book bearer that we have at the moment is we do a lot of um signage, we do a lot of PVC signage and um we're looking at um () at the moment

which is not quite ready yet whereas they will be recyclable and the problem we have with PVC and all these is that most of them, they all are not recyclable. And there are one or two suppliers who are looking at, presently looking at bringing in um recyclable (signage) which would be, we'd hope that with green and we could market that. And we think that it, that is very important.

*Appendix E – Interview Subject D2*

- 1 [0:00:00] **I:** What is your opinion about sustainability and CE, how do you interpret these two concepts ?
- 2 **R:** [0:00:37] Well I suppose, I got the base, to answer the questions on probably my experience over the years rather than necessarily just what I am doing right at the moment which is a small consultancy company alright. So, I mean to me sustainability is one of these things that if you are not doing it, it catches you up in the longer term anyway right because cost is being built into a lack of sustainability. So like we see model of it in terms of the cost of carbon which even - when I was working in (company name redacted), some of our products and they continue to do so especially under home heating side because they have high carbon, you have to buy carbon credits and the price of carbon makes the overall cost in terms of environmental sustainability to be taken on board. So I think what you are seeing in terms of that if you look at the likes of - if you go into a shop and you want a plastic bag you will have to buy the bag and in terms of even at the moment a lot of shops will ask you 'do you want any packaging at all for your goods' you know. People are getting much more conscious in not taking the packaging or else the packaging is charged for. So I think, if you are operating in an environment where you are not taking all of this into account, ultimately it's going to catch you in terms of policies et cetera but also in terms of cost. So I think if you are going to be wasteful, or ignore sustainability concerns, it's going to ultimately hit you in your pocket and I think for (coughs) excuse me - I think for a lot of companies that's, they will almost have to be forced to actually take on board, the likes of full sort circular environment with regard to reuse and recycle et cetera. And, so I think ultimately, it'll have to sort of nearly force companies to do it but I think the best way to do that is through sort of economic incentives.
- 3 **I:** [0:02:57] And, um you run a consultancy service, so do you like how often does a company come to you and they say that 'we need to implement' a sustainable process or sustainable procedures in our company and so that it could help the CE initiatives of the government and the EU?
- 4 **R:** [0:03:21] Very rarely, now in saying that our company is only up and running since last (references to time duration redacted) and we have - let's say, we don't have business cards right, because we are not gonna waste the paper, printing when we can give a business card electronically. We're actually we had originally we were designing a whole lot of training courses and those training courses are now going to be delivered in a digital

sort of electronic environment where people won't have to drive to a particular location et cetera. So, we're changing, we're actually changing the model of what we're doing. So, for example, the Covid forced out of necessity a lot of re-organisation of lectures and of education et cetera. So we already had courses almost fully designed to be ones where let's say it's in somebody's actual location or it's in a hotel where 20 people come in and we spend the day at the course and it sort of have forced us to re-evaluate how we delivered at and in future we'll take those 20 people to a an online virtual environment that will be equally as interesting and equally as engaging and so that's sort of a simple way that we're trying to do things that actually reflect you know not having waste building such as if 20 people travelling in average to 50 miles or 40 miles even to an even that's 80 twenties that's 1600 miles of driving or 3000 kilometers of driving and ultimately you start to work out [0:05:12] the carbon, you start to work out all the other costs associated with it and it's just not sustainable. So little things like that are going to have a huge impact. We don't print anything and we try to minimise- we have a printer, but myself and my business partner have tried to minimise anything we print and try to learn more and more about sort of using the likes of 'Onedrive' and file-sharing and an bringing- so as consultancy, technology is the key for us in terms of not using resources. But it's also like I said at the outset of the first question, it's also more economically sustainable. To buy a computer that has enough capability in terms of technological solution compared to printing paper and business cards compliments () and using using envelops and all those sort of stuff, it's there's just no comparison. So, you know you save an awful lot of money at the same time you know.

5 **I:** [0:06:26] Okay and speaking of training, is sustainability and CE and related topics a part of your training curriculum?

6 **R:** [0:06:38] Not at this stage Sarath, no but I mean we had two companies that approached us just before Covid right and both of them unfortunately are significantly affected by Covid, but what they wanted to know was how could we cut their 3rd party costs. Now they didn't (yawning) excuse me, they weren't looking to know um that they wanted to change their supply chains from a sustainability perspective, it was economic drivers that were pushing them alright. So, again it comes back to my view that if build it real operating costs into end solutions, you are going to push people into the most environmental(ly) sustainable position any way right. So, it's a bit of carrot and stick. So, if those companies came to us and said how can we save money on, one of them had about 20 million of third party cost alright we were gonna try and cut all their costs. But if for example that man's - this was a transport company alright. So if we found that we'll say the incentives are built in to say

that if you stop using diesel and minimise your use of diesel and use more of compressed natural gas say alright, that they buy a CNG truck and use that instead of a diesel truck and the economics are right in that and it's more it's better from a sustainability perspective , because the sustainability has been built into the economic incentives. Therefore, as you start to improve the economics for a company, you are naturally starting to improve the sustainability and so I think it's a little bit of carrot and stick approach you know.

7 **I:** [0:08:43] I was interviewing a lot of SMEs, my topic is related with SMEs , so basically one thing, one feedback, one of the person whom I was interviewing specifically told that - almost everyone sympathises with the idea of sustainability and CE, and one person clearly put it like this, he said "I would love to use electric vehicles, I would love to use CNG vehicles but spending more on such an alternative without any incentive from the government seems to be a foolish idea because he doesn't want to be left out of business just because he is using a costly alternative from a sustainable perspective. So my question is what do you think that the government or how do you think that the government can help in such a situation, you know where they can drive- almost 95% of the industries in Ireland are SMEs, so they have so much in stake with them. Without being hard on them and pushing them for sustainability, how can a government help?

8 **R:** [0:09:56] Well some of this is going to be education programs. Because if you are a small company and you want to invest and I'll use that example an electric vehicle and electric fleet [0:10:12] , the capital cost is going to be higher and a lot of companies look and they see cash flow and they see I have to push more money out there and I have a promise of lower cost but the most tangible thing I see is more more money flowing out the door to get myself set up. So I think there is a sort of a, we'll say funding that if overall, let's say the overall situation is clearly economically better, if you are using CNG and there is a big - think it's like 20% less carbon and you have a big cost saving as well if you had a CNG truck is that or an indeed an electric truck. Well then, the capital cost is just one element, the rest is the running cost right, if your other costs, your fuel, your maintenance et cetera which are other running costs. So the real the running cost element is just a depreciation of the vehicle right. But what these small businesses primarily are very focused on cash flow right, and so it's cash in cash out. So if you tell somebody that you have to go and have a major capital investment to achieve this saving, a lot of the time they are frightened of the that and they don't make a decision. And the more they don't make a decision the worst it is. So you need, in fact if the government had a - if the structure of schemes was such that you get significant help on the capital side but the government get,

the sort of the - even if you are running costs are shared in terms of gains share with government or whoever provides the capital grant, but to take the risk out of it from the cash perspective with regard to small companies. They are afraid to spend the money basically.

9 **I:** [0:11:59] And one of the guys who told me - he has only one truck and regarding the pollution he said he would love to cooperate and the problem is if you know- if the government passes a law like odd and even based, on particular day odd numbered vehicles are allowed to do the service and on some other days even(numbered) vehicles (are allowed) are - he said he would love to cooperate but he says he would be left out of business if more wealthy companies, companies which are able to invest more capital they can purchase two different number plated vehicles you know one is odd and the other is even and they can beat the system.

10 **R:** [0:12:45] Yep and that's why I think the actual the scheme, the support schemes from government has to be able to reflect the concerns of the small business like a small business is afraid that the bigger business will be able to capitalise and they won't you know. And if you are bigger business, if your turnover is 10 million euro, and somebody comes with an idea and says listen if we spend €80000 on the fleet here our costs are going to go down next year. Well there is probably going to be a financial controller in that business, somebody who will analyse the numbers and say 'yep this is true' so we can take a relatively small step in terms of the scale at the business. If you're a half a million euro turnover business or a three or four hundred thousand or a 300000 turnover businesses who got one or two employees and you and you- so the step of getting extra vehicle or an electric vehicle or whatever is a huge amount of your- of risk with regard to the cash side of it. So, your promise to saving, but one vehicle is still one vehicle. So, if you are a bigger company it's easier to say let's take a step in here and try one electric vehicle or one whatever and let's see how it works; compared to a smaller company. So, I think the sort of the definition of small and medium enterprises on a European scale to me is a lot of huge companies. I think it's, I'm not sure if you have probably done that research yourself Sarath, I mean there is a- if you look up a European SME, it's a company that could have ten or fifteen million in turnover or a company that has a 150000 in turnover. So, there is a huge difference in that range of companies. So I think that the- any incentive that is designed has to be so simple and easy to use that it applies equally to everybody and everybody is able to interpret it and they are able to- the risk level is say is similar for each company. So buy an electric vehicle the next time and the difference between your diesel equivalent et cetera would be payed

by government and when your running cost then will be x% less and you keeps half of those and government get half of those too, I don't know, a repayment against the grant or something. But something that is very very low risk with regard to small companies .

11 **I:** [0:15:30] While providing the consultancy services are SMEs keen in using you know sustainable procurement practices like for example JIT manufacturing processes or do you any such move towards a sustainability practices or do you see something which is not so much in a sustainable way. DO you think they are moving towards such organised practices and processes like JIT or MRP or collaborative planning and forecasting or are they moving away from them?

12 **R:** [0:16:21] No I think they are, companies are definitely moving towards that right but I think the pace that they are moving at is probably even within the scale of SMEs , the pace is probably dependent on the size of the company. Like if you are an SME at the top end and you are dealing with sort of international companies like you know if you are dealing with sort of 'Intel's (Intel Corporation) or biomedical Pfizer or some people like that you are going to be lead and pushed that way and they are going to teach their own supply chains. So if you are taking the likes of a pharmaceutical company, if they have suppliers of we'll say non critical stuff that is going into make tablets right, they will explain to all their suppliers 'well we operate here on JIT system or we are gonna give you our forecast, you have to manufacture the forecast and deliver et cetera and they'll be dragged into that environment because of the parties they're working with. And I think that's probably one of the key things in bringing SME's into the environment. They are nearly have to be trained and brought there. Now if, I can guarantee that the smaller the company, the less likely they are to be mobilising in that way themselves. Now at the same time if I go back and look at um(speaking about an experience) they wouldn't be a small company, they wouldn't be an SME; there was a company called (company name redacted) in Galway that we were in (company name redacted), they were literally managing, they are in the distribution business right, therefore, they were managing their stock because they are not actually making any, they are doing a small bit of manufacturing but most of the what they are doing is sourcing. (zoom connection issue) the system set up that they stock manage, they were very, they were fantastic (). But they were delivering to all the biomedical and to intel and to all these companies and they learned all this from you could say almost um what would you call it,um it was almost a corporate type of um learning environment, it's like I'm trying to think of the word um you know if you are sort of oh yeah like a corporate mentoring sort of environment. So you got the ones that are big and sophisticated and have

all of this scope to do all their lean stuff and all their lean manufacturing et cetera and they almost train their suppliers that way, But if you are not in that particular supply stream, a lot of these small companies don't have a chance to say and I see just one down here that we work a bit with underneath us right, where the office that I'm in. And they don't have the time or the resources to actually sit down and say, -and that's the one down below is a distribution company down below. They don't have the time and apply a systematic sort of approach say how are we driving towards minimising our stock etcetera etcetera you know. They just don't have the resources to do it.

13 **I:** [0:19:38] Again speaking of such a situation like when some suppliers drive such a change to their partners, so one of the companies which I was interviewing, I asked about such things you know , they said some of their suppliers are into this green products and you know green way of doing thing and they have that they have avoided the kind of packaging they used to supply. But instead of- what the company did was, they had now to purchase cardboard boxes and packaging materials themselves and take it to distribute it to their customers. And they are not sure whether it goes to- they are being recycled; it's the onus is on the customers. So, what they are getting from the business, they are not getting enough to find a better alternative than you know otherwise they would be - if they are not doing it someone else will be doing it. That's the way they are answering. So, such a situation, when the big companies can, they have the resource to go green, but whereas when it comes down, nothing has been changed at the last mile the process gets entirely reversed.

14 **R:** [0:21:09] That wouldn't surprise me. So then it poses the question, if that sort of environment where you probably have the ultimate driver of that supply chain has certainly got all the green policies etcetera, if you are to go to large companies and say have you got a policy on sort of green procurement and sustainability in supply chain, they probably will. How they are actually implementing that, all they want to see is what's coming in the door and how it's working. But in fairness they will train small companies that do business with them and I've met companies in the past who'd supply that sector particularly the likes of the pharmaceuticals and the biomedical sectors and they are well trained by the consumer or the driver of the product but if that doesn't sort of reach down through the whole supply chain and they are just dealing with their next partner and say 'well you supply us, this is what we have to have etcetera etcetera while if that's not sort of going all the way down because ultimately you and your full supply chain anyway, and if somebody somewhere has to buy the cardboard boxes to do final delivery or whatever, then that's a cost that belongs

to the supply chain that could be eliminated. So, it depends on I'd say at a level of sophistication to say um to understand fully that you own every element of your supply chain. if you are the driver of this material you own everything all the way back to the source and that sophistication like you can read about that and it's there in all the books and it's there in the stuff, you guys will have covered in your course but how they are is it in reality you know is a big question I think you know.

15 **I:** [0:22:56] So essentially, it can it be defined as a barrier to the progress of (sustainability)?

16 **R:** [0:23:07] Oh I think so, I think so yeah. If um if you take large companies that actually have all the sustainability policy and have all the sort of the CE they have all it, if they are not driving it through their full supply chains all the way back to the start, I mean owning that supply chain, well then you are not gonna get the full sort of optimisation of sustainability all the way back you know. So, it has to be there

17 **I:** [0:23:32] And again a lot of companies in Ireland, especially in Ireland you know the reports which I have been reading for my research such as while they are more focused on providing resource efficiency, they are not much into you know like they use some recycling, some resource efficient approaches but they- when it comes designing, refurbishing, remanufacturing, there isn't much happening. So, in your experience with small and medium enterprises as a consultancy, do - what do you see? Do they approach you for such redesign or any sort of such practices?

18 **R:** [0:24:29] I think primarily Sarah small companies are focused on survival and a lot of the time they won't go down this road unless they are driven down this road, alright; they are forced down this road. There's very few companies and I think there is probably- one of the main problems is just probably in association with the more sustainable stuff I source is probably gonna cost more, so ultimately, I need customers paying more. But my customers are all demanding that I pay less that they pay less for things you know. Because it's probably people like me out there trying to negotiate and trying to drive that cost through the system. But unless the actually, like I mean if you are taken by- let's say you are talking about - if I went downstairs(referring to the company downstairs) now and looked there on the shelves, this company is a () space, I would find a lot of um plastic packaging right. Now if life was such that a supplier to them was able to say 'I can give you a 5 gallon drum for a particular chemical at a cost X right but I have an alternative that I cost slightly less than X, that's sustainable, I have or else if you give me packed that I give you money back

on the actual what you return to me because we'll get a second use out of it . But I don't see that sort of thinking factoring into SMEs unless they are , unless it's coming through someone higher up in the supply chain who has the resources to really understand, train and invest in sustainability and that's I think is the danger. And I think if you were to ask most people 'do you think you get better value for a more sustainable product' will,- I'd say a simple question 'Do you think a sustainable version of a product will cost you more or less', I think most people will say 'I think it'll cost me more' whereas in reality it should cost less, because it's having less impact on the environment.

