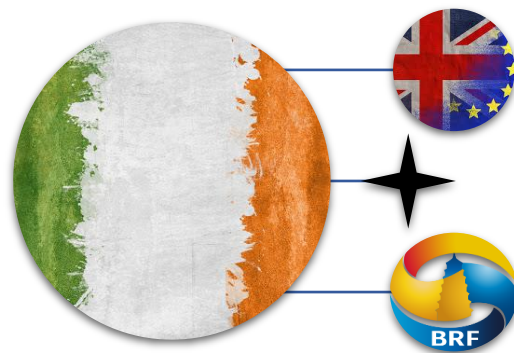




**A Study of Belt and Road Initiative and Impact of Brexit on  
Ireland's Supply Chain**



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

Griffith College Dublin

Dissertation Supervisor: **Dr. Paul Davis**

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Date of submission

**28<sup>th</sup> August 2020**

## **Candidate Declaration**

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I certify that the dissertation entitled:

*A Study of Belt and Road Initiative and Impact of Brexit On Ireland's Supply Chain*

Submitted for the degree of **MSc in International Procurement and Supply Chain Management** is a result of my own work and that where reference is made to work of others, due acknowledgement is given.

Candidate Signature:

Date:

Supervisor Name: **Dr. Paul Davis**

Supervisor Signature:

Date: 28<sup>th</sup> August 2020

## **Dedication**

First to my parents, for their unconditional love and support.....

And then to the “One”, who has sacrificed a lot for my Masters.....

## **Acknowledgements**

Firstly, I would like to thank my family, specially my father and mother who have provided big support and love during the whole master's programme. It would have been impossible for me to be at this stage without their love and support.

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## **Abstract**

In this dissertation, the concept explored is the study of Belt and Road Initiative and the impact of Brexit on the supply chain of Ireland. In the initial stage, this study will examine the status of Ireland's supply chain and its existing trade barriers. Further, this paper will explore the impacts of Brexit in Ireland and the impact of Belt and Road Initiative as an alternate source for its supply chain. The nature of the research is exploratory and interpretivist, while the approach taken is inductive having qualitative method for data collection. The process of data collection for this dissertation was through the series of interviews being conducted with the supply chain professionals, supply chain consultants working in global organizations and with the business owners. The experience and knowledge of the participants have helped to determine the status of the supply chain, effects of Brexit and helped to explore the Belt and Road Initiative and its effects in Ireland.

This research also found various benefits that the supply chain of Ireland can have if it is into the Belt and Road Initiative. This paper also focuses on the challenges and issues Ireland might face due to Brexit and BRI. Even though this research dearth precise research results as the nature of the study is interpretivist and exploratory, the study provides comprehensive details and analyses in accordance with conceptual framework and research goals.

**Keywords:** Brexit, Belt and Road Initiative.

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## **1.Introduction**

### **1.1 Overview**

The event of Brexit is worth noting at the end of this decade. Brexit is the withdrawal of the United Kingdom from the European Union. The antecedent set by this decision is going to have an everlasting impact not only on UK and EU but across the world. The most affected member state would be Ireland, if listed to the European Union (EU). For centuries, the two neighbors have intertwined through politics, culture and economics. Since 1973, UK's and Ireland's joining year in the EU (BELLEC, 2016), primary Irish goods have been distributed to Europe without any issue using the UK as a land bridge. Now, that UK is no longer to be a member of the EU, using the UK as a land bridge is going to have substantial challenges for Ireland (Bergin *et al.*, 2017). Although for much of their history they were economically dependent upon each other, but now the future appears to be unforeseeable. The geological neighbors have to decide on how they move into the future after the Brexit and what the Brexit will mean for Ireland's economy.

Ireland needs to start investing in additional or substitute ways for the transportation of its goods to the global market. The Belt and Road Initiative may certainly be one of the options that can be considered. Belt and Road Initiative is launched by China to connect nations through roads, rails and marine routes (Louis Pröpper, 2020). In all 29 international organizations and 123 countries have already been connected in the BRI. Free flow of goods and services, enhancement of trade and commerce and economic integration are key objectives of this initiative (Sharma and Kundu, 2016). Being a part of this project will open a vast global market for Irish goods.

The title is "A Study of Belt and Road Initiative and Impact of Brexit on Ireland's Supply Chain". The focus of this study is on understanding current supply chain status of Ireland, repercussions of Brexit on Ireland, possible outcomes if Ireland is into Belt and Road Initiative (BRI) and future supply chain requirements.

### **1.2 Justification for the Research**

Considering the Brexit scenario, the impact on trade activities with Ireland's neighbour country UK needs to be examined. The research includes a study of EXIM logistics and

global procurement of Ireland across multiple market sectors. Another area that needs careful consideration is the employment status in Ireland.

The interest in this research topic derives from the desire to contribute to the country in which the researcher is studying. Working on this subject will allow researcher a detailed understanding of the Ireland's supply chain and core theories related to Brexit and Belt and Road Initiative.

The withdrawal of the UK from the EU has long-lasting impacts on international politics and trade. Ireland, for whom the UK is one of the major trade partners and a land bridge to trade with other countries, will face significant challenges. Ireland envisages perceiving the higher impact from Brexit from all of the Eurozone conspicuously in trade policies and hard border with Northern-Ireland. Given the fact that Ireland has a high level of debt, it is essential to have a stable economy for the country. As it can no longer have business as usual with the UK, it is highly necessary to look for different sources for international trade.

Belt and Road Initiative is one of the options that can help Ireland to connect with other European countries efficiently. Belt and Road Initiative is an ambitious project which enhances the connectivity of the countries through multiple modes of transport (Czerewacz-Filipowicz, 2019). As mentioned earlier, the objectives of Belt and Road Initiative might be beneficial to ameliorate Irish international trade. The Belt and Road Initiative might help Ireland to gain access to free trade zones along Belt and road Initiative, convalesce transport infrastructure and intensify its trade relations with the countries involved in the initiative. Finally, after getting all the information related to Ireland's current international trade and about Belt and Road Initiative (BRI), the possible impacts of being into initiative can be determined.

The researchers experience in supply chain management will help studying the impacts of Brexit on Ireland and Belt and Road Initiative as an alternate source for its business or supply chain.

### **1.3 Research Aim and Objectives**

This study aims to understand the operational and economic impact of BRI and Brexit on Ireland's supply chain and looking at BRI as a possible solution for future trade connections

as an option in contrast for its trade development. The study will have a detailed analysis of all components that have direct or indirect contributions to major or minor impacts on the supply chain of Ireland. The study will also include understanding the current business scenario of Ireland, economic status and the future requirements for the Irish supply chain. For this, it is necessary to understand the current supply chain status in Ireland, imports and exports, employment status, the manufacturing strength and Irish international connections. Additionally, the current Belt and Road Initiative status (BRI) and its impact on European and Irish partner countries and Ireland's trade with China and other countries in European Union (EU) or non-EU will support to understand the above topic.

The questions which will guide for this research are as follows:

- i) What is the current status of the Irish supply chain and its trade barriers?
- ii) What will be the effects of Brexit in Ireland and which main business sectors will be affected due to Brexit?
- iii) What will be the effect in Ireland if it is into Belt and Road Initiative and its relations with neighboring countries?
- iv) How will Belt and Road Initiative benefit Ireland?

The above questions provide a structure to research the current condition of Ireland's Supply chain. It helps to determine the current requirements for international trade, business relationship with other countries, the current situation of Belt and Road Initiative, effects of Belt and Road Initiative (BRI) on Irish supply chain and to determine the changes that will be required while in agreement with Belt and Road Initiative.

#### **1.4 Issues and Challenges**

- Brexit came into force on 31st Jan'20. Before getting implemented, research analysts from various sectors have done an extensive analytical study of its impact on UK's trade with international partners from APAC, Americas and EMEA since the result was announced for 'The 2016 United Kingdom European Union membership

referendum’ (Sampson, 2017). However, since it came into force, the study of actual impacts has been difficult due to a drop in international trade as a result of Covid-19 virus spread.

- Getting appointments to meet the supply chain professionals and business owners who have thorough knowledge about the subject has become more challenging due to Covid-19 pandemic.

### **1.5 Potential Outcome of Research**

The potential outcomes of this research can benefit by providing detailed information for the improvements and future supply chain requirements of Ireland. This research focuses on two topics, the first is the impact of Brexit on the supply chain of Ireland and the second is the impact of Belt and Road initiative on Ireland if used as an alternative source to enhance its supply chain. Brexit influences the main sectors of Ireland (food, medical, transportation, pharma, manufacturing sectors) as Ireland uses the UK as a land bridge for its trade with other countries. This research helps to determine the possible effects on various sectors of the supply chain of Ireland due to Brexit and also the possible benefits or opportunities from it.

As Ireland has better trade relations with China and also with other European countries, Ireland has an excellent opportunity to explore various trade initiatives for betterment of its trade. Belt and Road is one of the major initiatives which can benefit Ireland to develop its trade connections with new markets and get access to new trade sources. Further, this research will help to determine the benefits of BRI, its challenges for implementation as well as the sectors which will benefit from BRI.

### **1.6 Study Structure**

The overall structure of the study has five sections and they are introduction, literature, research methodology, presentation and discussion of findings and the conclusion. This paper begins by introducing the topic, its significance, aims and objectives. Further the researcher presents the critical literature review, which is structured on the data obtained from the journals, articles and researches based on various fields regarding the Irish supply chain, Brexit and BRI. Following the literature review is the conceptual framework which helps to

provide a detailed structure to understand and guide the concept and details that are covered in this research article. The next part followed by the conceptual framework is the methodology of the research. Explanation of the research paradigm, methods of data collection and the details regarding analysis are covered in the methodology. This is then followed by the presentation of the findings and discussions which is obtained by data collected from the participants. The interviews are conducted for collecting the data as a part of qualitative research for this paper. Coding method is used in this research based on which themes are generated for the presentation of findings and to discuss the information obtained from the data collected.

The research includes the concluding chapter in the final section after the findings and discussion chapter. In this section, conclusions are drawn from the data obtained and recommendations, limitations and observations are provided based on the findings by the researcher.

## **2. Literature Review**

### **2.1 Current status of Irish supply chain and its trade barrier's**

Ireland has the fast-rising economy in Europe with over 4.9 million population, which is a steady, productive and competent nation having its real GDP growth of 3.4%. Ireland is a faithful representative of the Eurozone and EU Single Market. About 88% of the Irish population have believed that Ireland has benefitted from membership with the EU and 83% of them have shown positive approach towards it. According to IMD, Ireland is the seventh highly competitive nation around the globe and has the second most competitive economy in the European Union (IDA Ireland, 2017).

More than 90% of Ireland's economy originated from the agricultural sector and most of its working-class comprised of poor farmers during the 1920s (Encyclopedia.com, 2020). After its independence, the UK was only the one major trade partner of Ireland and its significant exports were Dairy and Beef products (Mattimoe, 2002). Ireland opened up for international trade during 1957 and started accepting foreign investments (IHS Markit Ltd., 2020). Later in 1973, Ireland joined the European Union, which considered Ireland transforming to a progressive country. During economic downfall in the 1980s, Ireland became an indigent

nation and was known to be the “sick man of Europe” In order to overcome the economic downfall, the Irish government decided to make quick reform of the economy that would provide instant and long-term economic gains for the nation. The government reduced the taxes, linked incomes to economic growth and actively started seeking out foreign investments. This led to the change into the greatest economic expansion during the period of the 1980s and 1990s, which is known as Celtic-Tiger (Battel, 2003). One of the most important economic reforms that Ireland have passed was a reduction in corporate taxes. It was reduced to 12.5% in 2000, which was one of the lowest in the world (IHS Markit Ltd., 2020). What Ireland has done in the over the past 100 years has been quite remarkable. Going from a poor farming nation to a fairly well-off country, it is a home to some of the world’s largest corporations.

The retail sector in Ireland provides employment to about 285,000 to the people, which constitutes 14% of the total national employment. There are 37400 retail businesses and enterprises in Ireland. The retail industry comprises of 33% of total consumer spending’s. The retail sector grew up vastly in Ireland, which accounts to approx. 12% of its GDP. Online shopping currently has a rising trend in Ireland. Online shopping, which was at 19% before ten years, has now reached 50%. About 75% of the total online sales go to foreign websites (Retail Ireland, 2020). Even though online shopping is growing at a rapid pace, many consumers still prefer shopping in stores. In Ireland, about 54% of consumers prefer to shop in stores. There is a rise of 8% in the store shopping as compared to 2018, which is 46%. This indicates that there is a considerable rise in the retail sector and e-commerce. Along with the rise in the retail sector, there is advancement in sustainability as well. According to the surveys, about 41% of Irish consumers purchased sustainable products(PricewaterhouseCoopers, 2019)

The manufacturing sector in Ireland employs over 250,000 people and considerably comprises 32% of its GDP. The economy of Ireland has been developing rapidly in the European zone by employing 2.5 million, which is the highest. A good base of talent, better stability of politics and authoritative economic record are the key factors to attract foreign investments. Being globally recognized, Ireland is a hub for innovation across many sectors (Industry and Business Magazine, 2019). Even though manufacturing contributes at a better level to Ireland’s exports, a huge concern has been raised due to the continuous decline in

employment. Ireland needs to focus more on building a higher reputation for manufacturing which is internationally recognized.

