



Impact of KPIs Measurement in the Supply Chain in Fast-Moving Consumer Goods Multinational Companies.

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Abstract

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This research paper addressed the issue of the impact of metrics measurement on multinational companies in the FMCG industry. The author's interest in this topic stems from the constant dispute over whether or not this practice is worthwhile as there are strong economic implications for companies. The author conducts a research that aims to give multinational companies and the audience in general a clear view of whether or not there is a return on investment in this practice.

This work is based on theoretical research that deep dives into the concept of the supply chain in the fast-moving consumer goods industry, the theory behind KPIs, and their impact on the industry. The author enriches the work with qualitative and quantitative research applied to a sample of professionals in the supply chain field from a Fortune 500 multinational corporation with presence in 180 countries worldwide, and the experience of the author as an Customer Service and Logistics - Foreign Trade intern in this company.

The results of this thesis demonstrate a group of several benefits that the good practice of performance metrics measurement brings to multinational corporations that implement it within their supply chains, ranging from visibility into operations, budget control, planning accuracy, among others. The work exposes how a good KPIs practice can be implemented as a pillar for the operational excellence in any organization and how the benefits previously mentioned and many more create efficient supply chains that produce goods and deliver them on time, meeting the growing demand in the products of the FMCG industry.

Keywords

Fast Moving Consumer Goods (FMCGs) – Key Performance Indicators (KPIs) – Leverage Resources – Multinational Companies (MNCs)

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1 Introduction

This thesis is a research-based bachelor's thesis for the BBA in International Business with a major specialization in Supply Chain Management from Haaga-Helia University of Applied Sciences in Helsinki, Finland. The core goal of this academic work is to analyze the impact of the measurement of key performance indicators (KPIs) on the operations of multinational companies that to the fast-moving consumer goods (FMCGs) industry and their Supply Chains (SCs). This work includes a theoretical background with key concepts that aim to provide context allowing the reader to understand the subject. Research questions and investigative questions will be presented. Demarcations will expose the scope of the work, the goals as well as the non-goals, later on, an analysis centered on the internationalization scope of the thesis will be exposed. Finally, an analysis will be executed to solve the research and investigative questions presented at the beginning of this work. The results will be published and presented to the stakeholders involved in this academic work.

1.1 Thesis objectives and publication

The main objective of this academic work is to analyze how beneficial is to measure the performance of the SC operations in FMCGs multinational companies (MNCs) and understand what are the short, medium, and long-term advantages that KPIs records can provide to an organization. The document is done in a sequential framework that provides the reader with the theoretical background to understand the later analysis of the thesis without previous knowledge of the field of supply chain management.

This academic work contains a insightful research that FMCGs MNCs and their related stakeholders are able to use as a theoretical tool that can intrinsically provide organizations valuable information that will allow organizations to gain valuable data, and perhaps improve some of their real-life practices and operations after studying this product. The research will carefully address the advantages of measuring the operations and its performance and will conclude with the benefits after several qualitative research instruments are conducted on professionals within the supply chain management (SCM) field and complemented with in-depth desktop research based on documented experience from other academic and formative texts of the field.

2 Research Question

This thesis aims to develop a useful written framework that provides MNCs from the FMCGs industry, with a documented tool that presents the benefits of implementing good practices of KPIs measurement in their operations.

The baseline for this research is the research question (RQ) presented next:

RQ. How can multinational FMCGs companies gain productivity and leverage their resources by measuring the performance of their operations through KPIs?

To back up the thesis with a clear structure, the RQ is comprised of four investigative questions (IQs). Because of structural and academic matters, all questions will be addressed from the perspective of the MNCs in the before-mentioned industry although they can apply to all industries.

- IQ 1. How does supply chain management operate in FMCGs MNCs and what makes them complex?
- IQ 2. What are the global challenges why FMCGs multinationals should prioritize the measurement of performance metrics?
- IQ 3. How do KPIs measurement benefit FMCGs multinationals and what are the advantages in the short, medium, and long term?
- IQ 4. What are the key elements to design and select accurately the metrics that are valuable for the operations of an MNC in the FMCG industry?

2.1 Demarcation

The main focus of this research is to bring interesting findings regarding the main subject which is exposed through the RQ and the four IQs presented before. The target of the research is not limited due to demographic factors, it may apply to organizations with a different location, number of employees, organization structure, culture, mission, vision, goals, and any other special characteristic that makes any company unique.

The qualitative survey will be applied to a minimum of 20 professionals in any field of supply chain management in an MNC of the FMCGs industry, any bigger number of respondents is an advantage.

The thesis is limited to providing an in-depth analysis of the FMCGs industry, not any other one. Nevertheless, the results and analysis of this work may apply to other industries as well. Due to the background and previous professional experience of the author of this academic work, this research will be centered on the FMCGs industry, however, the conclusions can be interpreted and equally useful for different sectors of the business and sizes of companies with or without international operations. Likewise, the research thesis does not guarantee readers who carry out some of the recommendations made by the author total success in their operations.

This product is intended to provide enriching information, however, it does not guarantee that it will be equally effective in all organizations. The language is English and does not expect to be translated into any other language.

2.2 International Aspects

The GLOBBA Programme in International Business of Haaga-Helia University of Applied Sciences is a strong and practical degree intended to prepare students with skills gained not only from the theoretical basis but on practical and international matters. Because of this, a high degree of international scope is required for this thesis work. The international degree of this thesis is comprehended on the qualitative research backed up by desktop research. It which will provide valuable conclusions regarding the advantages (or not) of measuring the performance of operations of MNCs whose presence is international and whose corporate structure is based on geographical business units all around the globe. The results may be applicable and useful for companies in the FMCGs industry worldwide.

2.3 Benefits

In the first instance, this academic work intends to become an instrument that can contribute first to the stakeholders who will make possible the realization of this work. To all the interviewees who will be a fundamental part of the execution of the quantitative and qualitative instrument, pillar for this exercise. Secondly, the companies, represent who will benefit from the knowledge they can acquire from the results and conclusions of this work after its publication.

Stakeholders involved in the realization of this academic work are:

- Author
- Thesis Advisor
- Professionals in the SCM field
- Represented MNCs of the professionals interviewed
- Haaga-Helia UAS & UMY University
- Educational sector
- Industry
- FMCGs MNCs

Finally, any B2B or B2C FMCGs company that approaches this instrument will have the opportunity to gain some insights from the produced work that this represents.

2.4 Risk Matrix

As in any academic work, this project is subject to suffering difficulties and is exposed to viable risks in its process. Some of the possible which this thesis was faced are:

- Its overall cancellation
- Low level of participation and response of the stakeholders
- The desktop data collection was unsuccessful due lack of quality resources
- Prioritization issues
- Complexity due to bad time management
- Exposure to non-reliable information

Not all the risks impact the same stage of the thesis process, thus all of them will influence the outcome at a certain level. To forecast its viability, and analyze its threatened comprise, and the impact of the risk in the work the author designed a *risk matrix* presented below.

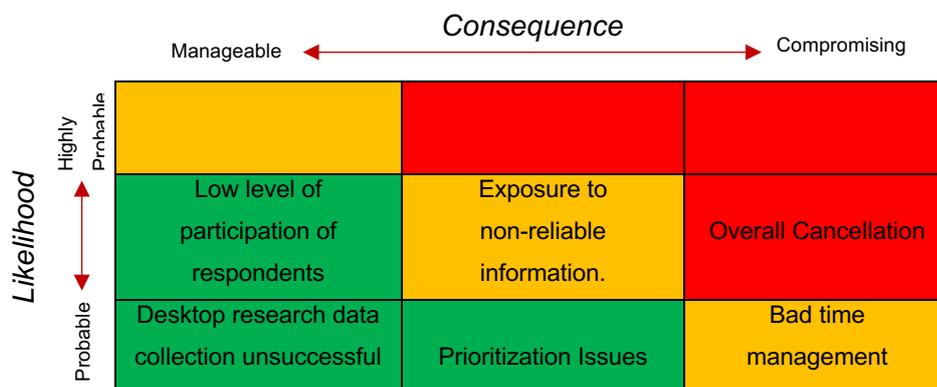


Figure 1. Risk Assessment Matrix (Author 2021).

2.5 Key Concepts

The following concepts and their respective definitions are explained next with the purpose to provide the reader the tools to better understand the thesis before, during, and after the research methods and their structure of it.

The key concepts shown next will appear several times in this work and some of them as abbreviations, nonetheless, they refer to their original word.

Fast-Moving Consumer Goods: FMCGs, also called consumer packaged goods (CPGs), refer to highly in-demand products, sold quickly, and affordable for consumers. Such items are considered “fast-moving” as they are quick to leave the shelves of a store or supermarket because consumers use them regularly (Corporate Finance Institute, 2021)].

Multinational Corporation: is a company that operates internationally. It maintains a central office located in one country, which coordinates the management of all its other offices, such as administrative branches or manufacturing sites. Its abbreviation MNC or MNCs when talking in the plural is also named Multinational Companies (Corporate Finance Institute, 2021)].

Key Performance Indicators: with the acronym KPIs, these are metrics used to periodically track and evaluate the performance of a business or organization toward the achievement of specific goals. KPIs are used to gauge departmental/section performance concerning the overall core objectives of the company (Corporate Finance Institute, 2021).

