To analyse the impact of Business Intelligence on Business/Corporate Travel domain

Dissertation submitted in part fulfilment of the requirements for the degree of MBA – Information Systems at Dublin Business School

Name - Mudit Gaur
Student ID - 10372165
Declaration

I, Mudit Gaur, declare that this research is my original work and that it has never been presented to any institution or university for the award of Degree or Diploma. In addition, I have referenced correctly all literature and sources used in this work and this work is fully compliant with the Dublin Business School’s academic honesty policy.

Signed: Mudit Gaur

Date: 20-August-2018
Acknowledgement

Firstly, I would like to express my sincere gratitude to my supervisor Caltriona Sharkey for providing me with constant motivation, insights and guidance without which the completion of this dissertation would not have been possible.

Besides my supervisor, I would like to thank my research practice module lecturers, Brid Lane and P.J. Paul for imparting me with the knowledge required for the dissertation.

Furthermore, I would like to sincerely thank the participants who participated in the study and even those who were not able to participate due to time constraint or other issues. This study would not have been completed without their insights and inputs.

Lastly, I want to thank my family and friends. Without their motivation, help, encouragement and support, this study would not have been possible.
Abstract

Business Intelligence has evolved over the years and its tools and techniques help in converting data into meaningful information which then help the management to make informed decisions. Business intelligence has been helping in process improvements in various sectors like healthcare, banking, education etc. but it usage and impact in Business travel domain is still not truly recognized. Business travel has been growing at a rapid pace due to growth in economies across the world and globalization. However, this increase in data possess various issues for business travel management managers and analyst. The business travel management organizations are still not able to leverage the true potential of business travel data available to improve the business travel process.

This study aims to identify and analyze the impact of Business intelligence tools and techniques on business travel domain through clear and concise set of aims, objectives and research question. The study uses a case study as research strategy by taking one of the organization which is world leader in business travel management. The study includes in-depth interviews of 5 experts on integration of business travel and business intelligence to draw appropriate conclusion through inductive and critical discussion. Further, the study presents the recommendation for organizations and further studies who wish to explore the topic of Business intelligence and Business travel integration.
# List of Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI</td>
<td>Business Intelligence</td>
</tr>
<tr>
<td>CRM</td>
<td>Customer Relationship Management</td>
</tr>
<tr>
<td>KFI</td>
<td>Key Factor Influencing</td>
</tr>
<tr>
<td>SCM</td>
<td>Supply Chain Management</td>
</tr>
<tr>
<td>ERP</td>
<td>Enterprise Resource Planning</td>
</tr>
<tr>
<td>DSS</td>
<td>Decision Support System</td>
</tr>
<tr>
<td>OLAP</td>
<td>Online Analytical Processing</td>
</tr>
<tr>
<td>ETL</td>
<td>Extract Transformation and Load</td>
</tr>
<tr>
<td>KPI</td>
<td>Key Performance Indicators</td>
</tr>
<tr>
<td>CSF</td>
<td>Critical Success Factor</td>
</tr>
<tr>
<td>SAS</td>
<td>Statistical Analytical Software</td>
</tr>
<tr>
<td>SAP</td>
<td>System, Application &amp; Products</td>
</tr>
<tr>
<td>BTA</td>
<td>Business Travel Analytics</td>
</tr>
<tr>
<td>IT</td>
<td>Information technology</td>
</tr>
</tbody>
</table>
# Table of Contents

Chapter 1: Introduction .................................................................................................................. 8
   Aim of the study ......................................................................................................................... 9
   Objectives of the study ............................................................................................................. 9
   Research question .................................................................................................................... 9
   Rationale for the study ............................................................................................................. 11
Chapter 2: Literature Review ....................................................................................................... 12
   2.1 Business Intelligence (BI) .................................................................................................. 12
      2.1.1 Definitions of Business Intelligence ........................................................................... 12
      2.1.2 Evolution of Business Intelligence ............................................................................. 14
      2.1.3 Components of Business Intelligence System ............................................................ 14
      2.1.4 Objectives of Business Intelligence .......................................................................... 16
      2.1.5 Benefits of using Business Intelligence ..................................................................... 17
      2.1.6 Future of Business Intelligence .................................................................................. 18
   2.2 Corporate or Business Travel ............................................................................................ 18
      2.2.1 Business Travel Definition ....................................................................................... 19
      2.2.2 Difference from Personal Travel ................................................................................ 20
      2.2.3 Business Travel Types ............................................................................................... 22
      2.2.4 Business Travel Growth Trend .................................................................................. 24
      2.2.3 Business Travel Spend Analysis ............................................................................... 24
      2.2.4 Problems in Business Travel Process ....................................................................... 27
   2.3 Impact of BI tools on Business Travel ............................................................................... 29
   2.4 Summary ............................................................................................................................. 34
Chapter 3 – Research Methods ................................................................................................... 35
   Introduction ............................................................................................................................... 35
   Research Strategy ..................................................................................................................... 35
   Research Philosophy ............................................................................................................... 38
   Time Horizon ........................................................................................................................... 39
   Sampling ................................................................................................................................... 40
      Characteristics of Sample ..................................................................................................... 41
   Data Collection ......................................................................................................................... 43
   Data Analysis Framework ....................................................................................................... 45
   Research Ethics ......................................................................................................................... 47
CHAPTER 4 – Findings & Discussion

4.1 Introduction .................................................................................................................. 49
4.2 Findings .......................................................................................................................... 49
  4.2.1 Question Category 1: To understand the significance and evolution of Business Intelligence and Business Travel Process in organizations........................................... 49
  4.2.2 Question Category 2: To investigate and analyse the influence of using Business Intelligence tools and BI techniques on travel spend analysis ................................................. 52
  4.2.3 Question Category 3: Reviewing the changes brought about by Business Intelligence in the empirical practices of the current business travel analytics process ........................... 54
  4.2.4 Question Category 4: Analysing and investigating the main barriers and enablers that may arise during the implementation of Business Intelligence ............................................. 56
4.3 Discussions .................................................................................................................... 58
  4.3.1 Category 1: To understand the significance and evolution of Business Intelligence and Business Travel Process in organizations ................................................................. 58
  4.3.2 Category 2: To investigate and analyse the influence of using Business Intelligence tools and BI techniques on travel spend analysis .......................................................... 60
  4.3.3 Category 3: Reviewing the changes brought about by Business Intelligence in the empirical practices of the current business travel industry .................................................... 62
  4.3.4 Category 4: Analysing and investigating the main barriers and enablers that may arise during the implementation of Business Intelligence ......................................................... 64
4.4 Summary: ...................................................................................................................... 67

Chapter 5 – Conclusion, Limitations and Recommendations ............................................. 67
5.1 Conclusion ...................................................................................................................... 67
5.2 Limitations ..................................................................................................................... 69
5.3 Recommendations ....................................................................................................... 70
5.4 Recommendations for Further Research ..................................................................... 71

Chapter 6 – Self Reflection ................................................................................................. 72
Rationale for Choosing MBA .............................................................................................. 72
Learning through Semester 1 ......................................................................................... 73
Learning through semester 2 ......................................................................................... 74
Learning through Dissertation ....................................................................................... 75
Applying the learning in professional and personal life .................................................... 76
Conclusion ....................................................................................................................... 76
References ....................................................................................................................... 77
CHAPTER 1: INTRODUCTION

Today we live in a digital era where organizations have to deal with huge amount of structured and unstructured data. Business travel or corporate travel is no exception as the employees travel’s data has been growing rapidly over the years. Throughout this study, the terms corporate travel and business travel will be used interchangeably. Business travel is an important segment of tourism and is defined as a practice of travelling for work-related purposes (Swarbrooke and Horner, 2001). Corporate travel or business travel is a broad domain where there is still huge data to be mined which includes preferences on basis of age and gender of the corporate traveler, best travel ticket price selection, time of travel, travel location, etc. Business organizations have a humongous amount of data that gets captured real time not only on a daily but also on hourly basis. Analyzing this data with the help of advanced software tools and programs can aid to derive and deduct critical business insights. These insights can assist management in making informed decisions by understanding of the company’s travel programs, employee behavior, travel expenditure, and global trends in real time. Businesses Travel organizations can use these understanding and insights to customize products and travel plans, make decisions on expenditure and capturing and identifying new and missed opportunities in competitive market. Thus, the opportunity for the businesses travel organizations to utilize this data is immense.

Capturing and analyzing business data has become simpler with the adoption of Business Intelligence (BI). BI refers to the process of collection, extraction (Chaudhuri et al., 2011b) and analysis of data using techniques like OLAP, data mining methods, machine learning, and statistical techniques (Hopken and Fuchs, 2016). Currently many organizations are pushing the limits of BI capabilities and are investing in business intelligence software adoption. The global revenue from business intelligence software revenue is predicted to reach $ 22.0 billion by the end of 2020 which provides testament for the same (Gartner, 2017). Importance accorded to BI by business organizations and rise in big data both structured and unstructured can be considered as the reason for the growth in BI technologies investment. Utilizing BI capabilities to analyses corporate travel programs can provide the organizations with various benefits such as providing real time insights on the performance of the corporate travel programs and developing better corporate travel programs. This can be done by mining and analyzing capabilities of BI tools to conduct an evaluation of the travel programs (Pekar and Ou, 2008).
This study aims to explore the influence of BI on corporate travel and how their integration could provide organizations with valuable intelligence to make informed decisions and gaining competitive edge.

**AIM OF THE STUDY**

1.1.1 This study aims at investigating the influence of Business intelligence techniques such as Data mining, predictive analytics, visualization etc. and tools such as Tableau, SAS, R etc. on corporate travel industry domain.

1.1.2 The study also aims to analyse if the Business Intelligence integration would produce positive outcomes and if there are any challenges or roadblocks in the way of Business Intelligence system implementation

**OBJECTIVES OF THE STUDY**

1.1.3 To understand the significance and evolution of Business Intelligence and Business Travel Process in organizations.

1.1.4 To investigate and analyse the influence and potential benefits of using Business Intelligence tools and BI techniques on travel spend analysis.

1.1.5 Reviewing the changes brought about by Business Intelligence in the empirical practices of the current business travel industry.

1.1.6 Analysing and investigating the main barriers and enablers that may arise during the implementation of Business Intelligence.

**RESEARCH QUESTION**

The study aims to address and answer the following Research question:

1. How Business intelligence tools and techniques assists in better data management of travel spend to assist management in making informed decisions.

With the business environment getting more intense and competitive, organizations are expanding their operations both domestically and internationally. Travel has become a necessity for business
organisations as it helps organizations to succeed (Faulconbridge et al., 2009). A report authored by Sheivachman indicates that corporate travel is getting expensive (Sheivachman, 2018). Given the rise in volume and frequency of business travel, the cost of business travel to the organisation is becoming a major area of concern. Business intelligence tools and techniques can help in controlling corporate travel expenses (Unger, 2014a). BI could help organisations to understand what the data show and what could be done to achieve better outcomes in the future. Making such predictions can assist organisations to not only accurately estimate the travel expenditure for the next fiscal year but can also help in reducing the travel expenditure of current year.

Another issues exists in analysing the large amount of data generated by business travel which is time-consuming, and costly. While organisations have control over the information produced internally, it has little or no control over the information produced by suppliers and third party vendors which affects the accuracy, usability and relevance of the data. The solution to this lies in using BI tools and techniques which helps to mine data from multiple sources which makes decision making easier (Chen et al., 2012). Also business travel is different from other products as travel is an intangible product which is consumed first and measured later on, which makes it even more difficult to quantify. BI can provide a context within which travel could be quantified and measured for greater effectiveness where organisations are able to analyse history, learn from mistakes, monitor the present developments and predict or forecast the future. A report released by Carlson Wagonlit, indicates that technology could help to mitigate the problems faced by travel managers by linking travel programs with the business objectives (Wagonlit, 2015). Furthermore most of the data available to organisations are historical data. Gathering and analysing this data not only take a long time but will make it difficult to implement solutions on time. Until recently, travel managers were preparing monthly and yearly reports. While this provided useful insights into long-term travel patterns, these patterns change from time to time making the data less accurate and less valid. BI provides software tools and techniques that make it possible to gather and analyse data on a real-time basis making a direct impact. Given the background of the advantages and disadvantages of BI for business travel, this study aims to identify the impact the integration of business intelligence and corporate travel can have on productivity and efficiency of an organization.
RATIONALE FOR THE STUDY

Researcher has been motivated by various factors to undertake this research:

1. Firstly, the main motivations for this study are the growth of business travel and business intelligence along with the researcher’s personal experience with the corporate travel industry. The researcher has worked as Manager in a corporate travel industry for a leading travel management organization which makes it a personal interest for researcher to explore this area of study.

2. Secondly, the business travel is constantly growing and business intelligence is continuously evolving which makes its crucial to perform a research to update the existing knowledge base. There are a lot of studies on the influence of BI in the travel and tourism industry which primarily targets the leisure traveler(Korte et al., 2013). A leisure traveler is different from a corporate traveler in terms of expenses, destination, lead time, and travelling partners(Davidson and Cope, 2003b). This study will help to help to identify several drivers of BI in corporate travel and identifying best practices of use of BI in the corporate travel domain.

3. Additionally, Business intelligence have gained huge popularity and every organization wants to get the benefits of business intelligence implementation. Therefore, it becomes essential to evaluate and analyse the overall impact of such business process re-engineering.

4. Also, this study will consequently aim to make future recommendations for organizations who need to adopt business intelligence systems for their business travel domain.

5. Lastly, the researcher feels that further studies on the integration of BI with the corporate travel domain will fill the limited existing knowledge base and will provide significant insights into the role of BI in the corporate travel domain.

This study will next review to what extent the academia is aware of the influence of BI on corporate travel. The next section will present the review of recent literature on BI and its application in better management of travel expenditure. The literature review chapter will mainly contain secondary sources of data like books, academic journals, and websites.
CHAPTER 2: LITERATURE REVIEW

The literature review of this study is carried out with an intention of filling up the critical knowledge gaps in the area of BI and business travel. The purpose of this chapter is to assess the extent to which the academia is aware of the influence of Business Intelligence on corporate travel. The remainder of this chapter is organized as follows. Section 2.1 describes the various aspects of BI like definition, evolution, components, objectives, benefits and future trends. Section 2.2 discusses the concept of business travel, definition, differences with personal travel, types, future trends, spend analysis, problem, the impact of BI on business travel, and barriers to integration of BI with business travel. Section 2.3 summarizes the insights, discusses the limitations and identifies the scope for future research.

2.1 BUSINESS INTELLIGENCE (BI)

Howard Dresner first coined the term ‘Business Intelligence’ in 1989 and is mainly described as an umbrella term that comprises of concepts and methods that assist to increase the efficiency of decision support system through computer support systems (Nylund, 1999).

Business Intelligence tools and techniques assist the top management to derive meaningful results by using a data-centric approach to solve complex problems. Business Intelligence systems assist in collecting the data in an organized way and also provide data querying functionalities as per the targeted user’s requirements to produce a comprehensive data report with visualization capabilities. There are various types of business intelligence tools present to assist organizations in making decisions such as Excel, SAS, SAP, and Tableau etc.

2.1.1 DEFINITIONS OF BUSINESS INTELLIGENCE

Over the years, Business Intelligence has been defined in various ways by many researchers but yet there is still no universally believed interpretation of Business intelligence. However, Business Intelligence has been mostly defined as a critical linking factor between the processes which are required for supporting the decision support system (Baars & Kemper 2008). Various researchers have
also affirmed that Business Intelligence systems provide a meaningful interpretation of business-critical data which supports in making decisions effectively (Negash, 2004, Inmon et al., 2010).

Bogza et. al (2008) described business intelligence as “getting the right information to the right people at the right time”. The given table below summarizes a few definitions of Business Intelligence mentioned by various authors and researchers (Vodapalli, 2009):

![Figure -1: Definitions of BI Source: (Vodapalli, 2009).](image-url)
All the definitions in the table indicate that an effective business intelligence system provides accurate information at the right time to enable better decision making.

2.1.2 EVOLUTION OF BUSINESS INTELLIGENCE

Since the inception of hard disk in 1956 by IBM followed by inventions of other storage devices like floppy and hard discs, bulk data storage became possible that consequently resulted in the development of database management systems called as Decision Support Systems (DSS) (Power, 2008). During 1980’s & 1990’s, data warehousing methods like Extract Transformation and Load (ETL) and Online Analytical Processing software (OLAP) techniques created the need of Business Intelligence systems which were evolved by 2000’s (Anandarajan et al., 2012). The figure below briefly summarizes the evolution of business intelligence (Pareek, 2006):

![Figure 2: Evolution of BI Source: (Pareek, 2006)]

The global recession is another important development that precipitated the emergence of BI. The economic downturn forced business organisations to find ways to cut costs and to analyse every expenditure (Harreld, 2002). While BI itself did not evolve as a strategy, it evolved as a barometer to monitor the business strategy. Today, BI has developed into a process that overarches all the management functions.

2.1.3 COMPONENTS OF BUSINESS INTELLIGENCE SYSTEM
The most common and basic components of a Business Intelligence framework includes (Ranjan, 2009, Lloyd, 2011):

- **Source Systems**: These systems perform the function of collecting and storing business data. Most commonly used source systems consist of excel spreadsheets and raw data text files which include data regarding transactions, sales, inventory, customer data, and financial information.

- **ETL (Extraction, Transformation and Loading)**: The ETL part of business intelligence systems collects both structured and unstructured data from required data sources, converts it into the required format and loads the data into the system for processing and analyzing.

- **Data Mining**: The processes and tools of business intelligence help in identifying co-relationships between different variables to form patterns which aid in forecasting and predicting market trends.

**Business Intelligence Applications**: It is the most critical part of a business intelligence process which transforms the data into information through visualization that assists the decision makers to get a complete view of operations to make informed decisions. The figure below highlights the Business intelligence component’s in decision making process:
2.1.4 OBJECTIVES OF BUSINESS INTELLIGENCE

Business intelligence is no longer perceived as a tool that assists decision support system, but has been recognized as a tool which helps in various process improvements like supply chain, customer service, manufacturing etc. through automation (Elbashir et al., 2008). Business Intelligence development has provided organizations and decision makers with the capability of accessing and analysing relevant data to make informed and feasible decisions (Elbashir et al., 2008).
There are various objectives of Business Intelligence implementation such as improving decision making process, efficiency of operations, increasing customer satisfaction and providing competitive edge in the current market.