Ireland’s transport ties to Europe and with the rest of the world are significant. Irish ports offer transport services, maritime supply chain solutions and many facilities to a wide range of industrial sectors. More than 90% of imports and exports are shipped to and from Irish ports which benefits over 4.5 million vehicle and on-foot passengers. Dublin, Cork and Shannon Foynes are the three main Irish ports which constitute over 80% bulk volume (IDA Ireland, 2017). At the same time, the road freight transportation of Ireland has been increased by 4%. The number of vessels arriving at the Irish ports increased by 3.5%, gross tonnage of these ships and the volume of goods handled through the ports have also increased. This clearly indicates a definite increase in the transportation sector (Irish Government Economic and Evaluation Service, 2019).

The below table gives the additional information on the geographic breakdown of goods going through the Irish ports for Q3-2019 (share of foreign trade in %).

**TABLE 1: SHARE OF INTERNATIONAL TRADE AT IRISH PORTS**

Region	Goods Received (%)	Goods Forwarded (%)
UK	40	51
Other EU	32	36
Non-EU	2	1
Other Ports	24	3
Coastal trade	2	9

Source: (Central Statistics Office, 2019)

As per the above information, Ireland receives the highest amount of goods from the UK. The export costs and transaction costs may tend to increase after the Brexit, which might affect Ireland. According to (O’Brennan, 2019), UK export volumes are three times bigger to Ireland than other countries. Also, the goods forwarded to the UK from Ireland are more as compared to other EU nations, non-EU nations and other ports. This indicates that Ireland needs to explore more opportunities to develop business relationships with other regions than in the UK.

## **2.2 Effects of Brexit in Ireland**

The Republic of Ireland and the United Kingdom are close neighbours in the Eurozone having their positive social, commercial and cultural relationship. The history of both nations was filled with conflicts which arose in the sixteenth century where Great Britain took control of Ireland. This resulted in severe conflicts between the two countries which built tensions between the states for centuries. The relationship between the two countries culminated after the first world war where Irish men fought for the British. Later after the war, Irish men resumed back to their independence rule. The violence between the two ended after signing the Anglo-Irish treaty and separated Northern Ireland from the Republic of Ireland to be the part of UK. However, the conflicts between the free state and the Republic of Ireland continued (Stamp, 2014). This conflict was ended up in 1998 which was known to be a Good Friday Agreement which stated the constitutional status of Northern Ireland in the UK. After two decades, both nations have grown through these challenges and become more associated than before (AmericaMagazine, 2016). The Republic of Ireland and the UK joined the European Economic Community (EEC) in 1973, even though they were not the established members of the community. The common market was established by countries like France, Italy, Netherlands, Belgium and West Germany to facilitate free movement of capital, goods and services, decrease the trade restrictions and intensify the financial ties between its members. Single European Act (SEA) was created after the expansion of EEC due to rise in its members and policies. This led to the ease of trade and access to the markets for its members. Later, the European Union was founded after the signing of the Treaty of Maastricht due to developments in open-trade policies (Wordin, 2018).

The UK left EU on 31<sup>st</sup> January 2020 and the transition period for the UK-EU withdrawal agreement will come to an end on 31<sup>st</sup> December 2020 unless it is extended, until then UK will have to follow the EU laws (Practical Law, 2020).

The decision of the UK to leave the European Union (EU) is likely to have a significant impact on the trade relations between the UK and EU and ultimately in Ireland. However, the effect of Brexit is uncertain and depends on the nature of the future relationship between Ireland and the UK. Considering the UK's trading partners in Europe, the economy of Ireland appears to be at the most risk by increasing trade barriers, due to the higher share of its trade

with the UK (Bergin *et al.*, 2017). The global equity market lost 2 trillion dollars after the UK referendum on 24th July 2016, which was the most substantial single-day loss experienced in the world market. Many European countries faced a considerable decline in their stock markets. Ireland faced a decline of 10% in its stock markets which was a significant setback to its economy (Burdekin *et al.*, 2018). Brexit also provided some opportunities apart from its threats. IDA Ireland has successfully protected a convincing number of Brexit related investments with 55 companies employing more than 4500 employees (Industry and Business Magazine, 2019). The primary concern for Irish trade after the Brexit is transportation to and from Ireland of non-UK exports and imports which might be affected because of the use of UK as a land-bridge for Irish Trade with the rest of Europe and other countries (Bergin *et al.*, 2017). The UK is also crucial for the transit traffic to and from Ireland, the impact on transit traffic states that in addition to Ireland other countries will also be affected due to the changes in the transit regime (Lawless *et al.*, 2017). According to (IHS MarkIt, 2020) the government will have to focus on alleviating the risks of Brexit and the discussions with the UK bilaterally and through EU. The main goal will be to finalize a deal that avoids reinstatement of the hard border between Northern Ireland (Part of UK region) and Ireland, which may have disturbing consequences for cross-border trade and supply chains.

Free movement of people and ease in the transportation of goods is facilitated by European Union. This makes the uninterrupted movement of the EU members across the states. Earlier before Brexit, Northern Ireland, which is part of UK, had an agreement of Common Travel Area (CTA) with Republic of Ireland. It provided the freedom of travel to the citizens on both the sides, but now due to Brexit, the inconveniences have risen among its citizens and also led to the problems with labour force. The restrictions on the free movement of the Irish people to the bigger market of UK will further lead to a rise in unemployment (ESRI and Barrett, 2015). Jonathan Marshall, PwC UK's supply chain leader, have discussed the threats of Brexit to supply chains. He has outlined the impact of Brexit on seven areas of the supply chain, mainly: an increase in tariff's, ups and downs in legal aspects, customs, extra costs for VAT, changes in grants and incentives, supply chain hubs and lead times. PwC's Ireland consulting partner Mr. Garrett Cronin said that sudden changes to the supply chain might disrupt the business and the consumers together as many of the Irish companies depend on

the smooth operation of their international supply chain in order to deliver the products to the customers (PricewaterhouseCoopers, 2017).

The UK possess better financial market, high innovation and technological capabilities, skilled labour or workforce and better macroeconomic environment which have led to attracting FDI. Being a member of the European Union earlier has helped the UK to attract FDI globally. However, negative impacts have emerged on the UK due to Brexit. But this will have positive effects on Ireland, attracting FDI's impelling from the UK. Being in the European Union and having a better geographical position in the European continent will add to the advantages in attracting the FDI moving out from UK (ESRI and Barrett, 2015).

### **2.3 Business Sectors that will be affected due to Brexit**

The change for the pharmaceutical and Bio-pharma sector is that they are shifting towards personalized healthcare with beneficial interference leading towards growth in delivery mechanisms, improvement in biologics, and companion diagnostics. Across this sector, the level of manufacturing is increasing by involving a new processes and methods as the companies improve their abilities to cope up with the market demands. The ICT (Information, Communications and Technology) sector has a well-developed global supply chain model, Ireland remains to be the host to the many global players and a range of Irish owned electronic firms. From 2018, Ireland is the leading exporter within EU for ICT services and also around the globe (WTO, 2019).

The Food Harvest 2020 has decided the target to increase the exports in the food sector by 42% due to the increasing global response and opportunities in the various developing economies. The food sector operates in the tight margins where there are multiple purchasing power options. According to the industry, issues related to the finance and the cost competitiveness, bind the growth of the food sector in Ireland (Forfás, 2020). The following products groups that are exported from Ireland through global shipments during 2019 are shown.

**TABLE 2: IRELANDS TOP 10 GLOBAL EXPORTS**

Product Groups	Revenue (US\$)	Percentage (of total exports)
Pharmaceuticals	\$53.5 Billion	31.50%
Organic chemicals	\$35.6 Billion	21%
Optical, technical, medical apparatus	\$15.2 Billion	9%
Electrical machinery, Equipment's	\$11.7 Billion	6.90%
Machinery including computers	\$9.8 Billion	5.70%
Perfumes, cosmetics	\$8.8 Billion	5.20%
Aircraft, spacecraft	\$4.6 Billion	2.70%
Other chemical goods	\$4.1 Billion	2.40%
Meat	\$3.5 Billion	2.10%
Dairy, Eggs, Honey	\$3.4 Billion	2%

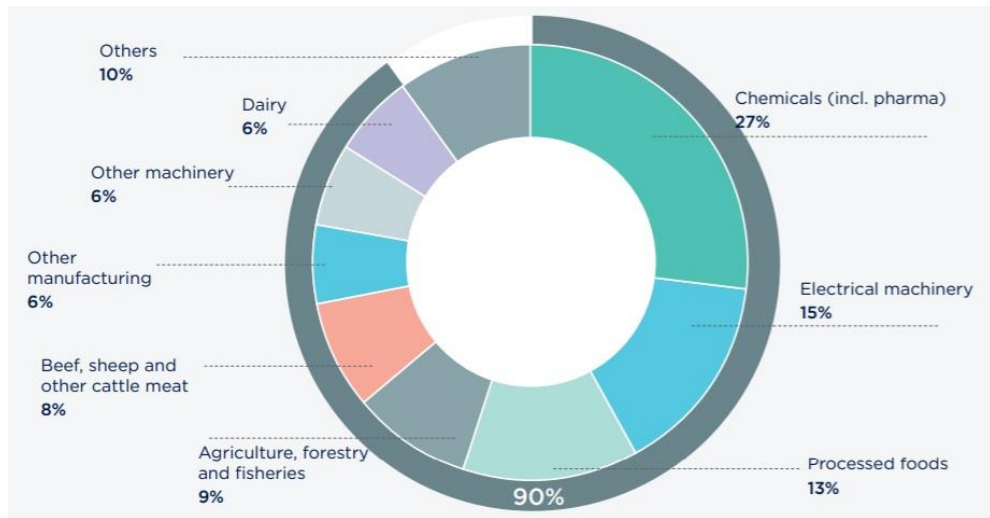
Source:(WTEx, 2020).

The above top 10 exports account for 88.5% of the total value of global shipments. In terms of the export market, Ireland has a comparative advantage for exports to four geographical areas in the UK, the Euro area, the rest of Europe and the US. Ireland would need to expand and diversify its exports into higher markets like BRICS(Brazil, Russia, India, China and South Africa) and Central and Eastern European countries (Lawless *et al.*, 2017). The dominant sectors in Irish Agri-food sector are beef and milk industry. Both industries comprise of 90% of its production being exported and almost half of it exported to the UK (Hanrahan *et al.*, 2018). The dominant sectors in Irish Agri-food sector are beef and milk industry. Both industries comprise of 90% of its production being exported and almost half of it exported to the UK (*With Brexit Looming, Ireland Braces for Its Economic Impact*, 2017).

According to (Central Statistics Office, 2019) mentioned in section 3.1, the goods received from the UK alone constitutes 40% of the total goods while the goods forwarded comprises of 51% of the total goods. This indicates that Ireland has higher trade connections with the UK as compared to other nations.

Taking into account the new trade agreements with the UK, the change in the production value acquires the best part for the underlying dynamics. Exports of each sector will be affected due to the increase in trading costs with the UK and so will amount the production in Ireland. Increase in the expensiveness of the imports and general cost level will have a change in domestic consumption due to Brexit (Miranda, 2018).

