



LEVERAGING DATA ANALYTICS FOR BUSINESS EXPANSION: AN ANALYSIS OF MULTINATIONAL COMPANY ENTERING THE MARKET OF FINLAND

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Abstract

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In today's fast-paced changing business environment, multinational companies have been trying to catch up by utilizing data analytics as an instrument for their business expansion objectives. Data analytics have developed performances in various aspects ranging from decision-making processes, and strategy selection to competitor analysis and even risk mitigation. AmSpec, a multinational company in industry of energy, chemicals, agriculture, and food sectors had set out to enter the market of Finland with an objective of expanding its services.

This study addresses a gap in the relationship between leveraging data analytics and business growth of a multinational company. Amspec was selected as a commissioning company to perform a case study analysis. This study lies upon the foundation of a well-established literature review to present the concept of internationalization and data analytics. The qualitative method was used in this study for the primary collection of data.

The findings of the author indicate that although the utilization of data analytics enhances the performance of a multinational company entering a new market, it is recommended that there must be other resources that a company should acquire because of the limitations of applying data analytics.

Keywords Business expansion, data analytics, internationalization, data analysis, big data, market entry strategy

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1 Introduction

The world is now in a timeline that is revolving around data, or specifically called as the “The digital age”, which can also be referred to as “The information age” (Tucci, 2023). It portrays an era characterized by a broad use of information and this knowledge is thoroughly accessible by whoever wants to acquire it, caused by the advancement of technology. Because of the sudden breakthrough in information technology, communities with diverse backgrounds are encouraged to collaborate and this collaboration then gives rise to conceptualization of new ideas and objectives conveniently. Moreover, it has an influence on how people create, absorb, and allocate information within a community or organization. (Kosaraju, 2014)

Because of data’s capability to give numerous valuable assets, many experts call it as the new oil of 21st century. (Yonego, 2015; Bureau, 2018; Jooste, 2023). The current state of industrial progress is powered by data, and this is now being used in everyday life, even if people don’t notice or think about it. It can be in different forms like health information shown on someone’s smartwatch, the road information in a smartphone or a car system, an order placed online, and even software for designing a new public transport to improve traffic circulation. (Gorini, 2022)

In the competitive environment of business in the present day, data acts as an important contributor to making well-informed decisions. It incorporates a wide range of tasks such as gathering, processing, and evaluating vast amounts of data and transforming it into valuable insight. The kinds of activities that can be done with data are beneficial in understanding customer behavior that will modify the products or services offered by a company. With the information that the data holds, it gives the movement of market patterns optimizing their operations and even where resources can be effectively invested as well as identifying parts where the business is at threat of unidentified risks. (How to leverage Data Analytics to future-proof your organization, 2023)

In addition to the perspective of the business industry, Bianchini and Micháľková (2019, p. 6) state that the techniques of data analysis allow companies to use big data efficiently as an advantage improving their productivity specifically in the reduction of costs, enhancing marketing practices, as well as increasing the capability to keep up with the volatile market and predicting future trends. Particularly, this modifies how businesses operate by providing

a means of collecting data about the target customers, competitors, and suppliers. The information collected then can be harnessed to make decisions strategically.

For decades the potential of data analytics has been applied across different industries. For example, healthcare institutes contain a vast amount of data that is being used to derive new clinical assumptions and effective decision-making. When data is successfully used in healthcare organizations, unidentified conditions relying on patients can be detected, as well as distinguish and classify those at threat for health problems. (Yoo et al., 2011)

In addition, data analytics is being used through the oil and gas industry, its role is to capture data from the sensors, guiding in operations of products as well as for grabbing business opportunities. This industry does not only use data analytics for seismic and micro-seismic data and increased drilling safety, but also for lesser activity time. This helped in the chances of the company's probability of discovering and drilling for oil (Watson, 2014, p. 1251). Additionally, the use of data analytics is widely applied across the business operations of Chevron, from drilling activity, and solving conventional problems, to diversifying market reach. Customers are considered as the inspiration of Chevron to completely embody the digital transformation by combining its marketing, consumer support, tech operations into a single universal customer experience service. Because of this unification, large-scale programs in customer relationship management become easier to implement since the entire company is in common part of vision and development. This also strengthens the view of data across the organization, hence, boosting the business and customer experience. Chevron employs machine learning to unlock insights and to further explore and optimize its operations, where this action has been crucial for the company since it is necessary for the company to meet the increasing worldwide demand of Chevron's services. Because of Chevron's extensive use of data analytics in its business, it has expanded its operations globally (Deloitte, 2022; Deloitte, 2023).

Furthermore, in the logistics industry, specifically in the situation of a transportation company U.S. Xpress, Watson and Leonard (2011, pp. 4–7) stated that the firm's headquarters monitors 900 pieces of data to track the location and conditions of the active tracks. Then the information is shared to a numerous customers, from drivers to upper management, on iPads and other portable devices when the data has been saved and analyzed in the cloud in multiple ways. In one scenario, a truck running with low fuel may be shown which way is the nearest refilling station. Operators in charge of the truck are given directions to a repair depot if the truck appears that it needs maintenance. U.S. Xpress has saved millions cost of fuel

and decreased emissions into the environment by tracking its trucks through data analytics, giving a timelier guaranteed delivery of orders. (Watson, 2014, pp. 1251–1252)

The previous statements have introduced how data analytics enhances different kinds of operations in different sectors of business. Although there is a rich research base focused on data analytics in various industries, there is still a notable gap in utilizing data analytics for companies' internationalization. To have a better grasp of the potential of data analytics, the main concern of the study must first be established which is the utilization of data analytics for business expansion. By doing this, the study will also delve into the opportunities and challenges correlated to data analytics. Moreover, the capability of data analytics in the business expansion context will be uncovered in line with the wider objective of learning.

A qualitative study is conducted to fulfill the aim of the current research. The utilization of data analytics for business expansion specifically in the Finnish market is the focus of the case company AmSpec. This research sheds light on the main opportunities and challenges of data analytics in the internationalization process by organizing a sequence of semi-structured interviews with the leading experts of the AmSpec company. As a result, a wide range of strategic and tactical recommendations for business are given for leveraging data analytics in the business expansion process.

1.1 Commissioning company

AmSpec is one of the leading companies in the industrial sector specializing in testing and inspection services for renewables, biofuels, chemicals, LPG/LNG, and agriculture. The company also provides certification for petroleum traders and refiners. It was founded in Cranbury, New Jersey year 1987 and bought by Olympus Partners in 2016. The success of the company can be seen now that it is operating in minor and major ports around the globe like China, Belgium, UAE, and the United States. It is dedicated to expanding its business in new markets.

1.2 Statement of the problem

Since the emergence of maximizing data has drastically changed how enterprises operate and make decisions, it cannot get away with the fact that it also brought new challenges regardless of the opportunities it may possess. Business organizations might also be overwhelmed by the immense amount of collected data from day to day and have the

possibility to misuse it. Many have tried to conform with the fast evolution of data to understand leveraging it responsibly and decrease the associated risk.

Despite the broad studies about data analytics for different aspect of doing business, inadequate knowledge continues to exist regarding the effective and proper way of leveraging data analytics for business expansion. Mohan (2016, pp. 460–464) demonstrated a few opportunities of leveraging data for business as well as its downside. Firstly, data can be the key to accessing transparent information, but there is still a big amount of data that are on paper, unpublished online, and, as a result, not easily accessible. The second mentioned way of leveraging data, organizations can now collect data from tracking performance in the company. Third, the data can be leveraged by shrinking the customer segmentation to modify products and services more precisely. Fourth, by minimizing risks and guidance for decision making; and for developing next generation services and products.

Downside of this process is that data is the intensity in volume, in velocity, and in variety of information making it hard to process for traditional tools being used to analyze it. As Rajaraman (2016, p. 714) mentioned: “big data analytics can lead to misuse unless citizens are vigilant. Blind reliance on big data analytics without clear thinking on the relevance of the data, veracity of data, and meaningful correlations of variables may lead to incorrect and misleading results.”

To comprehend the effective way of leveraging of data analytics for business expansion is pivotal for a company to generate a proper strategy that can sustain the organization itself for the long run along with their goals and intention. Thus, the purpose of the study is to determine the utilization of data analytics in assisting the penetration and expansion of a multinational company. The researcher aims to uncover what advantages data analytics can give when setting a new market and operating in a new environment.

Significant case studies and success stories don't appear to be enough when it comes to using data analytics in developing firms. The efficient cultivation of innovation from big companies to small and medium enterprises is greatly affected by successful stories about the implementation of big data. Despite some guidelines and examples, there remains an alarming lack of stimulating and ground-breaking circumstances regarding the use of data for organizations. Thus, rather than giving detailed instructions of using data, the prior discussion is constrained to just giving an assessment of using data in business for developing a competitive edge (Iqbal et al., 2018; Liu et al., 2018; Coleman et al., 2016, p.7).

The commissioning company for this thesis is in the early stage of expanding its business in the Finnish market. Hence, the research question of this study will also be used to aid in the existing gap between the relationship between leveraging data analytics and business growth of a multinational company. The research question for this thesis is:

“How can leveraging data analytics support and facilitate successful market entry and expansion to Finland?”

The study will dig deeper with sub-questions that will help to give a more comprehensive understanding of strategies, challenges, and outcomes, to tackle the main research question by implementing data analytics as the most essential tool for international business expansion:

Q1. What are the key advantages of data analytics for business planning and performing market entry?

Q2. How can the effectiveness of data analysis methods be measured? How do these methods support the different stages of the market entry process?

Q3. How does implementation of data analytics affect the current state of the company while adjusting to the new market environment?

Q4. What are the main barriers and limitations in data analytics when entering a new market and how can these challenges be overcome?

1.3 Scope and delimitations

The main focus of this study is the investigation of the utilization of data analytics by a multinational company while entering the market in Finland. Previous studies with regards to the topic as support is implemented.