Another major objective of Business intelligence tools is to control the huge streams of data from multiple sources by collating them in a uniformed condensed pattern to identify gaps and opportunities for organizations.

2.1.5 BENEFITS OF USING BUSINESS INTELLIGENCE

Business Intelligence brings about improvements in the processes that facilitate inter-department coordinations to finish interdependent activities, elimination of rework, improvement in the invention and supply chain processes through cost reduction and efficiency improvement and develop services and products according to customer preferences (Ranjan, 2009). Some of the significances of using Business Intelligence in an organization are put forward (Ranjan, 2009, Negash, 2004):

- Higher Business Intelligence tools facilitate the conversion of data into comprehensible information for the employees through analytical technologies that assist to solve serious business issues like money laundering, increase customer response rate, identify customers raising highest profits, identifying criminal activities and using credit scoring of customers to reduce risk exposure.
- Business Intelligence tools assist to analyze data to manage and improve e-commerce strategies.
- Business Intelligence brings down the downtime of process and equipment through predictive maintenance.
- Business Intelligence assists in identifying the right integration of product and services most likely to be purchased by the customers.
- Many industrial sectors benefit from Business Intelligence through identification of new molecules a drug compounds in the pharmaceutical industry, assessing clinical trials for newly developed experimental drugs, deciding profitable rates for insurance premiums and determination of churn and attrition rates of customers in the marketing and sales sector. Apart from this in the travel sector, Continental Airlines has reaped benefits from BI investments showing 1000 per cent of Return on Investment (ROI)(Watson et al., 2006).
- While most of the information is provided on a real time basis, sometimes the information is provided beforehand, enabling managers to foresee situations. This emphasizes the proactive nature of BI.
The above benefits of BI indicate that it plays a strategic role in the organisation. Therefore, business intelligence not only helps organisations look inward but also provides information which could help organisations gain an advantage against competitors (Powell and Dent-micallef, 1997). Despite the immense benefits of BI, the organisations capacity to effectively gather, use and leverage BI determines the effectiveness of BI (Elbashir et al., 2011). This argument is supported by a study which indicates that advancements in BI do not necessarily mean that organisations are able to leverage it against competition (Burn and Loch, 2001). The key determinant of success here is the alignment of BI with the organisations strategic objectives (Reich and Benbasat, 2000).

### 2.1.6 FUTURE OF BUSINESS INTELLIGENCE

Big data and rise in both structured and unstructured data will have a huge impact on the future of business intelligence (Ranjan, 2009). Business intelligence capabilities of real time gathering and analysis of data will be crucial in future to better make sense of the huge repository of data. However, with this rapid increase in amount of data available, presents a challenge for BI developers and vendors to keep up with the demands by updating and upgrading the BI tools constantly (Russom, 2013).

It can be deducted that in future BI tools capabilities and efficiencies will have to keep up with customer expectations and business requirements to be an integral part of any organization.

### 2.2 CORPORATE OR BUSINESS TRAVEL

Business travel is a critical part of the tourism industry as it is the most stable segment continuously providing economic growth and prosperity (Doriana and Denisa, 2013). Today, the business environment has become highly competitive, with businesses trying to expand domestically as well as internationally. In a world without borders business travel has become crucial for organisation’s success and organisations are pushing their employees to take full advantage of this opportunity. With the business sector providing employment to millions of people, the concept of business travel is a major source of income for several destinations and service providers and is expected to be on the rise in future.
2.2.1 BUSINESS TRAVEL DEFINITION

Business’s need to hold business meetings and these meetings are usually held at a particular site which requires employees to travel to that location. This kind of travel is known as business travel (Arnfalk and Kogg, 2002).

Business travel can be defined as travelling for work related purpose such as a salesman trying to sell products, consultants visiting client locations for discovery and requirement gathering process or employees travelling to different branches for sharing knowledge (Davidson and Cope, 2003a). Business travel is critical for organizations as it provides opportunity to sell products, grow customer base, motivate employees and increase profits. The following figure shows different types of business travels that occurs in an organization (Swarbrooke and Horner, 2002):
2.2.2 DIFFERENCE FROM PERSONAL TRAVEL

Business travel is a high-spending activity and happens more frequently than personal travel. Also, the suppliers of business travel which are airlines, transport, hotels etc. have discounted preferred rates and amenities for travelers which are not available for leisure travelers (Davidson and Cope, 2003a). The figure below highlights few of the differences between business and leisure travel (Davidson and Cope, 2003a):
Business travelers enjoy various benefits such as discounted hotel room rates, the inclusion of amenities, cheap car rentals and lower airfare because of negotiation based on the organization spend rather than individuals. Various benefits are provided to a business traveler such as (Wagonlit, 2017):

The most common rates allotted to business travelers are LRA rates or Last room availability rates which entitles a business traveler to get a discounted rate even when the last room is available. Low airfare or more miles for the organization instead of individual fliers. Various amenities are included in hotel rates such as transport, use of meeting rooms, Wi-Fi, meals etc. Expense tracking tools which are linked to
organization finance and expense vertical and provision of corporate credit or travel card for personal expense

All these benefits are provided to the organization and employees through intermediaries such as travel agents, travel management companies, online booking tools etc. which works a bridge between the customers and suppliers (Swarbrooke and Horner, 2002). The following figure shows the structure of a business travel model (Swarbrooke and Horner, 2002):

![Business Travel Model](image)

Figure 6 - Business Travel Model Source: (Swarbrooke and Horner, 2002)

It can be inferred from the above that although business travel is part of travel industry but it is clearly distinct from personal or leisure travel.

2.2.3 BUSINESS TRAVEL TYPES

business travel is divided into 2 groups – Individual business travel and Meeting, Incentive, Corporate hospitality and Exhibition (MICE) business travel (Davidson and Cope, 2003a):
• Individual business travel: It means individuals who travel solely for a limited duration for conducting business for an organization such as sales of products, visiting client, training of workforce etc.

• Meetings – Business travel which includes group gathering for meetings such as board meeting, quarterly or yearly financial performance review, workshops etc are considered as meeting business travel.

• Exhibition- It is presentations of products or services to attract or inform the clients to buy new products or services.

• Incentive travel – An organization sponsored or organized trip for the employees to either award them or motivate them is regarded as incentive travel.

• Corporate Hospitality – Expenses incurred on travel and hospitality of valuable clients is known as corporate hospitality business travel.

The figure below segregates and summarizes different types of business travel (Davidson and Cope, 2003a):

![Figure 7: Business travel types. Source (Davidson and Cope, 2003a)](image-url)
It can be inferred from the above literature that although business travel is part of travel industry but it is clearly distinct from personal or leisure travel.

2.2.4 BUSINESS TRAVEL GROWTH TREND

Global business travel spending has doubled in the last decade where it achieved $1.2 trillion USD in 2015 and is expected to reach 1.6 trillion by 2020 (Rockport, 2015). The figure below shows the annual growth of business travel spend during the last few years (Metcalf, 2017):

![Growth in Business Travel Spending](image)

Figure 8: Annual Growth of Business Travel Spending Source: (Metcalf, 2017)

The above long range report shows that business travel is set to increase in the coming years. Another report has identified three main drivers of this growing trend. They are advances in technology, increase in hotels providing business services, digitalization of travel processes.

2.2.3 BUSINESS TRAVEL SPEND ANALYSIS

Global business spending is expected to grow at a steady rate over the next few years which is highlighted in the figure below (Staista, 2018):
Figure 9: Global Business Spending Forecast  Source: (Staista, 2018)

China is the leading market for business travelers and India and Indonesia are expected to grow in business travel market in the future and the same is represented in the graphs below (Rockport, 2015).
Figure 10: Major Markets for Business Travel Source: (Rockport, 2015)
It can be deducted from the above statistics that business travel spend is continuously growing which makes it a key consideration for corporations. In organizations a successful business travel model or strategy relies on four core activities (Doriana and Denisa, 2013):

- Developing a travel policy
- Consolidating travel data to gain deep insights for creating an efficient travel program
- Using an expense system such as a corporate credit card
- Selecting correct travel management agency

### 2.2.4 PROBLEMS IN BUSINESS TRAVEL PROCESS

Business Travel process in organizations is a complex process which is based various compliance and polices and need of approvals. The whole business travel process can be divided into following 6 steps: (Hermes, 2013)
1. Travel policy & compliance - This step involves activities related to creation of policies for employees as per business needs

2. Sourcing & procurement - It includes activities related to managing long and short term agreements with the suppliers.

3. Trip planning & booking - Process of employees making requests to get approvals and making the necessary bookings himself or through business partners.

4. Managing expense claims - Activity of employee submitting expense claim for processing and reimbursement.

5. Administering central billing - Travel accounting involving receiving travel expense invoices and approving them

6. Measuring & reporting data – Collecting and analyzing travel data for legal, policy and compliance activities.

Business travel process is an expensive and time consuming process which makes it different from traditional travel industry.

One of the biggest problems that organizations face is the validity of transaction data logged in a T&E system by the employee for the purpose of audit and reimbursements (Iyengar et al., 2008). The data consists of expenditure records but does not provide complete information (Iyengar et al., 2008). Fake business receipts, inflated expenses, multiple claims for same services are few examples of fraud expenses that add to the financial burden of the organization (AppZen, 2017).

Also, global business travelers often break compliance and travel policies which can impact either or both the employee or the organization (Deloitte, 2017). The following figure shows top 5 expense categories with violations for business travelers (AppZen, 2017)
While the above graph shows the different ways in which business travelers can add to the expense of business travel other major concern like safety of the business traveler cannot be ignored. A study indicates that 70 per cent of the business travel programs use various safety and security tools and risk management services (Varkiani, 2018). Another challenge that is noteworthy is the increase in global terrorism (Curley, 2017). This shows that business travel safety is a growing concern among travel managers and organisations.

### 2.3 IMPACT OF BI TOOLS ON BUSINESS TRAVEL

There have few researches that discuss the impact of business intelligence on traditional business industry which are listed in the figure below (Höpken and Fuchs, 2016):
Figure 14: Studies on the impact of BI on travel industry. Source: (Hopken and Fuchs, 2016)

Furthermore, in the research by Baggio, 2016 it was found that there is lack of academic research on business intelligence on tourism industry in spite of growth in travel spend in data (Baggio, 2016).

Another research conducted by Diane etc. Al, 2013 discuss the impact of business intelligence on hospitality sector and concludes that with the increase in structured and unstructured big data, business intelligence can play a crucial role in deriving meaningful insights required for predicting market trends.
(Korte et al., 2013). Although, there have been a few researches on business intelligence impact over corporate business travel by travel management companies but there is no evident academic research on the topic.

CTI Travel Ltd has reported several advantages of using Business Intelligence in their domain of business travel (Shailaja, 2015):

1. Business Intelligence has facilitated the use of real time tracking on suppliers.
2. Business Intelligence benefited the sales team to identify the under-performing and performing clients and identify new business leads.
3. Business Intelligence has brought improvement in customer centric services and client experiences.
4. Using Business Intelligence has helped to identify the gaps and generate high quality reports through real time data.
5. Business Intelligence has led to a better financial management and improvements in complicated processes.
6. Lastly, Business Intelligence has led to an improvement in the decision making processes used by individuals, teams and the management itself.

Helical IT solutions has implemented the use of Business Intelligence in the travel industry and some of its benefits include (Shailaja, 2015):

1. It has led to an enhancement in customer segregation.
2. It has led to an increase in revenue and targeting of promotions and offers.
3. It has provided a benchmark for industry standards.
4. It has provided insights into the competitors’ strategies and reduced operational cost.
5. Inventory utilization has been increased with the use of Business Intelligence in the travel industry.
6. It has led to a huge improvement in the customer services of the company.

The majority of data generated from travel are from credit cards, expense reports and transactions. These constitute for the structured part of Big Data. However, the unstructured part comprising of the information from documents, social media, presentations and e-mail still does not have access to many industries including the travel industry (Unger, 2014b).
The figure below shows how business intelligence can help in evaluating and analyzing the business travel data (Unger, 2014b):

Figure 15: Benefits of BI for business travel. Source - (Unger, 2014b)

Despite of all the advantages mentioned above, implementing business intelligence for business travel processes can be a challenging task. The key challenges for implementation of business intelligence are listed in the figure below (Wagonlit, 2016):
A study found that most of the BI implementations fail because the management fails to follow it up with actions (Ko and Abdullaev, 2007). Furthermore, over reliance on BI could become a barrier to its effective integration with business travel programs. Ineffective implementation of BI tools might make the organisation rich in data but poor in information critical to the business. Furthermore, shortage of talent and resources required to implement BI systems could affect the implementation process. A study has found that BI implementation framework must be practical for effective integration of BI with any business process (Popovic, 2010). While organisations may draw upon the frameworks used in other organisations it has to be customized to suit the available resources. Implementing BI through a top down approach without understanding its implications at every level of the organisation is bound to be a failure (Schwalbe, 2000). For BI to be effective, it should be linked with all processes and functions. Another problem faced by organizations is the lack of guidelines and frameworks which can help
organisations in the effective deployment of BI (Liebowitz, 2006). It is worthwhile to note here that BI should not be used as a replacement of the existing organizational processes, rather it should be used to supplement the organization’s processes (Chugh and Grandhi, 2013). In this context, it can be said that the integration of BI with business travel should focus on providing better services and improving productivity and not on tightening the process (Kurian, 2018). It can be inferred that organisations must identify the correct resources, processes and technologies required for implementation of BI to achieve business success and objectives.

2.4 SUMMARY

The researcher have examined a number of studies, articles, and reports on BI and business travel from journals, websites and books which presented the researcher with several conceptual insights. The research revealed that there are many researches available on BI tools and its impact on various business sectors but there is a notable shortage of research on business travel. While the studies agree on the benefits of BI, it is found that the main challenge for organizations lies in developing skills to effectively use BI systems and tools. Consequently, the impact of BI is actualized only when the BI objectives are linked to the strategic objectives. The literature review also shows that there is no generic framework of BI available which could be used as a model for organizations. Throughout the literature, it can be seen that BI and corporate or business travel is seen as two different areas. Moreover, the focus of most these studies are on the BI technologies where most of the research focus have taken a technical approach while studying BI. This chapter also identified some challenges in integration BI with the corporate travel domain. It is undeniable that BI provides several advantages to organizations but implementing BI tools without clear requirements and management support can lead increase in time and cost of implementation. In this context, it is important for organizations to take into consideration the challenges associated with the integration of BI in the corporate travel domain. It can be concluded from the above literature review that various researches have been conducted by travel management organizations on the topic but there is no evident academic research currently present. None of the studies have been undertaken on how BI relates to business travel. There are hardly any empirical studies illustrating the integration of BI and corporate travel. In this context the validity of effectiveness of this integration remains questionable. Taking into consideration the dearth of studies of literature, this study aims to be a pioneer study in the area of business intelligence and business travel industry and will enhance the knowledge base of the impact of Business intelligence on business travel industry. Furthermore, it is necessary to investigate if the integration of corporate travel and new business
intelligence technologies is necessary to gain a competitive advantage or if they are just FADs. This study aims to provide a comprehensive account of the influence of BI in the area of business travel. Lastly, this study will help in enriching the existent knowledge base as both Business travel domain and continuously evolving business intelligence tools and techniques.

CHAPTER 3 – RESEARCH METHODS

INTRODUCTION

The need for an appropriate methodology and techniques is very crucial in a research study. This chapter has been divided into different sections that highlight the available research methods and research designs and the research method and design adopted for the current study. The first section of this chapter focuses on the research strategy adopted for the current research and elaborates on the case study method and justifies the researcher’s choice. The following sections discuss sample selection and data collection tools and techniques employed for the current research and the rationale for choosing the relevant methods. The next section describes the data analysis technique adopted for the current study and the last and the final section highlights the philosophy adopted for the current research and the ethical considerations of the current study.

RESEARCH STRATEGY

The researcher adopted a case study research approach for the current research. The case study method can defined as a method to produce an in-depth understanding of the collected data and relate it to real life contexts (Crowe et al., 2011). As defined by Stake (2010), "A case study is both the process of learning about the case and the product of our learning". Yin (2018), has stated that the main aim of the case study method is to provide an in-depth investigation of various phenomena in real-life contexts when the context and phenomena are not clearly distinguished.

The case study method allows the research to perform an in-depth exploration and analysis of the collected data and is very well recognized in the fields of law, business and policy making (Crowe et al., 2011). Yin (2018) has described that this method is used to explain and explore events in their real-life contexts. One of the main advantages of using this method is its flexibility (Luck et al., 2006). Furthermore, this method is not constricted to any specific theoretical approach unlike grounded theory or phenomenology and can be practically used to contradict any existing finding (Raeburn et al., 2015).
The researcher adopted this research method mainly because of the flexibility available during the data analysis phase. Furthermore, it would allow the researcher to perform an in-depth analysis of the collected data that would facilitate the analysis of the dataset and direct the researcher towards relevant themes and patterns existing in the dataset. However, one of the major concerns of this method is that the findings derived based on this approach may not be generalizable to all contexts or all members of the larger population (Thomas, 2011). The researcher took extended care to eliminate this drawback by carefully drawing the sample population and recruiting relevant individuals of the representative sample population.

The researcher selected one of the largest business travel management organizations including over 14,000 employees managing and providing corporate travel facilities that meet programs according to the client requirements, as the sample population for the current research (Birst, 2018). The selected organization is currently established in 120 countries and uses technologies like big data analytics to provide the best possible business travel experiences to its clients and manages over 19 billion dollars (Birst, 2018).