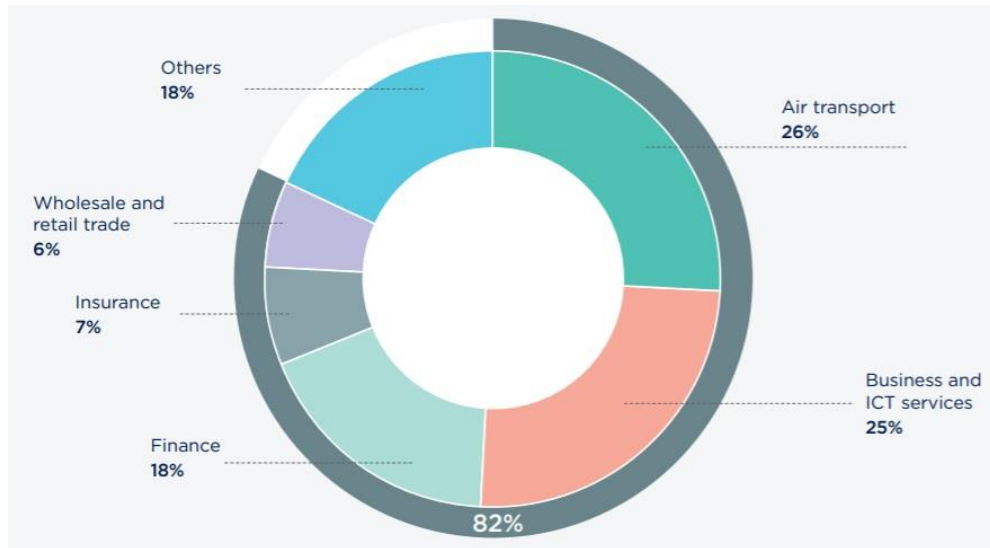
**FIGURE 1: IRELAND'S KEY GOODS EXPORTS TO UK**



**Goods Export**

Source: (Miranda, 2018)

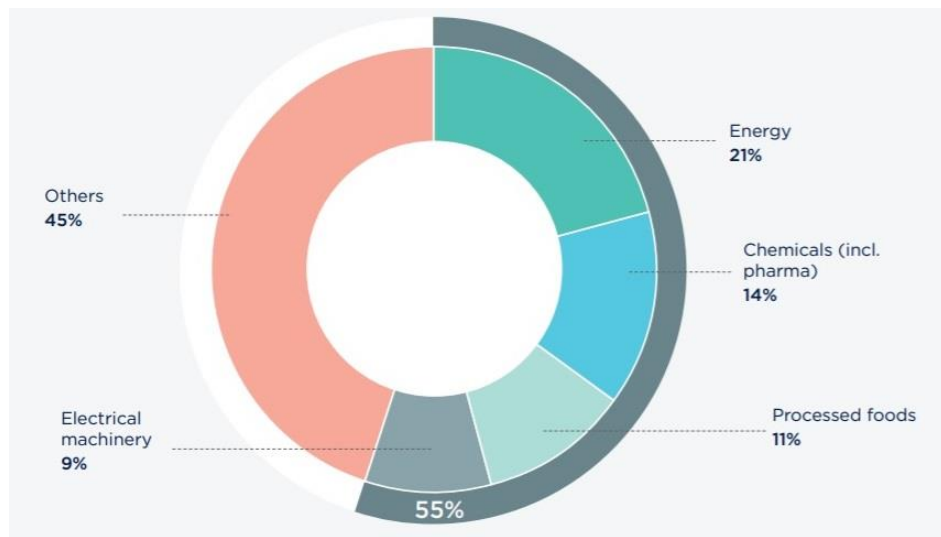
**FIGURE 2: IRELAND'S KEY SERVICE EXPORTS TO UK**



**Service Export**

Source:(Miranda, 2018)

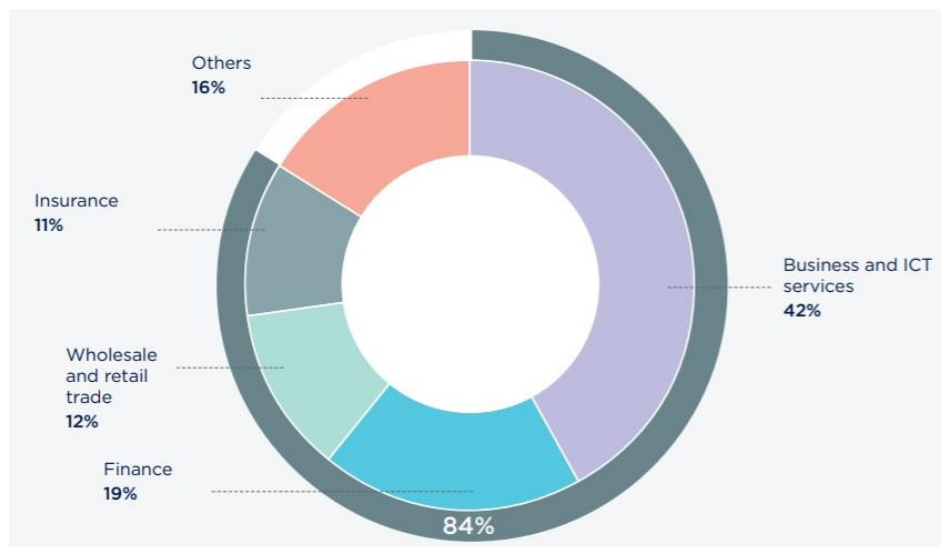
**FIGURE 3: IRELAND’S KEY GOODS IMPORTS FROM UK**



**Goods Import**

Source:(Miranda, 2018)

**FIGURE 4: IRELAND’S KEY SERVICE IMPORTS FROM UK**



**Service Import**

Source:(Miranda, 2018)

Agri-food, pharma-chemicals, electric machinery, wholesale-retail and air transport are mainly the five sectors which account for the majority of the impact due to Irish-UK trade and Brexit.

The primary findings from the study are that there will be a considerable decline in the trade flows between the UK and Ireland. As Ireland uses the UK as a land bridge for its trade with other EU countries and non-EU countries then it will also have a severe impact on its international transportation (Lawless and Morgenroth, 2017). As a result, Ireland might face a severe negative impact on its business sector as well as its transportation sector due to costs and delays due to Brexit (Goodwin, 2017).

#### **2.4 Belt and Road Initiative (BRI) and its effect in Ireland**

The network of Silk Road and its trading routes connected global civilizations in East Asia, European and the middle east continent for centuries. The Belt and Road Initiative (BRI) was launched in 2013 by President Xi Jinping (at that time was known as ‘One Belt One Road Initiative’). The main reason behind this was to revive the concept of the Silk Road and create a strong network of transportation between nations (Ge, 2016). The BRI refer to the marine and the overland trade routes between China, Europe, Middle East and East Africa. Along the belt, roads, railway links, dry ports and industrial zones are being developed. Along the road, seaports and their connections to overland trade routes are also being developed. The Belt and Road Initiative have exemplified five areas for coordination which are: harmonize development policies, formulating networks of infrastructure and facilities, reinforcing trade and investments, intensification of cultural and social transfers and enhancing economic cooperations. (Hu, 2019).

China has signed 171 co-operation documents with 29 international organizations and 123 countries, including developed and developing countries (Belt and Road Portal, 2019). It has six economic corridors which are: New Eurasian land Bridge, China-Mongolia-Russia Economic Corridor, China-Central Asia-West Asia Economic Corridor, China-Indochina Peninsula Economic Corridor, China-Pakistan Economic Corridor and China-Bangladesh-India-Myanmar Economic Corridor (OECD, 2018). The belt and road initiative is open to all and until now 67 countries are involved in the initiative (Brown, 2017).

**TABLE 3: COUNTRIES ASSOCIATED WITH BELT AND ROAD INITIATIVE**

Region	Country
East-Asia	China, Mongolia
Southeast-Asia	Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, Timor-Leste, Vietnam.
Central Asia	Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan
Middle East and North Africa	Bahrain, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Palestine, Syria, United Arab Emirates, Yemen
South Asia	Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka
Europe	Albania, Armenia, Azerbaijan, Belarus, Bosnia, Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Slovenia, Slovakia, Turkey, Ukraine

Source: (Brown, 2017)

**FIGURE 5: BELT AND ROAD INITIATIVE (BRI) MAP**



Source: (OrissaPost, 2017)

China and Europe are the major trade partners for decades. Shipping accounts for 90% of EU's trade and about half of China's GDP, which depicts that "Road" is the significant part of BRI. EU-BRI bilateral trade accounts for 24% of total EU trade. Through the Belt and Road Initiative, China is investing billions of dollars for increasing the shipping volume and the global network of ports. For the development and functioning of over 40 ports in more than 30 countries, many Chinese companies have participated in this initiative (Bo *et al.*, 2018).

According to (OECD, 2018) specific objectives of Belt and Road initiative are as follows:

- To increase trade and investment in the Belt and Road Initiative (BRI)
- To gain access to the natural resources
- Free trade zones along the silk road
- To enhance financial co-operation in the region to fund the infrastructure
- To strengthen the transport infrastructure
- To deepen cultural exchanges in the region

Irish officials in Xinhua said that Belt and Belt Initiative is important, but it is unclear to Ireland about the initiative objectives. Ireland needs to interact with the Chinese associates to find out where Ireland fits in this initiative. As Ireland is the EU member, it would like to offer a platform to China to be entwined to Europe (New China TV, 2017).

During the visit of a senior Chinese official, Irish Prime Minister Leo Varadkar had expressed the country's willingness to deepen the exchanges and co-operation with China in all fields under the Belt and Road Initiative. Varadkar also said that Ireland will look forward for the development of bilateral ties (Embassy of The People's Republic of China in Ireland, 2018).

The annual EU-China summit took place in Brussels last year, which expects advancement over the trade deals between China and the EU. Both the EU and China commended to embrace the new cooperation agenda and deepen the strategic partnership in further years. Both of them obliged to develop their economic relationship on the grounds of sincerity, equal opportunities and legitimate business (thepublicsector.org, 2020).

Enterprise Ireland is assisting and supporting the clients to enter the new market and expand in their current markets. It has made a good network of individuals in China in order to work efficiently with client companies of Ireland for the development of their businesses (Enterprise Ireland, 2019).

Chad Huang, Director of Jade Aviation and the president of China Europe Business Association during the China International Import Expo (CIIE) promotion in Dublin, said that the companies can promote themselves in China by using the Expo as a platform in order to create a great bridge between two countries and is also an opportunity to know the new

market. He also said that through Belt and Road initiative, Irish companies have opportunities in beef industry and also in areas like engineering, ICT and pharmaceutical sector.

In the same event, Minister for Agriculture, Food and Marine Mr. Michael Creed said that the event being promoted by the Chinese government is an opportunity for Irish food exporters to do business and enhance relationships (Irish Times, 2018). According to section 3.3 and 3.4, it indicates that through Belt and Road Initiative Ireland can have better trade relations with China and the other countries included in the initiative.

## **2.5 Benefits of Belt and Road Initiative (BRI) to Ireland**

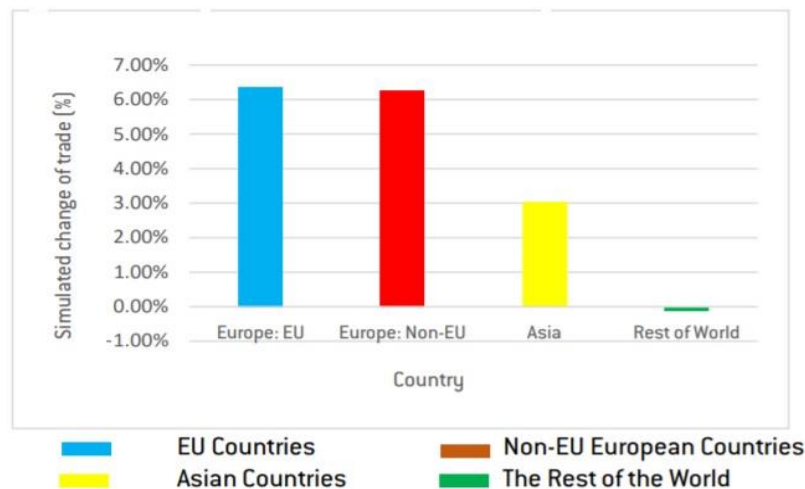
Over the decade, the business connections have deepened between Ireland and China after learning work and cultural practices of each other. In the last five years, the trade between the two countries has almost doubled. China has hugely invested in different sectors of Ireland like agriculture, finance and biotechnology. Investing in these sectors is proven fruitful for China. According to figures disclosed by the Central Statistics Office (CSO), a total of €797 million worth of goods were exported from Ireland to China, including Macao and Hong Kong. It included the exports of €607 million worth of transport and machinery equipments. According to the analysis of the international firm Baker Mckinzie, foreign direct investment from China to Ireland reached to €130.5 million, which is raised by 56% (thepublicsector.org, 2020).

China is one of the world's largest consumer of wine. It stands up at fifth position after Germany, Italy, France and America. Based on its huge demand for wine it will overtake nations like Germany and Italy by 2030. There is also a considerable rise in the demand for beef, dairy products and seafood in China. Being a dairy-deficit country, China can produce only 75% of dairy products than its requirements. Ireland is successfully exporting the seafood, beef and dairy products to China, which is increased by 17% and reached a record of €448 million. The huge demand for Irish seafood includes shellfish, oysters, Irish crabs and lobsters (thepublicsector.org, 2020). Being into the initiative will not only help Ireland to increase its trade with China but will also benefit for improving its trade with other European, Asian, and Middle Eastern countries.

As mentioned in section 3.3, Ireland's major export of goods also includes medical, pharma and ICT sector. Therefore, these sectors can also be benefitted at the higher rate and has

better opportunities in the new markets as mentioned in the section 3.4. This will ultimately promote the development in the logistics sector. There will be increase in trade and investments and will also get access to many resources through the initiative. There is rise of 6% in the trade due to Belt and Road Initiative in EU and Non-EU countries due to reduction in transportation cost (Bruegel.org, 2016). The case of Piraeus port has shown positive impacts on its trade after its involvement in the BRI. Earlier the goods from China and other Asian countries shipped from Suez Canal further moved to the straights of Gibraltar and later headed to the northwestern ports of Europe like Antwerp, Rotterdam and Hamburg. The goods were then transported to inland cities by rail or road facilities. By the involvement of Greece into the BRI has changed the shipping routes. It is the Port of Piraeus where the sea belt meets the roads and is the hub which connects Asia, Africa and Europe. The goods after passing through the Suez Canal now arrive at the Piraeus Port and from there they are further transported to the inland cities of Europe through railways. This change in the shipping routes have reduced the lead times by two weeks and turned to advantage for the trade. Concerning transit time between Shanghai and the port of Rotterdam and Hamburg, Port of Piraeus has reduced the transit time by ten days (Bo *et al.*, 2018). Ultimately, it is the new bridge for the goods into Europe which mutually benefits the countries involved in the initiative. If connected to BRI, Ireland will have access to the Africa, Europe, Asian and Chinese markets through this route.