The research is performed as a case study and will only be applied to the specific commissioning company entering the market of Finland. The results and conclusions may not be extensible to other aspects of business given that every sector has its differences.

The condition of data available is heavily influenced by the commissioning company and by the timeframe of the study. Limited access to specific data or incomplete datasets might be

restricted. As well as the availability of the interviewees is a potential challenge for gathering more in-depth results.

The Finnish market is the only center and does indicate the market conditions, trends, and patterns that are volatile. The market situation might not be exact outside the timeframe of the study.

2 Theoretical Framework

2.1 Theories overview

The application of the concept of Born Global in this study explains how a modern business, equipped with data analytics, can penetrate a foreign market such as Finland whereas the concept of Resource-based View tackles the employment of data analytics as a unique competitive advantage and as a strategic resource for operational expansion.

2.1.1 Born-global theory

in 1994, Oviatt & McDougall introduced “born global” which means a company who is not committed to following a recommended pattern for internationalization, instead, being actively involved in international business relationships since it was founded, adapting to a global market. This quick internalization of businesses which is frequently characterized by an early and aggressive entry into foreign markets is the main concept of a strategic framework known as “Born global” theory (De Oliveira Cabral & Schaefer, 2016, p. 3). This theoretical framework offers a methodical way to examine how a multinational company might utilize data analytics to implement “Born Global” expansion strategy. In addition, this theoretical framework will enable a thorough approach to explore this possibility and highlights the significance of data-driven decision-making, resource allocation, market intelligence, and adherence to local legislation (Escandon-Barbosa et. al 2019). Since the commissioning company specializes in inspection and certification of petrochemical and chemicals which is a big necessity around the world, the company is not limited to one country.

2.1.2 Resource-based view

A framework for strategic decision-making that ideates the use of a company's internal resources and competencies as a source of sustainable competitive edge is known as the Resource-Based View (RBV). A company's internal resources can be used as a distinctive advantage in the market environment is RBV's main concept. (Barney & Mackey, 2016). Following the RBV concept, the current research illustrates how AmSpec's internal resources of capabilities for data analytics can be used as a potential source of a sustainable advantage of the company into the Finnish Market. The department that handles the company's data and uses advanced tools is a crucial part, since this area is responsible for conducting market research. The uniqueness and difficulty of duplicating this specific internal resource may contribute to AmSpec's competitive edge. RBV framework will discuss how AmSpec will utilize internal resources, mainly data analytics, to emerge in the Finnish market.

2.2 Literature overview

2.3 Types of data

2.3.1 Qualitative and quantitative data

The information people collect to use for survey or reference such as facts, figures, measurements, and quantities refers to what is called data. It is the raw unprocessed facts and numbers that are gathered that can be transformed into something valuable. Data is usually collected and stored by observation. In order for data to turn into meaningful insight, it is essential to transform it into graphs, tables, or images. Data then becomes an information after being analyzed, deciphered, and processed. To properly utilize the value and information the data have, it is important to undergo data cleaning and linking raw data together. The significance of acquiring a high-quality data continues to develop as the activities and data science become more common. There are two types of data: Qualitative data and quantitative data. (Jain, 2023)

Data that are not to be measured numerically or difficult to count is called "Qualitative data". The purpose of this data is to earn insights from opinions, motivations, perceptions, behavior, and attitudes. These are collected by methods such as observation, interviews, and focus groups. It is most effective when understanding decisions, qualities, patterns, and

characteristics. Quantitative data on the other hand is presented numerically and tallied making statistical data analysis possible. This data type is also known as the numerical data. It focuses and provides answers to questions like “How much?” and “How often?”. Quantitative data is information conveyed as numbers corresponding to a specific numerical value. This data can be anything that can be measured that could be potentially used by researchers and analysis based on statistics. (Surendran, 2023a; Surendran, 2023b)

2.3.2 Big data

Big data is a subcategory of quantitative data. The role of big data is crucial for the current research as it is a fundamental part of data analytics. Big data defined by Iqbal et al. (2018) is the immense amount of complex, rapidly moving, fluctuating data that necessitates more sophisticated methods as well as advanced technology for storing and organizing data. Big data can sometimes be defined as large-scale data accumulation that are incapable of being analyzed manually or with standard instruments for example– spreadsheet. Genomics, digital platforms, professional athletics, and environmental detection devices are a few ways for the collection of big data. (Frizzo-Barker et al., 2016). According to Segal (2022), online registrations, voluntary submission of gadgets and app, academic surveys, and retail interactions are also ways to extract big data. However, Mayer-Schönberger et al. (2013) argue that the core concepts of big data are predictions, connections, and relationships between massive quantities of data. Mayer-Schönberger et al. (2013) also mentioned that big data is more than having access to a lot of data, instead, it defines its relevance in the ways how it is used and applied. Moreover, another definition is that big data arose in the process of computer development to portray an enormous amount of diverse, low-value, fast-moving data. The constant advancement of science causes a generation of huge amounts of data. (Chen, 2022)

2.4 Data analytics

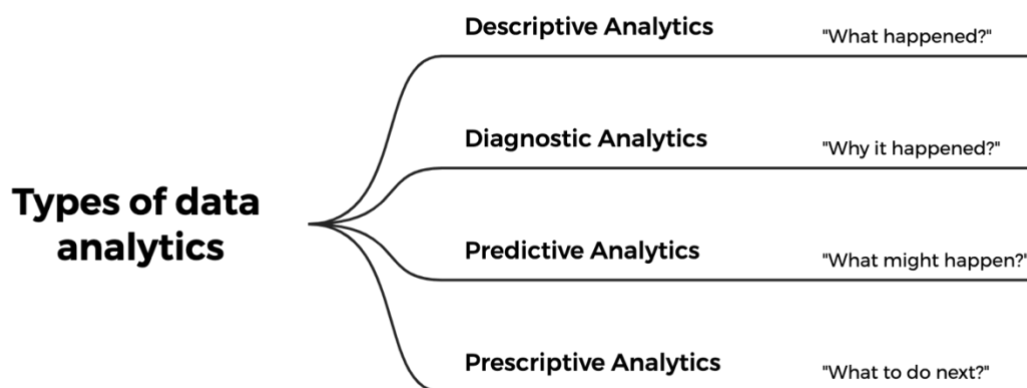
A complex field that deals with a wide range of methods and procedures that aim to extract valuable insights from historical data as it changes over time is called data analytics. Throughout time, data analytics has evolved due to the changes in technology and the increase in available sources of data. In the present day, it primarily revolves around the exploration of large data sets. To derive meaningful information from a large quantity of datasets, it needs a powerful computing tool and advanced data processing methods. (Data Analytics: An Information Resource for IFAC Members, 2018)

A raw untouched data has no value to give, instead, it is the action done to the data that gives its value. Data analysis on the other hand, is a subset of a broad data analytics scope. Organizing, evaluating, visualizing, and transforming data into meaningful and pertinent information are the focus in data analysis process. A single, already prepared dataset will be examined by a data analyst. This kind of procedure is basically just one of the approaches and initiatives that data analytics has revealed. In summary, data analysis is a process under data analytics, which works best with organized and prepared to discover relationship and patterns within data. Data analysis is more on retrospective evaluation, whereas data analytics is used to extract insights for future decisions. (Kidd & Hornay, 2021; Bay Atlantic University, 2022)

2.4.1 Types of data analytics

The illustration below (Figure 1) shows the different kinds of analysis distinguished by previous studies which involves descriptive, predictive, prescriptive, and diagnostic analysis.

Figure 1. Types of data analytics. (Author's own work, 2023)



Descriptive: This specific category of data analytics is commonly used in marketing, manufacturing, healthcare, and finance. Descriptive analytics delve into historical data to gather information and identify connections, events, and patterns. Descriptive analytics is presented using tools such as tables, charts, and graphs. It measures part of the organization which needs more improvements, track the time progress of work, as well as for decision making. It answers the question: "What has happened?" (Wolniak, 2023).

Diagnostic: Diagnostic analytics answers the question "Why it happened?". It also uses historical data to identify and understand why a particular incident or circumstance

happened. It gives businesses the permission to evaluate and continue improvements (Wolniak & Grebski, 2020).

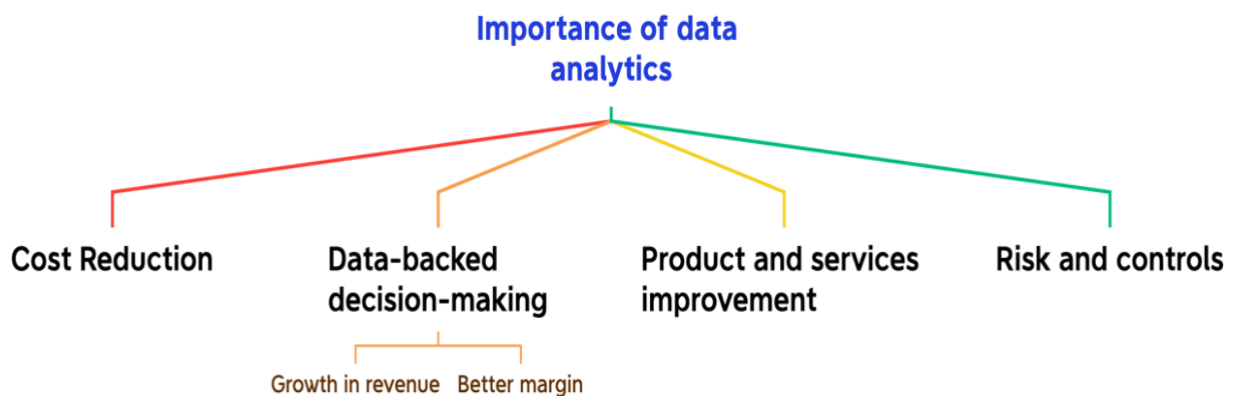
Predictive: “What might happen?” is the question that predictive analytics answer. It still depends on historical data but its goal is to estimate and foresee possible events that will contribute to strategic decisions. (Four Types of Data Analytics to Improve Decision-Making, 2021)

Prescriptive: Prescriptive analytics as stated by Brodsky et al. (2016) is a fundamental type of data analytics that takes the role of a map of direction for making effective decisions and achieving the main goal. In addition, the prescriptive analytics concept answers the question “What to do” in a given event through providing a road map for a strategy that leads the people and organizations to the objectives.