Leverage Resources: business-oriented, means enhancing the firm resources and capabilities to increase its competitive advantage. (Serge, S. 2013).

3 Supply Chain

The phenomenon referred to as globalization has comprised to create an interconnected world where for decades societies have developed relationships on an international scale developing strong political, and economic relations through the trade of products and services, international treaties, and exploitation of resources for manufacturing to meet the needs of the growing population. In 1960, Harvard business professor Theodore Levitt coined the term “globalization” in his book *Marketing Myopia* which rapidly popularized among corporations, consulting firms, and business schools since it comprehended new and never defined phenomena (Barnaby, J. 2006).

Mr. Levitt (HBS, 1960) coins globalization as the event that makes possible that multinational corporations to supply their products worldwide to make them always available on the shelves of their customers, in a business-to-business scheme

Now that globalization has been introduced, it is possible to talk about supply chains (SCs) since it is a pillar of this phenomenon due to their importance in the manufacturing economy. The Association for Production and Inventory Control Society (APICS) currently known as Association for Supply Chain Management defines supply chain management as “the design, planning, execution, control, and monitoring of supply chain activities to create net value, building a competitive infrastructure, leveraging worldwide logistics, synchronizing supply with demand, and measuring performance globally” (APICS, 2015).

In a supply chain, organizations manage the flow of goods, services, and cash through all the processes that transform raw materials into final products for the end customer. It includes the active business's supply-side activities to boost customer value and gain some competitive advantage in the market. A figure representing a model with the processes along a supply chain is presented next:

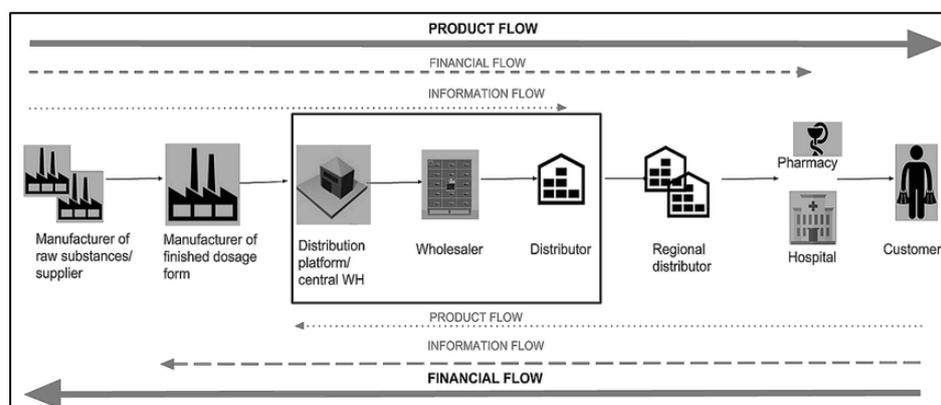


Figure 2. Supply Chain of pharmaceutical products (Markeuryeba, G. Valberga, A. Smirnov, A. 2018).

3.1 Supply Chain in Fast-Moving Consumer Goods (FMCGs) Industry

Fast-moving consumer goods “*FMCGs*” is one of the top-leading industries worldwide due to its large combination of consumer goods, brands, and products including categories such as health, pets care, home care, and drinks & food. According to the website Allied Market Research, the global FMCG market size was valued at USD 10,020.0 Billion in 2017 and is expected to reach USD 15,361.8 Billion by 2025, registering an incredible annual growth rate of 5.4% from 2018 to 2025 (Bhandarkar, S. 2018).

According to Professor Neil, H. Borden from the Harvard Business School, the FMCGs concept refers to the category of products that are sold quickly and at a relatively low cost (Belyh, A. No Year). Products such as canned food & beverages, snacks, bottled drinks, detergent, toilet paper, and any other basic household products.

The success of the FMCGs companies relies on six pillars that with the correct marketing strategy have made this industry grow exponentially and create a unique customer engagement with their brands and products.

The success of the FMCGs companies relies on six pillars that with the correct marketing strategy have made this industry grow exponentially and create a unique customer engagement with their brands and products.

- 1) **Mass Production:** of globally demanded products by the market which must lead to centralization of administrative and manufacturing costs out of the operating model.
- 2) **Mass Advertising:** to create a sense of availability among large groups of consumers. Players in this industry create mass advertising campaigns to spread messages of quality, trust, and differentiation.
- 3) **Mass Distribution:** by partnering with big retailers and other important distribution channels to maximize the full availability of their products in the market.
- 4) **Mass Product Innovation:** to be the first eye-catchers of the consumers. As well, as innovating on products that make consumer's life easier and add value to their life.

- 5) **Expansion to Developing Markets:** to penetrate with products and brands new horizons and get innovative products and brands worldwide.
- 6) **Merges and Acquisitions:** to consolidate the market, refresh the brand portfolios, reach new markets, and aim for an international market expansion.

3.2 Current Situation of FMCGs Industry

The FMCGs companies produce a wide variety of categories of products that people use daily without any demographic consideration. Due to its close relationship with other industries, the FMCGs companies play an important role in the global economy and represent a significant portion of the gross domestic product (GDP) of many countries. According to the Consumer Brands Association, *“the CPG industry is the largest manufacturing employer in the U.S.”* (CPG, 2021).

Likewise, this industry is a key driver of the country's employment rate. Figures reported by the same source state that the industry is responsible for 1 in 10 jobs in the US, which makes 2.3 million jobs, \$151 billion in labor income, and \$361.3 billion added to the nation's GDP. The key figures reported before representing a small portion of the quantitative streams of the industry in only one geographic market worldwide.

After years of close analysis, collected data from several studies show that yearly the industry exponentially grows due to several factors, from population growth to demographic consumer behavior trends like awareness of sustainable and less harmful products or environmentally friendly processes. Below presented, Figure 3 illustrates the annual sales raise for organic packaged food and beverages in Mexico from 2014 to 2020, it is understandable the exponential growth of demand in this category. Factors such as demographic growth, consumer trends, and market behavior, among others influence the rising numbers of sales in this industry. The yearly average growth is USD 3.3 million.

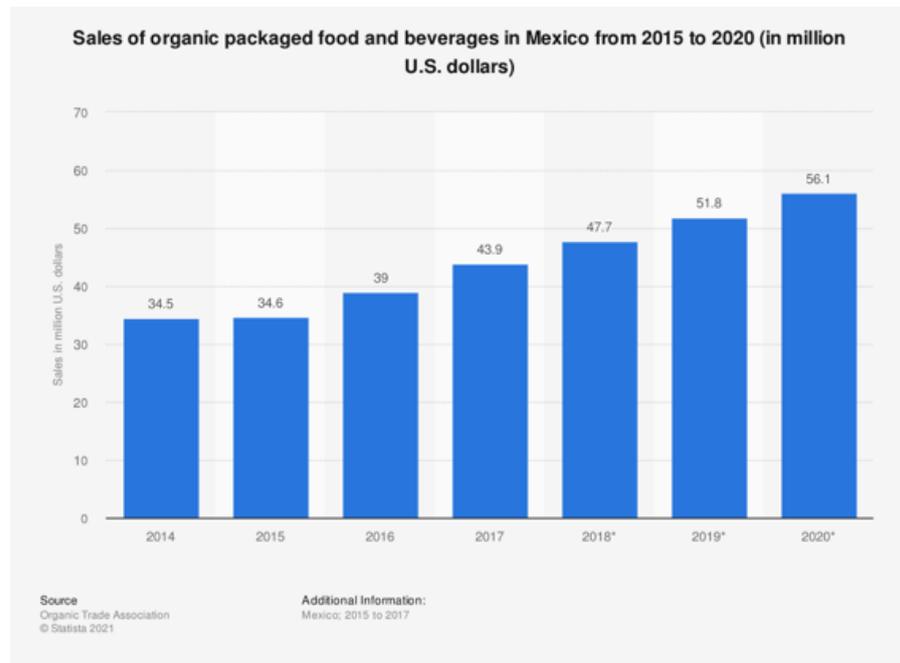


Figure 3. Sales of organic packaged food and beverages in Mexico from 2015 to 2020 (Statista, 2021).

Research conducted in 2020 by the Organic Trade Association and part of the results of which are shown in Figure 3 demonstrate that from 2014 to 2020 the sales of packaged food and beverages raised approximately USD 4 million annually in the Mexican market. In a leap of 6 years in Mexico, the sales in this industry raised about 64% which results in a yearly solid growth and maturation in consumer behavior.

Today after two years since the COVID-19 pandemic started, FMCGs MNCs have played an essential role, keeping consumers supplied with all the products and goods they need to sustain in their homes as they face the forced technological evolution to work, study, and almost live remotely. Companies that combine the consumer experiences with agile processes, and efficient SCs have significantly positioned themselves in the market and been strongly benefited by supplying the demanded goods during the COVID-19 health crisis.

3.3 Challenges of the FMCGs industry

According to Professor Ravi Shankar (2020) from the Management Development Institute, Murshidabad and Zahir Uddin from the Faculty of Business in the Jagannath University of Dhaka, the challenges that this industry faces today are more challenging than ever before after the pandemic started.