**FIGURE 6: REGIONAL TRADE IMPACTS OF THE REDUCTIONS IN TRANSPORTATION COSTS**



Source:(Bruegel.org, 2016)

Ireland expects that the revenue from tourism will triple over the year 2025; for this, the government hospitality sector must develop its product appeal to attract Asian customers. Since 2016, there is a substantial increase in tourism which has carrier fares of €1.5 billion; overseas visitors accounted for 68.7% (€4.6 billion) (Ratcliff, 2018). Belt and Road Initiative can play a significant role in the improvement of this sector. Global relations with the countries which are already part of the initiative will be developed, which will ultimately provide support for global logistics trade (Allport Cargo Services, 2019). According to (Chen *et al.*, 2019), the principle component analysis of the sample countries being conducted showed that the connectivity between the countries involved in Belt and Road initiative increased. Also, the connectivity and people's bonding will be developed, which will help to accelerate economic relations, as well as cultural relations, will be strengthened (Irish Times, 2018).

This literature provides a specific focus on the current status of Ireland's supply chain and the effect of Brexit on Irish Supply chain. Also, what will be the impact on Ireland if it is into Belt and Road Initiative is outlined in a detailed manner. The initial stage of this research has showcased the current status of the Irish supply chain. Ireland has made developments at a desirable level in the field of food and agriculture sector, retail sector, manufacturing sector and the transport sector. There are better opportunities for trade with different nations globally. Being the neighbour country, the UK is the principal trade partner as compared to the other EU countries or other nations and the trade with the UK is considerably higher than other nations. Also, Ireland is using the UK as land bridge for transportation of goods to and from Ireland to other European countries. According to the research, it is predicted that Ireland will have a significant impact due to Brexit. There will be a rise in the tariffs, taxes, increase in the customs checks, transportation costs and increased lead times which will have a negative blow on the Irish economy. However, many researches has predicted for the rise in foreign direct investment into Ireland but also loss in its transportation sector on the other side.

Ireland will have severe setbacks from Brexit in case of the hard borders with Northern Ireland. It might lead to complications in transportation as well as restrictions in the free movement of people, the discussions of which are still in process.

Trade with China and other Asian countries have helped Ireland to boost its economy and establishing trade relations with its partners. Having its good trade relations with China and other Asian countries, Ireland must look for other alternative sources for trade with European and Asian countries. Ireland has shown its willingness to deepen its trade and cultural relations through BRI. Belt and Road Initiative might be beneficial for developing its trade connections and connectivity in central Europe, Non-EU countries, Asian and African countries as well as attracting investments into Ireland.

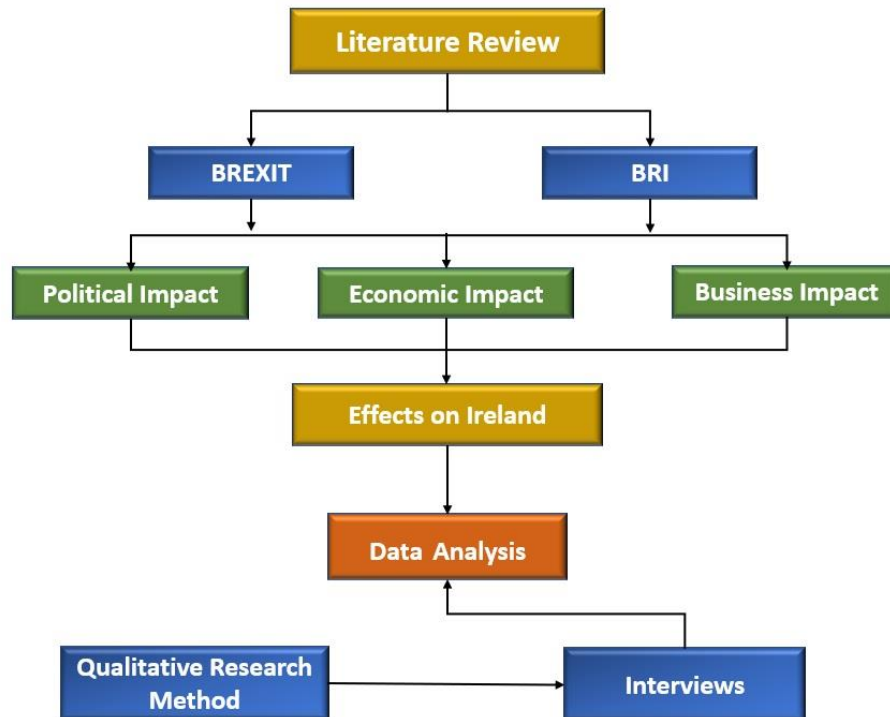
This research investigates on all the research questions and provides evidence that the major trade of Ireland is with the UK and needs to develop trade connections with other nations. The literature has enough evidence to determine the effects of Brexit, about belt and road initiative and its effects, but there is a gap in understanding its actual implications. At this stage of research, the researcher believes that as Ireland is enriched in the food, agriculture and ICT sector, it has better opportunities to trade with different countries in the Eurozone, Middle-East and Asian countries which can enhance its trade activities and ultimately reduce its dependency on the UK.

## **2.6 Conceptual Framework**

The conceptual framework is depended on the literature review of this research and is used to describe the entire study into a single framework. The conceptual framework aims to provide a structure to the research for better understanding and to guide according to the structural manner. For this study, the effect of Belt and Road Initiative and impact of Brexit on Ireland is selected as context of this research for the following reasons:

- Ireland is emerging as a rising and steady economy in the world.
- Being the biggest trade partner with the UK, it is essential to understand the effects of Brexit in Ireland.
- The effects of Brexit will help to determine the areas of improvement in the supply chain of Ireland, which will further help in understanding the effects of BRI as an alternative source for Ireland for trade development.

**FIGURE 7: CONCEPTUAL FRAMEWORK**



Source: (Created by author based on literature review of this proposal)

Following the literature review, it is essential to determine the current status of Ireland's supply chain. The framework visualizes the structure of this research in two phases. The first phase of the structure explains the effects related to Brexit on the Irish supply chain, while the second phase signifies the effects of Belt and Road Initiative if Ireland participates in it. The first phase of this research includes the study of impacts of Brexit on Ireland. Considering the Republic of Ireland is the neighbour country having its maximum business with the UK, it is necessary to focus on the Brexit. The political and economic impacts on the various business sectors due to Brexit are to be analyzed. The research focuses on understanding the factors like political issues or challenges faced, economic consequences and also the possible business opportunities for Ireland and trade relations with other countries due to Brexit.

The second phase of the conceptual framework involves the study of Belt and Road Initiative (BRI) in Ireland, which can be an option for Ireland to enhance its international trade. Similar as in phase one, the study of political, economic and business impacts due to Belt and Road

Initiative will be studied in the second phase. The research focuses on understanding the possible benefits, detriments, connectivity, political consequences and international trade with other countries if Ireland decides to be the part of Belt and Road Initiative. In the above framework, the scenario of Brexit and Belt and Road Initiative are independent variables while the political, economic and business impacts as well as its effects on Ireland are dependent variables. There are four research questions proposed for this thesis based on which ten semi-structured questions are constructed to bridge the gap between the research questions and the literature. These questions are answered by collecting data using a qualitative research method in which set of interviews are conducted.

The framework helps to identify factors of each sector and the above literature review specifies that the study of BRI and Brexit is widely researched, but its impact on the supply chain of Ireland is a less researched topic. This gap is a challenge which drives an interest to explore the benefits and challenges of BRI and good or bad aspects of Brexit.

### **3. Methodology and Research Design**

#### **3.1 Research Paradigm and Overall Approach**

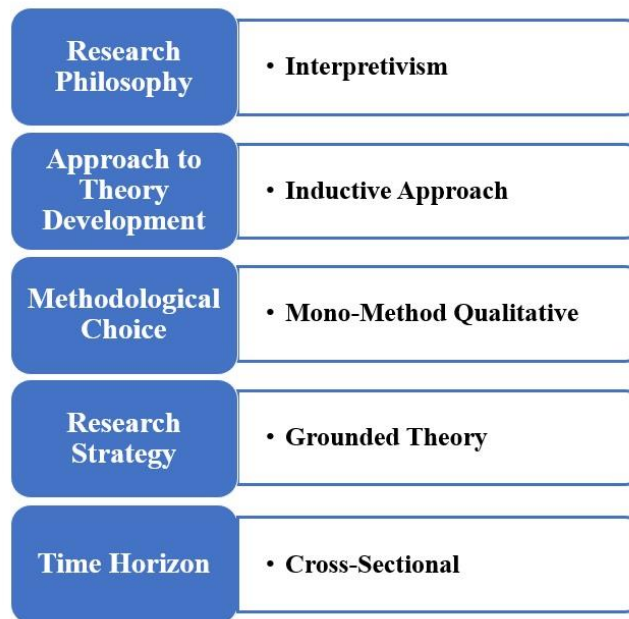
This part of the chapter determines the research philosophy, which will direct in this research study. The interpretive method provides strengths as they are higher in validity than the positivist method. The interpretivist philosophy helps to create new, better understanding and interpretation of the social phenomena (Saunders *et al.*, 2019). The interpretivist philosophy is chosen for this research as the scenario for the Brexit is complex due to the political and economic instability it has created in the UK and its neighbouring countries. Also, to check Belt and Road Initiative as an option for improvement in the supply chain of Ireland. Interpretivism prefers more qualitative methods of the research than the positivists. The method of observations of the participants provides the first-hand information which intensifies the understanding of the research subject. The professionals with different experience, expertise and positions has helped to gather vast information required for the study, which mainly shows that it has an interpretive philosophy (Saunders *et al.*, 2019).

The information collected is from reliable resources and more appropriate rather than a deductive approach. The inductive approach helps for data collection, explore the phenomena and then further develop a theory. (Saunders *et al.*, 2019). So, an Inductive approach is mainly adopted for development of theory in this study due to work with qualitative data. The inductive approach discovers and explains the distinct observations and then develops the theory.

The further step includes the selection of the methodological choice for the research which has three segments: mono-method, multi method and mixed method. The mono-method is used when the data is collected either by quantitative or qualitative methodology. The interviews are conducted with the participants as a part of qualitative research, so the researcher has decided to select the mono-method. Detailed information, experience, and ideas from participants are obtained from qualitative research. In-depth research of various sectors in the supply chain, Brexit and BRI will help to understand the research objectives. The researcher has implemented the grounded theory as the research strategy. The grounded theory strategy helps to simplify the process of coding and categorizing the data obtained from the interviews. It helps the research process to adopt an inductive development by qualitative analysis (Corbin and Strauss, 2014). The time limit for this research is four months so this research has adopted cross-sectional study, as the longitudinal study is not suitable due to time constraints (Bryman, 2016).

In order to carry out the research study, it is necessary to collect the data from the professionals in various sectors like business and supply chain sector. This will help to obtain a comprehensive view of research information. The interpretive philosophy converges on trying to obtain insight into the unique knowledge of the individuals and groups rather than advancing the social issues objectively.

**FIGURE 8: RESEARCH STRATEGY**



Source: (Created by Author based on “Research Onion” (Saunders *et al.*, 2019))

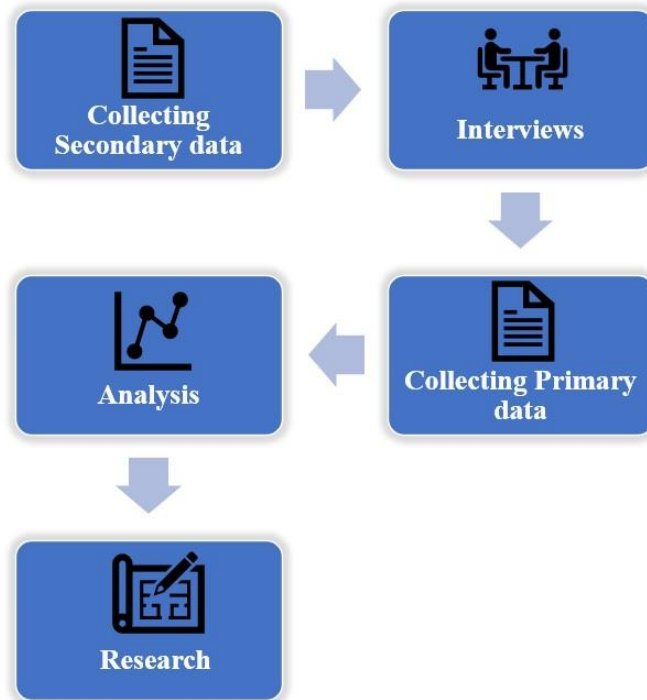
### **3.2 Data collection for Research**

The researcher tends to use the qualitative method for data collection for this research. For the purpose of data collection, the researcher has conducted interviews with the professionals having in-depth knowledge of the topic. This research includes the combination of primary and secondary data. An inductive approach is used to conduct this research. The main reason to choose the inductive approach in this research is, to begin with, research questions and collection of empirical data which is further used to generate qualitative research. The inductive approach provides meaningful interpretive power to the research (Liu, 2016).