2.5 Benefits of data analytics

The figure below (Figure 2) shows what categories of data analytics affect an organization’s performance.

Figure 2. Hierarchy format of importance of Data Analytics (Author’s own work, 2023)



2.5.1 Cost Reduction

Data analytics give organizations the possibility of an accurate and deep understanding of information to maximize the effectiveness of operational activities. Businesses can gain relevant patterns to improve products or services by gathering a significant amount of customer or client information and feedback. It also plays an important role by guiding organizations to pinpoint new opportunities, cut down expenses, and improve revenue. By

utilizing data analytics, businesses can determine which lines give out the best outcomes as well as identify those areas that are underperforming. Because of this, managers and other people who are in responsible for making decisions can adjust and adapt strategies correspondingly, contemplate the possibility of barriers, control risks, and implement improvements. (5 Key Reasons Why Data Analytics Is Important to Business, 2022)

2.5.2 Decision making

With the help of data analytics, allocating money on unproductive strategies, unsuccessful market operations, or undemonstrated ideas for goods and services are avoided, it also give the businesses a chance to decide more logically and accordingly. Rather than just relying on previous experience and gut instinct, the usage of data-driven decision making model allows stakeholders to create a better dynamic identification of opportunities since data reliability serves as a guide. Despite of the accuracy the data may show, it is always critical for decision-makers to understand that an error in data analysis and data gathering method could potentially result in data being unreliable or misleading. (Key Reasons Why Data Analytics Is Important to Business, 2022)

2.5.3 Products and services

Data analytics does not only give benefits in decision-making and cost reduction, it also involves innovating products and services since the datasets extracted from the target audience can guide to pinpoint in what's lacking on certain services and products. This then enables the businesses to close that gap and will be able to meet those needs. When it comes to market competition, data analytics can also give an advantage by giving an idea of what the rivals are doing, thus, granting the business to stay more competitive. Data insights empower companies to update existing products or services, meet the changing market demands and modify marketing techniques (Five Key Reasons Why Data Analytics Is Important to Business, 2022).

2.5.4 Risk and Control

Data analytics for risk control utilizes the power of machine learning, artificial intelligence, and big data to dig into the business, giving light to patterns and areas that has need for improvement. Risks might be prevented and properly handled thanks to data analytics which can identify, read, and foresee based on vast amounts of data. There was an increase in

Cyberattack recently making analytics a critical asset for organizations. (Ventiv Technology, 2022)

According to Petrosyan (2023), manufacturing service has the most cyberattack among the top industries globally. The finance and insurance industry as the second, followed by the professional, business, and consumer services industry—where the commissioning company of the study falls under the category.

2.6 Business expansion and data analytics

The concept of data analytics capacity encompasses the capability to generate business insights by using a combination of organizational elements (Kiron et al., 2014). Alternatively, it can be understood as the process of uncovering concealed information pertaining to customer behavior (Erevelles et al., 2016). Data analytics systematically gathers and analyzes corporate entity information to make adjustments and achieve company objectives. It helps identify and monitor optimal projects, enhances team performance, and motivates proactive measures. Data analytics solutions also facilitate monitoring of their efficacy and execution, ensuring optimal outcomes (Renous, 2022). However, Joy (2022) indicates that to optimize the results of the business data interpretation, businesses must first determine what data to acquire, which can be gathered from multiple sources such as social media, GPS, and transaction data.

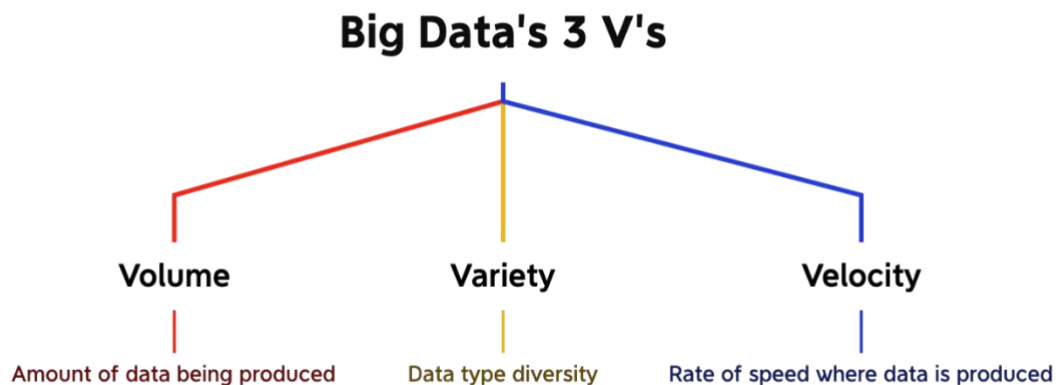
However, Ren et al. (2016) stated that for businesses running in developed countries, data analytics is generally acknowledged as a crucial aspect especially when handling big data. According to Manyika et al. (2011), there are chances of utilizing good quality data in decision-making processes enhances the economy and boosts growth. The utilization of big data analytics can further augment procedures for making decisions by methodically organizing and analyzing trends and in disguised information (Ahmed et al., 2022). Similar to that, the findings of Kościelniak and Puto (2015), In the business world, big data analytics gives companies a competitive advantage. However, the application of traditional data for the purpose of informing decision-making is not an original idea. For instance, one approach involves identifying preferred product characteristics by analyzing customer preferences, as demonstrated by Ziora (2015). In addition, Okonkwo (2023) the use of data analytics can facilitate firms in acquiring a more profound comprehension of their operational processes, and competitive landscape. Consequently, this enhanced understanding can contribute to more informed decision-making, enhanced employee efficiency, and heightened competitive advantage.

Furthermore, data analytics can give most of the businesses with the option to make informed decisions grounded in empirical evidence, rather than relying on conjecture or supposition. Through the utilization of information, organizations have the ability to enhance the operational processes and provide a solid basis for long-term and sustainable expansion. The potential consequences of employing data-driven decision making are substantial, affording firms a distinct competitive edge over their counterparts who do not leverage such technologies (Adams, 2023).

2.7 Barriers of analyzing big data

Incorporating big data for development purposes might be accompanied by various objections. The three main challenges of implementing data that a company encounters are highlighted by prior studies which involves volume, variety, and velocity. The illustration of these challenges can be seen below (Figure 3).

Figure 3. Hierarchy format of challenges of analyzing big data. (Author's own work, 2023)



In the context of big data, volume reflects the quantity or depth of data being generated, collected, and evaluated. It shows the abundant volume of data that is greater than the standard data. Volume is the one involved in managing massive amount of data, including storing, extraction, and processing as well as techniques for organizing and assessment (Sheth, 2014). On the other hand, Tole (2013), referred to volume as the data that is being evaluated to reveal outcomes. Tole mentioned that volume brings a challenge when it comes to handling a large amount of data since it also requires multiple resources to deliver desired

results. Another challenge is that the processing system of a computer is limited by the current technology, thus, needing a more powerful system that can handle a quicker process rate. To achieve this, infrastructure must be improved but with a higher money spent.

The diversity of data sources and data types is indicated as the variety. Variety also refers to the semi-structured and unstructured data such as images, text, videos, and posts on social media and extends to structured data such as databases. The difficulty that this entails is that integrating and extracting valuable information from many data sources and formats is hard (Sheth, 2014). Along with that, Tole (2013) stated that variety is linked with a problem in organizing big data and making it understandable for any users that access it to avoid obscure results.

The rate of how quick data is being produced, collected, and evaluated is referred to as the velocity. It shows the fact that data in big data systems is often actual time or practically real-time. Velocity is also defined as the techniques and devices for managing data that are continuously streaming assuring prompt data analysis and making data-backed decisions in unpredictable circumstances (Sheth, 2014). Furthermore, velocity is all about how fast information is transferred to point A, which may have an end-user interface or a server, going to point B, which may possess the same qualities as point A. Due to the notable requirements coming on end users intended for streamed data in different platforms (laptops, mobile phones, tablets, etc.), this is also a crucial problem, a barrier that most businesses are unable to meet (Tole, 2013).