The chosen organization operates with not only small, but also medium and large sized companies, hosting a very large number of clients, serving about 37 out 100 industries with travel spend in the U.S (Birst, 2018). The following figure illustrates the different parameters used by the current chosen organization to distinguish the clients (GBT, 2018):

Figure 17 – Different parameters taken by organization (GBT, 2018)
The calendar year 2017 depicted a client portfolio exceeding more than 8,500 client organizations for the current chosen organization and catered to the needs of about 6.7 million business travelers (Express, 2018). The following figure illustrates the functioning and accomplishments of the organization in 2016 (Clark, 2016):

![Figure 18 – Organization’s 2016 accomplishments (Clark, 2016)](image)

The organization uses a combination of tools, management consulting knowledge and talent to govern their travel expenditures and investment return (Johansson et al., 2009). There are three main verticals in the organization to
provide clients with assistance to optimize the business travel spend and the figure below highlights the same (GBT, 2018):

![Organization Verticals](GBT_2018)

1. **Travel Management** – Provides assistance to clients in travel planning and booking based on their business requirements.
2. **Meetings and Events** – Provides assistance to clients in efficient organization and management of corporate meetings and events.
3. **Global Business Consulting** – Provides customers and clients with an elaborate travel spend analysis to facilitate the forecasting and analysis of travel spend of a company.

It can be inferred that the organization is one of the world leaders in providing services for business travel which made it the perfect fit for the research.

**RESEARCH PHILOSOPHY**

The researcher adopted an interpretive research philosophy to execute the dissemination plan of the current research. This chosen method of philosophy is based on interpretation and observation and aims to gather information about circumstances to derive conclusions through pattern and information correlations found in the collected data (Saunders, 2009). Interpretivism states that understand the context of the research is crucial for the interpretation of the gathered data (Willis et al., 2009). Furthermore, Interpretivism suggests that an interpretive paradigm is socially constructed and aims to investigate the data collected in a research in an in-depth manner (Willis et al., 2009).

The researcher adopted an Interpretivist approach in the current research to gain a deep insight of the experiences shared by the participants and this method is more subjective than objective. As stated by Willis et al., (2009),
different individuals have different perceptions and understandings of their social contexts and experiences in an organization. Adopting an Interpretivist approach facilitates gaining a more comprehensive knowledge about the data collected (Morehouse, 2012). This facilitates researchers to gain an in-depth insight into the various aspects and characteristics of the chosen sample population, representing the larger population (Morehouse, 2012).

The researcher adopted this philosophy for the current research as the collection of data for the current study was through semi-structured telephonic interviews with individuals who have been a part of the Business Intelligence implementation process and were familiar with the challenges and impacts of this implementation.

**TIME HORIZON**

The current research identifies three main types of research designs namely, longitudinal studies, cross-sectional studies and successive independent studies.

**Longitudinal studies:** These studies recruit the same participants multiple times. This method of study mainly aims to investigate the gaps in the responses given by the participants over a time period and analyze the causes for the changes in participant responses for in-depth analysis to arrive at appropriate conclusions and is one of the easiest methods to analyze natural events. However, they are often costly with difficulties in their conduction owing to participant commitment for long periods of time for deriving appropriate conclusions that may reduce the sample size through participant attrition (Creswell, 2013).

**Cross-sectional studies:** These are predictive studies where the sample population is observed only once (Monsen and Van Horn, 2007). Due to singular sample recruitment, these studies are not suitable for predicting the characteristics or aspects of the larger population.

**Successive Independent studies:** These studies involve the recruitment of multiple participants from the sample population at regular intervals of time facilitating the ease of observing any changes in the representative sample population. But, it may not be possible to study individual changes since all participants are interviewed only once (Creswell, 2013).

The researcher selected a cross-sectional design for the current study and studied the representative sample population only once. Owing to the predictive nature of the study, it may not have been possible to acquire any definite conclusion about previous references to pre, during and post integration of Business Intelligence tools and Business Travel. The researcher considered these crucial factors while analyzing the impact of using Business Intelligence tools with Business Travel. However, the researcher couldn’t employ the longitudinal method or the successive independent method owing to time constraints. Hence, to overcome the limitations of the cross-sectional study design, the researcher recruited the representative sample population with utmost care and the recruited
participants comprised of individuals who have been a part of the Business Intelligence integration process and are currently employed in the organization.

**SAMPLING**

The researcher aimed to select a sample population that would be an appropriate representative of the larger population. Since the external validity or generalizability of the findings is based on the sample population, choosing an appropriate representative sample population was of utmost importance (Morse et al., 2008). One of the possible errors in selecting an appropriate representative sample population is selection bias and this may occur if the sample population represents some important aspects of the larger population (Patton, 2005). The researcher employed a combination of snowball and criterion sampling to recruit the participants of the current study.

Since the current study involves obtaining in-depth impressions and opinions of the participants about the advancement in the organization with the use of Business Intelligence tools, selecting an appropriate sample population was one of the most crucial tasks for the dissemination of the research plan. The criterion sampling method enables the researcher to select the participants of the study based on some pre-defined criteria to gain informative responses (Daniel, 2012). The researcher employed the criterion sampling method for this study since it facilitated an in-depth analysis of the collected data. The researcher used the following criteria to recruit the participants of the current study:

1. The first and main criteria for the selection of participants of the current study was to recruit individuals who have worked before, during and after the implementation of Business Intelligence in Corporate Travel in the current organization. The relevant experiences of the participants helped to gain a better insight into the impacts of the implementation process. The researcher further aimed to collect data related to the success factors and challenges faced during the implementation process.

2. The second criteria aimed to recruit participants in managerial roles in the organization with adequate knowledge about the business processes to gather in-depth knowledge about the changes brought about by the implementation of Business Intelligence tools.

3. The final and the last criteria was to recruit individuals from the organization who have a work experience of at least two years or more in the current organization.
To recruit the participants of the current study, the researcher also employed the snowballing sampling technique. The snowball sampling technique creates link chains through referrals and nomination, creating a snowball effect to enhance the size of the sample (Daniel, 2012). The researcher contacted a participant, who has worked for more than 6 years in corporate business travel industry as Lead Assistant Manager at the chosen organization. The participant agreed to be the part of the study and nominated some other high-level executives to be a part of the study. The researcher contacted 8 participant requesting to be part of study who fulfilled the criteria for the study based on the recommendations. However, one of the participants withdrew from the study stating having little knowledge of business process and 2 other participants were not interviewed as they were either from different organizations or quit the organization for various reasons.

To summarize, 8 employees who were subject-matter experts, were contacted to be the subjects for the study. However, only 6 participants agreed to participate in the study and gave written consent for the same. Out of the 6 participants, only 5 interviewees were conducted. The figure below provides a pictorial representation of the same:

![Sample Success Rate](image)

Figure 20 - Sample success rate. Source - Author

**CHARACTERISTICS OF SAMPLE**
The participants of the current study are based in India and the current organization is divided into three teams namely:

1. Air Travel Spend Team – Team that works in optimizing air travel expenditure for the clients.
2. Hotel and Amenities Team – Team that works on making yearly travel plans for hotel bookings along with amenities for the clients.
3. Business Intelligence Team – Team that automates business travel processes based on business requirements.

The sample was chosen based on the above mentioned criteria and from different teams to understand the impact of business intelligence on whole business travel verticals. The characteristics of the sample are as follows:

**Participant 1**: The participant has worked in different organizations at various roles. The participant has worked pre, during and after BI tools for business travel. This make the participant fully equipped with the front and the back end knowledge of implementing BI tools for business travel. The participant has more than 5 years of work experience in business travel industry and is currently working at a senior management position in the Air travel spend process and has implemented BI tool for its customer.

**Participant 2**: The participant is currently working a Consulting Analyst position in the Air Team of organization and have around 2 years of work experience. The participant has been the part of transition of business intelligence implementation and thus was chosen to be the part of the study.

**Participant 3**: Participant 3 has more than 7 years of experience of working and leading in an analytics team for a global organization. The participant is currently designated as a Senior Consulting Analyst in Hotel team and is also part of quality control team which maintains quality of daily operation tasks for the client. Thus, the participant was most suited to gain an insight of the details of the implementation as the participant is well versed with the client requirements. Furthermore, the participant has witnessed different phases of implementation and is an ideal choice to gain knowledge about the subject of study.

**Participant 4**: The participant has an experience of working with various BI tools namely tableau, R, Excel and concur. The participant is currently employed as Senior Consulting Analyst for hotel team and performs the task of generating reports about the trends and gaps for its customers. Thus, the participant was most suitable to gain knowledge about the short and long term impact of implementing BI tools.

**Participant 5**: The participant is a Service Delivery Leader in the organization. The participant has been working in the current organization for more than 5 years. The participant was employed in the current organization during the implementation and also has previous experience of implementing CRM. The participant now also serves as a client
for an organization. Thus, the participant was chosen to share the perception of the customer as well as the implementation team.

The characteristics of the sample have been summarized in the table below:

<table>
<thead>
<tr>
<th>S No.</th>
<th>No. of years in organization</th>
<th>Designation</th>
<th>Name of the business vertical</th>
<th>Was participant employed before BI implementation</th>
<th>Was participant employed during BI implementation</th>
<th>Was participant employed after BI implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6+</td>
<td>Lead Assistant Manager</td>
<td>Air Team</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes and part of leadership</td>
</tr>
<tr>
<td>2</td>
<td>2+</td>
<td>Consulting Analyst</td>
<td>Air Team</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>3</td>
<td>7+</td>
<td>Senior Consulting Analyst</td>
<td>Hotel and Quality Team</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes and part of requirement gathering team</td>
</tr>
<tr>
<td>4</td>
<td>4+</td>
<td>Senior Consulting Analyst</td>
<td>Hotel Team</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>5</td>
<td>7+</td>
<td>Senior Service Delivery</td>
<td>Customer Fulfilment Network</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Figure 21 – Sample characteristics. Source - Author

DATA COLLECTION

The researched employed a qualitative research approach for the current study to disseminate the research plan, including data collection and analysis of the impacts of integrating Business Intelligence and Corporate or Business Travel industry. Merriam (2014) has stated, “Qualitative researchers are interested in understanding the meaning people have constructed, that is, how people make sense of their world and the experiences they have in the world”.

The researcher employed a qualitative method in the current study for the following reasons:

1. A qualitative approach enabled the researcher to seek out elaborate responses from the participants that would further facilitate an in-depth analysis of the collected data and provide a deep insight into the various aspects of Business Intelligence and Corporate Travel.
2. This research approach further helped the researcher to investigate the correlation between conditions prevailing before and after implementing Business Intelligence for corporate travel.
3. A qualitative approach assisted in the evaluation of the effectiveness of implementing BI tools and its impact on different processes, systems and people related to the process.
4. This approach provided more flexibility and could host changes even during the investigation stage (Lapan et al., 2011).

5. Furthermore, this approach allowed the researcher an in-depth analysis of the collected data, than the other available methods (Cohen & Manion, 2007).

6. Due to the long list of employees employed in the chosen organization, a survey method would be more appropriate for the current study. However, to out-rule information bias, the researcher employed the interview method for data collection.

7. Since the sample population operates overseas, telephonic interviews were chosen as the most suitable method for data collection.

The researcher employed a semi-structured, non-recorded interview method for data collection which included 14 open-ended questions that were asked to the chosen participants of the study.

The researcher divided the research questions into four categories based on the four objectives of the study. The first category included four questions based on the first objective of the study that aimed to acquire information about the evolution and importance of Business Intelligence and Business Travel. The second category consisted of five questions based on the second objective of the study and aim to gain insight into the impact of Business Intelligence tools on Business Travel spend. The third category of questions based on the third objective of the study comprised of three questions that probed the changes brought about Business Intelligence tools in the services and practices of Business Travel. The last category of questions based on the fourth objective of the study aimed to gain an in-depth insight into the enablers and barriers functional in the implementation of Business Intelligence tools for Business Travel. The figure below represents a summary of the research questions with relation to the objectives of the current study:
The following section provides a brief overview of the steps of the data collection process followed by the researcher:

Introductory letter: After gaining verbal consent from the participants for the participation in the current study, the researcher sent each participant an introductory letter explaining the nature of the current study and the ethical considerations involved in the current study, seeking their written consents. The researcher explained the same over the phone to seek their consent for the interviews.

Scheduling appointments: The researcher sought for a suitable time to conduct the telephonic interviews and managed the scheduling and rescheduling of the interviews in accordance with the convenient time frame of the participants.

However, some of the possible disadvantages of conducting telephonic interviews included short time span of the interviews to avoid exasperation of the participants of being in a telephonic conversation for a long time span and disliking the interruption of calls (Taylor et al., 2006). Extra caution was taken by the researcher to minimize these issues.

Table 22 - Question Category relating to the objectives. Source - Author

<table>
<thead>
<tr>
<th>Question Category</th>
<th>Objective of the study</th>
<th>Interview Questions</th>
</tr>
</thead>
</table>
| 1                 | To understand the significance and evolution of Business Intelligence and Business Travel Process in organizations | 1. Do you believe that business travel analysis and Business intelligence are required in the organization at all?  
2. Do you think that the meaning or application of BI and business travel analytics has evolved or changed during past years?  
3. Do you think BI is important for increasing process capability in your organization?  
4. How important do you think data collection and analysis are in order to process the trends, identify gaps or opportunities and optimize business travel processes? |
| 2                 | To investigate and analyze the influence of using Business Intelligence tools and BI techniques on travel spend analysis. | 1. What BI tools does your organization use to gather, analyse and report travel data?  
2. How do BI tools help to understand and analyse client’s business travel data?  
3. Do you think that data mining with huge database becomes easy after implementation of BI and how?  
4. Do you feel that the BI tool implemented is effective? Do you believe that the implemented BI tool is effective?  
5. What would you outline as the major limitations of involving BI tools with business travel data spend? |
| 3                 | Reviewing the changes brought about by Business Intelligence in the empirical practices of the current business travel industry | 1. Would you prefer the Business Analytics process before or after the implementation of BI tools and why?  
2. In your opinion, how important role does BI plays in the growth of a business travel process and overall organization.  
3. In your opinion, what is the biggest impact the usage of BI has on the business travel process? Do you think this impact is prolonged or static? |
| 4                 | Analyzing and investigating the main barriers and enablers that may arise during the implementation of Business Intelligence. | 1. What enablers and barriers did you incur during the implementation of BI tools for business travel processes?  
2. Were extensive change management initiatives adopted by your company to implement Business intelligence?  
3. On what parameters you measure the success of implementing BI for business travel spend processes? |
Data analysis may be defined as the methodical employment of tools for condensing, illustrating and evaluating data. The different analytic strategies “provide a way of drawing inductive inferences from data and distinguishing the signal (the phenomenon of interest) from the noise (statistical fluctuations) present in the data” (Shamoo and Resnik, 2003).

The researcher employed an inductive approach to analyze the descriptive responses of the participants to derive themes to incorporate a logical flow in the findings and conclusion of the study, as the current research employed the interview method for data collection, involving a large amount of descriptive qualitative analysis. The researcher used a thematic analysis approach for data analysis since this method of analysis is greatly flexible to gain deeper insight into the collected data and arrive at concrete conclusions. Furthermore, this method provides the ease to analyze great sized descriptive data and generate codes to link the emerging themes in the dataset which is a crucial analytic step in the qualitative approach (Hair, 2003). This is one of the most popular available methods and can be used with various types of qualitative data. The researcher used this method to derive trends, develop themes and discover patterns from the collected dataset. The following figure gives a brief overview of the steps involved in this method:

![Inductive approach for data analysis](image)

**Figure 23-Inductive approach for data analysis. (Thomas, 2006)**
The researcher used this method to indentify words, codes and phrases that acted as labels for the dataset which were used for further analysis and interpretation. The steps followed by the researcher included familiarization with the collected data followed by generating themes from the collected data and coding these themes and finally analyzing these themes and interpreting them (Greg MacQueen and Namey, 2011).

The researcher first aimed to analyze the patterns in the collected data and then further analyzed the generated themes. The researcher used the following steps during data analysis:

1. The researcher designed measurable, concise and clear questions for data collection relating to the objectives of the current study. These questions were systematically grouped into four different categories in accordance with the four objectives of the study, to facilitate the ease of analysis of the collected data.
2. The researcher collected the data through telephonic interviews which were used for further in-depth analysis.
3. The researcher grouped the responses given by the participants into different sub-headings to point towards the outcomes of the study.

**RESEARCH ETHICS**

This being a qualitative study for a Master’s program for Dublin Business School, the second stage approval of the ethical committee of Dublin Business School was sought. A participation information sheet (Appendix) was sent to each participant prior to the scheduling of the interview consisting of the nature of the current study, all the details of data collection and the using that data for further analysis. All participants were informed through this form that they have the freedom to withdraw from the study at any point until the submission of the final thesis. The researcher sought the consent of each participant through consent forms (Appendix) e-mailed to the participants. All participants were made potentially de-identifiable by only including their work experience and their involvement in pre, during or post implementation of Business Intelligence.

**Voluntary Participation & Informed Consent:** One of the major ethical concerns for a research study is that all participants should be voluntarily participating in the study and not in the influence of any deception of coercion (White and McBurney, 2012). The researcher ensured the voluntary participation of each participant by sending invitation e-mails providing clear information that they can withdraw from the study at any point of time until the submission of the final thesis, if they wish to do so. Furthermore, the participants were informed that there are no negative consequences for them to withdraw their participation in the current study even after signing the consent forms. Since this study involved employees of a specific organizations, each participant was informed that:

1. Participation or non-participation in the study do not hold any consequences.
2. The participation in this research study is completely voluntary and there is no deception or coercion used for recruiting the participants.

3. Lastly, all participants were ensured that all their responses would be confidential and their anonymity would not be disclosed.

**Anonymity:** The researcher ensured that the identity of the participants and the organization were not disclosed. Although, one of the participants allowed the researcher to seek her personal details, the researcher took great care in not involving these details anywhere in the study. Furthermore, the researcher provided the participants with a full disclosure about the nature of the study and that some of their statements may be used for further analysis and encouraged the participants to ask questions if they arise during the interview or after the completion of the data collection process. Individuals with diminished autonomy like children, students, prisoners etc., were not a part of the data collection process for the current study.

Lastly, the researcher confirmed that all participants are free to question, verify and seek answers with doubts about the maintenance of their confidentiality and have the freedom to withdraw from the study at any point of time, if they wish to do so.