Because of its nature, whenever the consumption behavior of the market changes, the FMCGs industry is the first respondent regarding meeting the demands of the market since their products are essential in all households. The Global Consumer Market Report¹ (2022) by the Indian researcher site Absolut Reports, forecasts that FMCGs industrial sector will reach USD 2,382,260.00 million by 2027, from USD 1,938,120.00 million in 2020, at a compound annual growth rate (CAGR) of 3.0% during 2021-2027.

This industry has needed to adapt and redesign processes at all business levels. This last decade has been drastically changed and evolved. Companies have experienced the whole lifecycle of technological, political, economic, and strong societal changes that have been faced over the past years.

As a result of the fast-changing and outliving world, the obstacles in the industry dare day-to-day to the organizations whose mission is to have a seat in the of those who can play the game of fighting the market. Staying competitive and leveraging their resources at the same time is not equal to always being successful against challenges out there. Some of the newest challenges that the industry faces to are presented below.

1) Online Shopping and E-Commerce

E-Commerce has become a preferred source of buying not only in the business-to-consumer (B2C) but as well in the business-to-business (B2B) market. Insider intelligence eCommerce sales statistics report (2022) forecasts that the industry will grow by 16% and sales will reach USD 1.06 trillion in 2022. FMCGs companies are not essentially digitally native brands which makes it more challenging to sell their (almost always) retail products online and replace attractive on-shelf packages with an online consumer advertising strategy.

2) Social Media

Digitalized life has changed and influenced consumption habits and behavior in potential consumers. Data today moves at a fast speed and consumers prefer to acquire all products and services in as little time as possible. This, high pressured market demands SC processes to be more accurate than ever and reduce error margin as much as possible.

¹ Absolut Reports (2022) Consumer Packaged Goods (CPG) Market and FMCG Market Size, Types, Applications, Manufacturers: Know Experts Detailed Analysis on Global Market by 2027.

3) Environment & Sustainability

Today, customers prefer to buy from transparent organizations that are aligned with their mission, vision, and goals. Those who have clean processes and negatively impact as little as possible the environment is the preference of the new generation of consumers. Having sustainability initiatives is determining to win the customer market.

4) Market Rivalry & Threat of New Entrants

The big challenge of the market share today is between the big elder MNCs. Innovative and emerging competitors have become popular among new consumers generations. Companies with new innovative proposals and entrepreneurial business models and value propositions are strong competitors and even some top winners.

5) Economical & Political Challenges

While other new emerging challenges arise, traditional threads like political, economic, societal, and geopolitical circumstances impact directly manufacturing companies. Every day new manufacturing, transporting, sampling, and distributing policies arise in the international trade framework. Inflation in currencies and commodities affects the production costs that in the end impact the production costs, the selling price of the products, and lastly the economy of the consumer's households.

4 Multinational Corporations

As addressed before, MNCs comprehend the best group of companies that operate internationally. According to the Corporate Finance Institute (CFI, 2021), an MNC must be *“a large business and must own a huge amount of assets, both physical and financial”*.

It is important to highlight that not all companies that operate in more than one country are MNC because of this. For a firm to become an MNC goes far beyond having overseas operations and locations. The following are the common characteristics that define multinational corporations:

1. Very high assets and turnover.
2. Network of branches.
3. Regionalization.
4. Continuous growth.
5. Top leading technologies.
6. Large employee fleet.
7. High-quality products.
8. Strong marketing campaigns.

As exposed, becoming a multinational is not an easy task to complete and only the big firms who succeed in the business can become the top winners of the market. But despite such rigorous characteristics, MNCs enjoy a lot of benefits given the economic impact and influence they can have on the market.

These organizations are almost always accessible to lower production costs through local acquisitions, and site manufacturing hubs in foreign countries, which translates into spending significantly less on the logistics costs and manufacturing costs. MNCs can benefit from economies of scale and expand their global brands because of their size and impact. Strategic manufacturing/service placement enables the company to take advantage of undervalued services around the world, more efficient and cost-effective supply chains, and sophisticated technological R&D capability.

The company's proximity to other international markets, the access to bigger recruiting opportunities, and the financial savings opportunities through costs and expense diversification schemes are some other benefits that only organizations as large as these can enjoy.

As stated by Peter Ferdinand Drucker, father of the management “*The largest 100 corporations hold 25 percent of the worldwide productive assets, which in turn control 75 percent of international trade and 98 percent of all foreign direct investment. The multinational corporation...puts the economic decision beyond the effective reach of the political process and its decision-makers, national governments*” (Drucker, P. 1990).

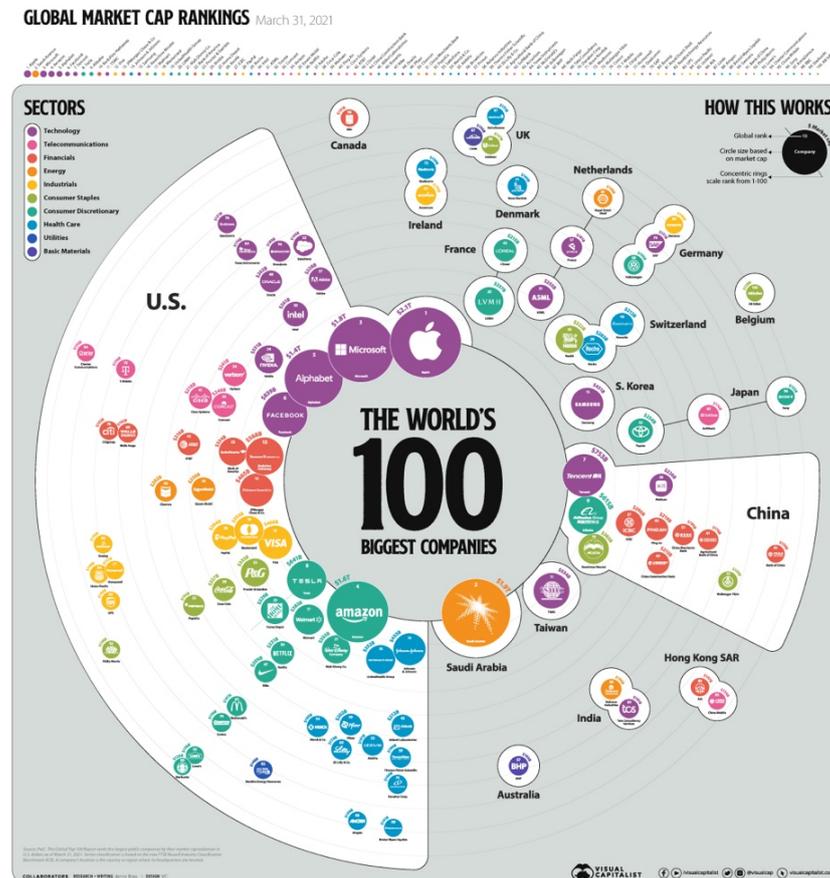


Figure 4. The World’s 100 Biggest Companies (Visual Capitalist, 2021).

The infographic presented above as Figure 4, shows the top 100 biggest companies according to revenue in 2021. International corporations such as Amazon, Apple, P&G, Facebook, and Citi Group appear on this list. It can be founded on a variety of origin, industries, sizes, and service or product among these corporations.

4.1 Multinational Corporations in the Fast-Moving Consumer Goods Industry

In the present thesis work, the concept of MNCs has been coined and defined previously. The research has been complemented with several figures and lists regarding the world’s biggest firms based on revenue. Nevertheless, this thesis aims to solve a research question “RQ” previously presented in chapter 1.2, which refers specifically to companies specifically in the FMCG’s industry.

A survey conducted by Lebensmittel Zeitung in 2020 and published by Statista (Statista, 2021), presents the major players in the FMCGs industry by revenue in 2020. Following Table number 5 presents the leading top five MNCs in this industry.

Table 5. Top 5 players in the FMCGs industry by net sales in 2020 (Statista, 2020).

Name	Country of Origin	Net sales in 2020	Corporate Image	Sector
Nestlé	Switzerland	93,610		Food&Beverages
Procter&Gamble	USA	70,555		Multibrands
PepsiCo	USA	70,372		Food&Beverages
Unilever	UK	61,333		Multibrands
JBS	USA	52,071		Food

*Net sales in million U.S. dollars

4.2 Current trends in the SCs of MNCs in the FMCGs Industry

One of the central objectives (if not the main) of all SCs is to produce and deliver the goods in time to satisfy the end customer, no matter if the customer is internal, external, or the operation is in a B2C or B2B scheme. Each operation should satisfy its customer while optimizing the use of resources and seeking cost reduction.

Along with an SC, several departments are involved to deliver the final goods to the end customer. Product design, product planning, procurement, logistics, manufacturing, and warehousing often are the departments directly involved in operating an SC and whose involvement can lead to different conclusions. As addressed in this work previously, the FMCGs industry is one of the top demanding industries worldwide, growing at an incredible 5.4% in the five next years (subchapter 3.1).

Due to the consistent and increasing growth of the industry at an incredible speed, some of the top leading MNCs in this industry implemented new tools and trends that have helped to create more agile, flexible, and resilient SCs to meet the demands of the market. Today more than ever, being able to satisfy the market is the main objective of all companies in the industry.