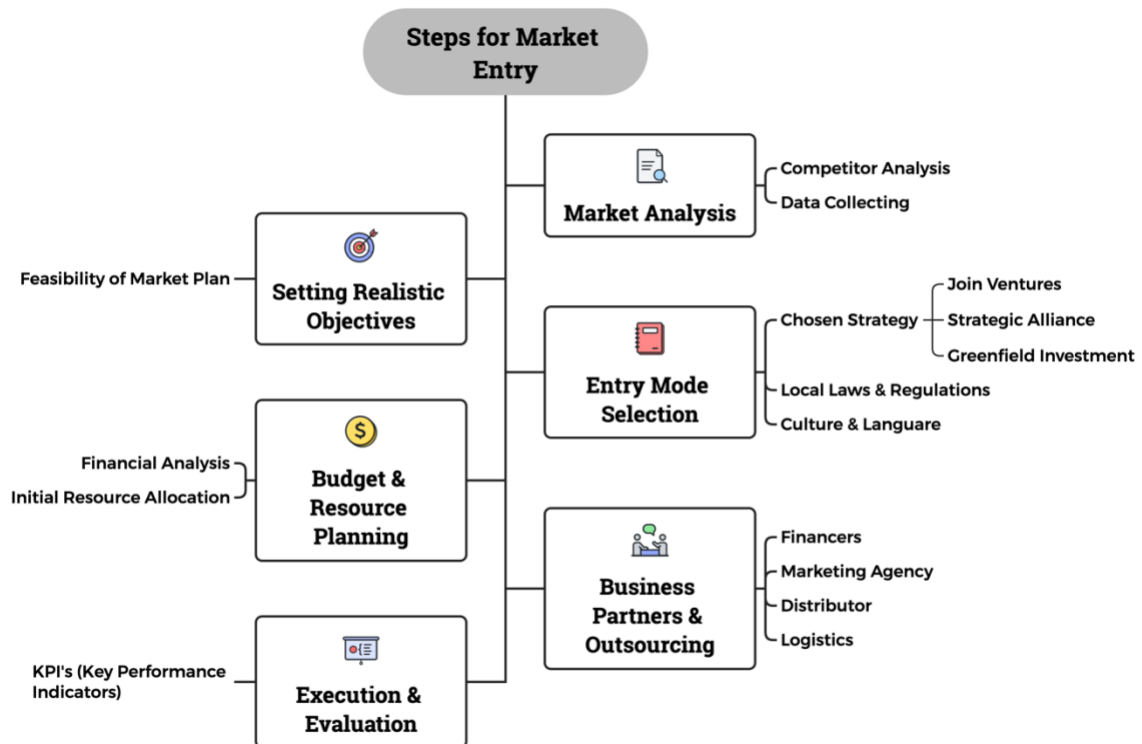
2.8 Steps of market entry

The process of offering a new product or services to a new customer base, new nation, and new emerging market is called market entry. When considering entering an untapped environment, an organization must implement a different market entry strategy to execute that organizes all the necessary to achieve the target growth. (Market Entry, 2022)

A company may be able to reach an array of new customers and increase profits by doing a market entry. But a market entry can have a complicated procedure. Market entry strategy is an approach that enhances an organization's chances to succeed in the new market environment. Market entry research is implemented to aid understanding in requirements for political, legal, and cultural guidelines of a new market environment. (Kadence International, 2022)

An illustration of the framework for the steps of market entry can be seen below (Figure 4). These steps are crucial for a multinational company entering a new market.

Figure 4. Framework for steps of market entry. (Author's own work, 2023)



2.8.1 Market analysis

It might be challenging to merge in an environment where there are already existing competitors. That's why before introducing the proposed product or services, a thorough assessment of a market's growth, size, competitor, trends, and customer needs to succeed in a new market. Collecting data to fulfill these categories can be gathered from interviews, reports, and open data sources (How do you create a market entry strategy and a go-to-market plan for your market gap solution?, 2023; Harel, 2018).

2.8.2 Realistic objectives

Creating realistic objectives guide the company for the market entry, this is because it measures the feasibility of the market plan such as– target revenue, pricing strategies, market share, and initial expenses for establishing the business. Being informed in the pricing scenario will offer a company to identify gaps and give competitive pricing (How do

you create a market entry strategy and a go-to-market plan for your market gap solution?, 2023).

2.8.3 Entry mode selection

The selection of market entry strategy is heavily affected by various important factors. It is consisting of understanding the main objectives, the language and cultural aspect of chosen market, as well as the rules and regulations in the specific region. Entry strategies are excellent opportunity grabber to develop an organization's reputation, which leads to scaling up the resources and capabilities. In legal terms, a thorough understanding is a must to avoid any lawsuit or damage to the company image. Local attorneys are effective in educating new businesses in a new environment. Knowing the culture and languages then helps the company to adapt and make a better target segment. (How do you create a market entry strategy and a go-to-market plan for your market gap solution?, 2023; Harel, 2018)

2.8.4 Business partners

People who acquire the local knowledge and can produce satisfying results within a period at a reasonable price. To meet the objectives, businesses often seek outside the own organization. Therefore, seeking the correct business partners ranging from distributors, financiers, and marketing agencies (Five Steps to developing a solid market entry strategy, 2020).

2.8.5 Budget and resources planning

Ensuring that there is enough resources and capabilities to deliver solution should not be missed when planning a market entry. To properly execute the plan, organizations need to allocate budget and resources accordingly, estimating expenses and revenues, and considering the financial analysis. Aside from that, human resource, technological and material capacity are to be noted (How do you create a market entry strategy and a go-to-market plan for your market gap solution?, 2023).

2.8.6 Execution and evaluation

Monitoring and evaluation of the company's actions and results in relation to the designated objectives is the final step. Key Performance Indicators (KPI's) is a good tool for keeping

track of the revenue, market share, and customer feedback. This helps in identifying the strong and weak points of an organization, and by that, adjust correspondingly. (How do you create a market entry strategy and a go-to-market plan for your market gap solution?, 2023)

2.9 Role of data analytics in market entry strategies for multinational companies

A multinational company, at its core, operates in multiple countries. This basic understanding of a multinational company is reflected in the work of Grosse (2004), where the author affirms that a traditional perspective of a multinational firm is that of a large industrial company with activities in more than two countries. The nature of these activities may vary, from sales and production to several other international business functions. The author emphasizes the centralized chain of command despite the geographical dispersion. To further expand, Jirava and Toseafa (2017) provide a more detailed definition of a multinational company. They state that multinational corporations which are often referred to as enterprises are typically seen as combined operating across numerous countries or continents but overseen by a singular nation. The authors look into the kinds of activities undertaken by these corporations which highlights direct foreign investment in target countries. According to the authors, these companies fall into four types: decentralized corporations rooted in the home country, globally centralized corporations, international firms leaning on the parent corporation's technology or R&D, and transnational enterprises merged features of the previous three.

According to Khadka and Akande (2017, p.7), the market entry strategy refers to the strategic approach employed to plan and execute the delivery of goods or services to a previously untapped market, while also considering the distribution within the same target market. To successfully achieve objectives in the new target environment, it is essential to formulate a strategic plan that considers the various stages of market entry process. These stages include assessing the condition of the target market, analyzing the competition within the target market, evaluating market policies within the country, considering sales and delivery strategies, and anticipating the expectations in the new target market. The decision for a firm to expand internationally is inherently fraught with danger. However, it is also regarded as a courageous endeavour for a small company, since it involves the recognition of potential prospects and the commitment to pursue them, despite the substantial risks posed to various resources, including financial, temporal, and logistical assets.

The figure illustrated below (Figure 5) shows the definition of common market entry strategies used by a multinational company.

Figure 5. Short definition of different market entry strategies. (Author's own work, 2023)

Market Entry Strategies			
	Mergers & Acquisitions	Joint Ventures	Greenfield Investment
	The idea of this strategy is when a company buys another company are forged becoming a one corporate.	Companies sharing resources and talents in order to achieve the same goal	A company expanding to a new market but starting from the bottom.

For companies that involve geographic and product strategies in the international marketplace, mergers and acquisitions have emerged as a prominent strategic alliance strategy. As companies persist in utilizing mergers and acquisitions (M&A) as a means to enhance their business operations and geographical reach, scholars, industry professionals, and policymakers need to possess a thorough comprehension of the potential ramifications and conduct a suitable cost-benefit analysis before engaging in M&A activities (Hossain, 2021). Data analytics have been used for decision-making in M&A activities. For effective decision-making, data analytics help define strategic goals that are aligned with the stakeholders. It also collects data employed for reading market dynamics, competitions, and regulatory environments. Through data analysis, the financial performance, potential growth, and operational efficiency of the target company can be assessed. Data analytics also help with due diligence for validating information accuracy, estimating synergies, and supporting complex negotiation processes. (How do you leverage data and analytics for M&A decision making and valuation?, 2023)

Joint ventures are a type of corporate collaboration established as a means of entry into new markets, characterized by reduced risk and the utilization of partners' core competencies to enhance financial gains. The role of finance is of utmost importance in the establishment and oversight of strategic alliances. The yearly growth rate of corporate alliances is over 25%, contributing to nearly one-third of the revenues and value of numerous companies. (Kumar, 2016). To be successful in looking for partners in joint ventures, data analytics take part in searching for the potential partners based on various factors including size of market, consumer preferences, profit, popularity, innovation, and growth. Through provision of evidence, benchmark, and forecasting, data analytics assist in giving better negotiation terms. Not only that, but data analytics also help to strengthen a company's value proposition, capabilities, provide for the partner's needs and scenario analysis. By utilizing data analytics, a transparent and balanced partnership agreement that lays out the terms and conditions of the partnership may also be developed. The performance of the

partnership can also be tracked through key performance indicators (KPIs) and even use data analytics to solve problems and enhance services. (What are the most effective ways to use data and analytics in partnerships?, 2023)

Another kind of investment is greenfield investment in which a parent firm opens a subsidiary in a foreign country, thereby initiating the development of new employment opportunities and infrastructure from inception. This particular form of investment affords the parent firm an enhanced level of authority over its investment, enabling the investor to formulate a strategic approach, ascertain sales of products or services, establish production rates, and define the pace of expansion within the intended market. Greenfield investments facilitate the process of adapting to foreign markets, hence enhancing effectiveness (Takefman 2023). The role of data analytics within greenfield investment project is that it helps with the project progress, probing inconsistencies, comparing of proposals and suppliers, project planning, data visualization through tools like Power BI, and analysis of overall procurement processes. (Puolimatka, 2023)

In conclusion, when a company goes international in order to grow and be more competitive, choosing an entry strategy is an important choice. A company's success in international business growth depends on the decision the stakeholders make and how the strategy is put into action. A business may decide to establish an operational unit in a foreign market and become completely incorporated is one possibility (Aulakh & Katobe, 1997). When presented with the task of entering international markets, entrepreneurs and managers are faced with crucial considerations pertaining to various aspects, including the selection of target markets and the determination of entry modes. Specifically, they must devise a competitive strategy for the foreign markets, outlining how they intend to compete effectively (Kogut, 1993). This means that the importance of selecting an appropriate international market entry strategy has been emphasized by numerous scholars and professionals. This topic is considered crucial within the field of international marketing because it significantly influences international operations, decision-making processes, and future performance in foreign markets. Additionally, the chosen entry strategy determines the allocation of resources, which are often challenging to transfer between different alternatives. Ultimately, the success and attainment of objectives are contingent upon these factors. (Zhao & Decker, 2004)

2.10 Company expansion in the Finnish market

A country in the northernmost state of the European Union is Finland which is bordered by the Gulf of Bothnia, the Baltic Sea, and the Gulf of Finland. The country has a total size of 338, 145 km² and a span of 1,157 km from north to south. (Map of Finland, n.d.)