**SUMMARY**

This chapter provided an overview of the research methodology applied for this study. This chapter illustrated a detailed narration of the employed research design, employed research method, sampling, data collection, data analysis and ethical considerations through different specific sections and ample rationale for recruiting each tool and technique for the current research. The figure below provides a brief outline of the research methodologies discussed in this chapter.

<table>
<thead>
<tr>
<th>Research methods used</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Research Strategy</strong></td>
</tr>
<tr>
<td><strong>Data Collection Method</strong></td>
</tr>
<tr>
<td><strong>Sampling</strong></td>
</tr>
<tr>
<td><strong>Time horizon</strong></td>
</tr>
<tr>
<td><strong>Data Analysis Method</strong></td>
</tr>
<tr>
<td><strong>Philosophy</strong></td>
</tr>
</tbody>
</table>

Figure 24 – Summary of research methods. Source - Author
The successive chapter of this study highlights the findings generated from the collected data, provides a detailed analysis of these findings and further discusses these findings elaborately and relates them to the research highlighted in the literature review.

CHAPTER 4 – FINDINGS & DISCUSSION

4.1 INTRODUCTION

This chapter explains the findings and discussions of the current research study. This chapter is divided into two main sections, the findings of the study and the discussions of the study. The findings section is further divided into four sub-sections and highlights the various findings generated after a careful and strategic thematic analysis of the collected data. The researcher has divided the findings section into four sub-sections based on the four objectives of the current study and discussed in detail about each finding of the study. The next section highlights the discussions emerging from the findings section and explains the need for BI implementation, impact of BI implementation, aspects of BI implementation and the enablers and barriers prevalent while integrating Business Intelligence with Business Travel. This chapter is further divided into four sub-sections to give the researcher the scope to discuss the four sub-sections of the finding section in details.

4.2 FINDINGS

This study set out to investigate the influence of BI on corporate travel domain. In addition to this, the study wanted to analyse if the integration of BI with Business Travel resulted in positive outcomes and if there are any challenges or roadblocks in the way of Business Intelligence system implementation. To do so, the study is based on four objectives. The underlying discussions will take each of these objectives and the respective findings will be analysed against the literature reviewed.

4.2.1 QUESTION CATEGORY 1: TO UNDERSTAND THE SIGNIFICANCE AND EVOLUTION OF BUSINESS INTELLIGENCE AND BUSINESS TRAVEL PROCESS IN ORGANIZATIONS

The first part of the interview consisted of four questions formulated to understand the importance of BI and business travel and to explore the various developments in these two domains. The questions were formulated to understand how these two domains have evolved to the needs of the business.

The first question wanted to find out whether participants thought that BI and business travel were required in the organisation in the first place. First participant indicated that BI provides competitive advantage and enhances customer engagement. The second participant further elaborated on this. The participant cited an increase in
corporate travel as one of the main reasons for the importance of BI. This scope provides an opportunity to optimise BI tools and techniques to produce greater savings. The third participant indicated that BI and analytics help in addressing several operational issues, hence improving operational effectiveness. The role of business travel in reducing travel spend was stressed. This will be discussed in detail in the next section. The fourth participant was more explicit, and went on to say that Business Travel Analytics (BTA) helps to reduce travel spend and hence increases the margin. Additionally, the participant also felt that BI makes the business process more effective. The views expressed by the participant indicate that developments in technology have changed the business travel domain, in terms of practices and process. The fifth participant’s views were similar to the others, however, the participant stressed on the quality of service. All the participants indicated that BI is crucial for business travel process.

The second question was aimed at finding out whether the application of BI and business travel analytics has evolved or changed during past years. The first participant felt that big data technologies like Hadoop have made it easier to store data. The second participant also felt that the new tools are better and are able to specifically cater to the needs of the business travellers. The third participant also feels that technologies like big data, and Tableau have made it simpler to build dashboards. Another reason why the participants felt that new tools are better is because they are easier to use and take very less time. When BI was first introduced it was complex and hence, required technical training. Similar to the findings of previous studies, this study finds that BI has evolved into a more accessible tool which does not require highly skilled IT professionals, travel managers can now be trained to analyse data and to make decisions. An important point made by participant four indicates that there has been a shift from a cost saving perspective which relied mainly on historical data to a more strategic view which requires multi-level analysis made possible by the latest BI technologies. This point is reiterated by the fifth participant who feels that today travel managers are so ahead that they can provide personalised service. The findings show that advances in BI and business travel have radically changed the business travel process making it more accurate, easier and efficient.

The third question was asked to understand the importance of BI in increasing the process capability in the organisation. Participant one felt that it has helped in increasing operational efficiency, driving new revenues, identifying market trends and also optimizing internal business processes. Similar thoughts were expressed by participant two felt that BI tools provide a clear picture of what has happened making it easier to analyse the travel spend. The third and the fourth participants also felt that BI has not only reduced errors and efforts, but has also helped to identify errors in the business process, hence ensuring a smooth flow. The fifth participant stressed on the importance of BI in achieving critical metrics. The findings indicate that all the participants felt that BI helped to achieve maximum efficiency in business processes, hence helping the organisation to deliver expected results.
The fourth question was intended to assess the importance of data collection and analysis in order to process the trends, identify gaps or opportunities and optimize business travel processes. The first participant stated that both the steps of data collection and data analysis are equally important to the business travel process. The same was stressed by the second participant who felt that without these two steps it is not possible to gain rich and deeper insights which could bridge the gaps in the business travel process and create more opportunities. The third participant was of the opinion that it is easier to identify trends while analysing patterns from the data collated. The fourth participant strongly felt that data collection and analysis were the most important parts of business travel without which, it is not possible to identify any gaps or trends. The importance of data collection and analysis was reiterated by the fifth participant who said that apart from identifying gaps, data analysis helps to provide customer specific services like providing advance notifications to hotels on a customer’s allergies and medical information, for example instructing the hotel to stock insulin reserves for diabetic customers. All the participant stressed on the importance of data collection on analysis for optimisation of business process. The figure below summarizes the various advantages of using BI for Business Travel as highlighted by the participants:

<table>
<thead>
<tr>
<th>Advantages of using BI for Business Travel</th>
<th>Highlighted by participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing process capability</td>
<td>Participant 1</td>
</tr>
<tr>
<td></td>
<td>Participant 2</td>
</tr>
<tr>
<td></td>
<td>Participant 3</td>
</tr>
<tr>
<td></td>
<td>Participant 4</td>
</tr>
<tr>
<td></td>
<td>Participant 5</td>
</tr>
<tr>
<td>Improvement in data collection and analysis</td>
<td>Participant 1</td>
</tr>
<tr>
<td></td>
<td>Participant 2</td>
</tr>
<tr>
<td></td>
<td>Participant 3</td>
</tr>
<tr>
<td></td>
<td>Participant 4</td>
</tr>
<tr>
<td></td>
<td>Participant 5</td>
</tr>
<tr>
<td>Competitive advantage</td>
<td>Participant 1</td>
</tr>
<tr>
<td></td>
<td>Participant 2</td>
</tr>
<tr>
<td>Reduction in travel spend/Cost optimization</td>
<td>Participant 3</td>
</tr>
<tr>
<td></td>
<td>Participant 4</td>
</tr>
<tr>
<td>Ease of use</td>
<td>Participant 1</td>
</tr>
<tr>
<td></td>
<td>Participant 2</td>
</tr>
<tr>
<td></td>
<td>Participant 3</td>
</tr>
<tr>
<td></td>
<td>Participant 4</td>
</tr>
<tr>
<td>Increased operational effectiveness</td>
<td>Participant 3</td>
</tr>
<tr>
<td></td>
<td>Participant 4</td>
</tr>
</tbody>
</table>
4.2.2 QUESTION CATEGORY 2: TO INVESTIGATE AND ANALYSE THE INFLUENCE OF USING BUSINESS INTELLIGENCE TOOLS AND BI TECHNIQUES ON TRAVEL SPEND ANALYSIS

The second part of the interview consists of five questions formulated to analyse how BI tools and techniques have helped to analyse and reduce the travel spend. This category will help us to understand the real world application of BI tools in business travel.

The first question was formulated to find out which are the BI tools used by business travel professionals. The first participant indicated that tools vary according to the needs of the clients, the amount of data and business travel spend. The major tools used by the participant’s team were Hadoop, Phyton, SAP, Tableau, and Cognos along with Microsoft Excel for creating relational databases. Tableau, R and Python were the tools used by the second participant’s team. The third participant used Tableau, R, Python, and business travel online tools. The tools used by the fourth participant were Excel, Access, Tableau and Python. The fifth participant used Tableau, Concur and Oracle. These findings indicate that Tableau is the most common tool used by business travel professionals followed by Python.

The second question was formulated to understand how the above discussed tools helped to understand and analyse client’s business travel data. While the first participant stressed on the general usability of the BI tools for the organisations various functions, it was also felt that these tools helped to make sense of the large quantity of unstructured data resulting in transparent processes that save time and cost. The second participant felt that these tools helped to make sense of the clients travel pattern, hence enabling the business travel team to identify trends and gaps. The third participant also reiterated the same by indicating that these tools made it easier to read and analyse reports. A most important finding was provided by participant four who said that BI tools helps to cleanse through a large amount of unwanted data. The fifth participant summarises the extensive usage of these tools by indicating that on one hand they help to provide memorable customer experiences and on the other hand help the service providers to predict the revenue, profits, and trends to make plans accordingly. All the participants indicated that BI tools made it easier to access and understand data.

The third question was formulated to understand whether BI has made it easier to mine data from huge databases. The first participant agreed that data mining has become much easier with the use of BI tools especially given the increase in data internally from customers and externally from suppliers. The second participant also reiterated the same while adding that apart from making it easier to mine data, BI tools also improve efficiency and hence save cost. While participant three seems to agree with the other participants, the participant feels given the increase in the amount of data it is too early to conclusively say that data mining from large data base has become easier. Participant four and five indicate that these tools have helped to streamline data to offer useful
insights. Other than participant three, all the participants agreed that BI has made it easier to mine data from huge databases.

The fourth question intends to investigate the effectiveness of BI implementation in business travel domain. The first respondent indicated that implementation of BI tools was effective and the major benefits derived out of this was better forecasting and predictive analytics, better management of central depository of huge sets of data and integration of various product services. In the sense, it brings various departments like air, amenities and hotel under one umbrella to provide a comprehensive service to the client. The second participant indicated that the advantages of BI are evident in the reduction of tasks required to be performed manually, overall workload, and increase in client satisfaction. The third participant indicated that BI has been effective and has improved the overall efficiency of the team. The fourth participant also reiterated the effectiveness of BI tools. The fifth participant aptly indicated that the efficacy of BI tools was largely dependent on timely implementation and the quality of the data collected. While the all the participants agreed that BI tools were effective, participant five rightly pointed out that its effectiveness is dependent on two factors – timely implementation and quality of the data.

The fifth question under this category was formulated with purpose to identify the limitations of using BI tools on business travel data spend. The first participant indicated that there were not many limitations to using BI tools on travel spend, however, the only limitation was that small organisations could find these tools expensive. The limitation highlighted by the second participant was that there is a lack of uniformity when used on business travel spend as data is derived from multiple sources. The third participant listed out three limitations: adaptability, cost, and lack of new version in open source BI tools. The fourth participant indicated that the major limitation in Tableau and Access is that these tools are not built to handle large datasets. The fifth participant felt that the main limitation on the use of BI for travel spend is that it is difficult to set limitation to the data to be captured. Based on the above findings, the limitations of using BI data on travel spend are high cost of the BI tools, lack of data uniformity, adaptability, lack of new version in open source tools, inability to process large datasets, and functional limitations imposed by certain BI software’s. the following figure highlights the impact of using BI for Business Travel, as summarized by the participants:
The third category consists of three questions formulated to assess the changes caused by Business Intelligence implementation in the practices of the business travel industry.

The first question was formulated to understand the impact of BI on the travel business analytics process. The first participant indicated that implementing BI led to several benefits such as improvement in decision quality, reduction of time and cost resulting competitive advantage. The second participant reiterated the same benefits while adding that it has resulted in a reduction in manual efforts. The third participant indicated that prior to its implementation one should be aware of the advantages and disadvantages and the BI tools should be implemented after the business analytics process. The fourth participant strongly felt that without BI it be impossible to perform routine tasks in the business travel domain. The fifth participant indicated that adoption of BI tools should be specific to the needs of the business travel process. While majority of the participants preferred to work after the implementation of BI, one participant felt that to be user-friendly BI has to be customised to the business travel process.
The second question was formulated to know the importance of BI for business travel process and for the overall organisation. Participant one felt that BI is crucial for not only the business travel process but also helps the client to make better decisions. Participant two also reiterated the same that while helping to improve the internal business process BI also contributed to client satisfaction. Participant three felt that BI helps in mining data ranging from business specific data to a more detailed data and in analysis of this data. Participant four felt that BI is emerging as a game changer by providing a wide range of solutions. Apart from this the participant indicated that BI optimises the travel expenditure for the client. Participant five indicates that BI plays a vital role in not only improving the business travel process but also benefits the organisation as a whole. All the participants agreed that BI not only helped to improve the business travel process but also improved organisation-wide operations.

The third question was asked to identify the biggest impact made by BI and to know whether it would be static or long lasting. The first participant indicated that the biggest impact was the increase in productivity and efficiency of all the tasks performed in the business travel process. The participant predicted that the benefits derived from this impact are likely to be long lasting. The second participant felt that it is difficult to accurately identify the impact as BI tools are continuously being upgraded. For this reason, it was indicated that the impact should not be assessed in terms of the efficacy of BI tools used but should be based on the BI capability of the employees. The third participant felt that if BI tools achieve high performance and ensure safety in business travel then the impact is likely to be long lasting. The fourth participant indicated that the biggest impact made by BI was on customer satisfaction and is likely to be long lasting as it is still in the initial stages. The fifth participant indicated that BI has made a major impact on business travel service model and the industry is likely to enjoy these benefits for prolonged period. Most of the participants indicated that BI helped to improve the services to provide customer satisfaction but one participant felt that with the frequent addition of new features it might be too early to predict whether the impact of BI is long lasting or temporary. The following figure illustrates the changes in empirical practices brought by BI as summarized by the participants:
4.2.4 QUESTION CATEGORY 4: ANALYSING AND INVESTIGATING THE MAIN BARRIERS AND ENABLERS THAT MAY ARISE DURING THE IMPLEMENTATION OF BUSINESS INTELLIGENCE

Under this category, questions were formulated to analyse the key barriers and factors for the successful implementation of BI in business travel process.

The first question was formulated to identify the barriers and enablers in implementation of business travel intelligence tools. Participant one felt that employee motivation could be an enabler and quality of data can become a barrier for implementation of BI. Participant two felt that the need of the business travel industry for high quality data can be an enabler and the big cost of BI can become a barrier. Participant three indicated cost of training and acclimatising the team members might be barrier while the benefits which start showing at the application and testing phase could be an enabler. Participant four indicated that technical difficulties involved in implementing BI could become a barrier and the benefits derived after its implementation could be an enabler. Participant five indicated that the support of the senior management could be an enabler and finding a right vendor that suits the organisation requirement could be a barrier. Based on the findings above the enablers could be employee motivation, need for high quality data, benefits at conceptual stage, and senior management support. The summarised barriers are available data quality, high cost, training of employees, technical difficulties, and difficulty in finding a right vendor.

The second question was intended to find out the extent of change management initiatives adopted by the organisation for BI implementation. Participant one indicated that gathering project requirements, formation of implementation team, and running of initial tests with the guidance of the senior management team were some of
the change management initiatives adopted for BI implementation. Participant two indicated that it is important to acquire skilled manpower prior to BI implementation. Participant three indicated that training and practice sessions for all the stakeholders will make it easy to implement BI. Participant four indicated that extensive change management initiatives were not necessary as implementation of BI is a gradual process, however, it is better to try it on a small trial group before covering the entire organisation.

The third question was intended to identify the parameters for measuring the success of BI business travel spend. The major parameters used in participant one’s organisation were data quality, ease of use, reliability and feedback provided by the clients. Time saved, cost and better visualization and good analytics were the parameters used by participant two. Participant three felt that senior management role, the cost or return of investment, ease of use and user adaptability could be used as major parameters to measure the success of BI. According to participant four the ease of use of the BI tools, ability to cater to the clients’ needs and ability to adapt to the changing clients’ needs in future could be used as parameters for successful BI implementation. Participant five indicated that cost effectiveness, increase in efficiency of the users and business growth could be effective parameters to measure BI success. Based on the findings above it could be said that the major parameters for measuring the success of BI travel spend are data quality, usability, reliability, adaptability, customer feedback, cost effectiveness, improvement in efficiency and profitability.

Finally, participant three added that Artificial Intelligence and travellers’ feedback could contribute to improving business travel process. The following figures depict the various enablers and barriers as identified by the participants:

<table>
<thead>
<tr>
<th>Major enablers</th>
<th>Highlighted by participant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee motivation</td>
<td>Participant 1</td>
</tr>
<tr>
<td></td>
<td>Participant 1</td>
</tr>
<tr>
<td>Ease of use</td>
<td>Participant 3</td>
</tr>
<tr>
<td></td>
<td>Participant 4</td>
</tr>
<tr>
<td>Needs of clients</td>
<td>Participant 1</td>
</tr>
<tr>
<td></td>
<td>Participant 4</td>
</tr>
</tbody>
</table>

Figure 27: Major enablers as highlighted by participants
4.3 DISCUSSIONS

4.3.1 CATEGORY 1: TO UNDERSTAND THE SIGNIFICANCE AND EVOLUTION OF BUSINESS INTELLIGENCE AND BUSINESS TRAVEL PROCESS IN ORGANIZATIONS.