In the first stage of the research, the researcher has collected the data from different sources like books, journals, articles, research papers and online sources. And in the second stage of the research, the data is gathered from the participants who have confirmed for the interview. The process of data collection started by conducting series of interviews with the participants by asking them semi-structured questions. These semi-structured questions contribute to the qualitative nature of the research. The data collected from the participants is video/audio taped based on the convenience of participants. Further the study is followed by analysis in

which statistics and qualitative data will be analyzed. After the analysis part the further research is devised.

**FIGURE 9: DATA COLLECTION FLOW**



Source: (Created by author)

As mentioned in the above section of research strategy, this research uses qualitative method. The four main types of data collection sources for this research are documentary resources, observations, interviews and visual/audio content from news, blogs or reports. As per the conceptual framework, the research study is done in two phases. In the first phase includes studying the impacts of Brexit on Ireland, while in the second phase the aim is to study the possible benefits of Belt and Road Initiative to Ireland.

In the second stage, the participants from whom the data is collected by interviews are the supply chain experts, business experts, business owners, supply chain professionals. The knowledge and experience of these professionals and experts provides an in-depth information for the research and also provide a good source for qualitative data for analysis.

### 3.3 Source of Data

The primary source of data for this research is the interviews that are conducted with the experts and professionals which has provided researcher the required qualitative data for the research. The sources used to connect with the experts is mainly through referrals from the higher management of the organization in which the researcher was working in the past and through the professional networking services like LinkedIn. The one-to-one in-depth interviews are undertaken with seven participants to collect detailed information regarding the research topic. The details of the participants with whom the interviews were conducted are as follows:

**TABLE 4: DETAILS OF PARTICIPANTS**

<b>Participant Sequence</b>	<b>Designation</b>	<b>Contact source</b>	<b>Date</b>	<b>Time</b>
Participant 1	Vice President-Supply Chain Service Solutions	LinkedIn and Outlook	24/06/2020	10:00 AM
Participant 2	Senior Material Planner	LinkedIn and Outlook	26/06/2020	10:00 PM
Participant 3	Independent Supply Chain Consultant and Business Advisor to SME's	LinkedIn and Outlook	29/06/2020	10:00 AM
Participant 4	Import/Export Manager	LinkedIn and Outlook	07/07/2020	10.30 AM
Participant 5	Senior Supply Chain Consultant	LinkedIn and Outlook	13/07/2020	4:43 PM
Participant 6	Supply Demand Planner	LinkedIn and Outlook	15/07/2020	10:00 PM
Participant 7	Global Logistics Director	LinkedIn and Outlook	21/07/2020	12:30 PM

Source: (Created by Author)

To get the participants for the interviews, the researcher has reached to numerous individuals on LinkedIn, explained about the research topic and convinced them for the research in an ethical manner. The researcher has interacted with around 25 participants out of which 7 participants have accepted the interview request.

As the researcher is from India and has very few contacts in Ireland, it was a big challenge to find the participants working in Ireland. All the 7 participants are working in the supply chain sector, of which more than half of them are native citizens of Ireland. The diversity in

designations of the participants has helped the researcher to collect the detailed information of the different sectors in the supply chain.

The secondary data for this research is collected from the following sources:

- Data or reports published from the government official websites
- Journals, articles, research papers.
- Books and online sources.

The data collected from the secondary sources provide thorough knowledge about the research subject and clear understanding of the concepts.

### **3.4 Nature of Data**

As the approach of the research is inductive and major source of collecting data are interviews, so the nature of data is qualitative. In order to achieve the objectives of this research, the researcher aims to explore the different views of participants. The participants involved in the interviews are from different work backgrounds mainly from supply chain and business sectors.

The questions for the interviews are varied according to the background of the participants. The questions for the interview of the participants are in the semi-structured format. As the participants are from diverse backgrounds and different age groups, it is essential to devise a better conversation with the participants to get the responses for the interview questions. Even though a predetermined list of questions is used, the order of the questions varies based on the participants. Also, some questions are eliminated based on responses of the participants while some questions are added by the researcher where required. The interviews conducted are either audio or video taped after the permission of the participants to determine and collect detailed information about the topic.

Below is the list of questions used for the interviewing the participants:

1. What are the major drivers for supply chain management change in Ireland?

2. Apart of being a major trade partner with United Kingdom, with which countries do Ireland have its major import or export of goods?
3. What are and will be the current and future effects of Brexit in Ireland?
  - Political Impact
  - Economic Impact
  - Business Impact
4. What problems are being currently faced by different sectors in supply chain of Ireland due to Brexit?
5. What measures are being taken by government of Ireland to minimize the impact of Brexit?
6. Can Belt and Road Initiative be an alternative source to improve the supply chain and economic status of Ireland?
7. Do the involvement of Ireland in the Belt and Road Initiative be beneficial for its growth? If yes, then how?
8. Which businesses or supply chain sectors will benefit from Belt and Road Initiative?
9. What will be the advantages and disadvantages of Belt and Road Initiative for Ireland?
10. If Ireland is involved in Belt and Road Initiative, what will be its:
  - Political effect/impact
  - Economic effect/impact
  - Business effect/impact

### **3.5 Access and Research Ethics**

To gather the information, the researcher has conducted interviews with the professionals and experts in the supply chain and business sectors. The main aim of the research ethics is to make sure that participants are treated ethically. Before conducting interviews, the researcher has ensured that all the principles as per consent form for research ethics are strictly followed. The principles involved in research ethics mainly include:

1. Respect for participants
2. Maintain confidentiality
3. Make sure that the participants are free in their actions and decision making or choices.
4. Data privacy

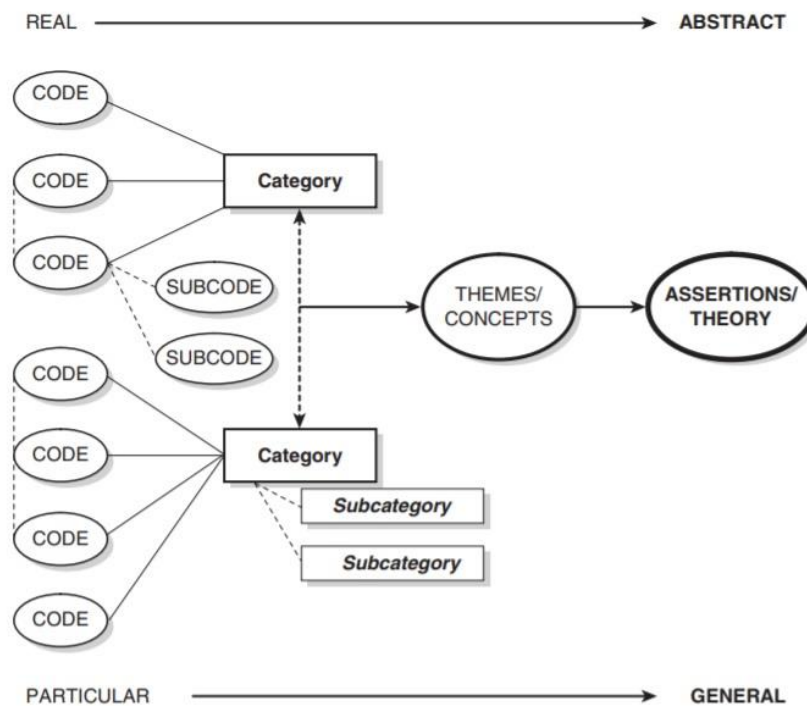
The means of communications to connect with the participants is LinkedIn. Based on above mentioned principles, the participants were informed about nature and purpose of the study along with their role in this research. The participants have confirmed for the interview after proper clarification of their participation to be voluntary. The plain language statement and the consent form were sent to the participants through outlook. Based on above mentioned principles, participants were informed about nature and purpose of the study along with their role in this research. The participants have confirmed for the interview after proper clarification of their participation to be voluntary. The plain language statement and the consent form were sent to the participants through outlook. The interview was conducted and recorded by using "Zoom App." The participants were informed before the interview that the data collected will be used only for study purposes. The identity and the organizational information of the participants are maintained confidential as per ethical norms set by the college.

### 3.6 Analysis Technique

As the method for collecting the data is qualitative, the researcher has used the coding method which can be used to form different themes in the research and can be used to find the common aspects of the data required for further analysis. For this type of research, thematic analysis is preferred. The thematic analysis is comprised of six steps: data familiarization, initial code generation, theme revision, naming and defining theme, and production of report (Braun and Clarke, 2006). Looking at the structure of this research study and data collection methods, codes-to-theory model is more suitable and adopted. Mainly the analysis part will be based on the codes-to-theory model as shown below (Saldaña, 2013). The coding method can be used to categorize the available information in a sorted way which can be further used to determine frequent and common aspects of the data.

The categories obtained after coding will be labelled according to different themes. After generating the theme, the final stage will be to analyze the relationships between themes and categories to derive the conclusions for the research.

**FIGURE 10: CODES-TO-THEORY MODEL**



Source:(Saldaña, 2013)

The researcher is using the word and excel applications to structure and analyze the data. The interviews of the participants are recorded, which are further transcribed into the word files. The use of word application generates a report of the interview in a logical manner which is used for efficiently coding the data (Appendix A2). The codes can be assigned to the information provided by the participants, these codes are combined to form the categories or sub-codes which are further used to develop themes (Saldaña, 2013). The excel application is used to transfer the codes generated in the word file for sorting the codes into categories which are further used to develop themes and can be used to develop theory (Appendix B).

The coding of the data depends upon the type of research questions. The research questions can either be exploratory or confirmatory based on the type of study. The research questions for this research are exploratory with nature to explore the information and are more open-ended. The exploratory research questions are further classified as ontological and epistemological research questions(Saldaña, 2013). The researcher has selected the epistemological research questions to understand the phenomena of Brexit and BRI and its impact on the supply chain of Ireland. The researcher has preferred first cycle coding method under which seven types of coding methods are used to address the research questions and code the information of the participants, which are as follows:

**TABLE 5: CODING METHODS AND ITS FUNCTIONS**

<b>Coding Methods</b>	<b>Functions</b>
In-Vivo coding	Coding words of participants.
Value coding	Coding the beliefs, values and attributes of participants.
Narrative coding	Coding interaction of participants.
Evaluation coding	Coding the judgements of participants.
Magnitude coding	Coding the data which specifies frequency, percentage or evaluation.
Theming data	Coding the phrases or sentences that describe a certain data
Descriptive coding	Coding of a short phrase.

Source:(Saldaña, 2013).

## 4. Findings and Discussions

### 4.1 Overview

To collect the qualitative data, semi-structured interview methodology is devised to serve the research questions. All the participants were asked the same set of questions to gather the responses or opinions. Some additional questions were asked to support the main questions and to assist in obtaining more information from the participants. The researcher has used the codes-to-theory model to analyze the qualitative data obtained from the transcribed interviews. The significance of the codes-to-theory model is its appropriateness to analyze the data collected concerning the objectives of the research questions.