19 **I:** [0:26:53] Yeah but when I was asking this questions to one of the guys I interviewed, um he was into office supplies, supplying you know, he said he rarely get sales for recycled paper, because recycled papers cost more and none of his customers wants to invest much money you know in recycled papers, so he has no option but to sell what the customers demand. And I was - at the same time I was interviewing another guy who was into printing business, so for that guy he said that he uses recycled papers so I again questioned him 'how are you able to do that when some of the other companies, they don't'. Well he said that it takes lot of time, I mean he has been in business for so many years, so he has that rapport with customers, so he can talk to them and the relationship, the building of the relationship over the years that has (is) what, helped him to do that and what's you take on it, so how can you know

20 **R:** [0:28:08] I think you've hit the nail on the head here because um the first, the first few of the say the office supplies guy was 'why would I do this ?, its gonna cost me more. So, if I source um, I source a ream of 500 pages of recycled paper, it's actually gonna cost more but why does it cost more, it shouldn't cost more. If it's better overall for the environment, because all of the incentives and support should ensure that the more sustainable product should cost less. Now, if that mean that there has to be an environmental penalty such as carbon taxes, on the non-recycled paper, there has to be a structure with regard to cost. That means that there is that the right decision is also commercially motivated right. So, if I go into the office supplies and I say 'I want to buy paper, a ream of paper'. I'd say you can get the (brand name redacted) perfect white paper there that has gone through a pulp and paper mill etcetera at that you know trees were cut down to do it or trees were planted originally in plantations to do all these etcetera etcetera and here's the cost right. But here is paper that has been recycled that um was- its second use paper, it's been processed etcetera etcetera. Now, if that is genuinely better for the environment, well then it should be reflected in the cost structure. And that's either through subsidy of the more

environmentally friendly product or through penalising the less sustainable product. And so when I go in what should be presented to me is 'here's the €5 for this paper but I can give you a recycled paper for €4.50'. And then I will make an economic decision as well as an environmental decision because I'll say 'right sure I'll try the recycled paper', because it's gonna be better value for me. Now, so I think the actual sophistication of pricing, the real cost of sustainability has to appear in the products themselves. If it isn't sensible, let say for example if you went to recycle paper, and the processing and carbon cost, the processing in terms of the extra electricity and the extra energy that's had to go in to turn it back into recycled paper product again was excessive, well then that should reflect to say that in this instance, it doesn't make sense to have recycled paper. But, I don't think that we are as nearly, as a society at, and I don't mean just Ireland, even on a worldwide scale, I don't think we are nearly at the scale where our pricing in the full economic cost of what we do environmentally into products. So if you for example, look and you say 'well there's icebergs melting at the moment because of excess of carbon so carbon is a bad thing right, therefore the ultimate sort of industries that output carbon have to be penalised, so therefore (name redacted), you have a small consultancy and you've got a printer, so the ream of paper that you use cost you a fiver is gonna cost €25 in future'. It's like what's been done from a health perspective at the cost of cigarettes right so that you'll -If I decide I wanted to print in the first instance rather than move to digital it's gonna cost me a lot of money and I'm gonna have to charge that out of the customers ultimately to try and get it back. So, I suddenly get a huge economic driver to stop printing in the first instance which is even better than buying recycled paper. So, I think it has to be we need more and more sophistication with regard to building in the real cost on the environment into products and services.

21 **I:** [0:32:45] And coming down to the social aspects um how do you think that the factors like the Covid-19 pandemic and you know Brexit etcetera which are beyond the control of any of these industries or any of the government, the Irish government. How has it impacted the SME's and their initiatives towards a CE like many of them had to lay out --and my question is did you had to lay off any of your employees?

22 **R:** [0:33:27] We have a, we're just a small company so we are just (number redacted) partners in the business. I don't think that um. From a Covid perspective like Covid has had a huge impact and it'll be much more severe than Brexit. I think at one stage Brexit was looking like having a worst-case scenario of over 4% GDP hit you know, whereas Covid has done triple that in once you know. So, firstly, I think that Covid is at a much higher risk

level. If you take Brexit, I have a view that some level of common sense will ultimately prevail even if it's at the last minute. With regard to say Britain will eventually figure out that 70% of its export go to Europe and if it doesn't have a proper or good level relationship with Europe, it's only shooting itself in the foot. Now, I'll give you a personal opinion that I think Britain, that still could happen because I think they're living in the past and living at a time when they think they still have the British Empire you know and they have a view that all these nations that they, I have to be careful with my language on this right, but all these nations that they went to and took over years and years ago will have this loyalty to them that may not turn out to be reality. And so, I think they are taking huge risk instead of um building on the relationships that they already have with Europe. So, I think something will happen there with regard to a solution that will, but it's inevitable, it created huge uncertainty for businesses. But there is a lot of naivety with small businesses because I've been on course with customs people and everything and there's a lot of assumption in Small and Medium Enterprises that 'look things will be alright in the night they'll work something out' , which is dangerous. And a lot of businesses probably haven't done the level of planning to say that it's now looking less and less likely that they'll work something out you know. With regard to the pandemic something and that hits and we were going to do some work with a coach company alright. So, all the coaches were just stopped because they can't, economically, they can't run the coaches employing social distancing and therefore the business has stopped. And therefore, they have stopped spending money on their employees and they are not spending any money with people like us. So that filters down to business that we were going to do is gone etcetera. If we were at a scale where we had a few people employed to start to work in these places and then they disappeared, you would have layoffs and another businesses will have you know.

23 **I:** [0:36:23] And, have you analysed how your clients have responded? Has majority of them forced to lay off people or are they still keeping them, keeping the work force?

24 **R:** [0:36:37] Well, we had two that we were working at, one is sort of keeping its work force because they are able to, because they are sort of infrastructure related and the infrastructure is still going ahead. And the other one is a service that is and they have closed down effectively. So it's, it's very business specific relating to type of business that they are doing you know, I mean it's the same with the restaurants and the pubs etcetera and they still don't even know where it'll be next week . So, I think it depends on the type of particularly the service businesses, the type of services that they are offering. Goods businesses you know but then we see, there is a meat factory up the road here and that's

been five Covid tests in it last week; positive. So there's a cluster here in (place name redacted) even and that's going to have a huge impact, like I've heard people already today saying, "well I won't buy the meats from that factory" you know. Now, I'm sure there so, Covid's there but people are very risk averse and they're just not gonna risk with their own family you know.

25 **I:** [0:37:40] And, I was interviewing another guy who was into service industry and one of the insights he shared was that, when he looked at his customers was women had more preference for eco-friendly or green products and services, whereas the men they're just you know like 'just get it done'.

26 **R:** [0:38:11] Yep, I would agree with that chap, I would absolutely agree with that. Loathe (as a figure of expression) as I am to admit it, women are probably have a higher level of say emotional intelligence. Men sometimes can be about getting the job done whereas women will see the bigger picture and um so yeah, I would actually agree with that you know unfortunately (humourous remark).

27 **I:** [0:38:32] Because during one of the interviews accidentally, while discussing this got dropped from his point of view and that fascinated me and so I just wanted to confirm, with your experience with your experience with your clients, is it still the same ?

28 **R:** [0:38:46] Yeah, I think it is yeah, I think I would actually agree with that chap and I mean when I looked at it when I was in (company name redacted) we had a team of about 12 people at one stage and somewhere between 10 and 12 people, and we had, when that team was in a very mechanical mode and I would say like buyers, it was um , it was mostly male right by- After a few years we had to change that team to sort of value adding in terms of supply chain management and procurement and you know continuous improvement etcetera etcetera and I'll have to say we went 50-50 in the end with men and women and the women were often much better in terms of when relationships were required to solve problems, the women were better, you know. Terrible thing to say but it's true.

29 **I:** [0:39:46] Yeah and speaking of organisational factors, do you think that in the supply chain associated with small and medium enterprises, from the perspective of your clients or with the experience in dealing with your clients, do you think that they are something which is acting as hindrance, many call it as 'reverse salients' something which ()- all other things are working perfect, somethings which is you know taking the whole effort backwards, some particular things . Do you identify something ?

30 **R:** [0:40:22] Yeah, I don't think so, I think, I would say that let's say there is a lot of help available to the likes of SMEs from local authorities and for everything, from Enterprise Ireland etcetera and most of the time they don't avail of these things you know. Like I did a program there a day meeting may be 15 companies on behalf of Enterprise Ireland at one stage and all we were doing was helping 'em with regard to Brexit, no cost to them at all right and a lot of them just didn't bother you know. So, I think, I think unless it's something that's knocking on their door saying big big problem, they tend to sort of push it way you know. So, but so I think, i think a lot of the times they need to be to step away from the day to day and look a bit more strategically at their businesses and do things that are good for the business longer term rather than just shorter term and I think that's probably the key thing that they are not doing that they should be doing.

31 **I:** [0:41:37] Yeah, I had a similar experience with interviewee, when I asked about the EU funding schemes which are available for Small and Medium Enterprises, so he just brushed it aside saying that it's too much red tape-ism and too much bureaucratic delays

32 **R:** [0:41:54] You are absolutely () and all I can say is it isn't right. Because like if you engage the likes of Enterprise offices and Enterprise Ireland you get the help like we've got the help from Enterprise Ireland because we went there from local enterprise because we said we're creating (number redacted) jobs under locality. So, they said, "well this we can help you", right. There was a lot of administration to actually it and, but you know I'll put it this way, it was probably a day's work in putting together the application and all the detail they wanted. But it was well worth it and then I wanted to establish that relationship whether it's with Enterprise Ireland or the Enterprise office, once you establish a relationship they'll actually come back to you and say "by the way here's here's how you can get some more help and that might be , that could be resources in terms of advice from consultants or it could be actually grants, or it could be actually low interest loans etcetera. So, and I, but I do know companies, I know SME's quite well who haven't looked for that because they have been just too busy in the day to day. And when you tell them 'well look you go get grant there for that', they are sort of "what I never knew that" or "but sure that would probably be tied up in administration for a month trying to get it or even six months trying to get it". And I can say from personal experience that it isn't like that but there is a view with a lot of SMEs that once you are dealing with these agencies that it is highly administrative.

33 **I:** [0:43:31] So, when you provide consultancy services do you help your clients in getting

such grants or guide then in it?

34 **R:** [0:43:42] Not yet, but I think we will in the future. We want to try and bring our focus to one where we are actually focusing on training and doing that electronically. So that's where we want to focus. So we're doing like, I would have met you up in (place name redacted) but we have done courses with (institution name redacted), my business partner here, she's done courses in (place name redacted) for (organisation name redacted), we have both worked a little bit for (organisation name redacted), I have done a lot of work with (organisation name redacted). So that's one element to the business and also all the entities we are dealing with are big entities. So no doubt, if I said to you, well they have got the sustainability policies, they've got all the policies etcetera whereas if we device a negotiation training program and I said to a company 'listen, do you want to bring twenty people to that'. They would probably be a bigger company as well, it's likely that unless we device a course for sort of one and two person entities and we might do this, that we won't meet those sorts of companies. But at the same time um we're going- like that say for example, I'll go back to the local enterprise office to say um we have the capability to train small and medium enterprises say in commercial negotiation, can you- here's an example of a , our course, that's all set up online, have you got people that you'd sponsor to that'. Now if the Enterprise office or Enterprise Ireland, decided that this was something that was good for their clients, they would probably pay for that. But the interesting thing is they would pay for it on behalf of the client companies, but a lot of the clients companies wouldn't take it up.

35 **I:** [0:45:35] So in your perspective, even if you offer something free, just like the grants which they brush aside, they wouldn't be interested in taking up the same, they stick to their daily routines and they don't care about training .

36 **R:** [0:45:52] And that's not out of any sort of necessarily um- they just have a perception; that 'I have to focus on what's happening tomorrow and over the next week. I don't have time to step away from the business to look more strategically' and I think think that's probably key.

37 **I:** [0:46:10] So this one is basically an organisational issue, the onus is on the top management and perhaps the owners of the company ?

38 **R:** [0:46:20] Yeah, yeah, I dealt with a small company through enterprise Ireland thing and they were um they were um chemical company alright and they got their chemicals from

the UK. And they had nothing done with regard to analysing the risk in their supply chain post-Brexit and we sat down and we asked almost basic questions; where are the chemicals manufactured originally, in what country, in- what does the supply chain look like, why are you buying out of the UK, is there a European distributor of the same chemicals, do you - have you looked at this, have you gone back to the manufacturers to say that there is risk to our company in having a UK supplier so we need to be able to move beyond that and hadn't any of that stuff done. And to me - this was a family owned business and that's there for years quite successfully supplying the medical sort of devices in the area. The first thing they should've done when Brexit came home was to go and do all these. But they are too busy in the day to day which ultimately is great for the day to day stuff, but it's not great for the strategy stuff in the long term.

39 **I:** [0:47:36] Okay, okay. So that brings down our interview to a conclusion. Thank you for your time.

*Appendix F – Interview Subject G*

- 1 [0:00:00] **I:** This is the 20th of July 2020 and I hope you agree to the recording of this call and taking the interview?
- 2 **R:** [0:00:17] Yes I agree and consent
- 3 **I:** [0:00:22] Thank you so much and we can begin the interview. The topic is related with sustainability and circular economy in Irish Small and Medium Enterprises and (name redacted) can you explain a little bit about your company and it's business?
- 4 **R:** [0:00:39] So, the company provides outsource solutions for other business. My role is in particular for sales for an outbound campaign on with (company name redacted)
- 5 **I:** [0:01:04] So hope you are familiar with the concepts of circular economy and sustainability in general and can you tell me how those kinds of things apply in your company? Is there any sustainability or CE initiatives from your company how do you and your colleagues view the whole things regarding sustainability as well as environmental conservation?
- 6 **R:** [0:01:34] I would say that from my end, I wouldn't see a whole lot of conversation surrounding sustainability or CE from where I am within the business, I will be at a relatively low level as it would be more managerial discussions that surround that sort of a thing. Quite frankly there is nothing on my end of it. Now with regard to the products, the products that we sell are green, it's green electricity, it's wind farmed, and that may be one of the unique selling points of it in comparison to competitors but so far as corporate strategy goes I would see very little with regards to sustainability and circular economy anyway.
- 7 **I:** [0:02:27] Okay so compliance to environmental standards or sustainability standards; is your company having any sort of such standards such as the EMAS scheme of EU or ISO standards or any other Green Labels , are there any such standards in use in your company?

8 **R:** Even what I know about the company, I wouldn't say that such standards are in place. There may be attempts may be to be somewhat green, conscientious about may be environmental issues, impacts and sustainability but so far as in a more grand and formal sense, no I wouldn't say they.. There's room to improve certainly

9 **I:** [0:03:20] So the whole thing is about green energy. So is your selling point solely on the basis of green energy or are there something much further about it?

10 **R:** [0:03:32] The company that we are under campaign for, so we are an outsource company working on a campaign for a company that has green products. So in that sense our employer, the company that we are contracted to work for (company name), they are green by my company called (company name redacted) there isn't much in the way of green practice.

11 **I:** [0:04:04] Okay so what about other practices in your company regarding resource efficiency and all to the, like to reduce the consumption of electricity or any other products. Do you have any such things in practice at your office or in your company in general?