The findings of the study with regard to the evolution of BI and its importance matches with the literature studied. All the participants felt that BI is an integral part of business travel. BI tools specifically meant for business travel were late to evolve, but now have reached a stage where they are an integral part of the organisation and are better prepared to provide solutions (West, 2016). The findings indicate that travel participants have now realised that data is crucial for their business. The reason for this might be that client requirements have become more demanding and the competition more intense. All these factors have increased the need for better services in business travel (Aguiléra, 2003). The views expressed by the participants indicates that developments in technology have changed the business travel domain, in terms of practices and process. As pointed out by the fifth participant, the quality of service is very important because travel is an intangible commodity which is first consumed then used and quality of service is the only differentiating factor. When discussing the quality of service, the ability to provide quick response is an important outcome of BI. With BI continuing to evolve, the next generation BI tools are likely to get simpler, making the data crunching task easier, leaving more time to the travel managers so that they can focus on the softer aspects of their role like customer relationship management.

When asked about the application of BI and if business travel analytics has evolved or changed during past years, all the participants felt that BI has made it easier to make sense out of complex piles of data. Moreover, it will not be hard for organisations to adopt Hadoop as there are several distributors of Hadoop in the market from

Figure 28: Major barriers as highlighted by participants
established names like IBM and start-ups like Cloudera. These discussions indicate that today, advancement of BI tools and their easy availability have helped business travel professionals to effectively use BI and derive answers from it. However, this does not imply that professionals do not require training. The researcher has stressed on the fact that BI has made data more accessible and easier to analyse. Previously, only Information Technology (IT) participants could analyse the information derived from the database. Furthermore, the literature review shows that this investment is worthwhile as it improves the overall performance of the organisation. All the participants agreed that BI has generated a paradigm shift in the business travel domain. Advancements in technology and tourism have been growing almost at an equal pace for years (Poon, 1993), so it is inevitable that these two streams should integrate to provide optimum services to customers, both personal travelers and corporate travelers. Therefore, it could be said that technology has not only increased business travel but has helped in managing it. To a certain degree, this growth and evolution has been reflected in the literature reviewed and in the findings of the study. However, there are very few studies tracking the historical growth of business travel. The reason for this is that business travel affects only a minority of population (Frandberg and Vilhelmson, 2003). Therefore, the views expressed by the participants with regard to the evolution of BI in business travel are based more on hands on experience and generalized impression and not on hard data.

Participant 1 feels that there is too much of historical data available. One of the associated problems with BI is generating too much data. Data in real world comes in a large quantum and in a variety of formats which make it difficult to make any meaningful interpretations. New business travel professionals might find it difficult to work with bulk amounts of information. A large amount of data might make it difficult to arrive at real valuable insights which serve a strategic purpose. A study indicates that about 60 to 70 per cent of data in the organisation will not be useful to the organisation (Gualtieri, 2016). This is where advancements like Hadoop will help in deriving strategic insights. While organisations can control the data generated internally, it does not have control over the data generated outside the organisation. In this context, organisations have to be careful because it is extremely difficult to regulate the external data. The advancements in the future are likely to improve the performance of BI tools optimizing business travel processes. New technologies will bring several new challenges (Chaudhuri et al., 2011a). Moreover, too much reliance on business intelligence might result in reducing human intelligence, instead of aiding human intelligence. In this context, organisations should listen to what travel managers want while deploying BI tools to provide them with the required user experience. Another aspect is that every user’s access behavior is different, so the BI systems should be adapted to address this need. Over time, BI tools might evolve to understand this and deliver content accordingly. But, for the time being, given the absence of such technology, BI tools should be customized to individual usage patterns.
The fast-paced advancements in the BI landscape indicate that this field is thriving and vibrant. And business organizations which don’t take advantage of the insights provided by BI are likely to be redundant in the next few years. BI gives a clear idea of what will drive the business in the future and organizations which don’t leverage BI are at a severe disadvantage than those who do. Business travel domain has been completely changed by the introduction of BI. The growth of BI has given rise to a greater need to integrate the organizations business travel function with the corporate system. Thus, the BI field will open up several opportunities ahead for the business travel professionals. These discussions show that business travel intelligence is truly emerging. And this requires specialist roles like business travel managers to effectively manage this domain. Today, BI has become so pervasive that its impact is not limited to business domain. Its impact is felt in all aspects of our lives.

4.3.2 CATEGORY 2: TO INVESTIGATE AND ANALYSE THE INFLUENCE OF USING BUSINESS INTELLIGENCE TOOLS AND BI TECHNIQUES ON TRAVEL SPEND ANALYSIS

The literature reviewed showed that there has been increasing trends in the travel spend globally. A study shows that business travel management department is sometimes formed in an organisation as a forum to develop strategies to reduce travel spend (Aguiléra, 2003). Another study indicates that organisations are imposing strict travel policies on business travel spend to reduce costs and increase efficiency (Holma et al., 2015). This makes it a key area which requires attention. All the participants agree with the literature review that BI has been beneficial in reducing travel spend. An effective BI tool can help organisations analyse their travel expenditure. The literature reviewed shows that apart from this information, BI will provide answers to why the travel expenditure is more, and if it is because of more trips or higher prices or destinations. So, it will help to identify patterns which have contributed to this. Identifying the drivers will help in controlling them in the future. Participant 3 felt that BI helps in creating meaningful reports. Participant 2 also felt that by analysing the previous BI will help in influencing the future results. Reports provide structured information about the past. Based on this historical data, corrective actions can be taken in the future. It will also help in making future predictions. This will help in keeping the business travel program in check. However, while reports and dashboards can provide useful information, they are not likely to be of any help unless provided on time. This means that the value of information decreases with time. The older it is, less useful it becomes. In this context, a question that needs to be asked here is whether BI should be used to generate a report whose information is of not much use. The answer is that it is a complete waste of time to create a report, whose analysis will yield answers which diminish in value over time. So then, the question arises, as to what BI should be utilised for. The impact lies in generating information which is actionable. In this type of scenario, the researcher feels that a daily report is more likely to provide actionable information to the travel managers. However, just analysing this information is not enough, but the travel manager should ensure
that this information is made available to the decision maker who can take action immediately. In this context, it is suggested that while generating reports it is necessary to consider the time of information to avoid outdated reports, amount of information required avoiding duplication of reports and point of consumption of business intelligence to avoid providing too much data (Mousouris, 2018). In simple terms, it can be said that BI can be effective in reducing travel spend if the focus is less on reporting and more on generating information which is of value. For example, preparing a report on annual air travel spend from 2011 to 2017 will only show the changes over the years average air spend. Instead, looking at the current air travel spend against the industry benchmark, or the air travel spend of the competing organisation is likely to help business travel managers to address the issue and to create travel programs on track. The current system of generating reports limits the travel manager’s ability to provide crucial information to the key stakeholders. Another aspect that makes reports problematic is that reports do not provide answers to specific queries. In this context a travel manager is a mere facilitator of information rather than a decision maker. Travel managers should go beyond reporting to make recommendations based on BI data, which if implemented, is likely to result in concrete savings to the organisation. Therefore, for travel managers, the focus should be on delivering value. To do so, problems like travel spend should be seen in the context of the organisation’s expenditure. Unless business travel problems are seen in the larger organisational context, the value will be diminished.

From the interviews, it is evident that travel participants focus on the data aspect of BI. If for one travel manager it is generating reports, for another it might be data analytics. In this context, BI is not just compiling piles and piles of data. Collecting terabytes of data will only cause data overload and wastage of time and resources. BI should instead be used to generate high value analytics. Studies have shown that there is a significant correlation between effective use of BI and company performance (Howson, 2007). Consistent with the literature review, organisations are increasing their investment in BI. Hence, it is more important to provide travel data which is of value to the business. The annual growth rate of BI in the coming years is predicted to be around 11 per cent (2017). This might be one of the reasons why organisations have made BI investment a priority (Mousouris, 2018).

Another gap shown by this study is that at present many tourism practitioners do not know which all BI tools exist and how they can be utilised. This problem could be addressed by making BI a part of curriculum for all business professionals. This way they are ready to work with BI. Another common misconception held by many travel professionals is that using BI is about reducing travel spend. While travel spend will always be important, travel managers should look beyond the rates at the larger issues. Issues that could impact the organisation like return on travel investments. This means that travel managers should change their goals. The ultimate goal of a travel program should not be to reduce travel spend. The cost savings approach does not really contribute to business travel time savings (Wardman et al., 2015). Therefore, business travel programs should take proactive steps while not compromising on the commitment and service provided to the business travellers. A study indicates that
whether the travel is business related or leisure related, service quality is the most import aspect which should never be compromised (Holma et al., 2015). In this context, commitment oriented strategy is preferred instead of strict control and monitoring of travel costs. A commitment based strategy will not only find favour with employees but with also help in voluntary compliance, resulting attainment of organisational goals. The business travel goals should be linked with the organisations goals. The potential of business travel to contribute to the organisations strategic goals is immense. In this context, organisations might be tempted to outsource its travel programs, however, this might stop organisations from learning from experiences. To summarise, the benefits of BI are two-fold. It helps travellers by reducing risk, and providing better experiences. It helps the travel managers by providing information on how to add value to the travel programs. In simple terms, BI helps organisations to save more while sending its employees on business trips.

4.3.3 CATEGORY 3: REVIEWING THE CHANGES BROUGHT ABOUT BY BUSINESS INTELLIGENCE IN THE EMPIRICAL PRACTICES OF THE CURRENT BUSINESS TRAVEL INDUSTRY.

The intense competition in the business environment means that organisations should work harder to maintain their competitiveness. Organisations employ several strategies to improve effectiveness and efficiency. One such strategy is the use of BI in the business travel domain. BI provides additional capabilities to the business travel domain. Consistent with the literature review, all the participants felt that BI has helped travel managers to provide a wide range of benefits to the organisation. A report indicates that travel managers are at the front on the usage of technology (Werthner and Ricci, 2004). Previously, travel managers mainly worked on providing travel related services to internal customers. BI has expanded the scope of business travel. Effective travel management can definitely impact the organisations bottom line. This business value which is an outcome of BI deployment needs to be measured. Translating improvements in travel management will help to covert the business travel management objectives to the core goals of the organisation. As discussed previously, most of the aspects of business travel are intangible. However, to find empirical evidence of the benefits of BI to the travel industry, it is essential to provide reliable and testable measures. It might be difficult to do so because most of information needed by business travel managers is in fact objective. Another problem as explained by participant 4 is that a large amount of data is generated in the business travel process and most of this data is unstructured and the current BI tools are not equipped to handle this. These kinds of data require investments in data infrastructure. However, the empirical assessment of the benefits of investment in BI systems and infrastructure requires development of measures. Despite its wide application, there is hardly any evidence of empirical studies on the impact of BI on organisational performance (Richards et al., 2017). The reason for this may be the very nature of management which is ambiguous. The uncertain business environment also adds to this difficulty. Studies have argued the need for measurement of business intelligence (Lonnquist and Pirttimaki, 2006). It serves two purposes, firstly in determining the value of BI to the travel program and the organisation as a whole, and secondly for effective management of BI in business travel. Essentially, the application of BI consists of two elements the
technical element and organisational element(Olszak, 2016). The core BI technologies are data mining, OLAP and
data warehousing. Every day new technologies and techniques are added to the BI domain. For an organisation BI
is a basis for all strategic decision making. In this context, BI does not just impact technologically but is more
holistic impacting travel programs, processes and the organisation as a whole. For example, BI provides more
holistic picture of travel spend which could be tied to the organisations budget. Therefore, any improved or
reduced travel spend should be considered as a measure of organisations budgetary performance.

This gives rise to a new set of challenges like need to develop BI capabilities in the organisation. BI capabilities are
not just technical skills but also involve establishing an environment of learning. If BI is restricted only to its
technical role then the organisation will fast obsolete its existing knowledge resources. The actual potential of BI is
limited in this case. Therefore, BI capabilities should be fostered beyond the boundaries of organisations resources
to maintain prolonged usage of BI. This means using BI for experimentation, innovation and other creative
endeavors. From a business travel perspective, participant 4 whose opinions are in consistency with the past
literature is that BI ensures prolonged usage by providing better travel experiences and services to the clients. This
results in lengthening the life cycle of the travel service which in turn might prove to be an advantage over
competitors for the organisation. In this context, travel managers should think beyond the technical role of BI, but
focus on how BI could be used to build better customer relationships. The creative potential of BI is immense and
this potential could be leveraged to attain organisational success. Today, the business travel environment is
dynamic and travel managers should be prepared to face these changes like never before. This means that BI
requires continued up gradation and adaptation to effectively manage the trends in business travel. This in turn
will help the organisation to develop dynamic capabilities essential for the organisations survival. Dynamic
capabilities are the organisations ability to build competencies that help it to face challenges in a rapidly changing
business environment, hence ensuring sustainable competitive advantage(Teece et al., 1997).

BI provides enormous opportunities for travel managers to get more out of their travel programmes. Despite the
opinion of participants on the prolonged usage of BI, a static BI tools and techniques will not ensure long term
competitive advantage. In this context, it can be said that travel managers have not fully leveraged the capabilities
of BI to develop efficient travel programs. Simply using BI might help travel managers to perform every day
operations effectively. But, continuous up gradation of BI will help travel managers to continuously improve their
operations contributing to continued competitive advantage. Only then travel managers can utilise BI to perform
business travel functions more effectively than its competitors. Prahalad and Hammel (1990) called these
capabilities as core competencies. In this context, it can be said that when BI used in business travel is continuously
renewed it can become a core function. Therefore, BI in business travel should move from being a technical
solution to a dynamic capability which enables travel managers to efficiently address the challenges in a dynamic
business travel environment. The literature review shows that there are hardly any past studies on the
implementation of BI in business travel management. This absence of direction makes it difficult for business travel
managers to implement business travel intelligence. Further research will explain the use of BI for business travel and BI will be considered to be a more accessible tool.

4.3.4 CATEGORY 4: ANALYSING AND INVESTIGATING THE MAIN BARRIERS AND ENABLERS THAT MAY ARISE DURING THE IMPLEMENTATION OF BUSINESS INTELLIGENCE.

The implementation of BI is a complex process. Moreover, implementing BI for business travel purposes is not a conventional process. Existing literature does not pay sufficient attention to the problems that arise during the implementation of travel intelligence. While there are some case studies that talk about implementation of BI in travel management (Rose, 2008) there is a serious lack of empirical studies in this area. Very few studies have identified the critical factors or enablers required for the implementation of BI systems (Yeoh and Koronis, 2010). The findings of the study indicate that the degree of difficulty in integrating BI with business travel is dependent on the support received from the management, the capability of the business travel professionals. Without the support from the management, creating an effective integration of BI with business travel can be challenging.

Participant 2 felt that management should be ready to invest in BI technologies and the business travel professional should be technologically ready to work with BI. The study finds that there is a serious gap when it comes to using sophisticated BI tools. Travel participants still continue to work with data which has to be entered manually. For example, Participant 4 commented upon the use of Microsoft Excel to generate reports. Managers need to move forward from excel files. This gap needs to be filled if organisations want to derive value from business travel. Sophisticated BI tools are required to work on global travel programs. As Participant 1 expressed, it is important that organisations meet the requirement of the business travel team. Another aspect is that every member in the organisation should be ready to work with BI as the travel intelligence data can be linked to other functions. In this context, when any change has to be implemented management should work with internal stakeholders to ensure that everyone is receptive to change. Participant 3 suggested that trainings and practice sessions might make it easier to implement BI. It is important that business travel professionals become familiar with the use of BI. An important point to be noted here is that BI should not be seen as a static technology, but as a fluid process to which adjustments can be made based on the changing business environment. For example, in some public sector banks in India the travel policy is so rigid that employees are required to travel economy class in government air carriers, regardless of the discounts available in private air carriers. In such a situation implementing travel intelligence is not going yield many benefits. Ultimately the BI leverage will be lost because of compliance issues. Travel professionals, therefore, should not have rigid mindset, but should be agile to work with a technology that continuously evolves.

Another aspect which is likely to enable successful implementation of BI in business travel domain is a multi-department approach. None of the participants mentioned this and there has no discussions on this in the past literature. For example, even if a travel manager reports to the CEO, the manager might have to work closely with
the facilities and IT department. Especially, in multinational companies it is necessary for the travel managers to work with other departments to consolidate travel data which is required to improve the travel management practices internationally. Other departments might also seek the assistance of the travel managers to take strategic decisions. For example, a sales head might want to determine whether business travel to particular place might be beneficial. For this purpose the sales head might seek the help of the travel manager to retrieve the sales data in that region. Support of other departments is also necessary to drive travel related compliance. Again, the support of the senior management is crucial here, say for example based on BI the travel manager might identify the seasonal rates of hotels, based on this information the CEO can send an email providing the list hotels approved by the management for business travel to all the employees. The senior management needs to take a lead in implementing travel policies; however, as discussed previously these policies need to be adjustable. A study has proposed an integrated framework supported by senior management for handling both unstructured and structured data (Baars and Kemper, 2008). Only when there is support from the senior management, something can be done about the data revelations. The senior management should convey their support to BI and become BI ambassadors. They should also take several practical steps like training the employees to mitigate resistance to BI. While individual factors contribute to employee resistance, technological incompetency can also become a major barrier (Popovic, 2017). Another aspect is that the senior management should be open to take corrective actions based on the travel intelligence. An analysis of travel spend showed that senior executives were responsible for 50 per cent of travel spend (Rose, 2008). Therefore the implementation of travel intelligence actions should be driven from the top. An interview with Ted Friedman, VP Distinguished analyst reveals that one common mistake organisations make when implementing BI is that they assume that they can utilise their current skills and resources (2018). Effective implementation of BI requires modernisation in infrastructure, roles, organisation structures, teams, technologies and suppliers. Therefore, the implementation of BI is a complex process which requires considerable resources. Another aspect is that when implementing business travel intelligence a travel manager might face several dilemmas. These dilemmas might occur in two contexts: the relationship of the travel manager with other key stakeholders in the business travel process and decision regarding virtual technology as a substitute for business travel (Gustafson, 2012). Apart from this, organisations should be ready for failure when it comes to the implementation of business travel intelligence. Experimentation often comes with a risk of failure. This does not mean that organisations should stop experimenting. To stay ahead of competition, organisations should learn from failures. Therefore, business travel managers and senior management members should accept the possibility of failure. The good news here is that the pattern based learning used by BI allows for higher ratio of success. The unprecedented growth of BI itself can be challenging for travel managers, it can really disrupt the way in which business travel managers work. However, this disruption is for the better as it will provide opportunities for travel managers to work with sophisticated business intelligence tools. Effective implementation is dependent on the ability of business travel managers who can use these tools to make better decisions. Simply put, travel managers should learn to use this data generated by BI tools otherwise
they will overwhelmed by the sheer amount of data produced by BI tools. Another problem that might arise in the future is that technological advancements and data on travel spends generated by BI might prompt businesses to completely substitute business travel with virtual communication technologies. However, this argument is countered by proponents of business travels who stress that social and personal connect is achieved only through face to face meetings (Swarbrooke and Horner, 2001). A HBR (2016) study has found that face to face meeting is essential for building long term relationships with the customers and to finalise business deals. In the study all most all the participants (95 per cent) felt that face to face meeting were essential for building long term relationships. Business relationships with other organisations make business travel necessary. There is no substitution to business travel when it comes to building trust in business relationships. A study shows that employees who video conference the most are more likely to travel frequently (Arnfalk and Kogg, 2003). Therefore, there is a positive relationship between videoconferencing and business travel (Denstadli et al., 2013). Another study indicates that even virtual teams require face to face contact from time to time (Kirkman et al., 2004). Then again the potential of virtual technologies in saving costs should not be undermined. The extent to which virtual technologies is going to impact business travel is dependent upon the rate of its utilisation and penetration (Roy and Filiatrault, 1998). In this context, technology can become a major barrier for business travel. The service provided by travel managers is not like other services. Travel managers have a challenging role which involves not only managing the entire business travel program efficiently but also ensuring that business travellers have memorable experience. Within this context, the role of a travel manager is important to an organisation.