Finland has a reported population of 5,581,767 at the end of July 2023 (Output of the national economy grew in June 2023 year-on-year but decreased from the month before, 2023). The currency currently used in Finland is Euro (EUR) replacing the old Finnish Markka (FIM) when the country joined the European Union (EU) in 1995 in reason of deepening economic integration with the neighboring European countries. (History of Finnish Currency - From the Markka to the Euro, 2022)

According to The Impact of Regulation on International Investment in Finland (2021), almost every foreign company that was surveyed saw technology, skills, and expertise as their main driver for establishing operations in Finland. Other relevant factors such as market access and networks with local partners are considered.

Furthermore, the Finnish government openly welcomes foreign companies and it offers various programs for assisting new businesses or expanding a firm. For establishing and growing business, Finland's stable political and economic environment gives a solid foundation. The country's strong educational system has a big contribution to its economic success. Major cities like Helsinki, Tampere, and Oulu attracts and is a location for other multinational companies such as Google and Bayer since it has strong international connections. Effective transportation by land and air provides a reliable gateway for international trade. Moreover, in digitalization, Finland is one of the front rows because of its well-developed data communication technology. (Järvinen, 2021)

Additionally, Finland's corporate tax rate of 20% is attracting foreign businesses and being entitled to have the same rights to benefits and grants the same with Finnish businesses when entering the Finnish market. New businesses continue to rise as strong innovation skills produce profitable results. (Leinonen, 2023)

Finland has demonstrated itself as a global leader in exports of refined petroleum and agriculture despite its small size. Its rich forest resources made the country a major exporter of wood while the advance technology contributed in major petroleum refinery. Finland's environmentally friendly forestry methods, strict laws and certifications guarantee that its

products are competitive on the international market. Therefore, making Finland an area of interest for the case-company AmSpec.

3 Methodology

This section discusses the techniques that will be used throughout the study. The detailed explanation of the outline of data gathering, research structure as well as the tool used for data gathering. According to Gratton and Jones (2004), although methodology has a shorter context compared to other sections, it is pivotal to the entire study since it shapes how the goal of the study is going to be accomplished.

As described by Taylor et. al (2015, p.3), a research method points out how researchers approach the problem and search for solutions. The term defines the method of performing research in social sciences. The research method facilitation is influenced by the researcher's assumptions, beliefs, interests, and goals. It is cautiously important to select a suitable research method since it will allow the author to collect the appropriate information needed while enhancing the credibility and reliability of the author's presented results. It is also considered as the "blueprint" that leads the researcher to obtain the data. (Gratton & Jones. 2004, p. 92)

3.1 Qualitative research method

Exploring and in-depth comprehension the complexities of human situations, decisions, and social phenomena are the primary objective of a qualitative research methodology. It aims to understand the arbitrary thoughts, concepts, and experiences that an individual or communities ascribe to their life circumstances. Rather than just emphasizing the "what" questions, it extends to "how" and "why" aspects. The experiences and perspectives of the chosen respondents or participants are the top weight in qualitative research. Qualitative research recognizes that different interpretations and realities are possible. It encourages different viewpoints and justifies the subjectivity of human experiences, giving the readers an informative and extensive synopsis that enables the content and details of the research to be comprehended. On the other hand, gathering a good quality of data for this research is crucial to encompass research studies, processes, connections, and perceptions. This is particularly important in the international context (Cresswell & Poth, 2016). It makes it possible to investigate in depth the difficulties that surround human choices and circumstances. One can learn more about the complexities of market entry by looking at the

motives, difficulties, and decision-making procedures of the multinational corporation (Denzin & Lincoln, 2018). Employing data analytics for creating a long-term strategic business decision and a multinational corporation entering the Finnish market, where qualitative research is an appropriate technique is the focal point of the current study. Qualitative research also makes it easier to explore arbitrary opinions and beliefs that are held by both company stakeholders and the Finnish market. It is necessary to investigate perceptions of the Finnish market as well as potential risks and possibilities to acquire a thorough understanding of the various variables driving corporate expansion decisions.

3.1.1 Semi-structured interview

A qualitative method in research known as semi-structured interviews takes an adaptable and open-ended approach to gathering data. This approach allows for flexibility in follow-up questions and in-depth probing by having the researcher prepare a list of core questions and topics to steer the conversation. Semi-structured interviews give participants the freedom to elaborate on their comments and offer rich, contextual insights, in contrast to fully structured interviews with fixed questions. Researchers can greatly benefit from semi-structured interview's multidimensional approach to data collection. They produce first and foremost in-depth and comprehensive insights on the research issue. Participants are given the freedom to speak openly, expressing their ideas, stories, and viewpoints in their own words. This inevitably results in the gathering of complex data that goes beyond superficial reactions. Another major benefit of this approach is its versatility. To explore novel lines of inquiry, researchers can modify the questionnaire's line of questions in reaction to new findings. When examining complex topics like foreign market entry and data analytics, this adaptability ensures a deeper and more thorough exploration of essential ideas. Semi-structured interviews are also notably participant-centric, giving people a forum to share their distinctive experiences and ideas (Lopez & Whitehead, 2013).

Lopez and Whitehead (2013) added that the method's focus on contextual understanding also makes sure that choices and actions are fully located within their larger context. Participants can offer crucial contextual information that helps researchers understand the underlying motives and causes of the participants' actions. Additionally, using this method enables the discovery of implicit knowledge—awareness that participants may not be consciously aware of but are nonetheless intrinsically beneficial to the research issue. Finally, semi-structured interviews can be used to validate and further explain the results from other data sources. These interviews can be used by researchers to look out the validity

of their analysis and findings is increased by the addition of new data and the improvement of the entire research picture.

When examining intricate phenomena like global market entry plans and data analytics use, this method is especially helpful.

3.1.2 Structured interview

A research instrument called structured interview for gathering data for qualitative research has the concept of using and asking predetermined questions to the interviewees by the interviewer. Similar information can be gained from asking the same questions by the interviewer (Indeed Editorial Team, 2022). Structured interview is most common in survey research as it involves planning of the questions where the researcher uses the same set of questions to different participants. In addition, using a structured interview brings an advantage since it provides consistency in the opinions, making comparison of the data possible. (Kumar, 2011). Using structured interview for face-to-face situations guide the researchers to gather not just opinions and information, but it also helps with the analyzing the tone, body language, and face expressions. However, in contrast to its advantage, conducting a face-to-face interview is costly as in most cases a researcher needs to travel to the location of the interview. However, the structured interview is less time consuming for participants who has little to no time. (Dovetail Editorial Team, 2023)

3.2 Case study

3.2.1 Commissioning company

AmSpec is a flexible and known company that offers a variety of services that address a particular requirement of multiple sectors. Specializing in quality analysis and compliance for petroleum and petrochemical products, AmSpec ensures that all the essential requirements of these industries are compiled through strict testing and in accordance with regulatory standards. AmSpec also acquires the ability to cargo inspection, verification of the quantity and quality of goods, during the transportation, vessel on-loading and off-loading, and storage. Moreover, AmSpec extends its expertise to consumer products such as oil seeds, cereals, and peanuts. The company's laboratories analyze fertilizers making it a trusted company for growers and traders. AmSpec's facility includes purity tests for minerals, metals,

and ores in compliance with the standard quality. Overall, AmSpec is a reliable partner delivering excellent services to different sectors.

AmSpec is known as a versatile and well-established company providing services in various sectors such as agriculture, energy, marine services, infrastructure as well as consumer products. The company's main activities are quality analysis and compliance for petroleum and petrochemical products, cargo inspection, quantity and quality verification, purity test, and is not limited to certification of consumer products like oil seeds, cereals, and peanuts. There are 166 laboratories running under the operations of AmSpec. Overall, AmSpec is dependable and reliable for the dedication of its expertise.

The case study on AmSpec offers a thorough analysis of the company's most recent commercial expansion plan, with a focus on its introduction into the Finnish market and the strategic application of data analytics to help decision-makers make well-informed choices. This in-depth investigation aims to reveal the intricate details of how a multinational company like AmSpec orchestrates its entry into worldwide markets while using data analytics as a key engine for growth. The case study on AmSpec is a thorough investigation of the company's approach to penetrating the Finnish market on the international level as well as its utilization of data analytics. The study's first component carefully analyzes how AmSpec methodically planned and carried out its introduction into the Finnish market. It explores the essential components of market research, choice of entrance tactics (such as partnerships, acquisitions, or organic growth), and creation of localization plans specific to the peculiarities of the Finnish market. This investigation seeks to identify the critical success elements and difficulties associated with multinational company's forays into international markets, offering insightful information to both academics and business professionals.

The case study's second crucial element focuses on AmSpec's skillful application of data analytics throughout the expansion process. It examines the manner in which the business gathers, evaluates, and applies data to guide decisions at each stage of the penetration in market. This includes locating pertinent data sources, using tools and processes for data analytics, and incorporating data-driven insights into strategic planning. The paper illustrates the concrete and competitive advantages that data-driven decision-making may have upon multinational firms operating in international markets by dissecting the function of data analytics inside AmSpec's expansion strategy. This case study provides a comprehensive look at the successful international expansion of a global chemical corporation, emphasizing the merging of precise market entrance strategy with the ability of data analytics to foster the long-term expansion of the world's economy.