12 **R:** [0:04:23] There are some like after people working late, there are attempts to turn off most of the lights that aren't in use within the office, use a little bit less electricity. But then as a whole there is not much....like there is..,what is there though.. there is time switches in the bathrooms, you known the light sensors that you walk in and the light turns on, if there is no motion the light turns of. So, they have that as well and then there is recycled hand towels things like that and there is no electric hand driers, just recycled compostable hand towels, compostable single use items in the canteen as well.

13 **I:** So, everything you use is progressing to a reduced consumption as well as recycling of those used products. Am I right?

14 **R:** Yes, that's correct.

15 **I:** [0:05:27] And you have sensors installed so that electricity is not wasted. So you are reducing the wastage also.

16 **R:** Yeah, there is an attempt to reduce electricity consumption

17 **I:** [0:05:39] Yeah and do you have any sort of ways to measure all those things, that is how successful those initiatives are; do you have any sort of ways to gauge the progress of how much successful you are in each month or each week in reducing consumption ?

18 **R:** [0:06:01] Well I wouldn't say there is any such ..There is no green officer for the building, there is a building manager but he is more of a generalist, he is not specifically focused on green energy and environmentalism. But (.) so far as I can see from my stands within the company there isn't measurement being taken of that. It's more so being done as a qualifier as a modern standard practice.

19 **I:** Okay okay and does your company use transportation services or anything like that (for employees)

20 **R:** [0:06:48] We get, we can avail the cycle to work scheme within the company and we can also get some service, I never applied for it because from what I got it it wasn't particularly () but you can get some sort of a tax credit for your public transport receipt as well

21 **I:** [0:07:09] So basically the company is promoting reduced consumption of fossil fuels?

22 **R:** [0:07:24] Yes there is an attempt to encourage employees to cycle to work and take public transport .. yeah

23 **I:** [0:07:28] Yeah and regarding the recycling does your company openly promote recycling or how do they implement this. DO they have any contract with other suppliers of such solutions or how exactly do they recycle the used tissue papers (hand towels) and used towel and all those kinds of stuff?

24 **R:** So there is a compost bin and umm a black bin a general bin and a recycling bin as well. So wastepaper bin and thus there are 3 bins all together on every floor. The waste is compartmentalised and then I would imagine it is collected separately by different parties probably of the same company but segregated by the collector.

25 **I:** [0:08:24] Okay. What about your relations with other suppliers? Do you have have any other suppliers besides the main company, who are your clients like any other suppliers who are mainly interested in such green solutions ?

26 **R:** I would kind of say that this is an outsource company, it's more so results driven than anything so again while these things are necessary and important like I said earlier there are more so done as basic qualifiers more so than may be a unique selling point of the company. It's is really quite results driven, it wouldn't be at the front of the company, a spearheaded company as it must.

27 **I:** [0:09:41] Being an outsourcing company you must be having a lot of customers. Are all such customers demanding such green initiatives from you or do you think that it is something which your company has set up or it is because your customers wanted it to be incorporated in your company?

28 **R:** [0:09:55] Well my understanding that would be that it's more so the employees within the company would push for these sorts of things and if they was to be changed and added systems that would come from within the company as opposed to pressure from outside the company. Now again things are changing, and you know the kind of social structure and sphere says that we now use compostable instead of single use plastics and things like that. So more so because of standard practices that have been adopted as well, not necessarily pressure from potential clients.

29 **I:** [0:10:39] So what do you think about the role of government in all these things? Are they promoting your initiatives, are they helping this company in any sort of ways, are you availing any sort of funds from the EU or any other government organisations in this regard?

30 **R:** [0:11:00] Well to my knowledge no there could certainly be a bigger push for this within the company. It is sort of outside of my hands, I mean as there could be class action in terms of collective () pushing for a change within the company. But on an individual level, no there isn't much room for maneuver and I mean like I said earlier there is no green officer. If there was a green officer, things like that could be reported and pushed for not only by class but by individuals who could meet this person day to day kind of and so far as funding goes I would imagine there's something but I am not too sure.

31 **I:** [0:11:48] So you believe that rather than someone else driving it or the government pushing any changes, it's basically the employees themselves who are who are doing these responsible actions from their part?

32 **R:** [0:12:04] Yeah, I would agree with that. It's the employees more so pushing for change more so than outside forces trying to have an effect.

33 **I:** [0:12:14] Okay what do you think your company regarding the social responsibility of the company. Does it provide more jobs for a well sustained development or what is your take on that?

34 **R:** [0:12:34] Well again this is just my stand on it but there isn't a whole lot with regard to CSR going on there is definitely room for improvement there.

35 **I:** [0:12:52] So you say, despite all the green measures which the employees themselves are driving the company should focus more on the CSR part

36 **R:** [0:13:01] Yeah absolutely, like there is a degree of (.) like the company wants so sort of a green label but I would normally say it's more so 'green washing' and more so kind of the green factors now so standard, it's a basic qualifier for business. If you don't have it, you are unique (isolated or left alone) for not having it I suppose.

37 **I:** [0:13:29] What about training and talent development. Does your company often engage in such type of activities to develop the talent of the employees and you know the general well-being of the employees, their safety and their health all those kinds of

38 **R:** [0:13:45] Well there is there was the opportunity to train as a health and safety officer for the floor or a health and safety agent. There was a first aid course on offer for the employees there recently and with regards to sales tactics and things like that there is mentor programs and things like that there is one on one coaching sessions too. But so far as say personal development goes, no not a whole lot. It's more so oriented towards corporate development more so than may be the individual development.

39 **I:** [0:14:31] So basically there is limited programs for talent and skill development. Is that what you mean?

40 **R:** [0:14:39] Yeah, yes there would be limited programs and opportunities for individual development.

41 **I:** [0:14:47] And do you think that such programs are helpful in your personal development

or individual development and also in changing the culture of the company and moving towards a sustainable future?

42 **R:** [0:15:02] Yeah absolutely, like in previous companies I have been a part of such programs and I found them to be extraordinarily useful for my work within those companies, my work after those companies and again this is a personal sort of satisfaction from having accomplished something whereas within this company there isn't such opportunities to gain as much satisfaction or develop your skills outside of what you are there to do in a sense. So, there is development but the scope is very narrow.

43 **I:** [0:15:45] And how do you think your company invest or the company's plans are for investment. Do they invest a portion of their profit in any of their sustainable or green projects? Do you think that they are willing, or do you think that they are investing?

44 **R:** [0:16:07] No I wouldn't imagine that they are. I mean they probably are but I () it's more so to be seen to do it not out of genuine interest in doing it.

45 **I:** [0:16:25] So again let me ask you, in your personal opinion what is your opinion about circular economy and sustainability. Can you briefly give me what is your understanding about those topics and how do you assess those concepts and how do you value it

46 **R:** [0:16:48] My understanding of sustainability would be it's not about getting most out of something; it's about getting the best out of something for a longer period as well. It's like say we had a cow and we milk that every day until that was emptied, I am sure that cow would run into problems eventually but if we just use up what's appropriate what we need and then we can always depend to the reserves. Then again, and with regard to circular economy it's comes back to getting the best out of things making more usage out of less resources.

47 **I:** [0:17:53] What about social equity, social justice, social values. Do you think that sustainability & CE is capable of bringing about social justice, social values and environmental conservation.? Are these concepts strong enough in SMEs in Ireland ?

48 **R:** [0:17:55] I mean yes and no. It depends on the circumstances on the context of situation. Broadly speaking I would say no. But again it's .. I would say it very much depends on the circumstances more so than anything.

49 **I:** [0:18:27] You must be aware that the EU has a circular economy action plan in place which calls for reduced plastic usage and more recycling and all such kind of things. And how do you rate the effectiveness of those policies.

50 **R:** [0:18:52] To go back to your previous point on social justice like it's difficult to bring people to justice may be for using plastics single use plastic and there is some social discrimination almost towards people that do use single use plastics. I mean people that use plastic water bottles and things like that. Some places do get filthy logs the same with plastic rolls. So, I would say they are accepted by people absolutely and yeah it just brings it back to a social justice aspect, I suppose.

51 **I:** [0:19:34] Okay and talking back about the company, do you think that strong intervention from the company management and a strong management support is required for bringing about sustainability and CE actions?

52 **R:** [0:19:54] Well I say it starts with the individual, I mean there are still bigger projects going on , well that makes it easier for individuals to going in and latch on to a movement and in back creating even bigger change. But yeah like management needs to get the ball rolling as well, need to drive energy to create it.

53 **I:** [0:20:24] So which one do you think is the best effective model, all individuals in their individual capacity taking action or a management who drives such initiatives

54 **R:** [0:20:37] Say that again, the connection is kind of bad

55 **I:** So which one do you think is more effective , individual employees in the company taking actions in their personal capacity or the top management or the stakeholders or the investors driving the company and utilizing the organisational structure to make a cultural change ?

56 **R:** [0:21:06] I would say it's 50-50 really. I mean if people aren't interested it doesn't matter how but the program management set out is but people aren't going to follow it, they are not gonna care. So I mean it is down to management to make a good program and try to encourage people to get involved but at an individual level people do have to want to join in , want to be a part of something like that.

57 **I:** [0:21:35] Do you think that such initiatives will help in creating more jobs or will it reduce the number of jobs?

58 **R:** [0:21:49] Well again sector by sector I would imagine it's different. But broadly speaking I would consider (.) I would say it it would create more jobs if anything.

59 **I:** [0:21:59] Okay. Do you think that in future your company will be offering any green products?

60 **R:** [0:22:14] My company in particular again being an outsource company probably not like there is. I don't really see them in a whole lot of room for green products unless they were to take on green clients if that makes sense.

61 **I:** [0:22:36] And what percentage of your clients are related with such renewable energy or green products. Is it only a minor number of clients or just a whole lot of your clients?

62 **R:** [0:22:51] Well for my campaign it's just one client and they won Ireland's Green Energy award (references to date redacted) so ..

63 **I:** [0:23:01] So you actually really dont know about any other customers or clients involved with the company right?

64 **R:** [0:23:09] Well there's another one (company name redacted) I am not sure what their green attempts are

65 **I:** [0:23:19] Yeah so..

66 **R:** [0:23:23] So outside of my campaign I don't know a whole lot about other clients.

67 **I:** [0:23:26] Okay okay. Thank you for sparing your time for this interview.

*Appendix G– Interview Subject G2*

- 1 [0:00:00]
- 2 **I:** [0:00:32] Can you explain a little bit about you company and its business? A brief explanation
- 3 **R:** [0:00:45] Okay so, family Irish owned company set up in 1990 going 30 years eh importing product from mainly the UK and France and some products from Germany, delivering only to the Republic of Ireland eh and very indeed office supplies business so we supply office furniture, office stationery and business machines. So that would be a brief description.
- 4 **I:** [0:01:21] Okay thank you so much and so does do your company have any sort of sustainability standards in use like the ISO standards anything of that sort. Do you use?
- 5 **R:** [0:01:34] Sorry could you say that again 'do we have'?
- 6 **I:** [0:01:37] Do you have any standards, environmental standards or any other standards in place like-
- 7 **R:** [0:01:42] Oh standards as in ISO, type standards? Is that what mean? Do you mean international (could not be transcribed)was confused, are talking about ISO 9000 or T type standards ?
- 8 **I:** [0:01:57] Like the ISO standards for example
- 9 **R:** [0:01:59] Yes, we have an ISO, I think it's ISO 9000 that, I'm not sure what the number is but I don't pay much regard to. We do have, yes, we do , I mean have a fully recorded um manuals here on site for how we do our business on what we do and things go wrong and also a health and safety standard, we are taught health and safety as well which trains staff.
- 10 **I:** [0:02:27] Okay okay and what sort of practices do you adopt for, in terms of sustainability. I hope you are familiar with sustainability and circular economy and all those kind of emerging topics

11 **R:** [0:02:38] Well no, I don't know when you say sustainability, I don't know, I'm not sure what you actually mean, I'm afraid.

12 **I:** [0:02:44] It's actually, it means that your company has a corporate, CSR policy eh and you procure things, you import things in a you know sustainable fashion, makes sure that it's from green sources or something like that. Do you have anything like that..

13 **R:** [0:03:03] Oh yeah, absolutely, oh yeah, yeah, yeah we do indeed, yeah um we only buy, well only if we relate them, it's a bit complicated as I'm sure if you still need to probably know about it. All of the paper products that we sell come from a ticket, it's called FSC (Forest Stewardship Council). Are you familiar with FSC, sustainable forests? Are you familiar with that terminology?

14 **I:** [0:03:26] No I'm not

15 **R:** [0:03:26] Yeah if look it up and you'll find it, called the () standard or the FSC standard. So, all of the papers that we, we purchase is from these suppliers of papers only. And a lot of the papers products we also purchase from sustainable products, but the problem is it that people won't pay because the sustainable usually means recycled or can be recycled. People willing to pay the extra price for recycled products, they just won't pay it. And are always more expensive than just basic, in relation to basic paper.

16 [0:04:08] **I:** So, can I say that one of the main barriers which affects your business is the mentality of the people to purchase or to switch their usage to recyclable product? Can I say that?

17 **R:** [0:04:27] Yeah but you could actually say the buyer or the price. They would often ask us but the buyer is the price. The price we have to pay for recycled products is much more. So a ream of photocopy papers costs us a lot more than a ream of normal photocopy paper. Now people just won't pay the difference.

18 **I:** [0:04:47] Okay that's what.. Can I you know. Can I say that the people, the common people who purchase such products, they are not either conscious enough about the environment or are they, they'll you know if they are being you know sensitised about the environmental impact , maybe they'll be willing pay more or can I say that ?

19 **R:** [0:05:11] Well, well to be honest, the people we deal with are usually a less worried about the change. And they don't care. So smaller businesses won't pay extra because they don't have the money and the larger businesses, the staff don't tend to care too much. They don't ask. I mean toners which are the biggest waste like toner suppliers, we cannot recycle toners, we've nobody that will take recycled toners. Yet we have people who ring us up and say "I have some Hewlett Packard toners here can you? " can we take 'em back office. We used to take them back free of charge. But we don't anymore because there's nobody to take them off because there is no facility to take them in Ireland anymore. The charges I used to do it don't do it anymore. And when I tell the people that the Hewlett Packard box that the toner came in has a free shipping label in it and they just need to put the toner back in the box and put the label on it for free shipping, they either never, they never know about it or when you bring it to their attention, they don't want to bring it to the post office because it's not their job.

20 **I:** [0:06:24] So the toner or the packaging of the toner, if they put it back in the original box and they can ship it back to the original company ?

21 **R:** [0:06:35] If it's a Hewlett Packard original yes there's a free sticker inside the box and 9 times out of 10, they never heard of it and the boxes are long gone with the labels () thing about it because though we talking about it , when the cartridge comes out and some of them don't what to go through the trouble. People have asked us, it's not their job that's what they say about it, it's not their job to pick the parcel. Young people will not pick the parcel and drop it at the post office. It's not their job and they won't do it. They want people like us to come and take it away free um and that's what we always did so we would, if they had toners we say you'd have to place an order because we have repetitive customers, we'd say no problem and they would give the toners towards , we would put them in the sitting boxes here for charity and the guys would come and take them away. But they stop doing it.

22 **I:** [0:07:24] So there is a barrier from different quarters, the first thing is people don't care about putting, utilising, I would rather use the word utilising the free shipping option which could, through which they could send it back to the company

23 **R:** [0:07:45] Yeah, yeah I think it'd be safer to say that the extra, the main barrier is that they actually don't know, they open up this box, take out the toner, put it in the machine and all, they actually don't know. That's the first thing people when I say to people, they never knew it and when we say it to them they'd say "Ah well the box is gone can you take it or

I'm not going to bring it to the post office" and the shield is wasted

24 **I:** [0:08:08] And when you are selling this product through your company, do you educate the clients or the customers.