Based on the latest research (Maersk, 2021), new trends have emerged based on the needs of MNCs in the post-pandemic era. New demands from customers arise awareness in multinationals compromising meeting the demand while compelling the bottom line of the business. The result for the strategic latest trends is presented next:

1. More green and sustainable processes.

- Support the sustainability agenda.
- Focus on plastic reduction in the FMCGs SC.
- Emphasis on compliance with environmental and ethical production to increase customer trust and awareness through sustainability labels.

2. Rise of supply chain technology.

- Data-driven SC optimization through on-time visibility and cloud-based solutions.
- End-to-end data visibility facilitates decision-making processes.
- Implementation of autonomous technology such as robotics and additive manufacturing.

3. Supply Chain Agility.

- Flexible solutions to meet the logistics needs in the FMCGs industry.
 - E.g., the Extent of inventory warehousing to reduce the impact of logistics delays.
- Regionalization of manufacturing, supply, and demand.
- Reduction of lead times and delays of commodities and raw materials through local sourcing implementation.

4.3 Challenges of the FMCGs MNCs

A study applied to 1,024 professionals from the firms Deloitte and MHI regarding the main challenges to face in SCs during 2021 was conducted. According to the results published by Statista (Statista,2021) the main challenges that MNCs faced in 2021 were:

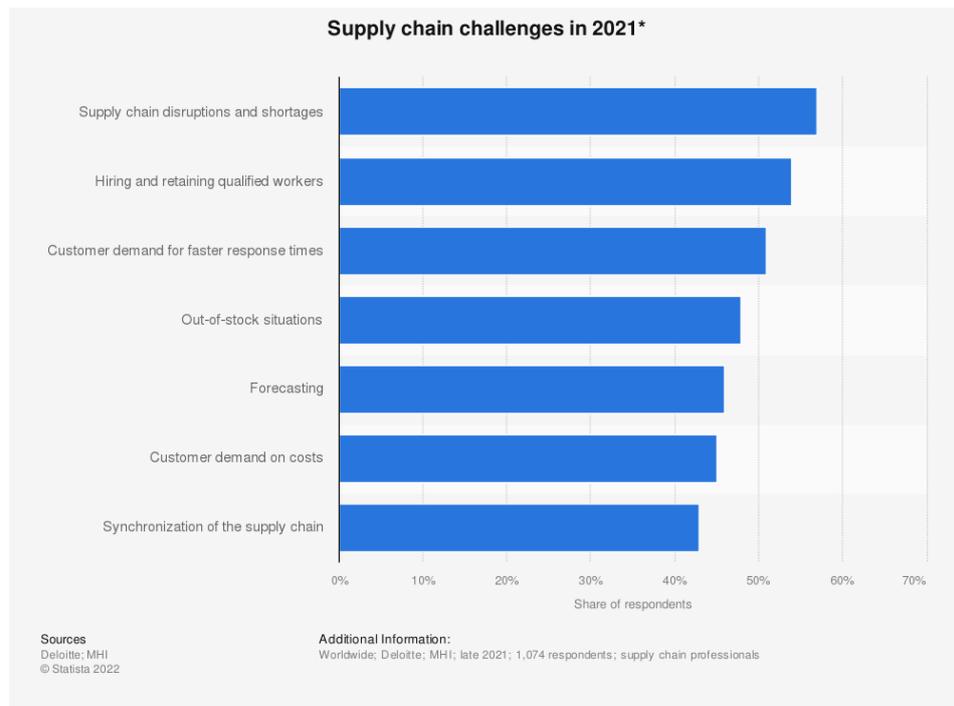


Figure 6. Supply Chain challenges in 2021 (Statista HMI, 2021).

Despite all the well known challenges and pains such as societal, governmental, and economic factors, after 2020 the COVID-19 pandemic a series of new challenges took place in the global manufacturing scene. Based on the previous year's data and insights, the National Customers Brokers & Forwarders Association of America (NCBFAA, 2021) has forecasted what are the coming challenges faced by the SCs of MNCs in 2022.

- 1. Port Congestion;** bottlenecks in ports across the world create additional delays to the over-the-road transportation of goods and commodities to manufacture worldwide. Port congestion isn't a new problem, however, since the pandemic, the number of port blockages has exponentially increased. This contributes to the out-of-stock phenomena in most MNCs.

- 2. Rising Freight Costs;** over the road and intermodal transport costs reached historical highs in 2020, spot prices increased from 18% to 27%, the main cause of these highs is the rising prices of gas (which increased up to +40% from 2020 to 2021). Costs contribute to slow replenishment in stocks of MNCs.
- 3. Restructuring Supply Chains;** 2022 will be the year of restoration and redesign. Leaders will need to recognize a need for a change and build strategic partnerships with suppliers, customers, and competitors to create viable structures for their supply chains that mark a sustainable impact, and meet the manufacturing demands.
- 4. Labor and Material Shortage;** given the lack of trade and difficulties in the logistics field, a lot of international commerce has been limited to the minor companies who can afford to pay for their materials supply. As well, the labor market feels a recession, and the demand for highly qualified executives grows.
- 5. Inflation;** prices shooting up on the market creates pressure on the prices of final goods. Inflation will be sooner or later passed to the consumers since companies aren't anymore able to assume the inflationary costs.
- 6. Struggles with demand forecasting;** in the experience of MNCs, the past 24 months of forecasting data are unreliable since demand and consumer behavior is unpredictable and arise in the COVID-19 pandemic. SC leaders do have not a true benchmark to forecast and look ahead with the continuously changing (and never-ending) demand behavior.

5 Key Performance Indicators

One of the foundations for both the theoretical and data research of this thesis work is the subject of Key Performance Indicators (KPIs). In previous chapters the key concept of KPIs was referred to, in this chapter, the author briefly but deep-down defines what are, how they work and their importance in MNCs, and what are the key implications they have in the SC.

According to literature from the author David Parmenter (David, P., 2015, 7.) in his book *Developing, Implementing, and Using Winning KPIs*, Key Performance Indicators or KPIs are ***indicators that focus on the aspects of organizational performance at different levels, these are the most critical for the current and future success of all organizations***. The importance of KPIs lies in the insights that their daily, weekly, or monthly precise tracking can deliver to the business.

Research conducted by the author (Parmenter, D., 2015) to over 3,000 experts on this subject proposes his theory of what are the seven characteristics of KPIs, these are exposed next.

1. **Non-financial:** if KPIs report financials, at that moment they convert into Result Indicator (*RI*).
2. **Timely:** they should be monitored with a previously defined cadence. Cadence is determined by the objective of measuring this KPI.
3. **Executive focus:** these indicators should provide valuable data for hard decision-making at the executive level of the organization.
4. **Simple:** it should tell what action needs to be taken.
5. **Team-based:** it is a result of many activities under groups of individuals.
6. **Significant impact:** the results of these metrics will provide data with a big impact on the organization.
7. **Limited:** the metric should create the desired behavioral outcome (e.g., Measure lead times in sea freights operations = results provide the desired time).

5.1 Designing and establishing winning KPIs in the FMCGs MNCs.

Despite the industry or size of the company, these metrics play a key role in all the organizations that have a productive process in which they turn any commodity or raw material into a complementary, prototype, or finished product.

These metrics are quantifiable and offer valuable insights regarding business performance. This data can be collected, analyzed, and used to improve the practices of the company to leverage resources and improve performance excellence.

In the industry exists a big list of commonly used KPIs among manufacturing companies for example demand forecasting, inventory accuracy, labor as a percentage of cost, on-time delivery, etc. Each KPI is structured by a specific formula which when replacing the variables for numerical data, a quantifiable and measurable result is given.

E.g., On-Time Delivery KPI Formula.

$$\text{On - Time Delivery} = \frac{\text{On Time Units}}{\text{Total Units}}$$

Performance Excellence

KPI	Total Number of Units	Percentage of Fulfillment
On-Time Delivery	10	100%

$$\text{On - Time Delivery} = \frac{8}{10} = ,8$$

Fulfillment of the KPI=	80%
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“*Winning*” KPIs are those metrics that are highly valuable and provide information that delivers quality data that can highly impact the business. Authors Hari Nallan and Mohita Jaiswal from Think Design (Think Design, 2019) exposes which are the required steps to create winning KPIs in organizations.

- Set your goals based on your needs and industry.
- Identify behaviors based on goals.
- Research on literature that is popular KPIs in the industry.
- Create SMART KPI metrics (Specific, Measurable, Achievable, Reliable, and Time-Bound as well as accountable).
- Decide the right number of KPIs.
- Define the KPI targets.
- Determine and optimize the frequency.

5.2 KPIs as a strategy in the SCs of the FMCGs Industry.

KPIs can become a strategy to achieve the organizational goals and improve the overall performance of the SC. The overall SCs objectives are to leverage resources, reduce delivery time, and generate savings by reducing costs. A strategy is a path an organization takes to achieve its vision, in a competitive environment. The strategy will distinguish organizations from their competition. All organizations create big strategic plans to get the desired outcomes, however, many strategic plans go nowhere. The 2015 literature on Developing, Implementing, and Using Winning KPIs by the Parmenter David (David, P., 2015), proposes a 12-step process that FMCGs organizations should be put within a 16-week framework. Figure 7 presented below exposes the twelve-step implementation plan proposed by the author.