An organisation can sustain competition only when it invests in sophisticated technologies, and skilled employees. For every investment an organisation makes there are costs involved which needs to be validated. Sometimes business travel managers might find it difficult to validate these costs while showing the cost-benefit ratio to the management. This intangible aspect of business travel could become a major barrier. While a study has found that sales meetings and congresses generate highest return on investment to the organisation (Popovic, 2017). It is not clear as how much of the business travel is for sales and congresses. However, the same study showed that there is a strong relationship between an organisations investment in business travel and its bottom line. In this context, given the scrutiny business travel is subjected to, business travel managers should work improves the value for money and try to reduce the annual travel spend. While adopting a BI strategy could help to some extent, investing in sophisticated BI does not insulate the organisation from competition. The business environment is so competitive today that BI best practices might be replicated in no time (Porter, 2001, March).

There is no universal measure to assess the security threats at any level for example the security breach at LinkedIn. Reports indicate that this data breach would not have taken place if LinkedIn had followed industry best practices when it comes to securing data. As this case showed, BI has made organisations susceptible to data breach. Any data risk or data breach can cause substantial damage to the business. In this context it can be said that BI databases are not without risk of breach. Trade secrets becoming common knowledge and losing to the
competitors is common in a competitive business environment. This goes to show that organisations should not take data security lightly. This does not mean that organisations must stop deploying BI best practices. While doing so it is imperative that organisations take appropriate security measures to safeguard data. While continuously assessing risks might help to address this loophole, it is not possible determine the exact frequency of risk assessment required. In this context risk assessment should be specific to the data stored. In case of critical data, security could be reviewed more frequently. Another barrier for travel managers when it comes to implementing business intelligence is that the business travel environment is highly complex with multiple players, changing tariffs, and trends. The global distribution systems and credit card companies also impact the business travel domain. There is a high level of dependency between various players in the business travel industry. Given the expenses involved in business travel which was discussed in the previous section, it is evident destinations will try their best to attract business travellers. The challenge for the business travel manager would be to get the most out of these destinations. There are many challenges a business travel manager might encounter in their attempts to manage business travel, reduce travel spend and control travel behaviour. An in-depth understanding of business environment will help travel managers to leverage BI for better understanding of the business environment.

4.4 SUMMARY:

To summarize, the first section of this chapter gave an elaborate description of the findings generated from a careful data analysis in the current study. The findings section highlighted four sub-sections that represented the four main objectives of the study, namely, the significance and evolution of BI, the influence of using BI on travel spend data, changes brought about BI in empirical procedures and the various barriers and enablers prevalent in BI implementation. The next section was further divided into four sub-sections and elaborated on the above mentioned aspects of BI and discussed the findings of this study extensively. This section provided appropriate rationale for each finding, while backing them up with relevant literature and relating the findings to relevant references in the literature review and the participant interviews.

The next chapter highlights the conclusions, recommendations and limitations of the current study.

CHAPTER 5 – CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

5.1 CONCLUSION

This study outlines the present scenario of Business Intelligence implementation in Business Travel. The final outcome of this study suggests that with the implementation of BI tools in Business Travel, managers now have the facility to provide a wide range of benefits to the organization. As evident from the interviews conducted in this
study, travel managers agree that designing a successful travel program requires spending long hours looking for appropriate travel data. This study provides scopes for a broader application of BI tools. The sample population of this study consisted of travel industry experts who work with BI tools regularly and this added credibility to the findings of this study. This study suggests that Business Intelligence tools are bringing rapid changes with its implementation in Business Travel with increasing number of client benefits and meeting more number of client requirements. Furthermore, the study also reports that Business Intelligence is not just a technological tool, but also a strategic tool which enables organizations and travel managers to make better decisions and cater to client requirements. The study also suggests that BI tools will evolve with time which will facilitate a better understanding of the travel processes and meet more client requirements. Additionally, this research also states that senior management roles are crucial in an organization and for the process of Business Intelligence implementation in Business Travel.

The current research study has also discussed several practical issues associated with the implementation of Business Intelligence in Business Travel. The researcher has mentioned a large scope for implementing more advanced BI tools and techniques that might further benefit Business Travel planning and help organizations meet more client requirements through better products and services. Business Intelligence tools and techniques enable the senior managers and the employees of an organization to gain a better understanding of the travel data which would potentially increase the profits of the organization. From an operational point of view, understanding Business Travel data is an expensive and time-consuming process, but if BI tools are managed effectively, this implementation will help to decrease the overall cost of Business Travel planning.

This study provides an overview of the influence of BI implementation in the area of Business Travel. However, like any other academic endeavor, this study has some limitations as well. With the rapid pace of evolution of Business Intelligence, the current study is relevant until the evolution of the implementation processes. However, there is no generic approach when it comes to business travel intelligence as every organization has different needs and their travel programs are at different maturity stages. Therefore, there is no one ultimate BI solution for Business Travel problems. The study has used perceptions of business travel industry experts as most of the aspects of Business Travel are qualitative in nature and it is not possible to objectively evaluate them. However, this qualitative approach can result in common method bias. Additionally, lack of statistical analysis might have diminished the quality of data. Furthermore, research is needed to explore the influence of Big Data on travel programs, use of predictive and prescriptive analysis to understand travel behavior and use of unstructured data in travel domain.

The study has found that the business travel managers are still using basic tools to generate data like the Microsoft Excel. The main problem faced by the researcher was that there are very few sources on business travel other than case studies and white papers published by travel organizations like BCD travel. There needs to be more efforts from academia to publish in this area. Finally, the study concludes by stressing that there is an urgent need to
5.2 LIMITATIONS

The following points describe the limitations of the current study:

1. The current study recruited participants involved with the chosen organization in the pre, during and post stages of BI implementation. The researcher adopted a cross-sectional study design for the current study owing to time constraints while the most suitable study design for this study would be a longitudinal study design.

2. The recruitment of the sample population was a very demanding and difficult task owing to the rarity of the chosen sample. Additionally, recruiting the entire chosen sample population was unsuccessful owing to the busy schedules and time constraints of the participants. However, the final participants recruited in the study are representatives of different teams of the same organization which enhanced the internal validity of this research.

3. Since few of the recruited participants are designated in important senior management roles in the organization, it was difficult to conduct the interviews as the interviews had to be rescheduled owing to the hectic work hours of the participants.

4. Due to a long interview questionnaire, it was not possible to employ other survey questions for the current study. Furthermore, recruiting a small sample size did not allow the researcher to adopt a quantitative or mixed method approach in the present study.

5. As this study was a retrospective study, it may not have been possible for the recruited participants to vividly recall all of their perceptions or experiences of BI implementation during the interviews. The researcher adopted a qualitative approach to gain maximum information during the interviews to eliminate this limitation to the greatest extent possible.

6. Owing to the overseas working of the recruited participants, it was not possible for the researcher to conduct face-to-face interviews and telephonic interviews were held. The main drawbacks of telephonic interviews faced by the researcher were telephonic disturbances and work and colleague interruptions. Furthermore, some data may have been lost owing to the disturbances prevalent in the overseas telephonic interviews.

7. Since the researcher adopted a case study research strategy for the current research, participants were recruited from the same organization which decreased the generalizability of the current study.

8. Lastly, the current study aimed to study the experiences of the business travel experts who have been a part of the phases of BI implementation in the organization. However, the study did not aim to evaluate the perspectives of the customers and clients involved with implementation process. Involving the customers
and the clients in the data collection process would have helped to generate a holistic conclusion about the implementation of BI in Business Travel.

5.3 RECOMMENDATIONS

In accordance with the findings of the current study, the researcher made the following recommendations for the organization to gain extensive benefits from BI implementation in Business Travel:

1. Few organizations use BI implementation tools mainly to achieve a competitive benefit over their competitors. Further, rather than identifying the needs for implementation of the existing services and processes, organizations often involve in replicating the existing processes and services with hopes to produce better results, which can be attributed to the success experienced by other organizations. However, the same processes might not be suitable for different companies and it is of utmost importance to perform a needs assessment to evaluate the importance and need of an implementation of BI in Business Travel as it is a very time consuming and expensive process.

2. It is crucial for the organizations to note their operations scale since small and mid-scale penetrations in the industry may not provide benefits to the organizations from the implementation process to the extent of benefits experienced by large companies with large market shares and a huge customer base. Thus, organizations should consider their size and market share before adopting the implementation process.

3. It is crucial for the organizations to perform budgeting to analyse the meeting of the implementation costs and additional changes required, which may emerge during the implementation process. Additionally, budgeting would also include training costs and implementation costs for change management initiatives.

4. Organizations need to consider an appropriate vendor who can track success records and fit perfectly in the budget formulated by the organization.

5. Organizations should formulate a blueprint for the implementation process to avoid confusions about the requirements of the implementation process and help make the process hassle-free. Organizations should achieve this by evaluating all the departments and teams functional in the organization and formulate the requirements of the process.

6. It is of utmost importance for the organizations to review each phase of the implementation process to identify any gaps or loopholes prevalent that could slow down or affect the implementation process. Organizations should conduct regular and periodic reviews to evaluate any future issues that may pose threats to the implementation process or the profit of the organization.
7. Every organization faces some resistance to changes in the system and to overcome these, organizations should adopt adequate change management initiatives to tackle these issues. Although expensive, change management initiatives facilitate a smooth and relatively quicker implementation process.

8. Organizations should take utmost care to evaluate the success of the BI implementation to analyse the benefits gained by the organisation and if changes need to be brought about in specific areas.

9. One of the most important recommendations is for the organizations to constantly evaluate the need for an upgrade in the implemented system since this is crucial for the organisation to stay up-to-date and constantly meet client requirements.

10. Organizations should customize the BI systems and tools that will reduce the gaps between BI and the clients. This will also decrease the need for training the employees with every new upgrade or change in the BI tools, hence decreasing the expenses involved in the process.

11. Organizations should bring about reductions in travel spend by shifting focus from reporting to providing actionable information to right people.

12. Organizations should develop holistic BI skills comprising of both technical skills as well as other softer skills which will make it easy to upgrade or introduce new BI tools. This involves providing better travel experiences and services which in turn will contribute to the lengthening of the service cycle.

13. The effective implementation of BI based business travel programmes the support of senior management is crucial. It is also recommended to take a multi-department approach for successful implementation of business travel intelligence. Organisations need to look at how travel influences sales, human resources or the accounting department.

14. Organizations should aim to incorporate BI into the curriculum of travel courses. If students can develop BI competency during their travel course process, they will better able to handle the BI challenges in their jobs. Studies have indicated that business intelligence should be made an important topic of study for all business professionals.

15. Organizations should implement appropriate data security measures, as there will always be a risk of data breach. Due to this companies should continuously assess risks.

5.4 RECOMMENDATIONS FOR FURTHER RESEARCH

The current research provides recommendations for further research involving the different stages of implementation. It would be most suitable to adopt a longitudinal study design to disseminate the current research as that would enable the researcher to gain detailed information about the pre, during and post BI implementation phases. As every stage of BI implementation has various different challenges, it is crucial to examine these specific details to gain more insight about the barriers functional during the implementation of BI in Business Travel. Furthermore, a longitudinal study design would help the researcher to identify potential strategies to minimize or eliminate these barriers and utilise all the available enablers to their highest potential.
Additionally, there should be studies designed to assess the potential contrasts that might exist while implementing Business Intelligence in different organizations. As suggested by the discussed research in this study, there are differences in BI implementation in small organizations and implementation of BI in medium and large organizations. Conducting a research to study these differences would facilitate a better understanding of the implementation of BI in Business Travel.

Lastly, studies should be conducted with an emphasis on the perspectives and experiences of the customers and clients as they are a crucial part of the Business Intelligence and Business Travel industry. This would enable a better identification of the existing gaps and loopholes in Business Intelligence implementation and help improve this implementation from the perspectives of both business travel experts as well as the customers and clients.

CHAPTER 6 – SELF REFLECTION

This section outlines the learning curve of researcher through course of MBA and dissertation. In this chapter the researcher has described the learnings gained during semester 1 and semester 2 of the course and how it helped the researcher in completion of dissertation. Also in this chapter the researcher has provided the rationale for choosing MBA and dissertation topic, and if all the objectives and expectations from them have been met through the course.

RATIONALE FOR CHOOSING MBA

The researcher has worked in the field of analytics and management consulting for more than 4 years and in the last job, the author was working as a Manager for a global financial institution in India. Although the author had adequate knowledge about the technical aspects of business process but the author realized he lacked many management skills like soft people skills, knowledge about other verticals of an organization like finance, operations, marketing etc. and how these verticals work together as a whole to contribute in an organization’s success. These factors motivated the author to undertake a management program from a reputed organization to develop the skill required for professional growth. Choosing a right course and college was the priority for the author as the researcher wanted to diversify not only his knowledge areas but also personal skills through exposure. MBA – Information systems from Dublin Business School provided the author with opportunity to meet these criteria. The curriculum of the course helped the author not only to gain knowledge about various domain like Finance, International Business, Marketing and Strategy but also increased the author’s knowledge about Information systems working and innovations. Also, living in Dublin and interacting with people from different cultures and countries in college and city helped the author to develop his personal and communication skills.
Furthermore, through the course the author gained perspective into academic writing, referencing, journals etc. which helped the author to develop his writing skills. To conclude, all the expectations and objectives have been achieved through the MBA course which would definitely benefit the author not only in professional but also in personal life.

**LEARNING THROUGH SEMESTER 1**

The author studied the following subjects during the first semester of the course:

1. International Management
2. Financial Analysis
3. Information System Development
4. Personal and professional development
5. Writing for graduate studies
6. Research Methods 1

All these subjects presented the author with new information and knowledge of workings of different verticals of organization and how the performance of one domain affect other vertical’s performance. For example, information systems development helps in identifying the gaps in processes and provides opportunity in new markets. These opportunities can be targeted by international management consultants to make recommendations for expansion of business in new markets. Evidently, all these activities affect the financial situation of the company which is analyzed by financial analyst. Also, as a part of coursework and assessment, all the modules required the author to use real life case organizations as case study which assisted the author to better understand the learnings. For financial analysis subject author chose Unilever as the case study and analyzed the company’s performance for last fiscal year. This opportunity helped the author to understand the working and magnitude of working of one of the fortune 500 companies of the world. Similarly, for international management subject, the author chose country Romania as a prospect for expanding business and learnt about various parameters on which a country is deemed fit for conducting business. Likewise, for information system the author worked on a case study where author had to find out about existing problems in current system and make recommendations to management which were backed by valid reasoning. All these subject’s assessments provided the author with the opportunity to work and think like a real-life consultant under time constraints which will definitely help the author in professional career.
Lastly, Professional and personal development (PPD), Research methods 1 and Writing for graduates not only helped the author in professional but also in personal development. The author learnt and became well versed with academic writing, referencing and research methods through Research methods and writing for graduates modules. These learnings helped the author throughout his MBA course and dissertation. PPD module helped the author to identify his strengths and weakness and helped him to better outline his short and long term goals for personal and professional life. The module helped the author to gain insights about time management and work on the areas on improvement. To conclude, the semester 1 of the course was an enriching experience for the author through which he gain invaluable lessons which will assist him in both personal and professional life.

LEARNING THROUGH SEMESTER 2

The author studied the following subjects in semester 2:

1. Performance driven marketing (PDM)
2. Innovation and IT management
3. Business Strategy
4. Research Methods 2

Through the coursework of semester 2 the author learnt about the importance of marketing as a tool of business growth, application of various models to come to a feasible and best strategy for business and various innovation in technology field that are reshaping and disrupting our world. Also, the author learnt about the importance, advantages, disadvantages and pressure of team work during the semester. For the assessment of PDM and business strategy module, the author had to work with a group. This gave the author an opportunity to not only understand his skills as a team player but also taught him the soft skills of dealing with different personalities. For author, to learn and develop one's soft skills was one of the main objectives of choosing MBA which was achieved through these coursework. Also, for Innovation module the author was given freedom to choose any business sector where innovation can be applied. This gave the author an opportunity to think out of the box while remaining rational. Taking Innovation coursework has enabled the author to take more new initiatives in professional life and challenge the status quo. Lastly, through research method 2 module, the author learnt about research methods and framework which is required for successful completion of any research. To conclude, semester 2 of the MBA further enhanced the authors' business acumen and capability of conducting a research.
LEARNING THROUGH DISSERTATION

Writing a dissertation was a challenging but most rewarding experience for the author. The author wanted to choose a topic of interest for dissertation rather than choosing an easy topic. Having worked in business travel industry, writing dissertation on business travel topic was a personal interest of the author. Also after the completion of course the author wishes to work in corporate industry, which makes researching on the topic a professional advantage. The author took a systematic approach in which he faced many hurdles for the completion of dissertation.