25 **R:** [0:08:16] No. we don't.

26 **I:** So [0:08:18] basically you just sell the product, you don't

27 **R:** [0:08:23] Yep we don't, no we don't educate them at all and the only company who recycle it are the Hewlett Packard, A lot of what we're selling over the last few years are people buying -are you familiar with generic or compatible toners ?

28 **I:** [0:08:38] Mmmhm

29 **R:** [0:08:39] So somebody copies a Hewlett Packard toner, makes a copy of it and sells it cheaper. We sell lots of them and they don't -they're not covered by this return policy.

30 **I:** [0:08:50] Okay, okay okay.

31 **R:** [0:08:52] So there's only Hewlett Packard and the amount of toners we sell, we sell more of the generics and Brother toners than we do a few Hewlett Packard. For Brother original toners, even them we sell, they don't have this um system set up where there's a label in the box, you just put it on bring it to the post office.

32 **I:** [0:09:13] Mmmhm so the only company which has it is the HP or Hewlett Packard as we know it?

33 **R:** [0:09:19] Hewlett Packard are the only ones that I'm aware of, and that might be next to 30 years.

34 **I:** [0:09:22] Okay so basically the the other products or the other toners, they basically end up landfills?

35 **R:** [0:09:29] Yes it's terrible because if you take this product - I don't know how detailed or how important this is but in very quickly, the toner cartridges that's are put into machines are made, they have to be made into a certain level of quality so as that they lasts. And the

very minimum quality that's made by these manufacturers is so good that you could actually drill the cartridge and fill it again 3 times before it wears out. So, the head that does the print are like the tyres in you car. You don't just go you know, that'll go three times longer than what's inside the container. Because it's not that they want to make it good, but the mineral requirement needed to make them have it that way that this cartridge could be used three times. Other waste the big lump of hard think plastic that just goes into landfill, I mean, that's enough but all there is. Keep going yeah

36 **I:** [0:10:27] And again in your company, within your employees how do you, like do you have a training or some sort of talent development program for every employees in your company, like developing the social side or the human resource side of sustainability to make the work force future ready, you know, buildup their soft skills, build up their talents, is there something like that?

37 **R:** [0:10:53] No, we don't, no we don't have them, I'm afraid we're not big enough a company to, to have that. The only, no we don't. () we send of our health and safety officer for training once a year and we send our store man once a year to a manual handling so the guys in the stores and the drivers they go in a manual handling course just to refresh about how to be delivering, and bending and lifting stuff.

38 **I:** [0:11:17] Mmhm What about how do you bring about resource efficiency? How do you bring about resource efficiency? Like do you use renewable sources of energy in the office set up you know like how do you implement? Is there any such policies in place you know for example simple things?

39 **R:** [0:11:36] Sorry a policy in place to do what?

40 **I:** [0:11:40] To bring more resource efficiency. To use minimum energy, not to waste energy, to keep a check on wastage?

41 **R:** [0:11:49] No we don't, no. Our building waste, so there's product coming into us like the chairs that we import, the boxes go in the recycle bin everything else goes in the black bin. But then our all the office use in the canteen and the floors on the offices everything else, the banana skins, the papers all goes in the black bag that goes into the black bin. So we don't segregate that else either.

42 **I:** [0:12:17] So apart from the toners aside, keep the toners aside what about the other products. Are any of the products you sell to the customers are recyclable or do you take any such initiatives to uh either recycle or reuse or redistribute. Is any such actions in place?

43 **R:** [0:12:39] No, no we don't. No we don't. Not that we don't do them at all, the paper we use ourselves for printing and that, we shred it and we recycle that paper. So, I mean printed paper, we do recycle, toilet paper we produce.

44 **I:** [0:12:54] In your company?

45 **R:** [0:12:55] Yes so all of our, on a daily basis all of the paper that's printed out that's not needed, that's shredded and put into a green bin and that's just printout, I mean somebody, let's say they open a bar of chocolate or an envelope and the envelope would go into the bin, with the black bin. It wouldn't go into a green bin. And all our company files which we have to destroy every seven years, they get shredded and recycled.

46 **I:** [0:13:22] Okay okay, that's great. And um how do you think that the recent the global pandemic as well as the Brexit and globalisation and other factors; how are they going to affect the sustainability or circular economy progress in general in Ireland.

47 **R:** [0:13:43] Well it's going to be disaster because people, to recycle products extra efforts is needed by everybody. And you ask people to do extra, it usually relates to money. And then when the company is bad due to the pandemic and Brexit comes it's gonna get worse and in the cost, more money, they're not going to do. So, it has a severe effect as far as I'm concerned. Like anything is ok if people are making plenty of money there, happy to pay a bit extra for to buy recycled paper. But when things are tight nobody wants to spend any, they're not going to put in any new methods in place that's gonna cost them more money. That's my belief.

48 **I:** [0:14:30] So how do you think that organisations can you know organisational practices, awareness and how they procure, those sorts of policies how can they help sustainability or circular economy implementation? Like you know the green procurement thing and those kind of activities?

49 **R:** [0:14:53] I, the problem is in order to get there- So you're asking me how come people become more sustainable, what they need to do? The first thing is they won't -is that right

did I get that right?

50 **I:** [0:15:05] No, the question is you know, your opinion on, it's an insight on how -do you think that, do you believe that the organisations can actually play a positive role by like if the organisation take an effort you know like making the customers, like leaving them no other choice than to follow the you know the buying green. Is it going to work?

51 **R:** [0:15:33] No, it won't, there'll always, no we can't force customers to buy sustainable products and that too in sustainable way because there will always be another competitor who won't force them to do it and be cheaper. We've two vans, our vans should be electric, but we can't afford to pay up for the cost to afford for that electric vans. We'd love to have electric vans. We've two sales guys. We pay for their cars. We wish they had electric cars, but they are way too expensive for us to pay them for electric cars. Our delivery dockets are not done electronically, they're still done manual by paper because it's too expensive to implement a system and together again so we have to produce a two or three hundred pages every day just to keep a record of what's to go to somebody and what's to be signed for. So, it's just the cost. No we don't, nobody here thinks that it's a bad idea, everybody thinks it's a good idea. But we don't have the money to pay for it. And I'm not talking about blading my own pocket, that I don't take a few grand of my own pocket, I could do it but just don't even have it. Just don't have the money to implement these things.

52 **I:** [0:16:39] Okay, regarding transportation and logistics um do you use your own vehicles or?

53 **R:** [0:16:46] Yes, we have two vans of our own that deliver to the Greater Dublin area every day.

54 **I:** [0:16:51] Mmhm, and do you like you know like use routing techniques you know to follow the least, the path with most efficient fuel usage or something like that is there any ?

55 **R:** [0:17:04] No, absolutely no, definitely we don't. We don't do it and I have customers who get a delivery every single day, every single day we are delivering office supplies to two or three () every day. But we can't tell them, we can only only once a week. Our van is going there 5 times a day, it's a little and such a total waste of money but if we don't give them service they'll get it from somebody else. Like the people wanting stuff the next day is what causes all of these deliveries. If people would just will () to order once a month and

that's brilliant. Once a month, one big order they get a nice discount because, the big order we've only got to handle it once and deliver it once. But people don't want it. The vanmen don't use () because we have customer who we are, we need them to survive and when people ay to us, "(name redacted), I want my delivery at 10 o' clock in Bray", "I want the next delivery at 12 o' clock in Swords", "I want the next delivery at some other place", we can't use logic; we are not brave enough to say to them, "Sorry, if you want to deal with us, you can only have a delivery once a week and you can't have it at 9 o' clock in morning because we got two at 9 o' clock in the morning in Bray and the other customer who is a big customer, want it at half past nine in Swords". The customers are driving us and we ain't gonna, I'm not brave enough to turn around and say "I'm not doing it because it's unsustainable", because there'll be lots of fellows in Nissan vans that do it for them one to ones.

56 **I:** [0:18:45] And what about the packaging used? Are they like biodegradable?

57 **R:** [0:18:52] Sorry what about the which? What? The which used?

58 **I:** [0:18:56] The packaging used?

59 **R:** [0:18:56] Yes, the packaging used yeah

60 **I:** [0:18:56] Are they recyclable, re-usable or bio degradable packaging material or ?

61 **R:** [0:19:02] Yep, yep, the packaging is another strainful, goods come in um we send it to the customers and they dispose it. If it's something like a chair which they want assembled, we'd assemble a chair and we dispose the packaging three days later in case they decide to send the chair back. So, I need a packaging that we get in, that doesn't go back out again that's recycled but 99% of it goes to the customers.

62 **I:** [0:19:29] Okay, okay, okay. So, you are taking some initiatives to like make it recyclable but almost

63 **R:** [0:19:39] Oh yeah, but it's very small yeah, it's a small you see that everything that comes into here, plastic and paper are separated out and collected once a week.

64 **I:** [0:19:47] Okay and what about, do you have a warehouse or how does it, you know like

is it third party or do you own warehouse?

65 **R:** [0:19:56] Yeah, though now we have a small warehouse here, yeah we have a small warehouse here and () things come in twice a day and say - sorry they come in once a day at the moment. Normally, when the Covid is gone they'll probably be twice a day whatever it is (). It all comes delivered into us and we ship it out from here. It's very little that we do a third party.

66 **I:** [0:20:13] Does it have you know any sort of energy efficient design, or like does it have any solar based energy sources or anything like that? Is it

67 **R:** [0:20:25] Oh God no, oh no no.

68 **I:** [0:20:29] What about your suppliers?

69 **R:** [0:20:30] Our suppliers, yeah well it's the suppliers that recently started delivering in their products in plastic reusable boxes. So, they deliver in say 5 boxes with the product inside, um and then when they come the next day to deliver, they take back so they started, that's the first time I've ever done that. They are now bringing crates if you know what I mean. So if you know the way the food, you know the way Tesco's and all deliver your food in a plastic crate, they are delivering it in the crate. They used to deliver them in the brown boxes, but now they deliver them in the crate. We take those stuff out of crates and put it inside and when they come the next day, we give them back the empty crates and then give us ten new ones with the orders in them. So they are making a bit of an effort.

70 **I:** [0:21:10] That's impressive, what about the rest of the suppliers? do you like in this supplier itself, did you negotiate for this kind of an offer or did they offer you by themselves?

71 **R:** [0:21:26] They didn't offer, they told us that's it. This is what's happening. They just told us that's what's happening. Well it's logical people here and we didn't have a problem with it. No problem.

72 **I:** [0:21:35] Mhm, so basically the initiative came from the supplier itself.

73 **R:** [0:21:38] The initiative came from the supplier, but then it gets war foot back down

again because, the boxes they used to give to us, we used to use them to for the customers orders, to send them back out. So now we don't have those boxes. So now I'm buying cardboard boxes to put the orders in and ship out. So, its not reduced at all. They don't give me five boxes anymore that I can use to repack, they give me plastic boxes. Now I'm buying them. So, they just passed down the cost of packaging to me. It's costing me more money now because they are not giving us the brown boxes that we use to recycle (re-use).

74 **I:** [0:22:15] So the end result will be like more distresses nothing has changed except for the supplier has gone green but you and the customer remains non green or unsustainable.

75 **R:** [0:22:28] Exactly, yeah exactly.

76 **I:** [0:22:31] So if you put up a similar initiative, do you think that the customers will cooperate?

77 **R:** [0:22:37] Um, some will and some won't some possibly will say that we don't need these boxes lying around which will mean we'll have to go over with the box, empty the stuff on to the reception desk and take the box away and they won't accept that.

78 **I:** [0:22:52] Mmhm yeah, so it will cost more money I suppose when you go back.

79 **R:** [0:22:56] It would cost us more money, yeah yeah. We wouldn't, I personally wouldn't have a problem with it, putting in these boxes but, I just know some people are going to want them in their offices. I just don't see-It's a no interest to me, that's the real answer.

80 **I:** [0:23:13] Okay okay. And what do you think the government and other local bodies or local government system, how can they help the Irish SMEs, companies like you in making sustainable initiatives and circular economy implementation. Do you think that they can play a very important role?

81 **R:** [0:23:35] I don't think () no they can't, no. This country is made up of- The majority companies in Ireland are small and medium. They can only really make effect on the bigger end because, it's too complicated. They can't drill down to the little guy who's just you know do some small business. It just isn't possible. Like they put a price on plastic bags to stop them but that is the stupidest thing they have ever did. Because we just pay for the bags, they should have, they should have banned the bags. They should say "Sorry lads as

of from tomorrow, no more plastic bags and we are going to subsidise the enforced four or five bags in the shop, you'll get them free after that buy your own". That's the only way it's going to work and they ain't gonna do that. All they did was make the plastic bag manufacturer's rich that's all they did.

82 **I:** [0:24:38] Yeah, but again, let me ask you can the government, you know help you know like, make some policies which will you know make it easy on the SMEs like funding them or you know

83 **R:** [0:24:53] Yes, they just- the problem is you know, other government could make a change, the Irish government can't implement it and I'm not talking about just because who's in power at the moment, Irish politicians never have the backbone. They need to turn around and say "(name redacted), you swap your two vans tomorrow for electric and we'll make it that it doesn't cost you anymore. I wouldn't have a problem playing a little bit more for a van, like if a van was 25,000 Euros and the electric was twenty-six, I wouldn't have a problem with that. But I'm not gonna pay five or six thousand more for a van. But the government erase, if they cancel out this cost, I'll happily go with electric tomorrow and the same with the vehicles. And what about this industrial unit, I'm sitting in , I don't do anything about solar power, I need somebody knocking on my door and say " I'm here on behalf of the government incentive, he put solar panels on the roof which is a huge big (groove) that nobody (yielding), we put this on um, it's gonna cost you nothing and the electricity is going to be cheaper". But they ain't gonna do that because I've seen all these schemes before were you know buy the solar panels, they are more expensive but you get a grant. Yeah but when you are 60 years of age and you're dying the solar panel uses (pays) itself. Nobody wants to put extra 5 or 6 or 7 or 8,000 pounds into buying solar panels that they'll get their money back in twenty years, Irish people can't handle that, they can't understand it, they're short sighted. So yeah give me panels on top of the (state), yeah but I'm not gonna do it. If the government comes along and show us that someone can do it, that's fine. Give me electrical delivery vans in the city, tell me, tell me that my vans can only go on a Monday and Wednesdays, tell the government to tell the people of Ireland there are no deliveries in Dublin 2 and 4 only on Monday and Wednesdays, and that's fine because that means everybody is on the same level playing field. But if I don't do it, somebody else will and if the government say it, then they won't happen. And all that's going to happen is like in Germany, on Monday, Wednesday, Friday if cars ending on an even number go in and on Tuesday and Thursday cars with an odd number goes in and only get that the rich people, and I'll buy two vans, I'll buy a van that end in 5 and I'll end the van

with a two number then 6 and I would've just beaten the system.

84 **I:** [0:27:33] Yeah, that was very insightful. Do you think that the carbon tax- is it any good or is it detrimental to the SMEs?