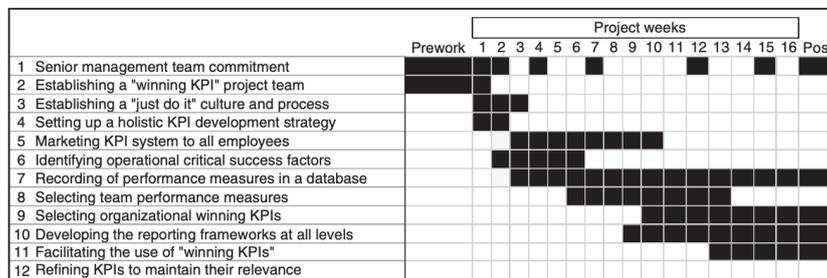


Fig. 7 The 12 Step Implementation process of a 16-week timeline (Parmenter, D. 2015).

As a continuity plan upon the KPIs strategy, the following step is constituted by a Dashboard where results are graphically presented. Through a dashboard, the team members, executive level, and stakeholders involved in running the SC can visualize the measured performance, redefine goals, and set new action items upon the goals. With the implementation of these two complements, the practice of KPIs track and follow-up can be defined as a strategy to achieve better results in the performance of the SC of an organization.

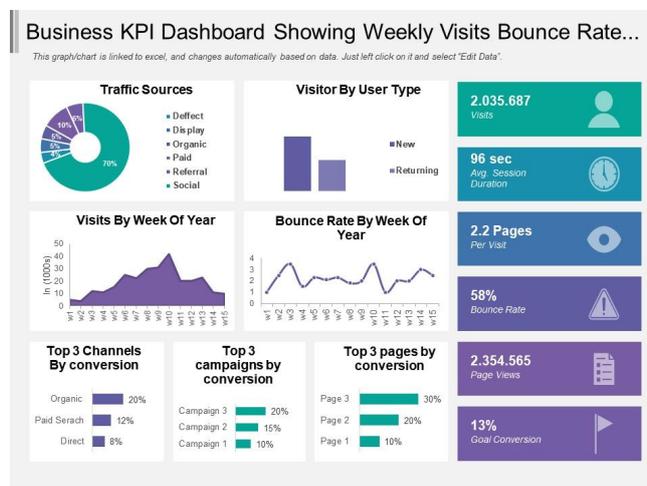


Figure 8. KPI Dashboard (N/A, 2018).

6 Research Methodology

The structure of this academic work is divided into two different parts. The first part of this thesis' structure is comprehended by theoretical research that has been exposed in chapters 2 to 5 of this work. In these chapters, all the theoretical data gathered from different sources provide the reader with an enriching background to the topic researched. Secondly, empirical qualitative and quantitative research was designed and applied by the author to professionals in the SC field who have many years of experience in the field. After the instruments were applied, the results were analyzed by the author of this thesis and interpreted. In the coming chapters, the results will be presented and the answers to the RQ and IQs will be exposed determining a conclusion for this work.

For the field research, the author conducted surveys and interviews with users in the Foreign Trade department belonging to the Customer Service and Logistics for Latin American division of an American MNC. The company operates on the 5 continents, runs 18 manufacturing facilities that produce over 30 different food brands worldwide, and sells its products in +180 countries. The company is ranked among the wealthiest 500 companies according to Fortune and is also among the 50 largest companies in the FMCGs industry. To execute the research for the present academic work, qualitative and quantitative instruments were applied to a total sample comprehended by three groups of users totaling a universe of 41 supply chain professionals for the final sample.

6.1 Research Design

A research instrument (Appendix 2) was carefully designed and applied. Two different surveys were run in the sample. Both instruments were composed of questions that compose the quantitative and qualitative parts of the instrument. To end with the research, data gathering, a third step was implemented by the author. Some digital interviews were conducted through video, from where the author obtained highly valuable qualitative inputs. The Overlay matrix designed by the author, which explains the methodology of research is exposed as Appendix 1 in the appendix chapter.

The author's main touchpoint inside the partner MNC is the manager of the Foreign Trade LATAM department. With him this possible collaboration was discussed beforehand, all the instruments were previously sent for his approval. Once the research instruments were approved either by the thesis advisor and the manager, they were applied to the universe of users whose input is part of the final sample.

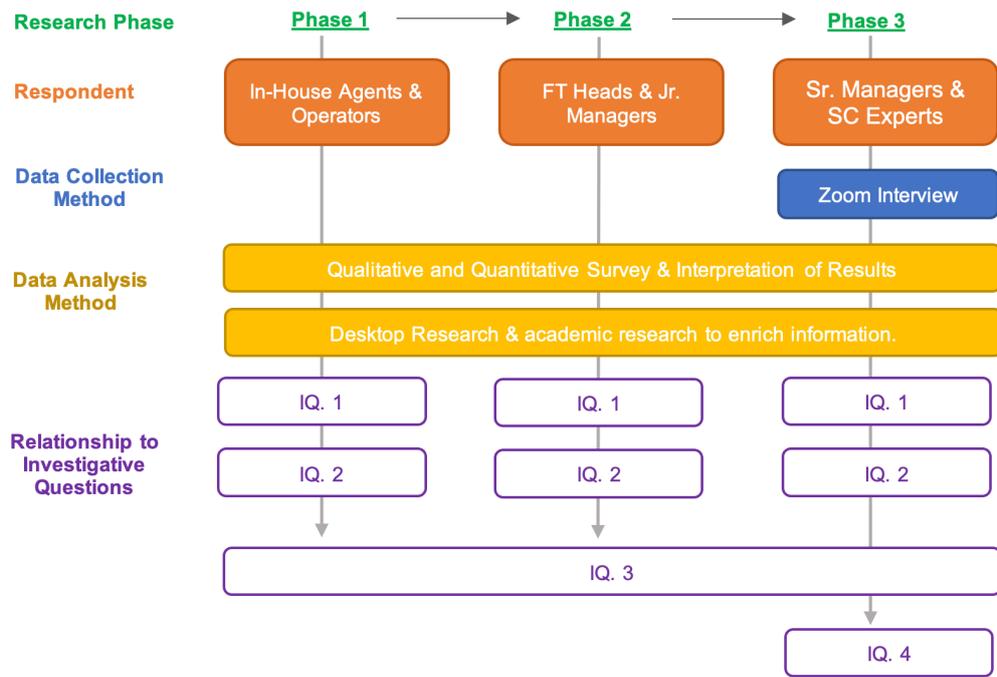


Figure 9. Research Design (Author, 2021).

Above, the Research Design Matrix is presented. In the first place, survey 1 was conducted on the people who daily execute the operations of the company in all the regions across Latin America where the company operates, this research instrument (survey) scope gather data to answer IQ1, IQ2, and IQ3.

The second instrument (survey) was applied to FT heads & Jr. Managers, whose responsibility is to control the operations for the LATAM region. A deeper and more precise instrument was applied as well, and it gathered data to answer IQ1, IQ2, and IQ3.

Lastly, phase number three of the field research involved a personal video interview in which qualitative data was collected. In this last stage, the questions tended to provide insights to solve all four IQs.

After all survey instruments and interviews were conducted, the data collected is presented in the following chapter (Chapter 6) and the RQ will be answered through the gained insights of the field research and the theoretical desktop research that has been exposed in chapters 2 to 5.

7 Data and Results

This chapter is where the key findings of the thesis will be presented. First, the author will present the findings that the research instruments brought after the period of application concluded. Results will be analyzed and then links with the theoretical knowledge exposed in the previous chapters will be addressed. Secondly, the interpretation of the author will be addressed, and all IQs and the RQ (which comprehends the core of this thesis) will be answered through the gained insight from both the theoretical and practical research. This final step takes to the author to create a detailed and determining conclusion for this thesis work. One last chapter a reflexive chapter is presented where the author explains how this work contributed to his personal, academic, and professional development and performance.

7.1 Outcome

As mentioned earlier in this thesis, two surveys and some interviews were conducted with 41 professionals in the SC field. The input that the interviewees and surveyees provide to this work, highly enriches the quality of the academic work since these users execute their roles in the departments of Logistics, Procurement, Foreign Trade, Compliance, Customer Service, and Warehousing, being all of them crucial for an SC.

The application of the survey was conducted to the WebRopoi 3.0 tool and for the practicalities of this work, only the quantitative results will be presented next as Figures. Qualitative input will be addressed and referenced in the subchapter 7.2 where the answers to IQs and RQ of this thesis will be presented.

After both instruments were applied to all users who represent a part of this sample and interviews were concluded, the results of both groups A and B as well as the qualitative input of the digital interviews are strongly related to the theoretical research presented in chapter 3 to 5.