Based on the seven transcribed interviews, 134 initial codes were obtained (mentioned in the Theme 1 to Theme 4 tables further). Some initial codes are used multiple times for different participants who have a similar type of responses for a certain topic. These initial codes were further categorized into 11 categories which are then clustered to form different themes (Appendix A1). In all, four different themes are formed, which addresses the research questions. The following table indicates the four themes and the research questions to which it addresses:

**TABLE 6: THEMES THAT ADDRESS THE RESEARCH QUESTIONS**

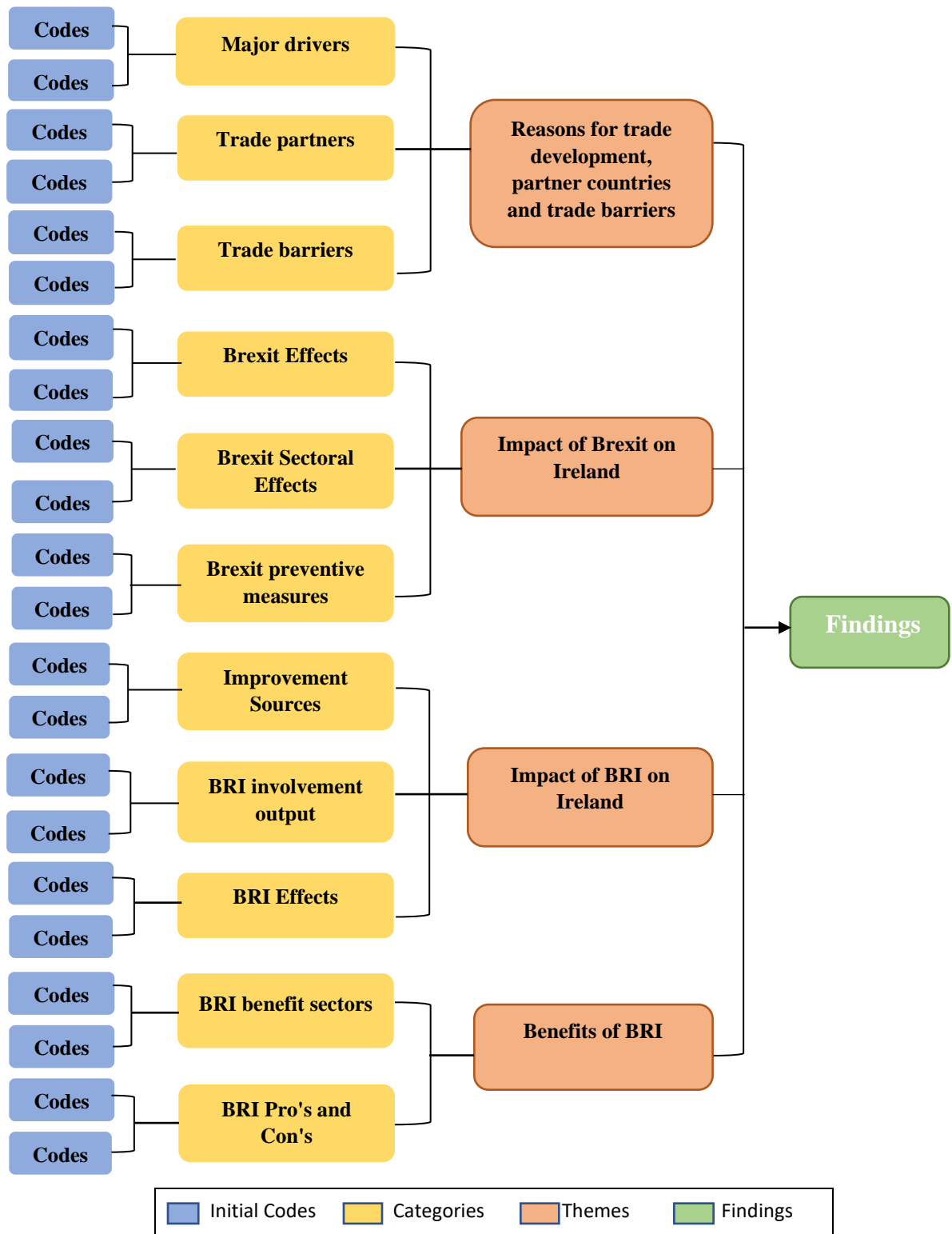
Sr.no	Themes	Research Questions
1	Reasons for trade development, partner countries and trade barriers	What is the current status of the Irish supply chain and its trade barriers?
2	Impact of Brexit on Ireland	What will be the effects of Brexit in Ireland and which main business sectors will be affected due to Brexit?
3	Impact of BRI on Ireland	What will be the effect in Ireland if it is into Belt and Road Initiative and its relations with neighboring countries?
4	Benefits of BRI	How will Belt and Road Initiative benefit Ireland?

Source: (Created by author)

The responses of the seven participants are highlighted in the findings by using abbreviations (P1, P2, P3, P4, P5, P6 and P7) based on the table.

Below is the structure of the formulation of categories and themes based on the initial codes to obtain the relevant data.

**FIGURE 11: CODE STRUCTURE**



Source: (Created by author based on information obtained from participants)

## 4.2 Reasons for trade development, partner countries and trade barriers

**TABLE 7: THEME 1**

Sr-No	Category	Codes
1	Major drivers	<ul style="list-style-type: none"> <li>✦ Competitiveness</li> <li>✦ Adapt</li> <li>✦ E-commerce</li> <li>✦ Supply chain domains</li> <li>✦ Main drivers</li> <li>✦ Irish tax benefits</li> <li>✦ Investments in Ireland</li> <li>✦ Digitalization</li> <li>✦ Logistics</li> <li>✦ Enterprise strategy and virtual supply chain</li> <li>✦ IOT and ICT</li> <li>✦ Low tax rate</li> <li>✦ Source of innovation</li> <li>✦ Use of technology</li> <li>✦ English speaking country</li> <li>✦ Ireland's import and export</li> </ul>
2	Trade Partners	<ul style="list-style-type: none"> <li>✦ Ireland's trade with countries</li> <li>✦ Potential market for trade</li> <li>✦ Strong US-Ireland business relations</li> </ul>
3	Trade barriers	<ul style="list-style-type: none"> <li>✦ COVID impact</li> <li>✦ Disruption in supply chain</li> <li>✦ Dependency</li> <li>✦ Dependency on UK</li> <li>✦ China-America trade war</li> <li>✦ UK as a mode of connectivity</li> </ul>

Source: (Created by author based on information obtained from participants)

The five major domains of the supply chain of Ireland mainly include procurement, planning, logistics, program management and the finance sector. Procurement and logistics are the main drivers as Ireland has high imports and exports. (P2). Ireland is an export economy and highly dependent on the UK for transportation (P4), so the logistics sector is considered as the main driver for the supply chain in Ireland. The companies in Ireland are getting more and more competitive in each sector and can adapt to different circumstances which are shaping the directions of the businesses in Ireland.

Ireland is internationally recognized as a powerhouse of innovation in a lot of different sectors. The use of technology has facilitated to bring the people in expertise to harness the control over supply chains. There is a tremendous surge in the e-commerce sector and has shown exciting development. According to previous researches, the online shopping has increased in Ireland and based on the responses of the participants the e-commerce is growing in Ireland. The development in e-commerce is possible due to the growing interest in the digital supply chain (P1). Among seven participants, two of them stated that the rise in digitalization has also led to the growth of Ireland (P3, P6). *“Things like IoT (Internet of Things), ICT (Internet information and Communications Technologies) all these kinds of entities have become major drivers today in supply chain.”* (P6). The emergence of big data, data analytics, Internet of Things (IoT) and Information and Communication Technology (ICT) have made significant progress. Many activities of the supply chain are operated and managed virtually in different companies in Ireland. Most of the companies are adopting the enterprise strategy and the virtual supply chain (P6). The perceived low tax rate that the government of Ireland offers has a significant impact on supply chain of Ireland (P2, P7). There are huge investments from many US multinational companies in Ireland and have their European headquarters. Also, Ireland is the only English-speaking country in the EU which have led to attract global organizations (P2) and companies to setup their business in Ireland (P2, P7).

The major part of the economy of Ireland is dependent on imports and exports. Ireland is the prominent exporter of agricultural products, food products, medical products, pharmaceutical and chemical products (P3, P5, P6, P7). This is consistent with the data that is found in the previous researches. *“Ireland would also be a suppose a big source of, you know, in terms of Supply Chain Management into Europe and you know, personal consumer goods and, and devices even though we don't manufacture a lot of them here in Ireland at the moment. So we're a huge exporter of pharma medical devices and food and agriculture then”* (P3). In the case of imports, electronic goods and products, aeronautical goods, petroleum products are on the higher side (P5, P6).

Even though manufacturing capacity in Ireland is less, it still is a good source in terms of the supply chain in Europe. Apart from the UK, Ireland exports mostly to the other European countries like Germany, Belgium, Switzerland, France, Netherlands and Luxembourg (P1-

P7). Germany and France are big export markets for Ireland for its dairy products. Also, Ireland imports goods like machinery and types of equipment from Germany and France (P7). *“We trade with America as well. With the Americas, the Middle East, Asia and China”* (P4). US is the vast market for its medical and pharmaceutical goods, both in terms of import and export (P5, P6).

Along with the European countries, the US and China are emerging as growing markets for Ireland for its agricultural and food sector. Ireland has better connections with the US and China. The US is the prominent foreign investor in Ireland, right from communication, technology, investment banking companies and pharmaceutical companies, a lot of US companies are being operated from Ireland. Having trade connections with the many US and Chinese companies, Ireland might face trade issues due to potential trade war between the US and China (P3). According to the two participants, the COVID-19 has caused a severe impact on Ireland as well as on the global supply chain. Ireland is facing a lot of implications due to COVID as well as Brexit in its logistics and trade (P1, P7). *“I think the big topics that are that are happening at the moment are a Brexit obviously for Ireland. I mean, it has a lot of implications you know. COVID also has a significant impact on Ireland right now. And, and logistics and trade and business globally”* (P7). The transport of Ireland and the other European countries is highly dependent on the UK. Ireland uses the UK as a land-bridge to access to the European market (P4). It relies heavily on the UK both from the logistics perspective and trading partners perspectives (P7). The businesses in Ireland need to diversify, find new markets and new customers to be able to break its dependence on UK (P3).

### 4.3 Impact of Brexit on Ireland

**TABLE 8: THEME 2**

Sr-No	Category	Codes
1	Brexit effects	<ul style="list-style-type: none"> <li>✦ Agriculture impact</li> <li>✦ Arrangement for border issues</li> <li>✦ Border issues</li> <li>✦ Customs clearance</li> <li>✦ Disruption</li> <li>✦ Economic consequences</li> <li>✦ Fall in Irish exports</li> </ul>

		<ul style="list-style-type: none"> <li>✦ Free movement restrictions</li> <li>✦ Goods consolidation issue</li> <li>✦ Hard border</li> <li>✦ Holding high inventories</li> <li>✦ Implications</li> <li>✦ In favor of EU</li> <li>✦ Increase in paperwork, administration and delays</li> <li>✦ Increase in Product and service cost</li> <li>✦ Increase in transit times</li> <li>✦ Increase in lead time</li> <li>✦ Job losses</li> <li>✦ Logistics delays</li> <li>✦ No long term impacts</li> <li>✦ Opportunities to individual businesses</li> <li>✦ Opportunity</li> <li>✦ Positive impact of Brexit</li> <li>✦ Redesign supply chain</li> <li>✦ Regulatory affairs and cross border trade</li> <li>✦ Rise in customs duty</li> <li>✦ Rise in duties and taxes</li> <li>✦ Rise in tariffs</li> <li>✦ Rise in tension</li> <li>✦ Rise in transport cost</li> <li>✦ Smuggling</li> <li>✦ Traffic disruption</li> <li>✦ Unpredictable</li> <li>✦ Unsure</li> <li>✦ Upset economic links</li> </ul>
2	Brexit Sectoral Effects	<ul style="list-style-type: none"> <li>✦ Agriculture impact</li> <li>✦ No impact</li> <li>✦ Problems in procurement and logistics</li> <li>✦ Rise in tariffs</li> <li>✦ Impact on food industry</li> <li>✦ Impact on logistics sector</li> <li>✦ Impact on administration sector</li> <li>✦ Customs documentation</li> <li>✦ Affected sectors</li> <li>✦ Impact on freight rates</li> <li>✦ Impact on food industry</li> <li>✦ Impact on medical and electronic sector</li> <li>✦ Unsure of actions to be taken</li> <li>✦ Customs clearance</li> <li>✦ Insurance sector</li> <li>✦ Service sector</li> </ul>

3	Brexit preventive measures	<ul style="list-style-type: none"> <li>✦ Mechanism and support</li> <li>✦ Government assistance</li> <li>✦ Tax benefits</li> <li>✦ Flexibility in negotiations</li> <li>✦ Transparency</li> <li>✦ Helping SME's</li> <li>✦ Help in marketing and promotion</li> <li>✦ Grants and loans</li> <li>✦ Actions by Irish government</li> <li>✦ Empower e-commerce market</li> <li>✦ Minimize disruption</li> <li>✦ Influencing EU for Ireland's interest</li> </ul>
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Source: (Created by author based on information obtained from participants)

For many decades, the trade between Ireland and the UK brought economic growth and prosperity for both the nations. However, due to recent Brexit decision of UK has brought severe consequences to the trade activities. Northern Ireland, which is part of the UK, shares its geographical boundaries with the Republic of Ireland. A large amount of trade is facilitated between Northern Ireland and the Republic of Ireland. Now that the UK is out of the European Union, issues regarding borders, connectivity, free movement restrictions are rising. From the customs perspective, both the nations will suffer a significant impact due to the hard border, which may cause potential delays and disruption to traffic in cross border trade (P4). There is a special relationship between both countries due to freedom of movement, but Brexit has created complications (P7). *“People do not want the borders and the check-points and they want the free movement of people. Need a free movement within Ireland”* (P2). The restrictions in the movement will impose a lot of issues in the tourism sector (P6).