85 **R:** [0:27:46] It means nothing to me I'm afraid. I know nothing about it and it means nothing to me. All I know is I have to earn 'x' amount of money every week to pay my bills and wherever it goes I don't know it's just beyond my comprehension. I was not interested in the firm really only more interested in just getting on with my own life and that's it (thankyou). I don't (), pay my taxes, but I don't know of very much about sustainability and other things. But the government need to make the rules and make the rules for everybody. If there will be house (establishable) solar panels, then make that the law and that should () it. And it's always gonna hurt some people and the young people will be moaning and the old people will be moaning that their kids are being pressurised but unless governments make the rules and laws for businesses to have you know- you can start off and say, if you have 5, if you have more than 3 vehicles in your company, every third vehicle must be electric, that's the law. That's all fine, until we all find some way to get around it. But that's only half (things) the job you know, they could say any company with more than 3 vans, every third vehicle has to be electric so I have three and I get an electric, I buy two more diesels, I mean get another one (other than) the electric. So may be that way it might me a rule send around (), But then we have the transport industry who employs thousands and thousands of people saying "we've employed thousands of people, we've three hundred trucks, we can't make a hundred trucks electrical when it is too expensive ". Its just sort of strike panic. (redacted portions).

86 **I:** [0:29:33] Do you have a collaborative relationship or do you have an arm's length transactional relationship with your suppliers. Is it more of a bit of collaboration or do you co-operate or do you, its like an arm's length transaction between the suppliers and you ?

87 **R:** [0:29:56] With our suppliers?

88 **I:** [0:29:57] Yeah

89 **R:** [0:29:58] Sorry, I don't know what you mean by a collaboration with them. I'm not sure what you mean?

90 **I:** [0:30:01] You engage with each other and co-operate with each other.

91 **R:** [0:30:06] Oh we just court yeah

92 **I:** [0:30:07] Or is it like a give it or take it like an arm's length, keep the at a distance and you know purely monetary

93 **R:** [0:30:14] No oh yeah no well we no we do keep them at a distance some for better information but what I'm saying is I spend a (amount redacted) last week adjusting my alarm at the rear entry door of my warehouse to facilitate that the suppliers could deliver anytime during the night and too two thing, one it meant I was having a -well it's one it means we are taking more cars off the road during the day, so we look for delivery during the night, the suppliers love it because its easier to get around at night as well as most congestion and time and I presume it's being they have got more time to get here. From my point of view, it was a security issue where they were delivering early some morning and sometimes, they are a bit late. So yeah, we spend a thousand times adjusting in the alarm system and adjusting fittings to the doors so as that their drivers can come along and gain access to our building during the night. So that would be an automation that would be seen as a real positive collaboration.

*Appendix H– Interview Subject O*

- 1 [0:00:00] **I:** Can you explain a little bit about your company and its business?
- 2 **R:** [0:00:27] The business is a cleaning company and we specialise in stone and a little of interior stuff and carpet and all sorts of- a lot of is external to buildings, so starting at the roof going down to the gutters, basements,( ), windows and all stone work. That's what I clean.
- 3 **I:** [0:00:51] Do you procure these materials for the purpose you know, what sort of materials do you procure for your business?
- 4 **R:** [0:01:05] Starting off there is machinery involved, capital purchase of machinery and equipment at the start and then like consumables um like a (juice) depending on the particular machine, we'd use a lot of chemical, a lot of cleaning detergents um acids to break down stuff and heavy duty pads like muffin pads and diamond pads to get stuff out of stones.
- 5 **I:** [0:01:34] And do you have a particular set of suppliers for these sort of machinery as well as consumables or do you procure on an ad-hoc basis?
- 6 **R:** [0:01:48] At the start what I did was, I did a lot of training in England because the English have good trade associations and they provide training whereas Ireland isn't big enough to provide that kind of training. So, from meeting people in England on courses, I got the name of suppliers in England but I do also get supplies from Ireland like this week I purchased chemicals from a company in Cork. So, yeah, it'll buying stuff from Ireland and England.
- 7 **I:** [0:02:26] Okay so what sort of procurement practice do you have, do you keep, you know like- I hope that you have heard of sustainability and circular economy and all those related terms? So in practice of procuring things do you, are you conscious about the sustainability aspects or how do you, do you check whether the sourcing is done ethically and the products are harmful, the carbon footprint associated with these products. Do you check those kind of things or what's your procedure and process?

8 **R:** [0:03:07] Yeah, well like today that the chemicals that I bought as I said from a company in Cork and their name is (name redacted) so, but their, the stuff that they make is all eco-friendly. So that's the reason I buy it and because when the chemical has done its job and it break down back to water, so there's no environmental damage to it and sort of run off as clean where you could buy cheaper stuff and they run off back into the water of course but they're just pure chemicals. So yeah it is a consideration when I'm buying and like when I'm buying stuff I like to make sure that it's it's produced to a good standard and by good standards, I mean decent wages to people they way I think it yeah.

9 **I:** [0:03:58] And do you have any such international standards in use in your company for the processes and all like the ISO standard or anything which is implemented in your company?

10 **R:** [0:04:12] Yeah well, if you take one carpet or an upholstery, I use a code of practice by a British trade association so be able to use their code of practice there is certain things that I have to do, one I have to be insured and two, I have to be a limited company. Then, if I don't have those things, they won't let me use their code of practice. So when people see that you have a code of practice, they pay attention and take you seriously, you know.

11 **I:** [0:04:46] So can you explain me a little bit about some of these practices which you use use as per the code?

12 **R:** [0:04:59] That you gonna price fairly, um you're not gonna rip people off, um you gonna do what you say you do and you kind of do it to the highest standards everything from keeping your van clean and representing yourself, dressing properly and then having the right equipment to do the job uh weighs down to say you arrive to clean somebody's carpet, well your vacuum cleaner has to be above the normal standard of domestic one because that's what people expect. So, there's code of practice what's special for the type of vacuum cleaner to use to get the best results for the job and stuff like that

13 **I:** [0:05:42] Okay, and your employees, do they get trained often, do you provide any sort of training for them and how frequent are they getting trained?

14 **R:** [0:06:00] Yeah, I have really only (number redacted) part-time employee and the that he's got is the training that I give him and so if I'm trained on something, I'm confident enough to pass on the information and I mean confident that (name redacted) understands 'I

can use the machine', well then I can let him work on it but he wouldn't be unsupervised. Do you know what I mean?

15 **I:** [0:06:30] Yeah I got that and as a person committed to the business, how often [0:06:40] do you think you need a training, that you need to upgrade your skills so that you can train your employees as well?

16 **R:** [0:06:51] Well like there is regulatory training like health and safety training and safe pass, which is every three years. Um then another, I'm member of the British water jetting association and they have a safety scheme and that's we certified every two years. But on an annual basis. I would discipline (name redacted) to do at least two courses in something to do with my business. Yeah so, every year at least two courses yeah

17 **I:** [0:07:23] Okay so every year two courses to be taken. So talking again about suppliers, do you have any selection process or strategy in place for selecting the supplier, like do you ask them for you know like auctions or tenders or anything like that or do you just choose from you know their seeing their merit and that how you choose ?or do you like follow a tender process or anything like that?

18 **R:** [0:07:50] No, well, as I said, I'm in a couple of trade associations so they would've forums on the internet and if I had a question about a piece of equipment of chemical or looking for an issue or way to do something, I can ask a question through the forum and somebody that probably would've more experience than I have would come back to me with an answer and people put up new ways in doing things and ideas all the time so; I learn from other people, I take recommendations from other people. I don't just go on the internet and buy the first thing that I see. I research and listen to what other people have to say.

19 **I:** [0:08:39] Okay I got it, you utilize the online platforms available, for your business and you procure things after intense research.

20 **R:** [0:08:51] Yeah

21 **I:** Okay that's great. And what is your, in general what is your view about CE and sustainability? How do you define it, how do you (.) what is your understanding about it and can you explain a little bit about it?

22 **R:** [0:09:05] Well, when I put my business plan together and it was very much a part of it because I produced questionnaires that I send to probably a hundred people. And certainly what they don't wanted was, they understood you have to use chemicals but they wanted it to be safe for them and their families so people have an eye on ecology, eco stuff so you can't walk up with that chemicals to someone's house and because they'll question it, they'll ask you what's you are using and it have to be able to back it up. And you have top have the information like that, the material data sheets and safety data sheets that(.) and people ask for them, you know and you've gotta back up what you are saying. So, I wouldn't buy something off ebay from somebody because it's cheap. I would only buy it off an house the proper certification and paper work.

23 **I:** [0:10:10] Mmhm, so what percentage of the products you use are you know have an eco-label associated with them, any green labels or eco labels associated with them?

24 **R:** [0:10:21] The first one is as I said the company down at Cork and (company name redacted) and then other is an invest company, they are solutions , they are based in Cornwell, the company is called (company name redacted) so they do a lot of eco stuff and a lot of it is chemical free. So, it's all natural plant based stuff that they put into their solutions and they are used for cleaning so they'll two of them that brings to mind straightaway

25 **I:** [0:10:55] Mmhmm and are you aware of any of those labels of or you know like do you remember and can you give me an example of any of those eco labels or if , for example you know in the case of machinery or in the case of electrical equipment we have sorry electronic equipment we have the energy star ratings which provides less energy consumptions and all. So do you, do you, can you ,are you familiar with any of the eco labels associated with products you use?

26 **R:** [0:11:37] Ah well yeah, there is just two things I have to consider when I'm buying and like a lot of the machinery have, there is water goes to it so if you buy a quality pump, you'll be using less water. So not only you'll be using less water, but because of good quality you are gonna be using less electricity. Eh unfortunately petrol is still(.) people's preferred means is still petrol pumps and one of my machines is, two of the pumps that I use are powered electrically and certainly people of so many forums that I'm involved with look negatively on electrical stuff. But it's, it's the greener way to go. You know what I mean by the petrol driven machine. Yeah it would be part of the think yeah.

- 27 **I:** [0:12:34] So can I say that you continuously um use energy efficient and you know more efficient, you prefer to use resources more efficiently. Am I correct?
- 28 **R:** [0:12:48] Yeah yeah but if you take the technology, isn't there yet. When I, when I set up the company, I was looking for an electric van, but I couldn't get an electric van that would pull one tonne of weight. So I couldn't get an electric van so the technology hasn't caught up with where I am out with the business. You know what I mean.
- 29 **I:** [0:13:13] Yeah yeah I got it. And again, suppose um what's your opinion that in say for example that you want to purchase and how is the political as well as the other external factors associated with it. Do you consider it like a cost efficient alternative or do you think it's a costly alternative to the fossil fuel based or petroleum based automobiles?
- 30 **R:** [0:13:42] Well I think it is costly in terms of finance, money. But it's also costly in terms of the environment because the stuff that is put up into the batteries and other cases is mined in parts of Africa which aren't very nice you know by people who are literally slaves and I don't agree with that.
- 31 **I:** [0:14:06] Mmh so my question is what is the obstacle that you consider for you or other small business enterprises to buy an electric vehicle than a fossil fuel-based automobile. Is it the technological limitation or is it because of the political or um or other taxed based issues? What could be the reason.?
- 32 **R:** [0:14:40] The first one is technology, the reason that an electric vehicle with a big enough engine to pull the weight that it needed to pull. So, it's probably gonna take it a couple of more years for that part only and then that the other issue is the range. And if I get it like, I wok down in cork which is three, four hundred kilometers away but take you most of the day to get down there with the technology that's there because you'd have to stop and charge at least once and a van you have to charge at least twice you know.
- 33 **I:** [0:15:23] Yeah yeah and how do you feel about the government's part? How are they doing in you know the implementation of CE and sustainability, I mean the European Union has an action plan and how do you rate the government in Ireland in terms if their support for small and medium enterprises as well as their policies in terms of circular economy implementation.

34 **R:** [0:15:56] The I find that they pay lip service to saying the electric vehicles , they wanna go with the Europe and they want to be ecological but they made a lot of money out of petrol and fossil fuels and but that are not assisting people yet. They have given tax incentives to the business to buy stuff. But it's not enough to make people change over. So that they're paying lip service, they talk the great, uh they kind of like talk the great story but when in actually comes to doing it they don't want to do it. That's what it seems to me to be

35 **I:** [0:16:40] Mmhm, what about the customers or what about you customers or the consumers or the people who seek you service? What is their um their attitude towards the whole green thing you know? What percentage of people wants to go green and what percentage are (.) are majority of them wanting to or they are okay with going green or the other way around? How do you rate the response of the customers.?

36 **R:** [0:17:13] There is actually a male-female divide and female seem to care more in and will question more about what you are bringing into their homes or businesses whereas tend to 'just get the job done' you know, they don't care what you use or how it's done, just get it done. So, there'd definitely been a divide there yeah

37 **I:** [0:17:35] And if I ask what percentage of your customers are female population, I could get a better idea about how much percentage of your customers wants to go green ?So have you any such sort of data with you or ?

38 **R:** [0:17:57] I'd say it would be a 40-60 split. 40% would want it and 60% want the best price and don't care how it's done.

39 **I:** [0:18:10] Okay okay that's great. That's a new insight. And um what about, do you have an inventory or a place to store thing, how is it done. Do you store your um the products, the cleaning products everything in a warehouse or any storage place?

40 **R:** [0:18:36] Yeah I have an inventory of all my stock um and especially with chemical because you have to and you have to have to have these safety data sheets which all the points on, you have to know what's you are carrying, yeah.

41 **I:** [0:18:51] And do you have a set of practices to keep the place safe and secure you know and at the same time you can, do you use something, implement some process for energy

usage reduction or you know making it a lot more efficient?

42 **R:** [0:19:13] But I use but I'm not sure ()but I use extra security-

43 **I:** [0:19:19] No, I meant do you have any sort of processes set place for the warehouses or at the place where the inventory is kept to keep it safe and at the same time you know be sustainable, be less, use less energy and things like that you know?

44 **R:** [0:19:42] Yeah yeah, a lot of stuff I have needs charging so you have to keep a record of what you are charging and you have to plan ahead for the job, the right stuff ready to go because there is no point in charging something the night and not using it tomorrow because the battery is going to be dead when you need it so you need to have a plan yeah, yeah.

45 **I:** [0:20:03] And you keep track of every equipment and you follow proper maintenance schedule so that you know you could use uh the product at the required level of efficiency and you know and make it last longer ?

46 **R:** [0:20:23] I would like to say yes but I don't actually because um I struggle sourcing people to maintain stuff, a lot of the maintenance I have to do myself.

47 **I:** [0:20:33] mmmhm and what about you know, if a machine reaches its 'end of life' period. What is your procedure or do you, how do you dispose it off? Do you contact the company or do you contact the manufacturer to get it refurbished or to provide um reuse or just recycling or what is the procedure associated, if a product is nearing the end of its life?

48 **R:** [0:21:08] Well that depends on the machine and if it's a machine that's been has had chemical gone through during its life and it would go back to the person that sells and they'd send it back to the manufacturer and day to day stuff like plastics and cardboard and, stuff like that is all recycled.

49 **I:** [0:21:28] Mmhm and how is the, what is the procedure in place for um the machinery, how do you, you know recycle it how do you ensure that the product is send back to the manufacturer and how often have you, you know practicing this sort of procedure ?

50 **R:** [0:21:53] Uuh, in the last year three or four times. Um when you buy something, um the person you're buying from should be part of the WEEE directive, so you're requesting them

that when you bring it back to them, they'll send it home. Where we should be sending the pump back to- the company called (company name redacted); they're Norwegian and. I know them, went back to them and they scrapped it because they phoned me to tell that they had it and they were taking the bits off that could be recycled and the rest was going to be dumped so that was easy but you're still trusting people to do it you know

51 **I:** [0:22:39] Yeah yeah, so in a sense that, I could say that your company is making every effort to facilitate the recovery of materials, the recycling and refurbishing and re-using of the machinery you use. Am I correct?