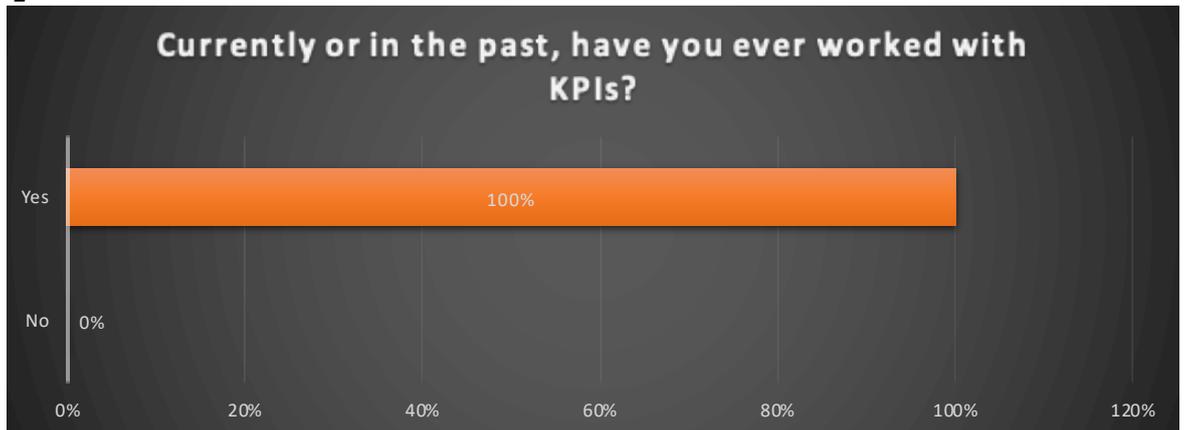
Survey Group A

1



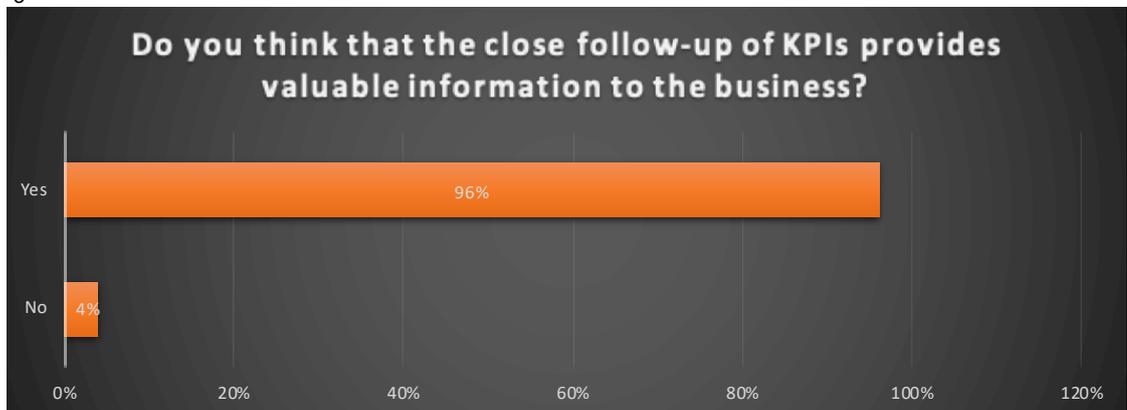
	n	Percent
Yes	27	100%
No	0	0%

2



	n	Percent
Yes	27	100%
No	0	0%

3



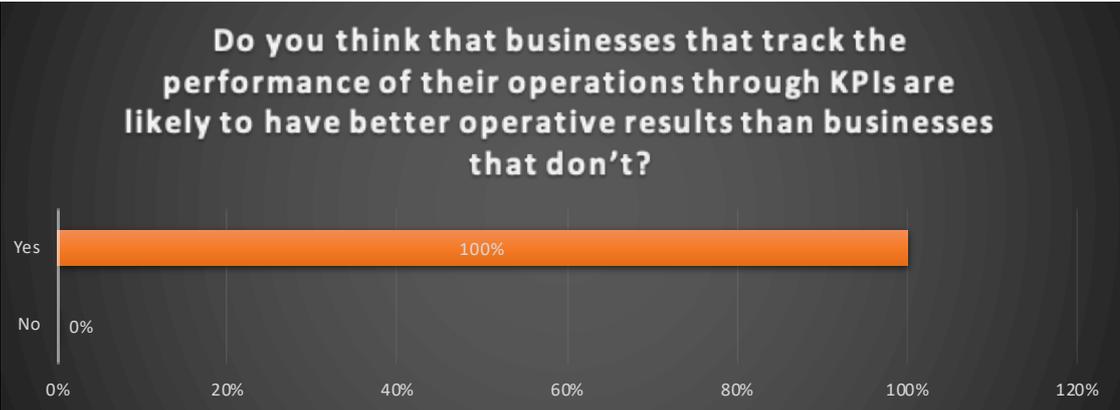
	n	Percent
Yes	26	96.3%
No	1	3.7%

5

On a scale from 1 to 5, being 1 “Nothing” and 5 “Very Important”, how valuable do you find the measurement of operations in MNCs through KPIs?

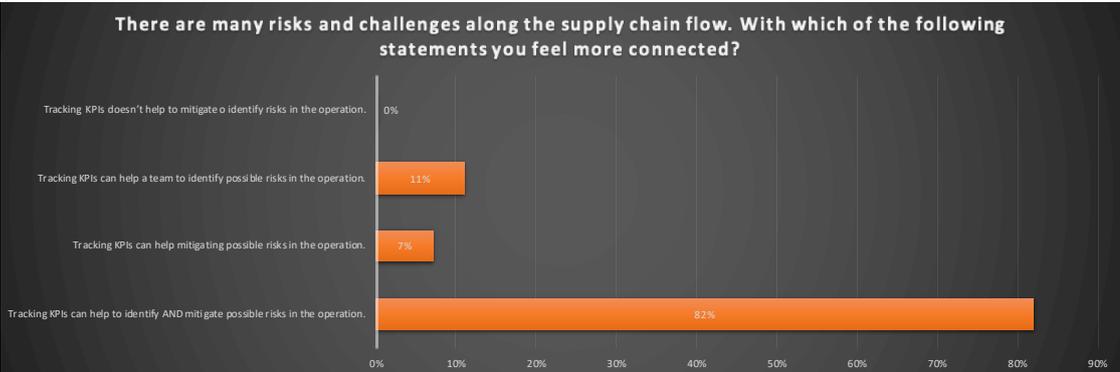
Min value	Max value	Average	Median	Sum	Standard Deviation
4	5	5	5	131	0

6



	n	Percent
Yes	27	100%
No	0	0%

7



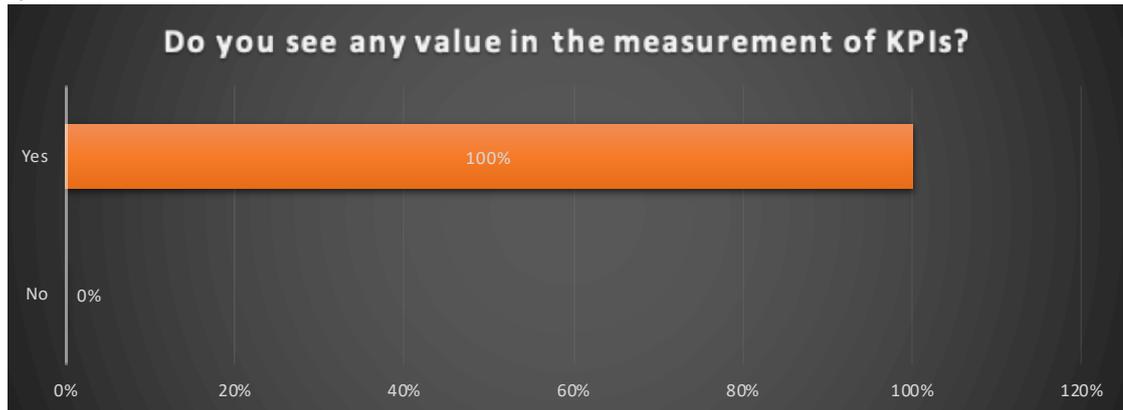
	n	Percent
Tracking KPIs doesn't help to mitigate or identify risks in the operation.	0	0%
Tracking KPIs can help a team to identify possible risks in the operation.	3	11.1%
Tracking KPIs can help mitigating possible risks in the operation.	2	7.4%
Tracking KPIs can help to identify AND mitigate possible risks in the operation.	22	81.5%

Figure 10. Survey Group “A” Quantitative Questions (Author, 2022).

*NOTE - Only quantitative questions are presented.

Survey Group B

1



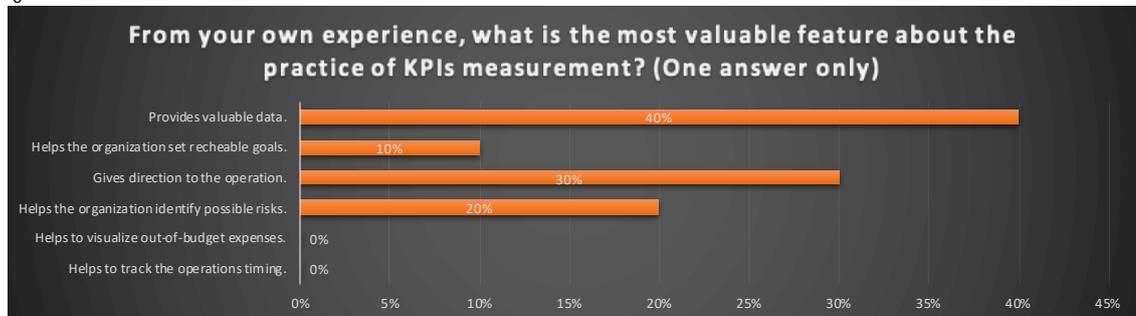
	n	Percent
Yes	11	100%
No	0	0%

2

On a scale from 1 to 5, being 1 "Nothing" and 5 "Very Important", how important do you consider the practice of measuring KPIs in multinational companies?