3.3 Data collection

In the phase of data collection, the author interviewed employees at different managerial levels of AmSpec company in Finland, employees from similar companies as well as experts in the area of business and data analysis through the use of semi-structured interviews and structured interviews focused on the following themes: barriers and limitations of data analytics, key advantages of data analytics, and effectiveness of data analysis. The researcher recruited the participants through personal connections. The author conducted semi-structured interviews with three participants via online while the other one was conducted face-to-face. All the respondents have expressed their respective insights through the respondent's chosen data collection method. The interviews had been scheduled and had been set up in a method where the discussions and conversation would be more comfortable and suitable for the interviewees. The first interview was conducted on the 27th of September 2023, the second interview was on the 5th of October 2023, the third interview was on the 21st of October, and the last interview was on the 26th of October. All 4 participants answered a total of eleven questions that will serve as the guide for answering the main question of this study. The semi-structured interviews from three participants lasted approximately 30-40 minutes while the structured interview took 15-20 minutes. The transcription took 39 pages for all the interviews which was gathered from the recorded interviews and written by the author in a verbatim way.

The outcomes from the interview and survey will be presented and elaborated in chapter 4 of the study, followed by the conclusion, and lastly the recommendations.

The data collected was anonymized and coded, where the first participant will be identified as Respondent no. 1, second participant will be referred to as Respondent no. 2, the third participant's nickname will be Respondent no. 3, and the fourth participant will be Respondent no. 4

Before conducting the interview, the author first assured that the participants' profile information will be anonymous, and the detailed responses will be confidential.

3.3.1 Data analysis

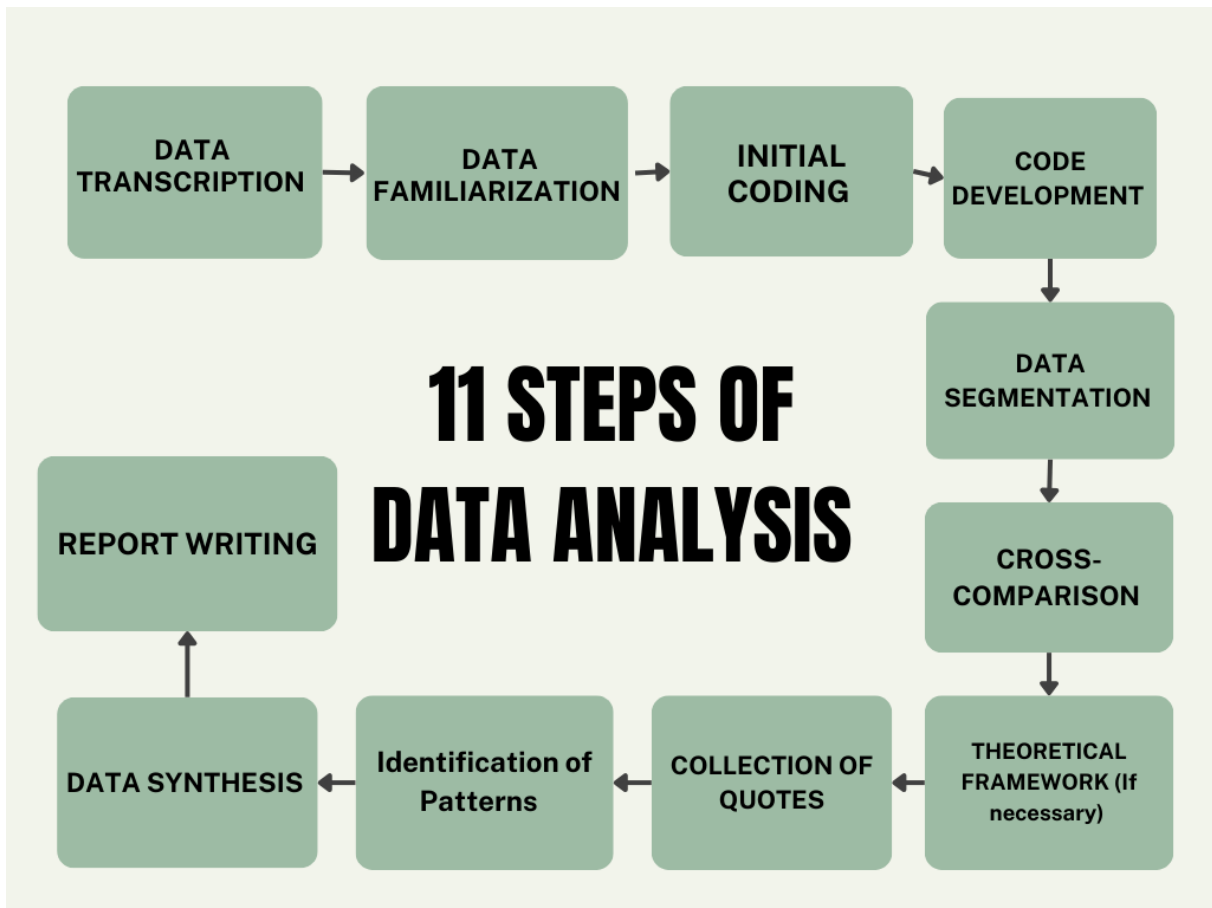
The use of deductive approach was applied in the study's data analysis procedure which follows an eleven-stage method that is properly planned out. These phases start with data transcription, which entails verbatim transcription of the recorded interviews to create a

written record of the discussions. The data is organized to be analyzed more easily in this stage of data analysis (Smith, 2018). After transcribing, the procedure shifts to data familiarization when researchers immerse themselves in the transcriptions through repeated readings, aiding in the development of a fundamental grasp of the subject (Birks & Mills, 2015, p.71). Initial coding serves as the next step in the research process, which involves finding the first codes or keywords within the text that represent recurrent patterns discovered in the interviews (Saldaña, 2016). The next step is code development, which entails developing a coding framework that organizes codes into broad topics and sub-codes using both deductive and inductive coding techniques (Miles et al., 2014). The next step is data segmentation, which divides the interview data into groups based on the identified codes and patterns to provide a more structured analysis (Guest et al., 2012). When a researcher compares and contrasts data segments from numerous interviews to find commonalities, differences, and shifts in participant replies, it has arrived the stage of cross-comparison where it ultimately improve the validity of results (Braun & Clarke, 2006). If necessary, a theoretical framework is used to direct data analysis and interpretation, giving the results a structured perspective (Creswell & Creswell, 2017). Following is a collection of quotes that serve to support the study's main points and conclusions by drawing on pertinent quotes from the interviews (Charmaz, 2014). Finding patterns is crucial as academics look for overarching stories that answer the current study concerns. To integrate the coded data and patterns into coherent narratives that answer the research objectives, data synthesis is then done. (Miles et al., 2014)

The research report is produced using the analyzed data during the report writing phase in data analysis procedure. This report communicates the findings, insights, and conclusions from the semi-structured interviews of the study, ensuring that it is well-organized and in line with the goals of the thesis. (Silverman, 2016)

The figure underneath (Figure 6) shows the step-by-step process of proper data analysis used by the author.

Figure 6. Flowchart of steps of data analysis. (Author's own work, 2023)



4 Results

Data analysis intends to organize mass information with the purpose of responding to the research questions, therefore, in this chapter of the study, the outcome from the interview and survey will be presented and elaborated highlighting the influence of data analytics for market entry, risk minimization, and competitor analysis. The challenges with using data analytics will also be discussed. This chapter will then be followed by conclusions, and lastly, the recommendations formed by the results.

4.1 Analysis of findings

The first theme has four questions that discuss the key advantages of data analytics for business planning and market entry performances. This theme also explored other facets of data analytics in the context of competitor analysis and risk mitigation. Respondent no. 1 mentioned that there is a must to gather further information about the changing market

conditions because of external factors such as geographical conflicts. Relying on own previous bits of knowledge and interviewing helped in understanding the changing market conditions while data analytics was used for ROI estimation, price policy, company sustainability, and decision-making for entering the Finnish market where it needs data-backed evidence. Data analytics also provided information in the context of risk mitigation, competitor analysis, and determining the potential market share. Respondent no. 2 pointed out two main things where data analytics helped with market entry decisions, these are the simplification and standardization of processes in the company and improving competitiveness. Data analytics was also used for time management to execute a smooth entry progress, designating a reasonable and competitive price, clarification of the feasibility of the market plan, and locating and securing any weakness and shortcoming of the company that may result in a risk. Determining the sustainability of the business, understanding the compliances and policies, and identifying the most suitable approach for the business are mainly influenced by data analytics according to Respondent no. 3 in the context of market entry. In addition to that, Respondent no. 3 indicated that “data analytics help in what would be the best approach while [the company] are establishing the business [here] in the new market” and that public sources can be used for collecting data, these data then can be applied to the execution of business plan until accomplishing the market plan. While Respondent no. 4 highlighted the importance of having a recent information for creating a market entry plan and extracting information from the collected data. The acquired data can be understood by using instruments such as business canvas. The accumulation of data depends on what kind of market the business is. Business-to-business (B2B) requires business networks and business catalogs while understanding the demographics data and consumer base preferences for the business-to-customer (B2C) market entry when it comes to entering a market. Moreover, it is beneficial to use unfair advantage under lean startup canvas for understanding for analysis of competitors, this is because it identifies who is currently solving the customer’s problems, and how this company is solving the problem, and this leads the company to do better, quicker, and more affordable against the competitor to win the competition in the market.

“Data analytics is everything because otherwise, it's just a guess... And of course, in sometimes good educated guesses is enough... Not when companies are making a decision they are investing like hundreds of thousands or even millions.” (Respondent no. 1).