52 **R:** [0:22:57] Yeah yeah, but there is, there is, the fact still remains that you know today I was on a job and there was waste water and the only way to get rid of it is to put it down the toilet. Um because that's the approved procedure for getting rid of it. Is it ideal? Probably not. But again, technology hasn't; we're not there yet with waste companies talking total waste recovery you know.

53 **I:** [0:23:26] Yeah yeah. So the waste disposal is a pain area you'd say that its um the technology is a limitation for- to reducing the waste as well you know um make it less um or how do you put it like to reduce the amount of waste you dump. Am I correct? Technology is preventing is limiting your efforts. Am I correct?

54 **R:** [0:23:57] Um yes like, I have no choice but to get rid of stuff in that way because that's system that's here at the moment um ideally if it's stored in it, somebody would be coming along and taking it off your bush- the facility isn't there .

55 **I:** [0:24:18] Yeah yeah yeah,, I got it. And do you have any future plans in terms of sustainability and circular economy you know if or do you think that some of the actions, it need to be in place before you go further with your plans. Is there something you want to see that; I want this so that I could implement another idea so that it could be a sustainable alternative

56 **R:** [0:24:52] Well there, if you take- I do window cleaning as well and so rather than use chemicals, I filter water to purify it. So there is no chemicals, stuff like that, I'm always looking for something that sets me apart, and gives you bit of an edge or it's um and there's no waste and the pump is electric you know so stuff like that and eventually if the government get direct together with financing electric vehicles and giving small business

decent loans, I could see me getting on an electric van yeah, yeah .

57 **I:** [0:25:42] And what policy implementation do you expect from the government as a small medium enterprises, as a person who associated with a small and medium enterprise what do you think that the government should be doing for them, if they want to really implement an EU action plan in terms of circular economy ?

58 **R:** [0:26:12] Um well if you take it in a local area in a community, most communities in Ireland have a credit union and the credit unions are very restricted in the type of loans that they can give to business and they are very restrictive in giving business account so if the government would change regulation to allow credit unions for example to give business loans at reduced interest rates and that would stimulate local economies within communities you know, because there is very little enough for a small business in regard to low interest rates at the moment.

59 **I:** [0:26:56] And you know the EU has some funding schemes available to help business, um to comply with the environmental legislations like some LIFE program, certain structural funds or something. Do you think that such funding is availed by or accessible to small and medium enterprises in Ireland?

60 **R:** [0:27:22] No, because what the government here is doing is giving it to the local enterprise boards to administer and they've put a lot of restrictions and take, there is money coming from Europe for loans but they won't give it to a small business unless they're rate payers so if you are not a rate payer, you have no access to those loans and stuff like that. There is too much bureaucracy.

61 **I:** [0:27:52] Mmhm and in the broad sense how has the external factors like Brexit and the Covid-19 pandemic affected your business as well as your initiatives for a sustainable business model?

62 **R:** [0:28:12] But Brexit is gonna affect from where I source equipment and chemical from because it'll get more difficult because there will be the customs restrictions on stuffs coming from England, so I'm gonna have to find new sources of equipment and chemicals and things. And Covid as well, the business is shut down for the best part of two months um and then I have to make changes and I.. I have to, I have certain compliant issues that I have to comply with like when you go to somebody's house you're just- Things have changed in

how we use the machines and if we are using the machine in the house it has to be done through outside and the machine is outside and so you are working into it, you know what I mean. So Covid did made changes yeah

63 **I:** [0:29:08] Yeah yeah I got it. Do you think the small and medium enterprise should also focus on, more on its social accountability aspects like providing more for the local community and you know like job creation? In the present situation, I know that a lot of people are being laid off. Do you think that such a thing should not happen and since small and medium enterprises are , you know majority of the business enterprises in Ireland is SMEs, so they have sort of like more responsibility towards the society by creating more job opportunities and maintaining the work force without downsizing it. Do you think so or do you think that such a move is necessary?

64 **R:** [0:30:05] Yeah definitely because most small business wouldn't have a social conscience and they are interested to make money. If people have the social aspect written into their business plan well then we would stick to it but the local enterprise if you are looking for a grant, a startup grant from them and they are not interested in any social aspect. They are just interested in turn in reward so again it's a government thing, Government have allowed the local enterprise offices to administer the stuff but they don't have a social conscience as far as I can see you know.

65 **I:** [0:31:00] And how do you rate the recent carbon tax and I think that recently the carbon tax have been increased by a small percentage or so. So, do you think such legislations like the carbon tax are necessary to keep a check on the emissions by businesses?

66 **R:** [0:31:23] Yeah I see the need for it but as I said the government has made so much error. Carbon fuels and fossil fuels that they could give something back to enable people to go green and there's not enough for that going on.

67 **I:** [0:31:46] Okay okay I got.

*Appendix I – Interview Subject R*

**Subject R**

- 1 [0:00:00] **I:** Can you explain a little bit in brief about your business?
- 2 **R:** [0:00:27] Yes sure. We are a small-scale distillery in (place name redacted) we have only (been) operational in terms of production last couple of months, our product is only been released in the last (references to dates redacted). The first product is a (alcohol brand name redacted), it's made by the re-distillation of neutral grade spirits in the presence of a botanical (.) set of botanicals um () alcohol evaporates off carries the flavour of the botanicals when it goes through a condenser back to liquid as a high strength alcohol before it is reduced () water and bottled and sold as a (alcohol brand name redacted). We would see us having further products in the future for example, Rum which would require fermentation before distillation and then again reduction before bottling and then other small-scale spirit releases as well.
- 3 **I:** [0:01:22] Okay. So, I am sure you would have heard about the concepts of like CE and sustainability?
- 4 **R:** [0:01:29] Sure yeah
- 5 [0:01:33] **I:** So can you define how you interpret these concepts and how does that relate with your business.?
- 6 **R:** [0:01:44] I suppose in terms of production and (noise disturbance) energy usage and various outputs and how they are being used subsequently. And just in terms of where we are getting our inputs from, our resources from. So that the main, I suppose it's probably a large scale, it's kind of, it's a small real practical implementation necessary at, because the production here is so small and sporadic at the moment that there is lot of things that could be done in the future but aren't really cost effective now but would become so as we gain a

bit of volume.

7 **I:** [0:02:19] It's like you must be having suppliers for the raw materials?

8 **R:** [0:02:31] Yes

9 **I:** [0:02:31] So how do you select these suppliers? What strategy do you use? Do you have, like call for a tender or auction or what do you employ for selecting these suppliers?

10 **R:** [0:02:45] Well it depends on the product I suppose. There is a number of inputs for us bottles, labels, caps, alcohol, botanicals and they were selected in different ways, bottle used is a combination of price and aesthetic appearance and the quality of the actual bottle themselves. So, labels is again price and quality, caps price and quality again. The botanicals again price and quality and provenance is important for the botanicals as well as is a direct relationship with the suppliers and knowing where they come from and how they are produced and the quality with which they are made and the standards they are produced.

11 **I:** [0:03:33] So do you look for like some sort of eco labels associated with the suppliers or some quality standards like ISO standards or any other green labels which they use ?

12 **R:** [0:03:48] No, not really. I mean, I suppose that I use suppliers that are well known, trusted and I know them from previous experience that they are of high-quality standards. I don't want to specifically look for any documentation regarding ISO. I've got specific documentation from my two botanical suppliers. So, I did require ISO standards from them and any other care and certification they have with regard to the quality of their process. With the bottle suppliers, I know that they do work on ISO standards but because I know that I did not feel it necessary to ask that to be provided.

13 **I:** [0:04:28] Do you at least ensure that the suppliers, they are not using any unethical practices like modern day slavery, child labour or anything or such sort. Do you make some sort of procedures so that you ensure that your suppliers are not using such unethical practices?

14 **R:** [0:04:50] Yeah, what I mean is in terms of the bottles and the caps they are coming from Germany and Italy and I think that I could probably trust them Germany and Italy that there is no child labour being used. The botanicals are coming again from an Italian company

who are well regarded in that I would be sure that they work ethically. And the botanicals coming from the (place name redacted), we visited the people directly and we know them and they were involved in it and we met the people, the women who actually processed the botanicals themselves and they were the same women having ownership share in the enterprise itself. So, it was a known fact that there were no unethical procedures in their facility.

15 **I:** [0:05:34] So was sustainability in your mind when you decided to source from a women's collective in (place name redacted) like the social value it adds to the society. Was it because of that or because of some other criteria?

16 **R:** [0:05:50] Yeah that was one of it. That was one of the bonuses of going with (name redacted), we knew them and we liked what they do and how they; you know they obviously are all the employees are treated well because they are also part of the ownership structure and then we met with the farmers and the farmers all are locals too, the processing facility, they have all worked for (name redacted) for years and they all are attested to us the happiness they have of worked for (name redacted). So I would say it's a very good community enterprise and not only do they () use farmers to harvest the individual botanicals, have processed on site and then they also have educational initiatives to upscale the farmers in the local areas as well. So that's all very much () why we wanted to work with them, so that was definitely part of it yeah.

17 **I:** [0:06:38] And what about Ireland? Do you source any products from Ireland to help the local, from the local community or the local farmers and industries?

18 **R:** [0:06:49] Well yeah, in terms of what is sourced from Ireland, services are sourced from, I mean there are graphic design and branding was done in Ireland. The labels were printed in Ireland, the outer packaging, the case boxes, that were produced by (name redacted) in Ireland as well. So, labelling and packaging is primarily produced in Ireland and the design work done in Ireland.

19 **I:** [0:07:13] Okay and speaking of packaging do you use environmentally friendly and sustainable packaging materials?

20 **R:** [0:07:23] Yeah, well in so far they can be recycled, yeah I mean the outer box packaging is recyclable, the bottle itself is recyclable, and they are the primary bits of packaging that

we have and they are both recyclable yeah

21 **I:** [0:07:37] Okay, Is there any initiatives to get back the bottles (retrieve the bottles)from the customers or do the customers have to do the recycling through different channels or ?

22 **R:** [0:07:50] Yeah, we would have to rely on the customers recycling it themselves. You have to remember we are a company of only (employee count redacted) people, so it not really stick for us to be doing initiatives like that.

23 **I:** [0:08:03] And what about the organisational structure and the employees? Have you been able to create more job opportunities with this company?

24 **R:** [0:08:18] Yeah, I mean again we are only trading about (time duration redacted), so some of these questions will be a bit more appropriate towards a longer established company but I mean (portion related to employee count redacted) so I would think based on encouraging signs in the last (time duration redacted) that I think that will be taking on more people next year which is you know we obviously had very, our expectations for sales this year were made very low by obviously Covid-19 and so we were then pleasantly surprised to be pretty much where we should be at, if not better after the first (time duration redacted). It all depends on, I mean we got a lot of export offers. So it is nearly (too much and when we come to provision) when our volume would be a lot bigger on scale and we will be a lot bigger next year, we should be able to add employees.

25 **I:** [0:09:22] So do you think that the external factors beyond control our control like the Covid-19 or the Brexit has a serious impact on the business?

26 **R:** [0:09:34] Yeah, I suppose for us like it totally changed the launch strategy. The original launch strategy would have been you know leading with buys at the restaurants first so that people can try other products and they can get a kind of a sense of our ways before they make the commitment to buy a full bottle. But then, you know that was our turnaround and so we had to go in an start off in supermarkets and off licenses first which is more difficult because then people see a product they haven't seen before but they happen have a chance to try it so it's difficult get someone to spend (amount in euros redacted) which is what they would be paying in the final () if they haven't looked through it before. So that's, it's the only change to our launch strategy in terms of that. I suppose in terms of Brexit, none of our supplies come from Britain and also because we are a startup we hasn't exported to Britain

although by the time we do it there would be a new way of trading. So it will be more difficult but it will be the first time we would have been trading with the UK as a company ourselves so it will be the first.. it will be the only way we would have known trading with them from our perspective.

27 **I:** [0:10:49] And what about your future plans? Do you think more about sustainability and circular economy procedures or processes in future or how is it gonna be?

28 **R:** [0:11:01] Yeah, like a lot of them can be implemented as we grow a bit of volume and a bit of scale like the way I make my (product name and type redacted) personally, I make it in a concentrated fashion which means I use the distillation I provide is less. So, from that point of view from the get-go I use is less energy. Then additionally like for example, if we start using Rum an easy kind of uses of the the energy bridge or actually it been when we distill like I said we have to condense the still water, the vapor back into the liquid. So obviously we are then putting cold water into that condenser and warm water is going back out. So we can reuse that warm water when we have Rum production because we can move that warm water and bring it over to the fermenter and use it to dilute down our sugar which would be either molasses or jaggery and it needs to be diluted down with warm water so we can use the warm water we have already produced in making the (product name redacted) to dilute the sugar solution to ferment the Rum. So that's kind of an easy energy win and you know it's not a loss of waste of heat and energy that we put in the electricity for. So that's one way of getting something back. Another way that we could look at doing when we produce more Rum, so (product name redacted) like I say we don't need to do it that often but as we get scared we will be doing it more and another way is stream from a (product name redacted) distillation is the botanicals at the end left behind. But we can explore and I am thinking and looking into it, giving these to a bakery or because they can use them to make bread or biscuits because they are still quite a lot of good flavour left in them and they have you know some nutritional value still left at the end of the processes that could be a way of us recycling a waste into kind of into productive use.

29 **I:** [0:13:02] So you have a lot of resource efficient plans as well as a collaborative offer for the local businesses as well in stock, right?

30 **R:** [0:13:11] Yeah yes that's the plan that we kind of you know once we grow a bit and important part of all that is if we grow we can add resources you know like I say it's only (number of employees redacted) full time people right now part-timers (details redacted)

but they have their own jobs as well. So, there is only (number of employees redacted) full time people but yeah

31 **I:** [0:13:34] So what about warehousing and I hope you have a warehouse for you know stocking the finished bottles and all those raw materials required. Do you have any sort of practices or sustainable practices to reduce energy consumption in warehouses as well as a scientific way of doing those kind of any processes or practices that are in place?

32 **R:** [0:14:02] Again I just keep an eye on inventory because at the moment like I say it's quite, at any given moment there is only about (a low four digit count-exact count redacted) either full or empty on premises. Like ways there is about (a similar count of case boxes) which are reduced overtime before another one.. before we need to get it again. The corks that are bought at about (more than double the count of bottles) at a time because they are branded so they are kept on site until they are needed. So, there is not a huge amount of stuff kept here we are trying to keep it you know trying you know trying some of them are required in minimum order quantities like for example the caps. We wouldn't have really necessarily wanted to buy so many but that's the minimum order quantity for them. And everything else we are just kind of trying to keep to a lower level, but we do everything stored on site at the moment. It would be possible if we did gain larger volume that we might contract out the bottling aspects that we continue to make the (product name redacted) but we bottle it elsewhere. In that scenario then a lot of the bottles and caps will be kept in a different site, but that scenario hasn't happened yet

33 **I:** [0:15:15] Okay and speaking of your relationship with the suppliers, do you follow a more co-operative and collaborative relationship with them or just an arm's length transaction?

34 **R:** [0:15:29] No, I mean I like I said we have a very good relationship with (company name and place redacted), we have very good relationship with (company name redacted) in Italy, they are the two botanical people. Like I interact quite a lot with (company name redacted) in Italy who are the bottle and cap supplier. I know the guy who makes the labels, he happens to deliver the labels from Dublin personally to me because he was late. So pretty- and I interacted with the guy in (firm name redacted) for some of the labels and a lot of them was through our graphic designers so I still interacted directly also with them. So all my suppliers I have interacted directly with them and in some cases know them pretty well.