Firstly, the author gave due consideration to the research aim, objective and research question given the time constraints of around 3 months for the study. The author had to carefully choose the aspect of business travel research which was feasible in given time-frame.

Secondly, there is not academic research on integration Business travel and business intelligence which made it difficult for the author to write literature review with credible data. The author used various sources like journals, websites and books with credibility to analysis the existing knowledge base. Through literature review the author learnt about the magnitude of business travel and how this area has remained neglected from research. This provided the author with further encouragement and motivation to complete the research in this domain.

Thirdly, for research methodology the author first wanted to conduct interviews with expert professional from business travel industry from different organizations. However after the thorough discussion with supervisor and feedback received on the proposal the case study approach was finalized. Furthermore, the sample used for the research for the dissertation were based on a criteria which was extremely hard to find. Also, in the later stages of dissertation one of the participant withdrew from the study which caused delays in the data collection process. Additionally, due to tight schedule of participants because of quarter closing activities the interviews were rescheduled and delayed. Despite, of all these hurdles author were able to finish interviews with enough time remaining for analysis. Through this experience the author learnt to better manage situations which are not under his control and given the chance to make dissertation again the author would spend more time on data collection and analysis than searching for literature.

Lastly, through analysis and discussion process the author developed his analytical skills. The author also learnt to not be biased on one’s previous predefined perceptions and experiences. Finding themes and linking the findings with the literature provided the author with validation and sense of accomplishment. The author also had to carefully list out the limitations which helped the author to be critical about one’s work. Furthermore, through recommendations the author learned that all research studies or academic work always have scope for further improvements.
To conclude, the dissertation writing process has helped the author in many ways. The author is now more confident about conducting a research despite of all the challenges and hurdles faced during the process. Also, the dissertation process has helped the author to gain better insight about the business travel industry from the literature and responses of experts in the industry. Lastly, the understanding of research methods will also help the author in writing white paper or articles for organizations during his professional career.

APPLYING THE LEARNING IN PROFESSIONAL AND PERSONAL LIFE

The author foresee himself benefiting the learnings attained during the course in both professional and personal life. The MBA challenging and comprehensive curriculum has enabled the author to deal with real life work pressure and has enhanced the author’s knowledge of global business world. Through the MBA program the author has built an array of skill set which will assist the author in career growth. Through MBA Information Systems program the author has gained imperative knowledge about various business verticals like Finance, Marketing, and Innovation which will prove beneficial for professional growth.

The MBA program has also helped the author grow personally. The program helped the author to identify his various weaknesses like time management, lack of people soft skills, team work and stress management which helped the author in working steadily to address this issues. Handling various submission in a short time frame has also helped the author in better prioritizing the work for meeting the deadlines. The author will continue this path of growth even after the completion of course which will help him in getting better more organized and disciplined in personal life.

CONCLUSION

The author chose to do MBA Information systems from Dublin Business School with clear set of expectations and objectives. Throughout the course the author has faced many problems but has been able to accomplish these goals. The MBA coursework has exceeded the author’s expectations and has made the author more knowledgeable about working of an organization. The dissertation writing experience has made the author more confident about conducting and writing a research in the future. Furthermore, studying in institution away from home country has helped in developing author’s communication, people and time management skills. It can be concluded that the MBA program has opened doors to exciting opportunities for the author which will surely help him in exceling in both personal and professional life.
REFERENCES


APPZEN 2017. Using Artificial Intelligence to Identify Compliance Issues in Real-Time. *In: CONCUR (ed.).*


CHAUDHURI, S., DAYAL, U. & NARASAYA, V. 2011a. BI technologies are essential to running today’s businesses and this technology is going through sea changes. *Communications of the ACM*, 54, 88-98.


DELOITTE 2017. Business Travel Analytics - The world outside your window.


GUALTIERI, M. 2016. Hadoop is data's darling for a reason.


HERMES 2013. Corporate Travel Management in Western Europe: Challenges and Opportunities. In: CONSULTING, H. M. (ed.).


KURIAN, V. 2018. Bringing the power of analytics and AI to business travel, Insteract way.


LLOYD, J. 2011. *Identifying Key Components of Business Intelligence Systems and Their Role in Managerial Decision making*. Intel Corporation.


[Accessed July 18 2018].


MOUSOURIS, C. 2018. To report or not to report? That is the analytics question.


PATTON, M. Q. 2005. *Qualitative research*, Wiley Online Library.


VARKIANI, M. 2018. Travel buyers looking to bring innovation to booking process.


WEST, E. 2016. Making travel data smarter: Where are we now?


APPENDIX

INTERVIEW QUESTIONNAIRE

Question Category – 1: For objective -1 - To understand the significance and evolution of Business Intelligence and Business Travel Process in organizations.

1. Do you believe that business travel analysis and Business intelligence are required in the organization at all?

2. Do you think that the meaning or application of BI and business travel analytics has evolved or changed during past years?

3. Do you think BI is important for increasing process capability in your organization?
4. How important do you think data collection and analysis are in order to process the trends, identify gaps or opportunities and optimize business travel processes?

**Question category 2: For objective 2** - To investigate and analyze the influence of using Business Intelligence tools and BI techniques on travel spend analysis.

1. What BI tools does your organization use to gather, analyse and report travel data?
2. How do BI tools help to understand and analyze client’s business travel data?
3. Do you think that data mining with huge database becomes easy after implementation of BI and how?
4. Do you feel that the BI tool implemented is effective? Do you believe that the implemented BI tool is effective?
5. What would you outline as the major limitations of involving BI tools with business travel data spend?

**Question Category – 3: For objective 3** - Reviewing the changes brought about by Business Intelligence in the empirical practices of the current business travel industry

1. Would you prefer the Business Analytics process before or after the implementation of BI tools and why?
2. In your opinion, how important role does BI plays in the growth of a business travel process and overall organization.
3. In your opinion, what is the biggest impact the usage of BI has on the business travel process? Do you think this impact is prolonged or static?

**Question category – 4: For objective 4** - Analyzing and investigating the main barriers and enablers that may arise during the implementation of Business Intelligence.
1. What enablers and barriers did you incur during the implementation of BI tools for business travel processes?

2. Were extensive change management initiatives adopted by your company to implement Business Intelligence?

3. On what parameters you measure the success of implementing BI for business travel spend processes?

**End Interview:** Is there anything else you would like to add on BI or Business Travel and their impact on each other.

---

**INFORMED CONSENT FORM**

**PROJECT TITLE:**

“To analyse the impact of business intelligence tools and techniques on Corporate or Business Travel domain”.

**PROJECT SUMMARY:**

This study aims at investigating the influence of Business intelligence techniques such as Data mining, predictive analytics, visualization etc. and tools such as Tableau, SAS, R etc. on corporate travel industry domain.

The study also aims to analyze if the Business Intelligence integration would produce positive outcomes and if there are any challenges or roadblocks in the way of Business Intelligence system implementation.

The objectives of this study are:

1. To understand the significance and evolution of Business Intelligence and Business Travel Process in organizations.

2. To investigate and analyze the influence and potential benefits of using Business Intelligence tools and BI techniques on travel spend analysis.
3. Reviewing the changes brought about by Business Intelligence in the empirical practices of the current business travel industry.

4. Analyzing and investigating the main barriers and enablers that may arise during the implementation of Business Intelligence.

By signing below, you are agreeing that: (1) you have read and understood the Participant Information Sheet, (2) questions about your participation in this study have been answered satisfactorily, (3) you are aware of the potential risks (if any), and (4) you are taking part in this research study voluntarily (without coercion).

________________                                                              _________________________
Participant's signature                                                      Participant's Name (Printed)

________________                                                              _________________________
Mudit Gaur                                                                   Mudit Gaur
Student Name (Printed)                                                      Student Name signature
INFORMATION SHEET FOR PARTICIPANT

PROJECT TITLE - “To analyze the impact of Business Intelligence tools and techniques on Corporate or Business Travel domain”.

You are being asked to take part in a research where the researcher aims at investigating the influence of Business intelligence techniques such as Data mining, predictive analytics, visualization etc. and tools such as Tableau, SAS, R etc. on corporate travel industry domain.

The study also aims to analyze if the Business Intelligence integration would produce positive outcomes and if there are any challenges or roadblocks in the way of Business Intelligence system implementation.

And my supervisor is Mrs. Caitriona Sharkey from Dublin Business School.

WHAT WILL HAPPEN

In this study, you will be asked to be a part of either telephonic or face-to-face interviews where you will be asked about your involvement in the pre, during or post implementation of business intelligence. All the interviews will be recorded using an audio recorded and you may withdraw from the interview at any point of time that you wish to, even without stating any apparent reason for your withdrawal.

TIME COMMITMENT

The study typically takes one telephonic interview hoping to last from 45 minutes to 1 hour.

PARTICIPANTS’ RIGHTS

- You may decide to stop being a part of the research study at any time without explanation required from you. You have the right to ask that any data you have supplied to that point be withdrawn / destroyed.
- You have the right to omit or refuse to answer or respond to any question that is asked of you.
- You have the right to have your questions about the procedures answered (unless answering these questions would interfere with the study’s outcome. A full de-briefing will be given after the study). If you have any questions as a result of reading this information sheet, you should ask the researcher before the study begins.
CONFIDENTIALITY/ANONYMITY

The data I collect does not contain any personal information about you except your position in your company, your work experience and your pre, during or post involvement in the implementation of business intelligence. The data will be used for further analysis of the results. Quotes from the data may be used to justify the results and this data will be collected to complete a dissertation that is a part of a Master’s degree which will be submitted for grading upon its completion.

FOR FURTHER INFORMATION

I and Mrs. Caitriona Sharkey will be glad to answer your questions about this study at any time. You may contact my supervisor at caitriona.sharkey@dbs.ie and me at 10372165@mydbs.ie.

INTERVIEW TRANSCRIPTS

Expert 1

Interviewer: Hello, my name is Mudit Gaur and I am an MBA student at Dublin Business School, pursuing my MBA in Information Systems and this interview is a part of my academic thesis. I would like to ask you a few questions based on the integration of Business Intelligence and Business Travel.

Expert 1: Yes, sure.

Interviewer: Do you believe that business travel analysis and Business intelligence are required in the organization at all?

Expert 1: Yes, I believe these are required in the organizations. As they provide competitive advantages and improve overall experience of their clients.

Interviewer: Do you think that the meaning or application of BI and business travel analytics has evolved or changed during past years?

Expert 1: Yes, definitely applications of BI & travel analytics has changed a lot in the last decade. Big data tools such as Hadoop and cloud computing have brought drastic cost reduction when it comes to storing the data. Also, they identify efficient ways of running business operations and processes. The new BI applications help doing analytics on big data in a quick and efficient manner.
Earlier in Business travel, most of the things were done manually, which were time consuming, but Business Intelligence tools have made Business travel analytics automated and comparatively brought down the error rate.

**Interviewer:** Do you think BI is important for increasing process capability in your organization?

**Expert 1:** Yes BI has increased process capability in numerous ways. It has helped in increasing operational efficiency, driving new revenues, identifying market trends and also optimizing internal business processes.

**Interviewer:** How important do you think data collection and analysis are in order to process the trends, identify gaps or opportunities and optimize business travel processes?

**Expert 1:** Without a doubt, they are really very important. Data Collection is only the first step. So, for this step, evaluation of the available resources is critical. The second step is the data analysis, where cleaned & aggregated data is imported into various analysis tools to determine the appropriate conclusions for the business. So, data collection and converting the data for business tools are equally important.

**Interviewer:** What BI tools does your organization use to gather, analyse and report travel data?

**Expert 1:** Our team uses a variety of tools dependent on the clients, business travel spend and the amount of data they have. Hadoop, Phython, SAP, Tableau, Cognos are the major tools that are used in our team. Apart from this, we also use Microsoft Access to create relational databases.

**Interviewer:** How do BI tools help to understand and analyse client’s business travel data?

**Expert 1:** Business Intelligence is required in nearly all the organizations, be it for sales, process learning, or any other activities. Nowadays, not just domestic travel, but the internal business travel is on the rise too. So, the data captured is really huge and to make sense of this data is really difficult and challenging. Business intelligence is essential to make sense of this scattered data. With the help of BI tools and their capabilities, we are able to streamline various business travel processes to provide many benefits like cost savings, better time management and transparency of travel spend.

**Interviewer:** Do you think that data mining with huge database becomes easy after implementation of BI and how?

**Expert 1:** Yes, BI implementation has had helped the data mining process to a great extent. Having a BI tool helps us in managing the processes effectively with little human intervention. We are able to track any gaps or loopholes which helps us to take preventive measures easily. Also, with the increase in business travel spend, the data we receive from different suppliers has also increased. And as I said earlier, BI tools help us to manage big data easily.

**Interviewer:** Do you feel that the BI tool implemented is effective?

**Expert 1:** Yes, the BI tools are very effective for the organizations to survive & thrive in a challenging and competitive business environment. The major benefits we have got are better forecasting and predictive analytics, better
management of central depository of huge sets of data and integration of various product services that we provide for the client.

*Interviewer:* Would you please elaborate a little on your last statement?

*Expert 1:* As a business structure, we have different teams like hotel, air, and amenities for the same client. So earlier, it was challenging to prepare a complete and comprehensive business travel plan for the clients, but with the implementation, all the teams are more or less on the same page with respect to the clients.

*Interviewer:* What would you outline as the major limitations of involving BI tools with business travel data spend?

*Expert 1:* As such I do not find any limitations of BI tools integrated with business travel data spend. However, sometimes these tools are little costly for the small enterprises to integrate their huge data.

*Interviewer:* Would you prefer the Business Analytics process before or after the implementation of BI tools and why?

*Expert 1:* As we have BI implemented in our organization, so I would prefer to run business analysis after the BI tool result. This has provided us with better & qualitative decisions for the clients and also saves a huge amount of cost and time for the clients, which has proven to be a competitive advantage for our organization.

*Interviewer:* In your opinion, how important a role does BI play in the growth of a business travel process and overall organization?

*Expert 1:* It is crucial for the business travel process growth. BI helps not only the management but also every employee to make better sense of data. It has also helped the clients to make more informed decisions regarding their business travel. Also, it helps to cut costs of rework and identifying new opportunities in the market and removes the repeated manual actions.

*Interviewer:* In your opinion, what is the biggest impact the usage of BI has on the business travel process? Do you think this impact is prolonged or static?

*Expert 1:* The biggest impact of BI usage in the travel business is improved efficiency & increased productivity of the resources across different aspects. With Business Intelligence in travel, it becomes possible to access dashboards that supplies us with real time information of flight trends, price variation across the board, and operating capacity of various travel destinations at any time of the year. Using this information, managers are able to better optimize their own prices so as to improve profit margin. So, I can strongly say that this impact is prolonged and will stay for more time.
**Interviewer:** What enablers and barriers did you incur during the implementation of BI tools for business travel processes?

**Expert 1:** Enablers are setting right expectations, ensuring the requirements from various teams, data collection or mining, project documentation, bringing everyone on the same page throughout the implementation of the BI tools. The major barrier can be that data sources required for BI project may be incorrect. Also, data sources can be inefficient. Lack of time to devote to processing data

**Interviewer:** Were extensive change management initiatives adopted by your company to implement Business Intelligence?

**Expert 1:** Yes, we had to take various change initiatives for successfully adopting BI in our organization. Firstly, we clearly defined our strategy and gathered the necessary requirements for the transition. The senior management team, who had adequate knowledge of business travel processes and our existing tools worked closely with the implementation team to create adequate business process. Before going live, various testing were done from both ours and the clients’ end. Lastly, we had to provide the clients and existing employees with trainings and user manuals for easy understanding and adoption of the new tools.

**Interviewer:** On what parameters you measure the success of implementing BI for business travel spend processes?

**Expert 1:** We have set various goals and KPIs (Key performance indicators), to measure the success or failures. We mostly measure the success on data quality, ease of use, reliability and feedback provided by the clients.

**Interviewer:** Is there anything else you would like to add on BI or Business Travel and their impact on each other?

**Expert 1:** Not really, but just that BI tools are upgrading at a very fast pace. So, I think that there are tools that are effective today might become obsolete tomorrow and we should also be leveraging the data from social media for business travel too, which is not currently done in the market.

**Interviewer:** Thanks a lot. That would be the end of the interview.

-End of interview-

**Expert 2**

**Interviewer:** Hello, my name is Mudit Gaur and I am an MBA student at Dublin Business School, pursuing my MBA in Information Systems and this interview is a part of my academic thesis. I would like to ask you a few questions based on the integration of Business Intelligence and Business Travel.

**Expert 2:** Yes.
Interviewer: Do you believe that business travel analysis and Business intelligence are required in the organization at all?

Expert 2: Yes, it is quite evident that nowadays corporate travel is increasing rapidly which is creating the scope for travel analysis. This scope creates the opportunity of optimization of travel programs for the organizations and the use of BI techniques can help in achieving the savings. Business Intelligence tools and business travel are complementary of each other.

Interviewer: Do you think that the meaning or application of BI and business travel analytics has evolved or changed during past years?

Expert 2: Business travel has surely evolved in recent years. Organisations are now constantly looking to cut down on travel spend by identifying unnecessary and unwanted expenditure. Also, the business travellers have evolved due to the rise in technology. They now want everything quickly and in an efficient manner to have painless business travel. Many BI tools have come into the market which specifically cater to the needs of business travel. Tools like Sabre, Concur, etc., work as a data repository for all air, hotel and amenities which helps the employee to choose the best suited services for them. Also, these new tools help in better data management and analysis which was previously not available.

Interviewer: Do you think BI is important for increasing process capability in your organization?

Expert 2: Yes, as the data which was earlier easier to clean can now be analysed using BI tools which has increased the process capabilities which also provides better visualization and analysis for the travel spend.