The second theme addresses how to tell when the data analysis is effective in the market entry process, this theme also included some situations where data analytics is used given by the three participants. Respondent no. 1 emphasized that “[the company is] looking at the

real data there, what has been happening, so it's a historical data and to derive it for the future data." The three main points within this context was also mentioned, firstly, the data analysis method is considered effective when it enables the company to understand and interpret the current market trends, the second is when the data analysis strategy used allows the company to appropriately react to the changing market environment accordingly, while the last point was when data analysis is effective in guiding the overall adaptation of the company to its environment. A situation of market entry strategy used by Respondent no. 1 was described as quick and bare which means that the company started with offering the bare service to the customers, these decisions were chosen in light of the data analysis used by the company. From the perspective of Respondent no. 2, data analysis was considered effective when it reduces the time of doing the tasks for example quantity auditing as well as when data analysis influences the development of proper resource allocation. Besides, data analysis in the situation of market entry helped in locating areas where there are limits and enabled them to break down problems and put into smaller pieces to be able to handle more effectively. By doing this, it allowed them to extract meaningful algorithms making the tasks more manageable. According to the Respondent no. 3, when a dedicated prediction according to the analyzed data become an occurrence, that's when data analysis is working positively since it provided a positive outcome. As discussed by Respondent no. 4, implementing data analytics in an organization needs to be organized by a capable person who is also aware of the data governance. Respondent no. 4 added that open data source to collect relevant information needed by the company can affect in the situation of decision making for market entry. Data analytics in this context guide the company to identify the most suitable market.

"The data governance has been done effectively when people can read data... data governance, if done properly, people will become to understand the importance of data and it will create good results because knowing always means that you can get ready for the future." (Respondent no. 4).

The third theme converses about how data analytics can assist in the company's adjustment in the new market. Respondent no. 1 expressed the importance of real-time data for enhanced decision-making because this gives the company a chance to react according to any market movement, example of this is handling a delayed shipment and minimizing its impact to the company's operations and customers, real-time data analytics also enhances in adaptability and agility of the company for adjusting the strategies depending on the current situations of the market. Respondent no. 1 also clarified that for a better improvement of the company in a new market, data analytics is used for its everyday situation. Respondent no. 2

stated that data analytics is the basis of continuous service development and resource allocation, employing the abilities of data maintain the capabilities of the company to compete and go with the flow of its environment, Besides, Respondent no. 3 stated that data analytics “mainly helped in the adjustment of where to put the resources” and choosing the best location for establishing and operating the office to fit in the new market. Respondent no. 4 indicated that data analytics enables the selection of suitable marketing strategies that will help in the adjustment of a company in a new market.

“This location was chosen based on the data that I collected, and the main office has collected.” (Respondent no. 3).

The fourth theme delves into understanding of challenges encountered while entering a new market. The biggest obstacle mentioned by Respondent no. 1 with implementing data analytics is that relying on historical data alone “doesn't predict the future”, which is a common issue in data analytics. Especially when data is affected by external factors such as geographical and political situations. The comparison between the gathered data from new market and the existing market was mentioned by Respondent no. 2 as a challenge, due to the reason the different types and quality of data are to be considered to enable the evaluation of the performance of the market entry of the company. Respondent no. 3 answered that the initial stages of data analytics can be messy, this is caused by the difficulty of evaluating data for reliability and quality. Moreover, the stages of cleaning and organizing data adds complexity to extracting insights. Respondent no. 4 identified that “The biggest challenge is that data is not available”, and though it may be available, this does not give the assurance that it is relevant and functional for decision-making. Data quality was also mentioned as a concern; therefore, a reliable source is also important.

“Sometimes it's hard to find the data and sometimes the data that we have is not relevant, so these are the main problems.” (Respondent no. 4).

Possible solutions were also mentioned by the respondents. Respondent no. 1 expressed that in addition to utilizing data analytics, a person who has the business intelligence is an important resource of the company. This person must have the capability to understand the broader context and current trends in the industry. The business intelligence person should have frequent contact with the key players such as the clients to gather information about the future and port terminals for gathering the state of the situation. Respondent no. 1 also added that scenario planning needs to be developed for various situations to respond to challenges and opportunities effectively when data analytics falls short. Lastly, the person

responsible for business intelligence must possess the ability to connect the dots and extract meaningful insight from data. On the other hand, Respondent no. 2 indicated that a combination of different methods and innovative thinking is the next important skill to improve to overcome the limitations of data analytics. On top of that, Respondent no. 3 suggested that experienced personnel are another important resource of the company. Lastly, Respondent no. 4 identified that creating and possessing a good corporate strategy is the key to overcoming data analytics limitations.

“Everything is easy when you have a good strategy, a good business plan, a good strategy.”
(Respondent no. 4, 2023).

4.2 Discussion

This section will include the four research questions to draw out the themes, and insights from the responses of the participants. This will ultimately serve as a guide for evaluating and analysis of data analytics when associated to market entry.

4.3 Key advantages of data analytics in market entry execution and business planning

4.3.1 Market Research

In the stage of market research, all participants highlighted how important data analytics is to market entry and business planning. To obtain comprehension of the volatility of market conditions, keeping in mind the other parties that could cause the changing environment of the business environment, data analytics is crucial on making informed decisions for market penetration. Additionally, a business canvas for business planning can be useful for comprehending the data collected. This is because data-backed decisions create stronger credibility rather than depending on “just knows” and intuition.

4.3.2 Competitor Analysis

Involving data analytics for competitor analysis is essential since it gives the company a projection of target market share and an assessment of how the competition will be. The first two participants involved data analytics for the pricing strategy that will be used against the

existing competitor. The first interviewee elaborated that the proposal for pricing of the services is also affected regionally and by the amount and kind of service needed. The use of a lean startup canvas is also a good tool for understanding the data gathered from the competitors.

4.3.3 Risk Minimization

Data analytics is used to determine for choosing the best place to put the resources to minimize risks, it is also used for locating any fragile areas in the market plan. Data analytics also instructs a company to avoid encountering risks whether in human or financial risks, but enabling this requires the proper knowledge management with current data.

4.3.4 Resource Allocation

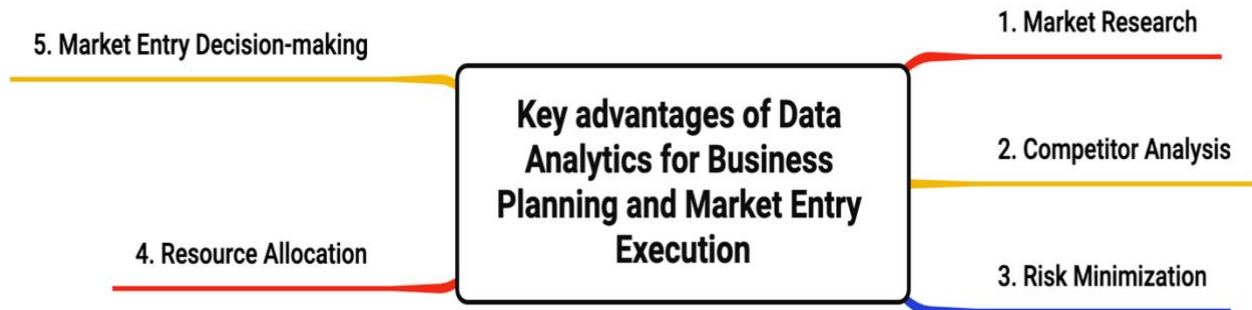
Although resource allocation was identified in different situations, the participants utilized data analytics to determine the most efficient way to allocate resources. Data analytics helped specifically for understanding the need for capital and human resources. Since it also helps to point out the weak areas, data analytics directs businesses to where the resources could have a better probability of success in the new environment.

4.3.5 Market Entry Decisions

Comprehensive understanding of the market situation, trends, potential opportunities is important before entering a new market, this is to allow to gain access to meaningful insights and information. But people who has the attribute to clean and organize the data is also important.

Below is a simplified illustration (Figure 7) that emphasizes the key advantages of data analytics for business planning and market entry execution.

Figure 7. Mind map format of key advantages of data analytics for business planning and market entry execution. (Author's own work, 2023)



4.4 Main categories affected by data analysis in market entry

4.4.1 Business strategy selection

Data analysis is considered effective when predictions of the future based on historical data is implemented as it enables the ability to provide insights and apply it to the current and potential scenarios. regardless of unpredictable external factors, it also allows companies to grasp and act on the current condition of the market, enhancing the ability to respond and adaptability of the company regardless of unpredictable external factors.

4.4.2 Resource allocation

The decision for resource allocation and operational setup were influenced by the data analysis techniques used by the company, including the operational scope, quantity of people needed, and initial investment. This presents that strategic decisions are not only affected by data analytics, but it also has a direct impact on how to properly distribute resources, to align with the company's needs and capability.

4.4.3 Performance management

It is considered positive when data analysis was able to decrease the time needed to do the services. This increases the overall performance and maximizing the use of time for the

company. In addition to that, the comprehensibility of information extracted from data is also a sign that data analytics is effective.

4.4.4 Market entry planning

Data analysis is considered effective when it helps an organization for targeting the correct customer preferences by evaluating specific previous customer information. This leads the company to identify the first best service to offer while a company is still on the stage of establishing in a new market. Through employing data analysis, a company can open doors for a quick grabbing of opportunity.

4.4.5 Risk Management

Data analytics is a pivotal instrument for uncovering blurred uncertainties and areas prone to risks in market entry process. With the help of data analysis, problems that may occur in the market entry of a company may be broken down into smaller pieces to be able to manage more effectively.

The main categories that are affected by data analytics in the process of market entry is illustrated below (Figure 8).