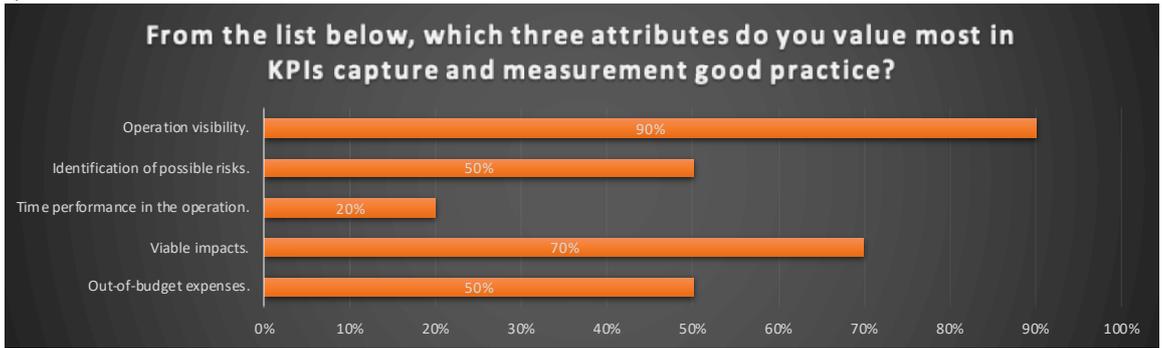
Min value	Max value	Average	Median	Sum	Standard Deviation
1	5	5	5	50	1

3



	n	Percent
Provides valuable data.	4	40%
Helps the organization set reachable goals.	1	10%
Gives direction to the operation.	3	30%
Helps the organization identify possible risks.	2	20%
Helps to visualize out-of-budget expenses.	0	0%
Helps to track the operations timing.	0	0%

4



	n	Percent
Operation visibility.	9	90%
Identification of possible risks.	5	50%
Time performance in the operation.	2	20%
Viable impacts.	7	70%
Out-of-budget expenses.	5	50%

5



	n	Percent
Yes	11	100%
No	0	0%

Figure 11. Survey Group “B” Quantitative Questions (Author, 2022).

*NOTE - Only quantitative questions are presented.

7.2 Interpretation & Basis

In the first instance, with the aiming to collect only reliable data an eliminative question was implemented to make sure all users knew the topic of KPIs. Question 1 on the instruments asked if the respondent knew what KPIs were, if the answer was “yes”, the user was able to continue with the instrument. On the other hand, if the user answered with “no”, automatically the questionnaire ended not to bias the results of the survey. 100% of the surveyees knew what KPIs measurement activity consists of, and all of them have had to work with these metrics at some point in their professional career.

The objective of the survey was to gain insights on 1) how valuable these users see the activity of closely tracking KPIs inside their organizations, 2) understand what is the value (or not) that they see in this activity, and 3) try to find valuable linkages between the collected data and the IQ's and RQ to reach conclusions.

Based on the data collection of the instrument for group A, the critical results are as follows:

- 100% of the users in the sample concluded that companies that track their operations through KPIs are more likely to have better operative results than those that don't.
- 96% of the users in the sample concluded that close follow-up of KPIs provides valuable information to the business.
- 82% of the users in the sample stated that KPIs help organizations to identify and mitigate possible risks in the operation.
- With 1 being "nothing" and 5 being "very important", an average of 4.9/5 was determined for the level of value that users find in measuring the operations of MNCs through KPIs.

On the other hand, the critical results of the survey applied to group B are as follows:

- 100% of the users in the sample concluded that they see a high value in KPIs measurement.
- 100% of the users in the sample concluded that KPIs measurement help to overcome day-to-day challenges in the SC of an FMCGs MNC.
- With 1 being "nothing" and 5 being "very important", an average of 4.5/5 was determined for the level of value that users find in measuring the operations of FMCGs MNCs.

- According to the Group B sample, the most valuable information that KPIs measurement provides is:
 - Valuable information for the SC (40% of responses).
 - Gives direction to the SC (30% of responses).
 - It helps identify risks in the SC (20% of responses).
 - It helps the organization to achieve its goals (10% of responses).

- According to the Group B sample, from a list of 6 attributes of KPIs measurement in FMCGs MNCs, the three most valuable attributes are:
 - Operations visibility (90% of responses).
 - Identify viable impacts (70% of responses).
 - Identification of possible risks & out-of-budget expenses (50% of responses).

After the implementation, the collected data was carefully analyzed by the author to overview the conclusions that SC professionals reach when talking about KPIs in MNCs.

The key findings of this relation will be addressed next, where the author carefully sums up the collected data and thoroughly brings up conclusions about the IQs presented earlier in this document.

IQ 1. How does supply chain management operate in FMCGs MNCs and what makes them complex?

According to the users in these samples, SCs in FMCGs MNCs are an everyday challenge because of the nature of the manufactured products. The high turnover of these products and the high volume of consumption increase the demand. The answer to *why is the SCs in this industry so complex?* Relies on the foundation of what is a supply chain.

Going back to the definition provided in chapter 3. an SC is *“the design, planning, execution, control, and monitoring of supply chain activities to create net value, building a competitive infrastructure, leveraging worldwide logistics, synchronizing supply with demand, and measuring performance globally”* (APICS, 2015).

SCs complexity relies upon the wide network of parties involved to execute all activities that start in raw material transformation and end when the final customer receives the goods. Several internal and external factors add complexity to the management of SCs, even more so when the final good delivered to the customer is a high turnover product and a category where demand never goes down.

The number of silos inside the organization impacts the effectiveness of the SC. In the operative process, managers and organizations delegate actions and responsibilities to third parties whose commitment or service is not always optimal. In this instance, ultimately, the one who pays the price for gaps or complexities created by external parties (3PLs, freights forwarders, customs brokers, etc.) to the company is the company itself.

After the discussions with users, the author draws the following conclusions. SC as a complex system relies on several factors that create complexity which can be summed up into:

1. **Uncertainty:** due to the lack of information needed to perform the crucial activities ensuring the success of these. The typical uncertainty sources in the SC are wide, for example, uncertainty in demand, processes, market, deadline, expenses, costs, etc.
2. **Multiplicity:** refers to the number of components needed to execute and succeed in the SC goals. Namely products, pieces, workforce, facilities, etc. A higher number of components refers to a more complex SC.
3. **Variability:** refers to the variability of behavior. SCs are dynamic and every day can be different.
4. **Size:** MNCs are constantly growing, acquiring new locations, expanding markets, and creating new brands, and products. All actions that increase size in any direction create complexity in the operation of the SC.
5. **Speed:** the speed of manufacturing is becoming higher and product life cycles are becoming shorter. In the industry of Fast-Moving Consumer Goods, SCs should be sharp to deliver the product always in time because of the nature of it, products of high rotation and consumption.

IQ 2. What are the global challenges why FMCGs multinationals should prioritize the measurement of performance metrics?

In the global scheme, today's main challenges rely upon globalization. Referring to the global challenges, based on research conducted by Velocity Global (Velocity Global, 2020) supply chains are a baseline to hold and support global economies. The main challenges in the international framework are...

- Adoption of sustainability and clean practices.
- International taxation and trade fees.
- Global communication and adoption of new technologies.
- Internationalization of new markets.
- Geopolitical and societal clashes.
- Competition.

The bullet list above exposed presents what are the external global challenges that all MNCs face. For external, the author refers to the challenges that occur in the global economy and to which an MNC has no responsibility but must adapt. However, global challenges penetrate corporations and create internal SC challenges with a global scope. Inside the FMCGs MNCs, four main challenges were identified by the author during the analysis.

According to the information reported by the users in the sample of this research, the lack of visibility on the operation becomes the main pain and challenge for those executing SCs. Not having a clear vision over time and a forecast on the operation flow and behavior is an outliving challenge in most manufacturing corporations. If no there's no operation visibility, it is certainly probable that there will be lots of emergencies to attend and SC will suffer pains that will be traduced into impacts in cost and service.

Secondly, impacts. It is well known which are the main pain points in a manufacturing company's SC. One of our interviewees agrees with the publication of the Supply Chain Brain forum (SCB, 2021). It concludes that the main impacts on SC management in FMCGs rely on:

- Cost management.
- Delays in delivery due to lack of visibility.
- Lack of resources.
- Customer service.

In the third place, the author finds that risks and out-of-budget identification add a lot of complexity to the effective management of SCs. Coincidentally (or not) one of the users commented to the author in one of the interviews:

"It is ironic. The budget is carefully designed not to have expenses outside of it. The moment there are off-budget expenses, then we can no longer call it a "budget". If we were able to identify and mitigate expenses and risks in time, we should be able to afford our operations costs with what is budgeted in beforehand" (Interviewee, 2022).