The Brexit will have implications not only in terms of border or movement of people but also it would have severe economic drawbacks for Ireland. The companies which have their manufacturing hubs in Ireland will face the problems in logistics or transportation. Three participants have stated that there will be an increase in the lead times and the transit times due to logistics delays (P4, P5, P7). Adhering to the WTO rules, the UK will no longer be a part of the European Union. In terms of the cross-border trade, there will be a rise in tariffs and an increase in customs activities (P3, P4, P5, P6). The customs duty for the products will

rise with the rise in tariffs and the potential impact of duties and taxes being applied to goods (P6, P7). *“Over the last 20 years, there wouldn't have been any customs within Europe, no formal declaration at the ports or at the airports or its borders. So, for Ireland, it didn't have a major impact, and now transit times will increase because you'll have customs declarations for the land-bridge”* (P4, P7).

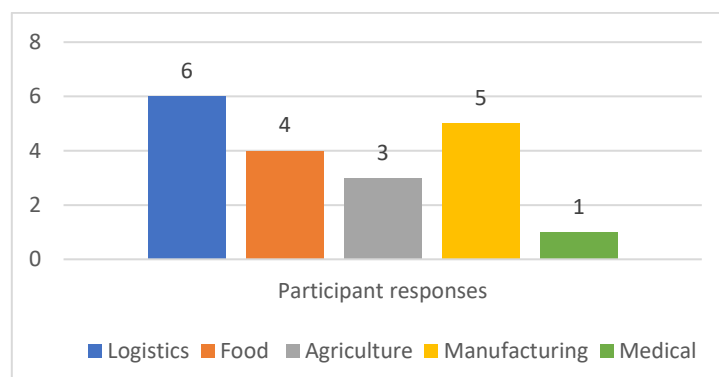
Goods from many countries are shipped to Ireland in the form of bonded goods, being consolidated with UK goods. The UK is the hub for consolidation and de-consolidation of the goods. However, now, there will be problems with the bonded goods due to customs clearance (P7). So, the goods from any country will have implications to use the consolidation potential and will lead to a rise in the cost of the goods. It will also give rise in the paperwork for customs as well as a rise in the administration activities (P3). The reintroduction of the borders between Southern Ireland and Northern Ireland may fuel the conflicts and smuggling activities (P7). There will be substantial job losses and also upset in the economic links due to fall in the Irish trade (P2, P5). *There would be some job elimination or job freezing in some sectors. It would depend upon businesses to businesses* (P2). The supply chain hubs will have to relocate, and companies have to redesign the supply chain (P5). The sectors on which the Brexit will have its impact mainly include, food, insurance, service and transportation. The same pattern of data is obtained from the previous researches. A higher share of Irish trade depends on UK. The higher imports and exports of goods mainly include the agriculture and food products. These two sectors along with transportation will be highly affected as compared to the other sectors. Potential decline in trade may result in problems for transportation and procurement activities. Also, the increased level of paperwork due to customs clearance might lead to an increase in administration and bureaucracy (P3). The pharmaceutical and chemicals are significant exports of Ireland, while computer accessories or electronic products are enormous among the imports. These goods mainly come from the sea or road network from the UK, so it will have an impact on connectivity (P6).

Based on the responses of two participants, even though Brexit will have an impact on Ireland, but it will not be for a longer-term. It also brings new opportunities to businesses to invest in Ireland, which is part of the EU. Ireland will be in a more favourable position for many US companies to get a foothold in Europe. The low tax rates and English-speaking

country will add benefits to Ireland in getting more investments and for many companies to shift their headquarters (P1, P2). Ireland can be the partnering network to these companies to service their businesses in Europe (P1). The other business opportunities that would be generated due to Brexit includes the development of the ports in southern Ireland, initiation of new direct ocean services between Ireland and mainland Europe which will further benefit the expeditors or freight forwarders (P7). “Various actions has been already taken by Irish government, like procurement of additional space and the facilities at the ports, airports, you know, to accommodate the significant increase in checks and procedures” (P6). Based on the information and details available from previous studies, the data obtained regarding the opportunities from Brexit is important and can benefit Ireland to explore them.

Government is trying to strengthen SME’s or businesses through various initiatives like grants and loans (P1, P3, P4, P6). In addition to the above, the government should empower e-commerce businesses and enhance its capabilities as well as improve digitalization of processes (P3, P6). The government should help the small and medium enterprises from the market or promotion perspective to develop the market overseas apart from the UK (P3). Based on the responses of the participants, below is the chart which indicates the different sectors that will be affected. Logistics can have higher impact among the various sectors based on the responses of the participants which is then followed by the manufacturing, food, agriculture and medical sector. All the sectors depend heavily on the imports and exports of goods and products which states that these sectors depend on transportation or logistics sector on higher side.

**FIGURE 12: IMPACT ON DIFFERENT SECTORS BASED ON RESPONSES OF PARTICIPANTS**



Source: (Created by author based on responses of participants)

**TABLE 9: NEGATIVE AND POSITIVE EFFECTS OF BREXIT IN IRELAND**

Key negative effects of Brexit in Ireland	Key positive effects of Brexit in Ireland
<ul style="list-style-type: none"> <li>▪ Disruption in supply chain</li> <li>▪ Increased customs clearance activities</li> <li>▪ Increase in lead times and delays in transportation.</li> <li>▪ Rise in prices (tariff's, duties, taxes, customs duties, product and service cost)</li> <li>▪ Border issues with Northern Ireland</li> <li>▪ Free movement restrictions</li> </ul>	<ul style="list-style-type: none"> <li>▪ Attract foreign investments</li> <li>▪ Opportunities for local businesses to explore other markets</li> <li>▪ Increased customs activities might benefit freight forwarding companies</li> </ul>

Source: (Created by author based on information obtained from participants)

#### 4.4 Impact of BRI on Ireland

**TABLE 10: THEME 3**

Sr- No	Category	Codes
1	Improvement Sources	<ul style="list-style-type: none"> <li>✦ Chinese trade opportunities</li> <li>✦ Implementation problem</li> <li>✦ Good alternative</li> <li>✦ Strategic planning</li> <li>✦ Huge investment</li> <li>✦ Time consuming</li> <li>✦ Expanding ports</li> <li>✦ Promote global economic development</li> <li>✦ Optimized planning</li> <li>✦ Understand markets</li> <li>✦ Develop connectivity</li> <li>✦ Ocean solutions</li> <li>✦ Benefits to Piraeus port</li> <li>✦ Investments in direct flights</li> <li>✦ Flight subsidizing benefits</li> <li>✦ Relations with China</li> <li>✦ Improve transportation</li> <li>✦ Better connectivity</li> </ul>
2	BRI involvement output	<ul style="list-style-type: none"> <li>✦ Possible BRI benefits</li> <li>✦ Huge investments</li> <li>✦ Long term benefits</li> <li>✦ Increase in trade</li> <li>✦ Exchange of people</li> </ul>

		<ul style="list-style-type: none"> <li>✦ Not significant trade</li> <li>✦ Benefit China more</li> <li>✦ Better to be involved</li> <li>✦ New value chain design</li> <li>✦ Link to Asian market</li> <li>✦ Employment opportunities</li> </ul>
3	BRI effects	<ul style="list-style-type: none"> <li>✦ Improved trade agreements</li> <li>✦ Beneficial if connectivity improves</li> <li>✦ Support for globalization and international trade</li> <li>✦ Better connectivity</li> <li>✦ Opportunities to individual businesses</li> <li>✦ Political pressure</li> <li>✦ BRI barriers</li> <li>✦ BRI economic impact</li> <li>✦ BRI business impact</li> <li>✦ Implications on US-Ireland trade relations</li> <li>✦ China-America trade war</li> </ul>

Source: (Created by author based on information obtained from participants)

Belt and Road initiative is encouraging a lot of local and multi-national corporations to rethink the supply chain fundamentally. BRI provides exciting opportunities which are created by new markets and new supply chain relationship. To make most of these opportunities, it is essential to understand the markets along the Belt and Road Initiative. BRI is a massive and long-term project initiated by the Chinese government. *“Belt and road initiative can help to make it easier the cross-border trade, between Ireland and the other countries”* (P5).

Two participants said that, to realize the potential of BRI, opportunities, new markets and facilities, it is essential to have optimized planning and strategic investment planning (P2, P5). Being into the initiative and utilizing it, will take much time to shape and will also require massive investments (P2, P5). Ireland has better trade relations with China and is a useful source for the food sector (P1, P7). There is a huge demand for baby milk formula and fish products in China. *“We would have a lot of ability to tap into the Chinese market from a seafood perspective.”* (P7).

There are very few options for Ireland to bypass the UK and have access to the European market. Ireland needs to look for fast and economic ocean solutions (P7). The Belt and Road Initiative would develop a huge potential to have better connectivity with the European and Asian market (P6). BRI can provide better connectivity which would help Ireland to engage

in trade with other countries. Through the Belt and Road Initiative, expansion of the ports can be initiated to facilitate trade connections between Ireland and port of Rotterdam (P2). Ireland can improve the sea-links with Spain and France to enter European markets (P3, P6). The example of getting benefits from BRI is the Port of Piraeus, which is accessible for the many Asian countries into European markets. According to logistics and supply chain perspective, the UK is geographically close to Europe than Ireland, so it will not be easy to implement the initiative for Ireland (P2). Ireland might benefit more in the air transportation if there are subsidized flights between Ireland and China through this initiative (P7). This is one of the important things that is explored in this research which Ireland can use it for betterment of its ports and airports.

The opportunities through Belt and Road Initiative can be the development of new value chain design, acceleration of cross border trade, reduction in logistics frictions and entrepreneurship development (P6). It will have substantial employment opportunities and exchange of people which will be beneficial for the growth of Ireland (P2, P6). Through BRI, China is a big supporter of globalization and international trade. If China is willing to fund to the countries involved in the initiative mutually, then it is more beneficial. When comparing the data obtained with previous researches, it is important to point out that the participation in the initiative will upgrade the port infrastructure, bring considerable opportunities to individual local businesses in Ireland, advancement in information and technology, digitalization, automation and improvement in multi-modal transportation in Ireland (P3, P5). *“The very good channel to catalyze the exchange of goods and improve the trade agreement between countries”* (P2).

Even though BRI has several trade opportunities, few participants thought that the legal and regulatory inconsistencies need to be addressed across the initiative. There are several barriers like financial risks, security issues, maritime conflicts and political uncertainties which will have a significant impact on transport infrastructure investment and trade initiative (P5). *“The distrust I suppose America and China, the trade war. And the distrust around China about spying. Like UK dropped the Huawei from the telecommunications recently and how that feeds into China’s relationship with other countries. Will the country be on the America’s side or will they decide to side with China because they hope to get more investment from China if they do. As a short-term thing verses the long-term strategy. There*

are the political implications of this Belt and Road”(P7). There are possibilities of facing trade and political implications for Ireland due to the China-America trade war. The US is the prominent investor in Ireland as there are many US-based companies settled in Ireland. If Ireland invests or involves in BRI, it can have problems in trade relations with the US. The Irish government needs to make sure that trade relations with the US and Ireland have no severe problems and are going smoothly (P6, P7).

#### 4.5 Benefits of BRI

**TABLE 11: THEME 4**

Sr-No	Category	Codes
1	BRI benefit sectors	<ul style="list-style-type: none"> <li>✦ Adapting to technologies</li> <li>✦ Benefits for logistics sector</li> <li>✦ Benefit to food and agriculture sector</li> <li>✦ Entrepreneurship development</li> <li>✦ Manufacturing and logistics</li> <li>✦ Possible BRI benefits</li> <li>✦ Benefit to electronic and technology sector</li> </ul>
2	BRI pro's and con's	<ul style="list-style-type: none"> <li>✦ Benefit to food and agriculture sector</li> <li>✦ Increase in trade</li> <li>✦ Exchange of people</li> <li>✦ Time requirements</li> <li>✦ Political consequences</li> <li>✦ Huge investment</li> <li>✦ Development of port and airport infrastructure</li> <li>✦ Easy cross border trade</li> <li>✦ BRI opportunities</li> <li>✦ Chinese investment for infrastructure</li> <li>✦ Better connectivity</li> <li>✦ Not connected with Western Europe</li> <li>✦ Relations with China</li> </ul>

Source: (Created by author based on information obtained from participants)

The entire Irish supply chain will benefit from Belt and Road Initiative. Mainly, the industries which are adapting to technology and innovation, open to exploring for the new opportunities will benefit more (P1). If the infrastructure is well connected between Ireland and other countries in the initiative, better connection to the new transport routes, new modes of global

trade, new supply chain design and then the logistics sector will highly benefit (P2, P5). It will also help to improve the operational performance and create economic value for the businesses involved in the initiative. Ireland has a good base for its food and agriculture-related businesses. There is a huge demand for dairy and seafood products from China. The dairy products, agri-food products, Seafood products like salmon, oysters can have a large market in China (P7). Overall, the above results are consistent with the results from previous studies. There will be an enhancement in tourism due to the exchange of people which will also benefit the businesses that are dependent on it. *“This initiative include new routes, then the new modes for global trade, new supply chain design, and the reduction of cross border logistic friction, then, you know, entrepreneurship development”*(P5). Three participants said that the Belt and Road Initiative will accelerate the cross-border trade between the countries involved and increase the cross-border investments if China is willing to invest mutually (P5, P6, P7). It will also attract investments from other countries that are involved in the initiative. This can turn trade, visions and opportunities into realities and reduce the bottlenecks in cross border trade. Currently, the ports and airports in Ireland cannot move large volumes of the cargo as compared to other ports or airports like Heathrow of London, Port of Rotterdam, Hamburg or Munich. The potential participation in the Belt and Road Initiative would help to develop the infrastructure of ports and airports (P3). *“The ports of Foynes and cork could be nowhere near the capability of ports like Rotterdam, Munich, Hamburg or Felixstowe in the UK. So, you know, maybe a potential participation in the Belt and road initiative would be, you know, help the port infrastructure to develop that”* (P3). The disadvantage for Ireland is the fact that it is not connected with western Europe by land (P7). The only possible way of connection is through sea-routes. The BRI is a significant initiative which needs substantial financial investment and needs more time for development (P2). Even though there is a better trade relationship between Ireland and China, it is problematic to be highly dependent on China (P3). It is more beneficial to have good relationships with potential customers, potential markets, potential sources of supply from more than one source (P3).