Interviewer: How important do you think data collection and analysis are in order to process the trends, identify gaps or opportunities and optimize business travel processes?

Expert 2: Raw Data collection is the most important step in optimizing business travel process and is the base for the rest. Without raw data collection & scrubbing and analysis the hidden patterns in travel cannot be found which could create opportunities or identify the gaps in which travel is lagging.

Interviewer: What BI tools does your organization use to gather, analyse and report travel data?

Expert 2: We started using various tools, mostly Tableau, R and Python.

Interviewer: How do BI tools help to understand and analyse client’s business travel data?

Expert 2: Analysing the data using these tools provide the travel pattern of the client which in turn helps to find the opportunities for optimization of travel spend. These tools also help in identifying the change (trend, gaps etc.) in travel over the time.

Interviewer: Do you think that data mining with huge database becomes easy after implementation of BI and how?
Expert 2: Yes, this is one of the biggest advantages of using BI tools. As the databases has limit of data which can be input in them and if the data size is large it would take time to process the data. But with the implementation of BI tools this can be achieved in lesser time which saves cost to organization ultimately.

Interviewer: Do you feel that the BI tool implemented is effective?

Expert 2: Yes, I really think that using BI tools are effective. We can see the advantages in various daily tasks like saving time, manual labour and increased client satisfaction.

Interviewer: What would you outline as the major limitations of involving BI tools with business travel data spend?

Expert 2: The major limitation of implementation of BI tools is that the travel data does not come uniformly from the sources. Thus for each data source these tools have to be adjusted or needs modification when the data source(s) changes.

Interviewer: Would you prefer the Business Analytics process before or after the implementation of BI tools and why?

Expert 2: Of course I prefer working on spend data after BI implementation. It has become easier to collect and slice and dice data for analysis. Secondly the things which used to take hours to process, are now done in short time. Lastly manual interventions have reduced as nearly most of the requirements are now automated.

Interviewer: In your opinion, how important role does BI plays in the growth of a business travel process and overall organization?

Expert 2: For us it has really helped in client satisfaction. With tableau now we can present our data to client in interactive and concise way. Earlier it was done on Microsoft PowerPoint which was a tedious task. Also as I said before business intelligence tools have made analysing and understating the spend data much easier. So I would definitely say it is important for our business growth.

Interviewer: In your opinion, what is the biggest impact the usage of BI has on the business travel process? Do you think this impact is prolonged or static?

Expert 2: It is difficult to say to be honest. The tools will keep on upgrading and it is on the organization to whether implement new tools or continue with existing one. So I think the impact should be measured not only by tool efficiency but also on the people and teams usage capability. If used wisely I believe it is prolonged impact as it will be profitable and effective.

Interviewer: What enablers and barriers did you incur during the implementation of BI tools for business travel processes?
**Expert 2:** I believe that the major enablers are requirement of accurate analysis of travel data given that we receive scattered data, decrease in processing time and increase in the process competencies and lastly, better interpretation and communication of relevant and useful patterns in the data. The major barriers I think are the high cost of investment involved and the lack of the proper resources when starting implementation.

**Interviewer:** Were extensive change management initiatives adopted by your company to implement Business Intelligence?

**Expert 2:** Yes, because implementation of BI needs man power which should have knowledge of these tools. This would require more investment and better management to implement BI successfully.

**Interviewer:** On what parameters you measure the success of implementing BI for business travel spend processes?

**Expert 2:** I think the three most important parameters are: time saving, cost and better visualization and good analytics.

**Interviewer:** Is there anything else you would like to add on BI or Business Travel and their impact on each other?

**Expert 2:** Not really, I think we have pretty much covered everything.

**-End of Interview-**

**Expert 3**

**Interviewer:** Hello, my name is Mudit Gaur and I am an MBA student at Dublin Business School, pursuing my MBA in Information Systems and this interview is a part of my academic thesis. I would like to ask you a few questions based on the integration of Business Intelligence and Business Travel.

**Expert 3:** Yes, go ahead.

**Interviewer:** Do you believe that business travel analysis and Business intelligence are required in the organization at all?

**Expert 3:** Business Intelligence and analytics play a vital role in addressing many relevant impacting and operational issues. Technology is becoming smart and so are the travelers. Both BI and data analysis together can provide unified view of data and help an organization optimize travel expenses.

**Interviewer:** Do you think that the meaning or application of BI and business travel analytics has evolved or changed during past years?
Expert 3: Definitely! Business analytics has become more competitive over the years. It uses past and present data to optimize Travel and Expense. Technology like Big data, Tableau have made it simpler to build dashboards when earlier data analysts used to spend days to build the same.

Interviewer: Do you think BI is important for increasing process capability in your organization?

Expert 3: Indeed, it is an important part as it not only decreases work efforts but also decreases errors.

Interviewer: How important do you think data collection and analysis are in order to process the trends, identify gaps or opportunities and optimize business travel processes?

Expert 3: I strongly believe that trends tend to work better while analysing patterns

Interviewer: What BI tools does your organization use to gather, analyse and report travel data?

Expert 3: Yes, our organization uses BI tools to create dashboards for the client which were appreciated and widely accepted for different engagements. The tools we use are Tableau, R, Python and Business Travel online tools.

Interviewer: How do BI tools help to understand and analyse client’s business travel data?

Expert 3: Travel data is humongous and comes from various sources. BI tool helps in unification of the different sources, this making it easier to study the data and draw meaningful report or analysis.

Interviewer: Do you think that data mining with huge database becomes easy after implementation of BI and how?

Expert 3: It is definitely an upgrade but I think it is too early in the game to really comment. As the data is increasing day by day, we will have to wait and watch the real capabilities of these tools. But as of now, I can surely say that the data analysis and maintenance has streamlined.

Interviewer: Do you feel that the BI tool implemented is effective?

Expert 3: At the current scenario, it seems to be effective technology and workaround as it brings efficiency to the whole team.

Interviewer: What would you outline as the major limitations of involving BI tools with business travel data spend?

Expert 3: I believe that the major limitations are:

- Adaptability as the tools are complex.
- Costly
- Open sources tools aren’t regularly updated which can put business at a disadvantage.

Interviewer: Would you prefer the Business Analytics process before or after the implementation of BI tools and why?
**Expert 3:** One must be aware of advantages and disadvantages before implementation of BI tools. Ideally, it should be implemented after the analytics process for accuracy and to better analysis.

**Interviewer:** In your opinion, how important role does BI plays in the growth of a business travel process and overall organization.

**Expert 3:** BI gathers the data though number of ways, from mining a company computer data through technology, industry trends to help develop more detailed analysis. So, I think their implementation is really important for growth of any business process in any organization.

**Interviewer:** In your opinion, what is the biggest impact the usage of BI has on the business travel process? Do you think this impact is prolonged or static?

**Expert 3:** High performance and Safety are two main goals which BI helps to achieve. It can change customer perception of travel. Companies that make use of BI technology gain competitive advantage over others as the overall experience of the clients is improved. So, it is prolonged impact.

**Interviewer:** What enablers and barriers did you incur during the implementation of BI tools for business travel processes?

**Expert 3:** I believe some of the major barriers are the cost involved in the transition and adaptability by the team members. The major enablers during the testing phase were reduced rework and increase in the accuracy which was encouraging for the management to continue with the implementation.

**Interviewer:** Were extensive change management initiatives adopted by your company to implement Business Intelligence?

**Expert 3:** Training and practice sessions were planned for not only the team but also the clients to make the tools user friendly.

**Interviewer:** On what parameters you measure the success of implementing BI for business travel spend processes?

**Expert 3:** From my perspective from a senior management role, the cost or return of investment, ease of use and user adaptability were the most important parameters for the success of the implementation.

**Interviewer:** Is there anything else you would like to add on BI or Business Travel and their impact on each other.

**Expert 3:** I think that there is one thing that we missed and it is the use of artificial intelligence and travellers’ point of view for making the business travel process better. But, I think it is not a part of your research but I believe that it is the next big thing in the business travel industry.

---End of Interview---
**Interviewer:** Hello, my name is Mudit Gaur and I am an MBA student at Dublin Business School, pursuing my MBA in Information Systems and this interview is a part of my academic thesis. I would like to ask you a few questions based on the integration of Business Intelligence and Business Travel.

**Expert 4:** Yes, okay.

**Interviewer:** Do you believe that business travel analysis and Business intelligence are required in the organization at all?

**Expert 4:** Of course it is. The primary objective of any business is making profits. Business Travel Analysis (BTA) helps reduce the cost of travel hence increasing the margins. BI is integral for identifying any operational bottle necks, overcoming them and making processes more cost effective.

**Interviewer:** Do you think that the meaning or application of BI and business travel analytics has evolved or changed during past years?

**Expert 4:** Yes, indeed. Owing to the advancement in technology the quantity of data available for analysis has increased massively over the last few years. This data when organised and structured in the proper manner can provide very deep insights into the travel patterns. While the primary focus a few years back was to arrive at the potential savings based on historical data, the client today wants a multi-level analysis to see the impact of various external factors on its travel expenditure.

**Interviewer:** Do you think BI is important for increasing process capability in your organization?

**Expert 4:** BI is not important but indispensable for increasing process capability. The only way to increase process capability is to identify the process loopholes and fixing it, which can only be done via BI tools.

**Interviewer:** How important do you think data collection and analysis are in order to process the trends, identify gaps or opportunities and optimize business travel processes?

**Expert 4:** Any kind of trend or gap analysis can only be done on the basis of data, hence data collection and analysis is central to our business.

**Interviewer:** What BI tools does your organization use to gather, analyse and report travel data?

**Expert 4:** We primarily use excel and access. However, we have also been using Tableau and Python quite a bit of late.
**Interviewer:** How do BI tools help to understand and analyse client’s business travel data?

**Expert 4:** The quality of client data that we receive is often quite poor in quality. The data needs to be normalized before we can perform any sort of analysis on it. This is where the BI tools come into play, and help us in cleansing large arrays of data.

**Interviewer:** Do you think that data mining with huge database becomes easy after implementation of BI and how?

**Expert 4:** Yes, indeed. As mentioned in the earlier response, the data needs to be first brought into an organized and structured format to allow us to conduct any sort of analysis. Not only that, some of these tools help in the visualization of this data and the inferences in a very insightful and easy to understand manner to suit the clients’ preferences.

**Interviewer:** Do you feel that the BI tool implemented is effective?

**Expert 4:** Yes tools are effective in normalizing and conducting analysis on the data which has made our work much easier.

**Interviewer:** What would you outline as the major limitations of involving BI tools with business travel data spend?

**Expert 4:** The major limitation of Tableau and access is their inability to handle very large quantities of data. When we run our analysis on large sets of data, they usually stop working or hang which makes the analysis very time consuming and frustrating.

**Interviewer:** Would you prefer the Business Analytics process before or after the implementation of BI tools and why?

**Expert 4:** Of course after the implementation of the BI tools. As I have stated before the nature of our business activity is such that data analysis is integral to the process. Given the quality and quantity of data we deal with, without the BI tools it is impossible to even have a conversation with the client about their corporate travel expenditure.

**Interviewer:** In your opinion, how important role does BI plays in the growth of a business travel process and overall organization.

**Expert 4:** BI is integral to the business travel process. The primary aim of any travel manager is to optimise the travel expenditure for its client. From simple reporting to complex predictive analysis, using BI to drive decisions is the game changer.

**Interviewer:** In your opinion, what is the biggest impact the usage of BI has on the business travel process? Do you think this impact is prolonged or static?
**Expert 4:** The biggest impact of BI in travel process is the opportunity that it provides to the client to look at their own booking data in ways they have never seen before. The clients today are demanding more and more customized reports and insights into their data. From performance measurements to predictive analytics, to impact of program changes and the risks involved, BI is essentially helping us keep up with the changing client requirements. I believe this is prolonged impact as the introduction of BI in travel domain is fairly recent and there is a lot of scope to do different things in the travel domain.

**Interviewer:** What enablers and barriers did you incur during the implementation of BI tools for business travel processes?

**Expert 4:** Well there are always the technical difficulties while implementing BI tools at an organizational level and definitely the cost associated with it. However the benefits of implementing these tools in terms of more business, staying ahead of competitors etc. make it worthwhile.

**Interviewer:** Were extensive change management initiatives adopted by your company to implement Business Intelligence?

**Expert 4:** Not really, it is always a gradual process. The implementation is always first tried on a smaller sample size, and as the team gets more and more familiar with the tools it is implemented as a whole.

**Interviewer:** On what parameters you measure the success of implementing BI for business travel spend processes?

**Expert 4:** There are 3 very important parameters on which the success of implementing BI for Business Travel can be judged:

- The ease of use of the BI tools
- If we are able to cater to the clients’ needs
- If we will be able to adapt to the changing clients’ needs in future.

**Interviewer:** Is there anything else you would like to add on BI or Business Travel

**Expert 4:** Not Really

---

-End of Interview-

---

**Expert 5**
Interviewer: Hello, my name is Mudit Gaur and I am an MBA student at Dublin Business School, pursuing my MBA in Information Systems and this interview is a part of my academic thesis. I would like to ask you a few questions based on the integration of Business Intelligence and Business Travel.

Expert 5: Yes, sure.

Interviewer: Do you believe that business travel analysis and Business intelligence are required in the organization at all?

Expert 5: Yes. The key factors are providing great service, a consistent and good experience and keeping the cost low.

Interviewer: Do you think that the meaning or application of BI and business travel analytics has evolved or changed during past years?

Expert 5: Yes. With new businesses offering a variety of travel experiences, change in business requirements, rise of business sites and centres to new location, socio-political atmospheres, business travel has grown from a limited stay or travel offering to a complete package of personalized servicing.

Interviewer: Do you think BI is important for increasing process capability in your organization?

Expert 5: For any process, travel or otherwise, BI is critical to increase productivity, efficiency, profitability or any desired metric.

Interviewer: How important do you think data collection and analysis are in order to process the trends, identify gaps or opportunities and optimize business travel processes?

Expert 5: Extremely important. Most gaps can be identified through data. A simple example is considering a vendor that consistently provides poor experience or requires billing disputes etc. sufficient data allows a cost benefit analysis of vendors, travel routes, connectivity etc. We've come so far as to give advance notifications to hotels on a customer’s allergies and medical information pertinent to emergencies e.g. insulin reserves for diabetic customers.

Interviewer: What BI tools does your organization use to gather, analyse and report travel data?

Expert 5: We mostly use Tableau, Concur and Oracle for analysing our data.

Interviewer: How do BI tools help to understand and analyse client’s business travel data?

Expert 5: Capturing the relevant details allows a seamless personalized experience for the customer and allows the service provider to estimate revenue, profits, trends and plan better.

Interviewer: Do you think that data mining with it huge database becomes easy after implementation of BI and how?
Expert 5: BI tools come pre-equipped with required reporting and mining technologies. BI implementation is also aimed at highlighting key metrics and enabling analysis. BI enables shifting through tons of data and identifying trends.

Interviewer: Do you feel that the BI tool implemented is effective? Do you believe that the implemented BI tool is effective?

Expert 5: The efficacy of a tool is primarily based on two factors, which are data collection and timely implementation. Getting a BI tool 10 years after its launch means you already lost the race. Also, typically large organizations employ market popular tools and could potentially miss out on powerful upcoming tools.

Interviewer: What would you outline as the major limitations of involving BI tools with business travel data spend?

Expert 5: As mentioned previously, the primary limitation is the lack of Data Collection at the right level of detail. These tools can only analyse the client based on the amount of information that has been captured.

Interviewer: Would you prefer the Business Analytics process before or after the implementation of BI tools and why?

Expert 5: This has to be some business analytics property implementation of these tools so as to determine the right tool and the right metrics that need to be analysed.

Interviewer: In your opinion, how important role does BI plays in the growth of a business travel process and overall organization.

Expert 5: It is a vital role. In order to stay competitive, and continue to provide best in class service, we need to rely on BI more than ever.

Interviewer: In your opinion, what is the biggest impact the usage of BI has on the business travel process? Do you think this impact is prolonged or static?

Expert 5: As mentioned before BI has changed business travel service model and strategy completely I believe that the effect is prolonged. BI implementation helps us in acquiring new clients, generating more revenue from the existing clients and increasing our product offerings. All these factors have allowed us to stay profitable and be competitive in the current market.

Interviewer: What enablers and barriers did you incur during the implementation of BI tools for business travel processes?

Expert 5: The biggest barrier was to choose the right vendor, as the vendors sometimes do not understand the business requirements completely which result in slow resolutions and increased time frame for implementation. Also, there is a lot of bureaucracy in the approval and implementation of any technology. The major enablers were client support and the role of the senior managers during the implementation.
**Interviewer:** Were extensive change management initiatives adopted by your company to implement Business Intelligence?

**Expert 5:** Because of the large time frame of BI implementation, the changes seem small. But in reality, the total magnitude will be quite large. I think it just needs to be done quickly and with not so much expense. I’m not reluctant, but I am pro BI implementation, but proper requirement gatherings should be carried out for easy implementation.

**Interviewer:** On what parameters you measure the success of implementing BI for business travel spend processes?

**Expert 5:** There are many parameters like cost effectiveness, increase in efficiency of the users and last but not the least, the business growth. The business growth can be in many forms like increase in customer satisfaction, increase in customer base, increased sales and profits, etc.

**Interviewer:** Is there anything else you would like to add on BI or Business Travel and their impact on each other?

**Expert 5:** No, that is all I have to say.

---

**MEETINGS WITH SUPERVISOR**

Various meetings were conducted with supervisor via phone, emails and face to face meetings. These meetings helped in the planning and preparing the dissertation. Following topics were the most important topics discussed during these meetings:

1. Discussed and finalized the scope of aim, objectives and research questions.
2. Finalizing the structure for dissertation
3. Finalizing interview questionnaire.
5. Understanding confidentiality and anonymity requirement for participants and organization.
6. Issue regarding written consent from participants.
7. Issue regarding limited availability of literature for business travel.
Outcomes of these meetings: Supervisor’s constant feedback and encouragement helped the author in finalizing structure, choosing correct methodology, using correct scope of aim and objective and completion of dissertation.