35 **I:** [0:16:15] Okay and as you are aware EU has some sort of you know CE action plan and they also have some sort of funding as well as grants as well as talent development plans support services for small and medium enterprises in Europe. How do you feel about such things, about EU as well as the Government policies, the Irish Government policies, how can they support your business . Have you availed any of those such funding or grants, do you think that availing them are easier or difficult, you know such things?

36 **R:** [0:16:55] Yeah, I mean, I suppose I haven't seen any grant tailored to mine in the things and terms of business. I know I am a kind of, I will sign up to a more fuller degree in Bord Bia's Origin Green System, probably next year. But that's not really a grand () just a kind of being on board with them and doing things as best practice so as a I kind of gain a bit of scale, I'll sign up for that because it is a good way of informing the final consumer that you are being transparent. I am not aware of any grand specific 'to do' or very- the CE that might me be available to me. I've got funding in another aspect (not CE or sustainability) from Bord Bia but not in those aspect. Likewise, I have got funding from the Local Enterprise Office but not related to CE.

37 **I:** [0:17:50] During starting of your business have you explored such options or were you interested in ?

38 **R:** [0:18:04] I have never seen any grants like that advertised via the Local Enterprise office which is the kind of for my scale that the people I deal with; in terms of government grants. I didn't see anything from Bord Bia in that relation neither but maybe they have come on board in the last few week or something, but I haven't noticed it.

39 **I:** [0:18:20] And how helpful was the local enterprise office and the whole bureaucratic apparatus, the local government in supporting your startup?

40 **R:** [0:18:33] Mm yeah I think on certain aspects they are great like the local enterprise office were brilliant, Bord Bia were also fantastic. They are both great to work with, they are both very professional. I think on the other ends you know they do for example, the fire officer, it's very difficult to deal with. But that's you know that's the terms of the regulatory aspect that I think they are, they ask a lot of small companies and they expect them to have resources that they don't have but you have to do things in the same level as companies that are much larger than you but overall certainly in terms of Local Enterprises office and Bord Bia they are on a spot below.

41 **I:** [0:19:22] And regarding what sort of obstacles do you find in progress towards sustainable and CE models in business?

42 **R:** [0:19:45] I mean ultimately if we look at the bottle example, there is not anything really a company of my scale can do to make the final consumer bring it back, I mean the government can by having deposit schemes. For example, like they do in Germany, but I don't see how companies like ours could do anything to like we really are relying on the final consumer because like I said the stuff is recyclable so- but it ends up with the final consumer. Therefore, either the government has to promote and incentivise people to recycle that stuff or people has to do it themselves.

43 **I:** [0:20:32] And what about transportation? Do you use your own kind of transportation or do you have 3PL or how does that work?

44 **R:** [0:20:45] Bit of both, for anything local within the (city name redacted) city, yeah and you know I can only make the deliveries myself. If it's outside of (city name redacted) then it could be courier or it's with one of our distributors who would be making -obviously going a lot from (city name redacted) to Dublin so that they can put our product in with other products and make it more efficient in terms of transport though

45 **I:** [0:21:12] And in terms of your processes do you follow any sort of just in time production or just in time (JIT) processes in manufacturing? Do you use any sort of?

46 **R:** [0:21:31] Yeah, I mean my background is manufacturing food you know so I am aware of lean and just in time (JIT). The problem again with JIT is, it's getting scale right, you can't you know the minimum order quantity is for the bottles are 900 bottles we're getting 1800 to be more cost effective in terms of price. But obviously at the start those 1800 products stood there for quite a while. Now all things are moving, so they are moving in and out quicker. So, these kinds of things are generally, you know if you came back to me in an year 's time I would say that would be a lot better and a lot more implemented. But at a small scale it's very hard to border in small amounts as you need when we need them. Realistically you would have to buy in a good bid more than you need and because they are the quantities available.

47 **I:** [0:22:28] And do you use any sort of ERP software or MRP or MRPII?

48 **R:** [0:22:38] No

49 **I:** [0:22:40] Okay and so basically you don't use that much of a software as a service technology in your production. What about the machinery you use for the manufacturing? You must be using some sort of machineries. Do you procure those kind of machinery from Ireland or from other parts of Europe?

50 **R:** [0:23:13] Yeah pretty much from other parts of Europe, Germany and Italy.

51 **I:** [0:23:21] And did you had to use any Life Cycle assessment and any plan for when they reach their End of Life how should you dispose them. Is there any plans being made as of now or?

52 **R:** [0:23:40] Well, I have about 15 years for most of them so I would probably wait before I throw it. I mean yeah I don't really have to worry about it for at least 10 years, so.

53 **I:** [0:23:51] But when you procured such things did the supplier offered any such things that they will take away this thing or they will prolong its life by you know reusing or refurbishing or upgrading the technology, is there any such offer being provided by the suppliers?

54 **R:** [0:24:07] For the thing itself, it's made of copper and copper is used during distillation so over a very long period of time they copper would start to degrade. You are talking, at the current usage that we are talking it would take at least 15, probably 20 years before that happens. You can patch them up at that point. As regards to the other equipment is primarily stainless steel if we outgrow it, I would imagine we would hopefully outgrow it before it reaches the end of its life cycle in which case there is a very healthy second hand market for beverage production, you know stainless steel tanks, bottling equipment, it's very- all that stuff, there is no need to get it thrown out because there would be someone there that would want to buy it so that it will go to someone

55 **I:** [0:24:59] I read that you used an old factory, you changed it , can you explain a little bit about that and you know what prompted you to adopt such an idea ?

56 **R:** [0:25:16] Yeah, I mean like obviously we could have chosen just to go on into a basic industrial unit. But like we saw the space about (time duration redacted)years ago and it

was the old (factory type and name redacted) you know it was empty since 1983 so we worked with the owners to try and get it back up and running and in turn the owners did all the external work they refurbished (refurbished) the original () door as they put it back in, a lot of original windows and then we did the internal fit-outs. But like internals of the building itself is like aesthetically it looks great, it's kind of an iconic building, you know its great heritage to, it's part of like I say the old (company name redacted) factory which is very important part of (city name redacted)city's manufacturing heritage so being able to come in here and set up something new was like was a great opportunity.

57 **I:** [0:26:12] Okay , that brings us to the final question, do you right now follow any sort of you know processes to measure how much you are sustainable like how much the by-product, how much environmental friendly they are, how much value you provide by adopting this kind of process instead of some other kind of process. Do you have something to gauge the effectiveness of your process on a sustainability and CE perspective

58 **R:** [0:26:50] I mean we'll obviously look into these and over time we will be able to gauge whether we are getting better or worse in that end. You know again like it's a resource issue like the company of our size it's just you know it's impossible really to see how we can gauge a lot of these things as a startup versus someone else, I mean like I said I was in production for the last 10 years and as companies grow they are able to bring more and more efficiencies out of their boxes, but at the scale we are, we are so small it's hard to be overly efficient but at the same time our energy usage and resource usage is pretty minimum so it's not as if it's - It's not a burden or a drain on any particular resource because it's a drop in the ocean compared to you know any other, anyone who is more established. But as we gain time and gain volume and scale then, you know the importance of our environmental performance have improved.

59 **I:** [0:27:53] So right now are you monitoring the usage of you know, the resource efficiency are you monitoring it in some way or another ?

60 **R:** [0:28:06] Yeah we know our kWh, it's you know, that's the only way that we can and I could say that it's pretty miniscule at the moment because we are just starting up

61 **I:** [0:28:16] From the perspective of the carbon tax. Has the carbon tax (been) a big issue in terms of your business. Have you analysed that part?

62 **R:** [0:28:26] Well, there is no carbon tax implemented as of here unless I'm mistaken.

63 **I:** [0:28:35] Um, I think something is , with respect to energy usage I think it is still there, but I'm not sure if it applies to your line of business, you know the carbon footprint.

64 **R:** [0:28:45] I'm sure, I think I am pretty sure, isn't it based on size and then usage. So, you know we'd fall below the usage that could that would () I think. Because we also fall below like, I mean we don't want to deal with the EPA, because we are too small, we deal with the (city name redacted) city council directly stuff like that.

*Appendix J – Interview Subject S*

1	[0:00:00]
2	<b>I:</b> [0:00:11] Now can you explain a little bit about your company and its business?
3	<b>R:</b> [0:00:18] We're what called and electrical distributors, so um we mostly sell industrial electrical equipment like um kind of industrial plugs and sockets and then plastic enclosures which hold electronic equipment. They would be our biggest products.
4	<b>I:</b> [0:00:39] Okay, um so what does sustainability and circular economy mean to you? I mean how do you define it; how can you relate it with your company?
5	<b>R:</b> [0:00:50] Um sorry sustainable and what was the other?
6	<b>I:</b> [0:00:52] Circular economy
7	<b>R:</b> [0:00:54] Sorry circular is it?
8	<b>I:</b> [0:00:56] Yeah circular economy.
9	<b>R:</b> [0:00:57] Eh well sustainable we (.) to me it means that, you know the this is not related to the business what just I, my interpretation is it means that you use materials for products that um are not finite there you know renewable or they're recyclable or they're you know it's very plentiful um and how it relates to our business is we it's very popular now, it's electronics and because of and also because there is (are) lot of government regulations. So we stock you know very different products than what we used to um like more environmentally friendly kind of stuff like LED lights now are very popular and we do sell some of those whereas in the past it was other types of light that um weren't

environmentally sound I'd say.

10 **I:** [0:01:55] Okay, so you basically distribute these products, or do you have any type of manufacturing as well?

11 **R:** [0:02:03] No, we're just distributors.

12 **I:** [0:02:08] Okay, so you procure these products from different suppliers and

13 **R:** [0:02:12] That's correct yeah

14 **I:** [0:02:15] Okay so, do you use any practices or any environmental practises like you know green procurement or those kinds of stuff?

15 **R:** [0:02:27] Sorry, do you mean we kind of check on the companies to sure they're sustainable?

16 **I:** [0:02:34] Yeah, yeah exactly

17 **R:** [0:02:35] Um well, honestly a lot of the relationships we have been building sorry with the companies were in place before um things like sustainability and all this were huge concerns, but most of the people that we deal with, they have been keeping up to date with the new trends should we say. But so, we don't go out looking for more suppliers too often. But when we do um, to be honest we have to conform to a lot of the regulations um so and you know to the marketplace. So, in that sense, yes we do. I have to be honest it wouldn't be something, it has never come up yet but it wouldn't be something that we would turn down a good product if we felt you know it wasn't sustainable. It might be. I should be honest with at that. But we been lucky so far that everything has been pretty good.

18 **I:** [0:03:34] So speaking of regulations, these government regulations, are they related with sustainability or what sort of regulations are you talking about? Like procuring eco-friendly products or using the type of packaging or

19 **R:** [0:03:51] Ah, well there really is for a lot of other stuff, they it's mainly to be with technical standards um I wouldn't be the best person here to talk to you about that, but the people who are they're always talking about what has to be, you know how to use this kind

of a power source, this kind of plug um

20 **I:** [0:04:12] And do you use any sort of sustainable procurement standards related with ISO like the ISO14000, or like the ISO 26000 guidelines or something related with it?

21 **R:** [0:04:30] Um I couldn't say to be honest, I would not should be in charge of um that area, um I'm trying to think if I heard of them, I haven't heard that being discussed, but it could very well be some of them are in depths that I wouldn't know about.

22 **I:** [0:04:53] And do you, have you come across any green labels or eco labels, for example the energy star rating, are you know, do you do mandate that, your suppliers that the products you procure from them has to have these kind of green labels or energy star ratings with, associated with those products?

23 **R:** [0:05:16] Sorry about it, do we let the suppliers now is it or is it the customers?

24 **I:** [0:05:22] I mean the suppliers, I mean do you demand that the suppliers give you the products which are, which have a green labels or energy star rating?

25 **R:** [0:05:30] Oh sorry, I understand. The kind of product you're talking about we wouldn't buy in enough quantities to make any demands. There are some items that we buy and we, we're in such a relationship with the companies that we would be able to say, you know here it needs to be like this or we need this kind of ratings, um. For those products, but they mainly are industrial plugs and plastic enclosures, I was talking about, which wouldn't have those kinds of regulations to my knowledge. So, the kind of things you are talking about like lighting and all this would be a very small purchases. So um again I don't deal directly with them, but it wouldn't be, if we went to some of the suppliers and said "hey we needs that, this", we would just be ignored, to be frank with you. Like they would listen may be to the complaints, but they are not gonna change their policies. They are very very big companies and we wouldn't be a big customer of theirs.

26 **I:** [0:06:34] And have you come across, so your relationship with the suppliers are they like really a cooperative or collaborative type of relationships or you are doing an arm's length transactional type of relationship?

27 **R:** [0:06:50] Um we have both types of relationships, some of the bigger companies sorry

some of the brands that we would be kind of known for in the marketplace we would have very good co-operative relationships with and then other wouldn't. We're people who just buy from them, who happen to have an account, with them.

28 **I:** [0:07:13] So (in) all the years have you noticed any of the suppliers going green. That means they are demanding that they are willing to take back products for recycling or they are changing the packaging materials to environmental environmentally sustainably sustainable packaging materials or biodegradable packaging materials or something which they can recycle. Have you um come across any of the suppliers taking such an initiative by their own or?

29 **R:** [0:07:40] Um yes well, our biggest supplier they have changed their packaging quite a bit over the years. Um I'll try to explain it. We buy a lot of these plugs and sockets I'm talking about and they used to all be boxed so that you get a carton cardboard with them and inside that box in the past there use to be, you know several cardboard boxes and they stopped doing that now. Um so they have made some movement in that area. Um in terms of them accepting back um products from the (fold) that are not sustainable, um the kind of stuff that we sell, um from them wouldn't, that wouldn't really apply to them. Some of the lighting stuff, yes but that would be applicable but, um frankly most of the people who use it, they use it in such a way that um you couldn't return it you know they are very much in use and by the time they would want to return it, the products um the warranty would have worn off, so we would accept them back where we purchase and paid in the WEEE program. But in terms of like our suppliers taking stuff back because there is a greener option, no that would, that would not be something I could say.

30 **I:** [0:09:11] So in effect, are you saying that there is no procedure or no practice as of now for taking back or recycling the products which you have procured from supplier and sold to the customers?

31 **R:** [0:09:27] Um, is there no one to bringing back to us do you mean? or sending it back to the supplier?

32 **I:** [0:09:34] I mean is there a procedure or is there some sort of a mechanism which you have put in place so that um you know, may be interested customers can you know return products for recycling or you know or help in building up such a practice? A reverse logistics.

33 **R:** [0:09:54] Oh I see, well as I said, we do the, we purchase within the WEEE program so do have to accept a lot of stuff back in that way and in terms of an actual procedure, if someone were to do it we would be open to it. But it's to be frank with you, no one has come to us asking for it. So, we haven't been proactive in it. But it haven't come up yet.

34 **I:** [0:10:27] Okay, and what about organisational initiatives, is there any initiatives in your organisation for um, sustainable practices or is there any um training being provided for improving the, the talent development and you know making, making use of the new opportunities, new learning opportunities like doing certain practices so that you can reduce the use of resources, you can reduce the wastage of resources, is there any such action plan in place for resource efficiency and talent development- in that area?