**TABLE 12: BENEFITS AND DRAWBACKS OF BRI FOR IRELAND**

<b>Key benefits of BRI for Ireland</b>	<b>Key drawbacks of BRI for Ireland</b>
<ul style="list-style-type: none"><li>▪ Increase in trade and transportation</li><li>▪ Exchange of people</li><li>▪ Better connectivity with partner countries</li><li>▪ Improved trade agreements</li><li>▪ Entrepreneurship development</li><li>▪ Employment opportunities</li><li>▪ Development of port and airport infrastructure</li></ul>	<ul style="list-style-type: none"><li>▪ Huge Investments</li><li>▪ Time requirements for development</li><li>▪ Implications on US-Ireland trade relations due to China-America trade war</li></ul>

Source: (Created by author based on information obtained from participants)

## **5. Conclusion**

### **5.1 Overall conclusion**

This research has highlighted the current situation of the supply chain of Ireland. Based on the responses of the participants, detailed information about each sector of the supply chain is obtained. Being surrounded by sea on all the sides, Ireland has several limitations for its connectivity with other countries. Ireland is heavily dependent on the logistics sector to facilitate its trade and businesses and majorly with its connectivity with other countries. From the past few decades, Ireland has made remarkable progress in the medical and pharmaceutical sector, ICT sector, food and agriculture sector. This development was possible due to technological advancement and favourable economic policies of Ireland, which attracted global investors.

Ireland has better trade relations with many European countries along with the US. Ireland is globally recognized for having European headquarters of many leading organizations. This research also draws attention to the relationship between Ireland and the United Kingdom. Being a significant trade partner with the UK, various sectors like logistics and manufacturing are primarily dependent on the UK. For many decades, the trade between both countries has led to their economic growth. The decision of Brexit by the UK has brought uncertainties ahead of Ireland in terms of trade and connectivity. This research has focused

to investigate the factors to determine the challenges or issues regarding connectivity and economic repercussions due to Brexit. The scenario of Brexit has been deeply studied and many viable effects have been found. The transportation issues, border issues, restrictions on free movement and the rise in the taxes are the key negative impacts, while the opportunity to explore other markets, attracting foreign investments are the key positive effects being determined from the research.

Further focusing on Belt and Road Initiative, this paper has highlighted the possible effects and benefits of BRI for Ireland. As per responses of the participants, the effects of BRI in terms of political and economic impacts are obtained. Belt and Road Initiative is a fundamental trade initiative which connects the countries involved in the initiative. Through this research, it is ascertained that BRI might help to increase trade, transportation, exchange of people and connectivity of the partner countries along with the improved trade agreements. Outlining the different approaches of BRI, this research also reviews the evidence for several challenges for the implementation of BRI. The requirement of huge investments, time requirements and possible implications in trade relations with the US due to China-America trade war are the key drawbacks which are obtained from this research.

## **5.2 Recommendations for future research**

- Based on this research reference, for future studies, the researchers can explore the effects on supply chain of Ireland if the ports are developed for global deep sea transportation and airports are developed for increasing its capacity of transportation than the existing capacity.
- The future researches can use a mixed-method approach in which both quantitative and qualitative method can be used. Along with the qualitative method, the quantitative method can also be used which can help to obtain data from a large group of participants, provide more detailed information about the topic and have better accuracy of the study.
- To capture better responses and gather better information from the respondents, the researcher highly recommends conducting the interviews with the respondents in actual rather than using video/audio telephony applications if the qualitative method

is used for data collection. In case if the actual interview is not possible, then a video telephony interview will be more preferred to have better conversation and obtain better information.

- Future studies on the current topic are also recommended to find participants from diverse backgrounds. Along with supply chain professionals, supply chain consultants and business owners, the researcher recommends approaching the political analysts to obtain detailed information about political effects of Brexit and BRI and the participants working in government organizations to get in-depth information about different supply chain sectors of Ireland.
- For further studies in case of BRI, the researcher suggests studying the countries that are actively involved in the initiative and find the participants for data collection from those regions who have better insights of the initiative.

### **5.3 Research Limitations**

The information or the data collected from the participants for this research does not provide definitive evidence even though the qualitative method is used. Due to the pandemic period, it was not possible to meet the participants in-person. The interviews are conducted and recorded using Zoom App (audio/video telephony application). As a privacy concern, many participants decided to conduct an audio interview instead of a video interview. The researcher found it difficult to express his views and to capture and understand the visual responses of the participants on specific topics during the discussion.

Although semi-structured questions were used for the interviews for data collection, there are variations in the responses of each participant. The researcher cannot get consistency in each interview questions. Also, the number of participants for the interviews is considerably less than expected by the researcher. The more volume of the participants would have provided better insights into the interview questions and helped in collecting more empirical data for the research.

The data provided by the participants contained in-depth but generalized information instead of data with numbers. This would have provided more credibility to the information or data which would benefit more to the research. The participants involved are mainly the supply

chain professionals, members from higher management of different global organizations, supply chain consultants and business owners. The information collected from these participants includes more data on economic aspects and considerably less data on political aspects. A piece of advice for the future researchers is to approach participants from the political background or maybe political analysts to obtain the information on political aspects along with the participants as mentioned earlier. It would help to determine better information about the political consequences of Brexit or BRI in Ireland.

#### **5.4 Contributions**

This thesis documents several key contributions made to the field of supply chain of Ireland. The researcher hopes that this paper will be beneficial to explore and understand the various effects of Brexit on the supply chain of Ireland. It would help the individual and local businesses from the supply chain sector in Ireland who have high trade dependency on the UK to understand possible consequences due to Brexit and take several measures to avoid losses. A different approach has been shown to cope with Brexit problems more efficiently. Through this research, the complexities of Brexit can certainly be disentangled in a better way for further researches. This paper also assesses the significance of Belt and Road Initiative which can be used as an alternate source for Ireland to develop its trade connections and economic progression.

This paper provides a better platform to the future researchers to understand the possible benefits and challenges of Belt and Road Initiative. It supports to identify different sectors and aspects of the supply chain, which can benefit from BRI.

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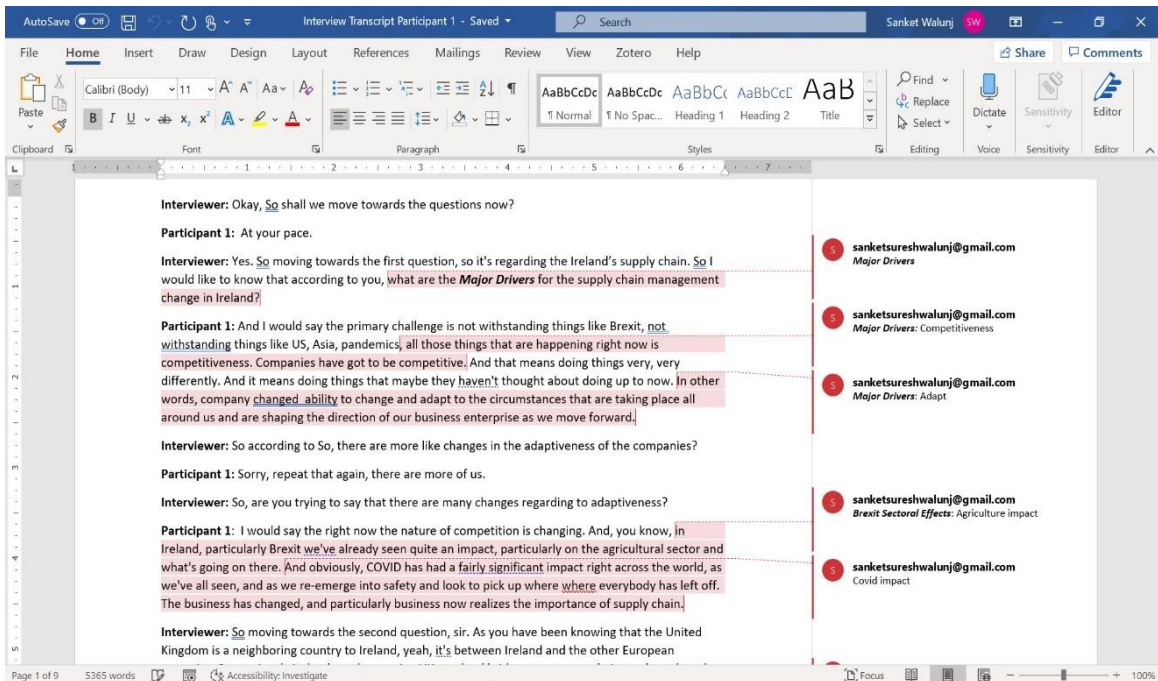
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# Appendices

## Appendix A1: Formation of themes based on categories

Themes	Reasons for trade development, partner countries and trade barriers	Impact of Brexit on Ireland	Impact of BRI in Ireland	Benefits of BRI
Categories	Major drivers	Brexit Effects	Improvement Sources	BRI benefit sectors
	Trade partners	Brexit Sectoral Effects	BRI involvement output	BRI Pro's and Con's
	Trade Barriers	Brexit preventive measures	BRI Effects	

## Appendix A2: Reference image to indicate the use of Word application for coding the data



## Appendix B: Reference images to indicate the use of Excel application for categorizing and analysis of the data

Sr no	Participant	Category	codes
1	P1	Major Drivers	Competitiveness
2	P1	Major Drivers	Adapt
3	P1	Brexit Sectoral Effects	Agriculture impact
4	P1	Trade Partners	Covid impact
5	P1	Brexit Effects	positive impact of Brexit
6	P1	Trade Partners	Irelands trade with countries
7	P1	Major drivers	E-commerce
8	P1	Major drivers	E-commerce
9	P1	Major drivers	E-commerce
10	P1	Trade Partners	Covid Impact
11	P1	Brexit Effects	opportunity
12	P1	Major Drivers	Competitiveness
13	P1	Brexit Sectoral Effects	No impacts
14	P1	Brexit Sectoral Effects	No impacts
15	P1	Brexit preventive measures	mechanism and support
16	P1	Brexit preventive measures	Government assistance
17	P1	Improvement Sources	Relations with China
18	P1	Improvement Sources	Chinese trade opportunities
19	P1	BRI involvement output	Possible BRI benefits
20	P1	BRI involvement output	Huge investment
21	P1	BRI benefit sectors	BRI benefits

Sr no	Participant	Category	codes
1	P1	Major Drivers	Competitiveness
2	P1	Major Drivers	Adapt
3	P1	Major drivers	E-commerce
4	P1	Major drivers	E-commerce
5	P1	Major drivers	E-commerce
6	P1	Major drivers	E-commerce
7	P1	Major drivers	E-commerce
8	P1	Major Drivers	Competitiveness
9	P2	Major drivers	Supply Chain domains
10	P2	Major drivers	Main drivers
11	P2	Major drivers	Main drivers
12	P2	Major drivers	Irish Tax benefits
13	P3	Major drivers	Investments in Ireland
14	P3	Major drivers	Digitalization
15	P4	Major drivers	Logistics
16	P5	Major drivers	Main drivers
17	P6	Major drivers	Enterprise Strategy and virtual supply chain
18	P6	Major drivers	IOT and ICT
19	P7	Major drivers	Low Tax rate
20	P1	Major drivers	Source of innovation
21	P1	Major drivers	Use of technology
22	P5	Major drivers	Irelands import and export
23	P6	Major drivers	Irelands import and export
6	P1	Trade Partners	Irelands trade with countries
28	P2	Trade partners	Irelands trade with countries
32	P2	Trade partners	Irelands trade with countries
33	P2	Trade partners	Irelands trade with countries
79	P3	Trade partners	Irelands trade with countries
80	P3	Trade partners	Potential market for trade
110	P4	Trade partners	Irelands trade with countries
122	P5	Trade partners	Irelands trade with countries
155	P6	Trade partners	Irelands trade with countries
176	P7	Trade partners	Irelands trade with countries
177	P7	Trade partners	Irelands trade with countries
171	P6	Trade partners	Strong US-Ireland business relations