Figure 8. Mindmap format for effect of data analytics in different stages of market entry. (Author's own work, 2023)



4.5 Using data analytics for company adjustment in new market

4.5.1 Market adaptability

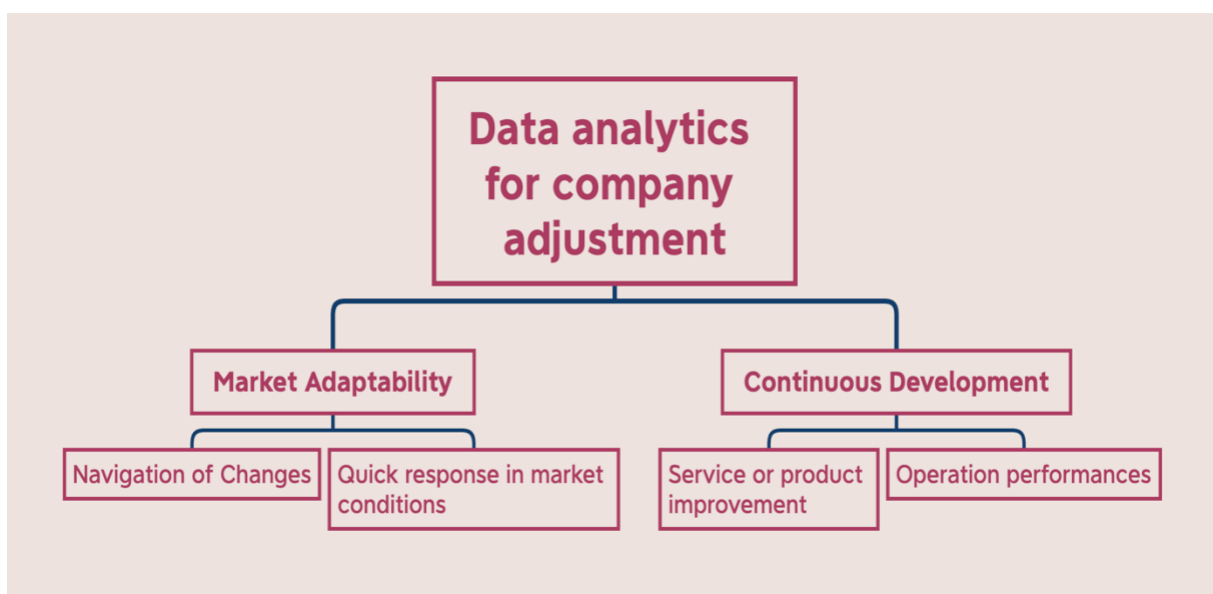
When a company is still trying to get used to the new market environment, the data used for data analysis is important since it affects how the business is going to take the next step and which direction it must take. With the everyday changing of situation, a business is needed to properly navigate through these changes and stay competitive. Businesses should also respond quickly in any market condition, and focus on areas where it's needed, data analytics allows to choose which strategy is the most efficient for the adjustment of a company in a new market.

4.5.2 Continuous improvement

Implementing data analytics helps with continual improvement by giving beneficial feedback and evaluation on how plans and processes are done. It helps to meet the customer demands in some areas to avoid unexpected circumstances that could possibly be risk and may cause cost fluctuations.

In figure 9, the results of how data analytics influence the adjustment of an organization according to its environment.

Figure 9. Structure of using data analytics for company adjustment in new market. (Author's own work, 2023)



4.6 Limitations with integration of data analytics when entering a new market and proposed solution

4.6.1 Historical data reliance

historical data has a major role since it heavily affects on how to foresee the possible situation in the future. The challenge with historical data is that it cannot produce a fixed and precise prediction all the time due to many variables such as geographical and political conditions that are affecting the market conditions, as well as the unrevealed factors.

4.6.2 Data quality

The differences between the old existing data and the new gathered data might present difficulties caused by the diverse types of data collected. The quality of data can differ between markets, and to gain insights that will be valuable for the company requires high quality data for analysis and to make informed decisions. An access to reliable source is a crucial part for gathering good data quality, as well as the relevance of the data.

4.6.3 Volume of data

When talking about the incorporated limitations of data, data volume could be too massive amount when collecting and organizing it. On the other hand, the guidelines of data governance supports the company to weigh up and organize the accumulated data.

The illustration below (Figure 10) presents the limitations with using data analytics and the proposed solution for the challenges.

Figure 10. Structure of limitations in data analytics when entering new market with proposed solution. (Author's work own, 2023)



4.7 Solution

4.7.1 Experienced personnel and solid corporate strategy

A person who has the feature of enough experience in the industry of business and is capable of understanding the field is next to the most valuable resources and skills a company must have when limitation in implementing data analytics is encountered. This involves innovative thinking to allow the capability of cooperating various techniques to create scenario planning needed in different situations. This can result in creating a good corporate strategy, meaning that possessing this leads to having a good business plan.

5 Recommendations

Data analytics improves the overall market plan, decision making, and execution of AmSpec's penetration into a new market. Per the research discoveries, there are still several elements that needs to be investigated and considered its possible competence when integrated into business decisions. To be able to maximize data analytics to its capabilities, such investments and actions must be followed:

- Incorporation of **Artificial Intelligence and Business Intelligence**- to overcome the shortcomings of solely relying on historical data, investing in artificial intelligence and business intelligence might be a good tool. A more accurate prediction of market trends might be provided by these technologies, which data analytics alone cannot

furnish. Furthermore, a person who has the proper knowledge and skills to combine or use these technologies should handle this situation. These people can proactively react to the opportunities and problems correspondingly.

- **Suitable Analytical Method-** Work with data can be complicated from the very beginning - starting from data collection, but also in data cleaning, data unification, and evaluation of the data's relevance and reliability. To acquire relevant information from diverse data, AmSpec can promote the combination of innovative thinking with various analytical techniques. This method can improve the company's overall potency. High-quality data is produced by proper data cleaning (Jain, 2023)
- **Educated and Experienced Personnel-** Individuals with extensive expertise in the field might also be an outstanding resource for AmSpec. The personnel's excellent understanding of data sources, data quality, and delicate in the specific industry can improve the data reliability and practicality implemented for decision-making. And lastly,
- And lastly, **Strategic planning and development-** To overcome the limitations of data analytics, it is essential that AmSpec should have a strong corporate strategy. Proper steps for data acquisition, warehousing, and quality assurance should be covered as well. A comprehensive corporate strategy safeguards that only relevant and verifiable data will be utilized in decision-making and the unnecessary information will be filtered out.

6 Conclusions

This study's objective is to find out how data analytics can support and enable successful market entry of AmSpec to the Finnish Market. Based on the qualitative approach done by the author, it can be concluded that leveraging data analytics facilitates an effective entry market of a multinational company. The theory of Born Global Theory supports the aggressive market entry action done by AmSpec for the aim of quick business expansion, despite offering minimal services. At the same time, the RBV framework supports the idea of maximizing the internal resources as the competitive edge of the company. According to the conducted interviews by the author, internal resources such as knowledge possessed by AmSpec's workforce contributed to the successful entry of the company into the Finnish market. Moreover, data information collected and used by the company such as previous

customer information assisted in gaining a competitive edge and market share. Another conclusion is that various factors such as market research, competitor analysis, risk minimization, resource allocation, and market entry decisions are heavily dependent on data analytics to create an effective market plan and execute it. These findings are in line with the article *How to leverage Data Analytics to future-proof your organization* (2023). On top of that, the final conclusions from data analytics and extracted information should be effectively visualized to the key players to activate well-informed decision making.

Data analytics in the context of risk mitigation is mentioned in the market entry process as well as under the evaluation of the organization's activities in the new market. This allows a company to identify risk-prone areas within the environment putting allocation of the resources to safety. It is especially important when the company is avoiding financial risks where well-informed decision-making is crucial. A study published by Mohan (2016), supports these findings, where it was mentioned that in the area of risk minimization and proper decision-making in an organization, data is being employed. Additionally, data analytics also guides the assessment of a company's market entry plan and execution. It helps to develop the next steps of modification of plans and for improvement of a company's operations.

However, the main limitations of the implementation of data analytics were also discovered by the author. The reliance on historical data does not always guarantee giving a trustworthy prediction of what the market trends will be. This is because there are also factors that are not controlled and dependent on data, such as geographical and political conditions. Another barrier to leveraging data analytics is the scarcity of relevant data in an ocean of different types of data. Finally, insufficient data quality might be a barrier as it is an important factor for decision-making because it will affect the outcome of the overall effectiveness of an organization's strategy.

This study's results add to the existing literature on the chosen topic and theoretical framework and provide new viewpoints for utilizing data analytics for business expansion.

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Appendix 1. Interview Questions

1. How did data analytics contributed to making the business plan and performing market entry of AmSpec to Finland? What aspects did the data analytics support during market entry?
2. How did data analytics helped in competitor analysis while entering the market of Finland?
3. What is the role of data analytics in minimizing possible risks for this new market entry?
4. Could you elaborate why in your opinion data analytics is essential for market entry?
5. What basis do you use to say that the data analytics/ data analysis method is working positively?
6. Could you share a situation where data analysis helped in making decisions while the company enters the Finnish market?
7. How did data analytics assist the adjustment of the company in Finnish market? (How it helped in improvement)
8. Could you give a specific example/ situation where data analytics influenced the company's operations globally?
9. What challenges in using data analytics have you encountered while entering Finnish market?
10. What specific skill or other resources would you say to focus on to overcome data analytics limitations?

Appendix 2. Information of data collection for each respondent

Respondent code	Kind of data collection	Date of interview/response
Respondent no. 1	Semi-structured Interview (face-to-face)	September 27, 2023
Respondent no. 2	Structured Interview (online)	October 5, 2023
Respondent no. 3	Semi-structured Interview (online)	October 21, 2023
Respondent no. 4	Semi-structured interview (online)	October 26, 2023

Appendix 3. Data management plan

The thesis author fully recognized the protocols provided by HAMK's thesis data management plan. The thesis supervisor from Häme University of Applied Sciences, the commissioning company, and the author have all signed and authorized the thesis agreement.

A structured interview and a semi-structured interview with the experts were used for the primary collection of data. The four conducted interviews were composed of three online and one face-to-face. The interviewees have agreed to use the collected data for this specific research purpose only. The participant's job roles are included in the data whereas personal information is not involved. All the data were recorded, and the data will be only accessed by the interviewees themselves as well as the thesis supervisor if needed. The data gathered by the author is stored in the author's personal computer which is secured with a password and has a VPN. After the thesis publication, the recordings are to be saved with the assurance of destroying the collected data for one year.