35 **R:** [0:11:12] Um, I have to say no. It's not something where but we um we're quite small and we run a very lean operation anyway. So, I, we haven't felt the need, it could be something that our Manager is thinking of, but we haven't implemented anything like that now.

36 **I:** [0:11:36] Okay, you told you provide a lean operation or you run a lean operation, so can you explain a little bit of how do you measure how lean you are progressing or how lean you will be or how much you have

37 **R:** [0:11:51] Ah yes. Well um when I say lean like there isn't, we don't have a lot of employees here, we don't have our own driver on the road or anything like that. We just use a courier service to send things out. Most of our orders come in by email and so we just, like it's um, it's not very complicated, the orders come in and we send them out. We just try to keep things as kind of simple as possible. Um, eh who else would that be implemented (). Ah, it's kind of hard to say, we just try not to be wasteful you know if we don't have to print off an order like if it's only very small order, we won't print it out, we'll just use it on the screen. We just sort of keep out overheads low would be what I would mean by lean.

38 **I:** [0:12:50] Yeah, that's great. So you don't have any trucks or any sort of transportation which is owned by you for deliveries. Am I correct?

39 **R:** [0:13:04] Well, our managing director has a car and that's provided by the company. Um that is ()

40 **I:** [0:13:15] That is, you know you don't use that for transporting your deliveries to the customer end. You send through courier is that right?

41 **R:** [0:13:24] No, well you know may be if a good customer says that hey I'm ,I really need this now, he might use it for that but he is not using the car for deliveries. No it would be a very, it wouldn't be used for that now.

42 **I:** [0:13:38] Okay okay. So, what about the packaging you use for sending courier? Are they eco-friendly or you know bio degradable or is it in any way recyclable if the customer wants it to be recycled?

43 **R:** [0:13:56] Um, go on yeah

44 **I:** [0:14:01] May be that means um, you said that you don't have anything in place to take back and recycle by from your end. May be if you provide a you know, are you providing something which the customer can recycle on their own. May be carton boxes or the packaging plastics or something which they can

45 **R:** [0:14:23] Ah well in this, well most of the cardboard boxes we would use to send out the orders are kind of recycled anyway. Um so we would use the boxes that we receive the deliveries in and we would often just ship the orders out in those or we would ah, we would empty the box here and then use it for a separate delivery and we do sometimes buy our own cardboard boxes. And I have to be honest, I don't know what happens you know to the boxes when they get to elsewhere. But most of the time from when we do get orders from people it seems to be standard in this industry that you just keep the cardboard boxes and you keep using them for your deliveries. So when it gets to the final customer, who actually uses the item, they may be, well discarded or um should I say uh ah recycle, they might recycle it themselves like I'm not sure I would imagine that they just through it out. Actually I don't know if this is kind of useful for you, but we mainly sell to other businesses and then those businesses would be the ones to sell to the final user. So, the people who we send them to are not our, are not using these items themselves, they are kind of selling them again. So, you know we're not sending them out to someone who is using them and then throwing away the boxes, we are sending then to the guy in between.

46 **I:** [0:16:04] So can I say that um the discussions around sustainability and circular economy and all those kinds of stuff never comes up between either from the supplier side or from

your customer side. Your customers are businesses so basically you both, when you communicate when you work together, such a discussions-do they come up or do they never come up?

47 **R:** [0:16:31] No one's ever asked me about it, one, sorry one time a customer did say about a product we had, he said "there is a plastic in this order and could you ask the supplier not to use this much plastic and that was the only time anyone has ever mentioned anything like that to me.

48 **I:** [0:16:55] And did that result in a positive action or?

49 **R:** [0:17:00] Um that was actually the only time we bought those items, we never used them again so

50 **I:** [0:17:08] It was one off incident, right? or one off sale?

51 **R:** [0:17:11] Yeah, it was a one off yeah and again that's may be why I remembered it was because it was a one off.

52 **I:** [0:17:16] So and employees in your company, do they get trained often like how often you get a training in you know resource development, anything

53 **R:** [0:17:30] Um we don't really do a lot of new training here um, everyone who works here um has been with the company for much, I think the minimum, sorry the newest guys has been here like three years and everyone else we've all been here for about 20 years . So we don't really do kind of any, I think the Managing Director may be take some courses every now and then about you know to keep up with certain things you know, but the rest of us, it's kind of assumed that we know what we're doing.

54 **I:** [0:18:08] So regarding sustainability, the European Union and you see every day different news from various organisations, talking about sustainability and the future. Do you think that or do you believe that sustainability and circular economy will bring you know more environmental conservation, economic value or social equity. Do you believe it or do you, have you given it any thought?

55 **R:** [0:18:40] Um, I find it hard to say because um I think it's definitely a good thing and it's

helpful but um, my worry is with people you know when they hear things and more sustainable that may be we'll make them think they can buy more things um, so maybe per item, things will improve but then you know people will just keep buying more and more things, because they think it's okay now. So, I would find kind of had to say.

56 **I:** [0:19:19] Do you want to say that the consumption would increase?

57 **R:** [0:19:20] Sorry?

58 **I:** [0:19:21] Are you trying to imply that the, it's a good thing about sustainability and circular economy, but it'll increase the consumptions?

59 **R:** [0:19:31] Uh, that would be- that's what I am, yeah that's what I was trying to say. That's just again a may be. I think that we should definitely try to improve sustainability. Um but as I say may be just better education will help people.

60 **I:** [0:19:49] Okay and do you think that in future your company will be like collaborating with its suppliers as well as your customers for devising a mechanism wherein you can recover the products and um use a reverse logistics to channel it back to the supplier for them to you know, take these resources back and take it back to the manufacturers and you know get it recycled, reused and remanufactured. Do you think that such a um possibility or such a initiative is could be expected in the near future?

61 **R:** [0:20:31] Not in the near future, I would think. Um no, possibly beyond that if it becomes more of a, more important in the marketplace but at the moment, it would just haven't had enough demand for anything like that and neither have our suppliers. So not in the near future, no.

62 **I:** [0:20:54] So in your opinion what is the biggest impediment for such a, such an initiative. I mean the customers are not demanding it, the suppliers are not taking much initiatives. So where does the fault comes? Why do you think that happens in your opinion?

63 **R:** [0:21:13] In just in our industry is it?

64 **I:** [0:21:17] Yeah

65 **R:** [0:21:17] Um, I would say if the customers were more interested, it would be taken more seriously but I think because we are industrial stuff, I think there is less of a demand for it there and people- when it's industrial stuff, I think people put much emphasis on you know does it work and in the other way does it save money, so for example, LEDs are better for the environment but they became popular because they're cheaper to run. So, the customer demand would be from my point of view the biggest problem there.

66 **I:** [0:22:03] So, um so you that the customer, if the customer demands, you'll be able to phaseout the other type of lighting and replace it with the environmentally um sustainable LEDs?

67 **R:** [0:22:19] Oh well at the moment sorry LEDs are the one, the LEDs are very successful, um and most people we deal with will have replaced the oldest styles of lights with LEDs by this stage because customers demand, the LEDs you know they've completely taken over at the market place so they're a kind of successful area. But in most of the other areas it, they just care about you know, it doesn't work. If more of the end user started asking for it, though if big companies are building you know big warehouses with the electrical equipment and they insist that it is sustainable, and you know a bit better in that regard, then it would kind of come back to us and increase the demand. But at the moment it's just not there.

68 **I:** [0:23:15] Okay, speaking of warehouses and inventories, do you have a warehouse and an inventory management system in place?

69 **R:** [0:23:23] Sorry, could you say that again, I couldn't quite make that out.

70 **I:** [0:23:26] Do you have a warehouse and any related inventory management system in place in your company?4

71 **R:** [0:23:36] Oh yes, well you will have seen our warehouse the other day when you came down. That's everything that we have is in this warehouse.

72 **I:** [0:23:45] Mmhm, so you any sustainable practices like environmentally friendly systems in warehousing and you know reducing energy consumption in warehousing. Is there any such practice in place?

73 **R:** [0:24:00] Um, not really, but the- again because we're still small and it's not really a, like we don't use a lot of equipment to move anything. Um the only kind of things we use that affect the environment are the lights and like the computers and all this and we have LED lights all over everywhere and um yeah we're not a very consumptive organisation.

74 **I:** [0:24:32] And regarding the materials which you sell by the, like the, during the end of their life, you know after the period of warranty and after the end of their the intended use, what do you think happens to these products which you sell to the customers? Do they, do they get recycled or do they end up in the landfill? Which is more probable according to you? Which is going to happen?

75 **R:** [0:25:01] Um, to my knowledge, um the compliance that our customers that we've seen for the re-initiative I mentioned is very high. Um you have to charge extra for many products, because they've what's called a WEEE charge. That seems and to my knowledge they, I know you always hear stories about government programs not doing what they should, but they are all recycled as far as I know. To me that's most of these things will end up-I think people are pretty good with that in Ireland in terms of recycling electronics. So, I would be optimistic and sahy that's where most of them end up.

76 **I:** [0:25:49] Mmhm, again, but again, you don't have a mechanism in place to be part of such a recycling feedback loop.? Am I correct?

77 **R:** [0:25:58] Oh we, any of our customers can bring back electronic items to us and then we send them to the WEEE, to the organisations like that, can't get the right word. Yeah we do and the customers, you know we do have customers who uses in that regard, so

78 **I:** [0:26:19] So what percentage of customers, do you out of you know our of ten customers how many come back to you to utilize such an option for recycling and to recover these items?

79 **R:** [0:26:33] Um, again it is quite low in terms of our customers because most people we sell to don't actually use them and so it would be quite low, I would say. May be a handful like five or six of our customers but then we don't sell to a lot of people as per say, you actually use them.

80 **I:** [0:26:59] Okay, so again, we are coming to a conclusion here. In your opinion, you

know, who can help, who can help in implementing a circular economy across you know the small and medium business in Ireland ? How can the government help? How can the organisation you are working in now, how can these companies, for example companies like yours, how can they be a part of such a plan? I mean like it's like a comprehensive evaluation, how do you think? Who can act more and what do you expect your organisation to do, as well as what do you expect the government to do and what do you expect the customers and what do you expect the suppliers to do?

81 **R:** [0:27:47] So this is my personal opinion is it?

82 **I:** [0:27:50] Yeah

83 **R:** [0:27:51] Um, well I, in my personal opinion, I'm of the political persuasion I don't like the government to do too much, but the WEEE program to me has been very successful. Um I would say, I'm not a huge fan of the government kind of forcing people to do things. I think, but I have to say everything they've done seem to my knowledge as being fairly positive. Um, so I might come back to the government for ourselves. I guess we could may be mention more often to like a special or bigger suppliers and make sure that they're more-like I say I'm, I wouldn't think I need for them are particularly bad in areas we've been discussing but they could probably improve and you know if we put pressure on them, that would definitely help. Um for the overall situation to -the best way it would improve is um if more sustainable things become cheaper. So, I guess the government could introduce subsidies more for like, like the, like they do for the electric cars for example. Um, again though I'm not a huge- that wouldn't be something I would be in favour of, but I think that would be effective, if you know what I mean. And in terms of the customer, I mean all I can expect of the customer is they'll go with the cheapest option so uh, but I guess like big big companies like um like for example Amazon may be or you know (keep places), build big warehouses. Um if, if they want to emphasize more and show, you know it'd be good marketing for them to show that they're trying to be sustainable and environmentally friendly. So that would be the biggest help. If the customers start demanding it, um that to me would be the quickest way.

84 **I:** [0:30:10] And what do you think about the external factors like, globalisation, Brexit, the recent Covid-19 Pandemic and such factors which are beyond your control or you know control of the suppliers or your customers, how will those things impact um the sustainability?

85 **R:** [0:30:37] But we actually as I say because it's industrial stuff, I, mean that during the worst part of it, we slowed down quite a bit. But we haven't been affected too badly, because like the stuff that we sell, people are going to need it any way. Um in terms of how it would affect sustainability and things like Brexit and all this, I think they get people very emotionally fired up you know Brexit makes people angrier, makes them happy or and Covid makes people frightened and my interpretation would be it would make people care a bit less about sustainability. You know if you are really under pressure and you know you don't have the money coming in, it becomes, that kind of thing becomes less important. So, I, my - I would imagine it would have a negative effect on it.

86 **I:** [0:31:38] Mmhm and what about the globalisation, you know people having the options to you know, big companies, big corporates coming in with all their green labels and green products and green, you know, maybe there is something called green washing also. So how does globalisation impact you know the future of SMEs you know small businesses like yours in Ireland.

87 **R:** [0:32:04] Well the biggest effect on our industry will probably be um how much um of the products are now be made China. Um and I hate to generalise, anything that we buy from them, we have been very happy with and we visited a particular factory and all this to make sure everything was okay. But I had- you know the reputation isn't you know, they have a reputation of being very cheap, but sometimes they don't always put the emphasis on being environmentally sound and all this. Um but to my knowledge, eh it's becoming more, like I say good marketing for bigger companies like these global companies to show that they are, you know like a way Google or all very you know all were this and that and were very um politically you know right on and were you know were fun place to work and were very environmentally conscious. So, I guess it could have a good effect but um it's a very big topic and that's all I can say.

88 **I:** [0:33:27] So, let me make it quick. In short, do you think that moving to a sustainable um business and you know introducing these sustainable practices, do you think that it will give you a simple or a minor advantage against such big companies or even provide you with a level playing field ? What do you think?

89 **R:** [0:33:50] Um

90 **I:** [0:33:53] Is it good for business if you move to, you know if you go green um will it be

more helpful for you to compete with these companies?

91 **R:** [0:34:02] Um I don't. In our industry I wouldn't think it would be a huge eh issue honestly. Just for our industry as I say, at the moment it's just not something people are demanding. Um our customers are very you know kind of practical and as long as the products meet the specifications, they are really that's what they care about now. If it became a bigger concern, we would be able to move faster, may be than the big companies but it would only become a short term advantage you know, once they'll catch up that's you know. But then again, we honestly don't compete with very big businesses. So we are kind of lucky in that way.

92 **I:** [0:34:50] So again with the type of your competitors, going green- will it give you a competitive advantage over them or is there none?

93 **R:** [0:34:59] I would have to say that at the moment, it would not be a big advantage, no. Um it's just not a - in our industry, it's just not a priority at the moment. Like I say there are certain um like LEDs no one wants any of the older less environmentally friendly lights, but they want the LEDs because they're cheaper to run you know what I mean.

94 **I:** [0:35:26] Mm yeah yeah, so the last question, coming to the last question- How do you think that your business helps the community? Do it provide more jobs, you know how do you evaluate the impact of your business on the community?

95 **R:** [0:35:46] Um, mm that's a hard one to say. I would say, ours is quite small um so I couldn't say we have much of in like we, there is really only five or six people work here at any time. So, in term of like the local area we live in, we would have a very small impact on that eh community. Um I'm trying to think of how we would ..

96 **I:** [0:36:16] May be have you provided more employment even if it's one or two, you know have you provided relatively um contributed to provide employment in the area or making any, you know when businesses come in an area or concentrate in an area, normally the place tends to develop or something like that

97 **R:** [0:36:41] To be to be honest we are really small that I can't even say, like I mean we all will shop at the local Centra across the road but you know we don't spend a lot of money there, we are really kind of too small any impact on the local area um I hope everyone, you

know, thinks we are nice guys and everything but we, it's hard to say like I mean , in terms of a community impact, I couldn't really say that we have one. We're just too small.

98 I: [0:37:13] Okay okay