Lastly, the operations performance itself is a challenge. As stated by the author Coyle, J. (Coyle, J. 2007 p.257) in academic literature, "getting to coordinate a system of connected networks between the original vendors and the ultimate final consumer, going through suppliers, distributors, manufacturer, retailer, and customer is extremely challenging".

IQ 3. How do KPIs measurement benefit FMCGs multinationals and what are the advantages in the short, medium, and long term?

One of the most valuable conclusions for the author of this paper is the direct and punctual relationship between what the academic literature and the experience of the surveyed and interviewed users recommend regarding the implementation of metrics.

Referring to one of the data presented above in this subchapter, *100% of the users in the sample concluded that companies that track their operations through KPIs are more likely to have better operative results than those that don't.*

Before proceeding to the summing up of the current IQ, the author presents some of the comments collected from the qualitative questions in the applied research instruments.

Basically, KPIs work as an X-Ray for any company, this allows the users who operate the business to understand how the everyday situation with operation is flowing in the field and how the operations are bringing the respective results.

It helps to identify deviations to targets and generate actions to improve or to give visibility to the organization

Real benefit is behind the gap analysis and corrective actions. The KPI gives you the performance situation and gap vs expectations. The analysis gives you understanding and actions required to close the gap. This is what really gives you solutions, but it all goes starts with the KPI measurement

Improvements in processes, statistics, decision making, change of operations, restructuring

Have more order in operations, measurement in them, improve process times, quality in processes, have data and compare with other months or years

The result of the research study concludes that KPIs provide several benefits to all organizations in the short, medium, and long term. In the short term will be much more strategic and directive to the operation than operational benefits themselves. As exposed in Figure 7 in subchapter 5.2, a KPIs plan implementation model can take up to 16 weeks. In this sense is important to highlight those benefits that will surely result and will be the outcome of good implementation, persistence, and a close follow-up in the metrics.

Next, only some benefits of the good practice of KPIs in the FMCGs industry are presented.

- Short-term
 - Provide direction and order.
 - Goals setting.
 - Strategy setting.
 - Fosters team cooperation and collaboration.

- Medium-term
 - Helps to understand complexity.
 - The first measurement results sum up.
 - Increase efficiency in communication.
 - Provide a basis for decision-making.
 - Monitor progress.
 - Redefines strategy.

- Long-term
 - Results of the nature of each KPI:
 - E.g., Zero deviation of budget.
 - E.g., 100% of On-Time deliveries.
 - E.g., USD 30,000 savings on warehousing expenses.
 - Achieving goals.
 - Seeking the corporate strategy.
 - Greater smoothness in the SC.

In conclusion, is important to understand that KPIs are a road to the operative excellence of SCs, nevertheless, this practice requires time to be implemented and mature. This practice demands a learning curve, although the FMCGs industry requires identifying the gaps and breaking down the large business goals into smaller, measurable, and achievable goals.

IQ 4. What are the key elements to design and select accurately the metrics that are valuable for the operations of an MNC in the FMCGs industry?

Research on the literature on the subject demonstrates that in fact, there are several commonly known KPIs that by their nature, only apply to specific industries, departments, or functions. However, the objective behind the implementation of this practice is the same regardless of industry, company, size, department, and so on.

Essentially, the practice of measuring metrics within any corporation (more so in an industry as complex as the FMCGs), consists of data capture and performance measurement with the primary intent of continuous improvement.

Based on his research, the author ceases in a series of requirements that KPIs need to comply with to bring value to the business. FMCGs industry is characterized by mass production, high turnover products, high import and export volumes, large sums of money invested in the business, and an endless list of suppliers.

Through the practical research conducted by the author, based on the input of the interviewed users, the author himself concluded 6 steps that help to design/select the accurate KPIs. To accurately design and select metrics that add value to the SC of an FMCGs MNCs, corporations should:

1. Be clear about the goals, business needs, and the “*why*” of the KPIs.
2. Start with the strategy upon the needs.
3. Identify which data is valuable to achieve the goals.
4. Evaluate the existing data.
5. Identify the key users.
6. Determine the right methodology and frequency.

In addition to what the author suggests, theoretical research exposed in subchapter 5.1 by academics on this subject encourages that KPIs should be set on the base of the goals, needs, and industry, and should be what they call “S.M.A.R.T” (Specific, Measurable, Achievable, Reliable, and Time-Bound as well as accountable) KPIs. In brief, to select or design accurate metrics, companies should be based on their business needs and objectives. Despite being in the same industry, all SCs have the peculiarities that characterize them.

Throughout the execution of this work, the key pieces that make up this thesis, including theoretical and practical research, and the author's analysis, gradually coincide on many points. The RQ presented next comprehends the core objective of this thesis. The author decided to center his research on the aim of providing punctual conclusions.

RQ. How can multinational FMCGs companies gain productivity and leverage their resources by measuring the performance of their operations through KPIs?

After a long theoretical and minacious practical research, it has been proven that the implementation of KPIs as a tool to measure the performance of an MNCs can be the tipping point between achieving operational excellence or not.

Research conducted by the author (Author, 2022) in this work, proposes that MNCs in the FMCGs industry can achieve their while gaining productivity and leveraging their resources with the practice of KPIs measurement. In one of the author's conversations with interviewees, an SC professional remarked to him: *"The implementation of KPIs has become crucial because it allows us to see all the errors, risks, and areas of opportunity that, no matter how experienced someone is, cannot be seen with the naked eye. That is what KPIs are all about. Good KPI implementation translates into success in the SC"* (Interviewee, 2022).

Upon the completion of his research, the author was able to rescue some of the most valuable virtues that the KPIs have, and that if well implemented would fulfill what the RQ challenges.

All organizations, no mattering size or industry can benefit from implementing KPIs as a strategy for their organizational goals, nevertheless, due to the complexity of the SC and the size of the organization, the author resolutely states that all MNCs should take this practice as serious business since it can transform any organization. This strategy brings reinforces some organizational attributes, the author exposes the ones he finds more beneficial and crucial for SCs.

Starting with the **provision of valuable** data where 40% of surveyees agreed. It has been talked about before, but this is one of the main points of what implementing KPIs has to offer. This data will be like an endoscope, it will give the organization a snapshot of the inside of their SC so that corrective actions can be taken from the inside out.

Followed up by **giving direction to the operation**. As stated by the author in subchapter 5.2, *“the practice of KPIs track and follow-up can be defined as a strategy to achieve better results of the performance of the SC of an organization.”* Either the KPIs can be part of the strategy or become the core strategy to achieve the operational excellence of the SC. No matter what its scope is, MNCs in the FMCGs should use this tool to draw the path to a successful SC where resources are optimized, and costs are suppressed to the minimum expression.

Thirdly, **identifying possible risks**. This prepares the organization for the worst. Being aware of these possibilities should seek the creation of contingency plans and business continuity plans that serve as a backup to avoid impacts in the SC.

Finally, **setting reachable goals**. As it has been exposed before, KPIs work only if they are reachable and measurable. In other words, implementing this methodology penetrates deeply into the interior of the operation and this will create realistic reachable goals for the necessities of the organization.

To conclude, without doubt, the author states that *“multinationals in this industry can highly benefit from this practice given the exposed attributes and many others. If the KPIs practice is correctly executed, it will lead to better practices and more fluidity in their SC. There’s no doubt about the recommendation of applying this good practice to any MNCs in the FMCGs industry. If this practice is not yet a reality in any organization, it might be a good moment to start.”*

The implementation of KPIs in any organization becomes a necessity if one is willing to gain productivity and leverage their resources. SCs in this industry are a universe of risks and possibilities, only KPIs as a foundation strategy can help set the bar for what an organization wants to accomplish. Indicators assist and measure critical performance components that can help to understand the possibilities and limitations, and they can also be tied to broad development considerations.

7.3 Conclusion

Finally, after deep-dive into the subject of KPIs and their impact on the SCs of the FMCGs MNCs, this thesis comes to an end.

Through the course "Developing Supply Chain" the author had his first approach to the topic of KPIs. After that, through his gained experience in this topic due to his 1.5-year internship in the food manufacturing industry (in an MNC in the FMCGs industry), the author discovered an exciting topic in the use of KPIs as a strategy for the pursuit of operational excellence.

After this first approach to the world of the supply chain, logistics, and the world of global organizations, the author found an exciting and challenging topic that today is exposed in this thesis.

The author concludes the beneficial relationship that exists between the practice of implementing KPIs and the improvement of the performance of MNC supply chains in the FMCGs industry. The author strongly concludes that the implementation of KPIs in SCs is in fact, beneficial for the business at all levels and it is a noticeable return on investment in this practice.

There is a direct, existing, and strong relationship between the success of SCs and their effective management aligned to the practice of capturing and tracking KPIs. Through the results delivered by the surveyed users and the voice of the interviewees, the author reaffirms what is proposed by the theory that exists in the literature on this subject. There are innumerable benefits that have already been explained regarding the practice of KPI tracking in this exciting and demanding industry and its relationship with large multinationals.

From his point of view, the author considers having achieved the objective of this thesis and has provided clear and punctual conclusions to the KPIs and the RQ on which this thesis is centered. He invites all readers of this work to explore this topic further and to analyze the feasibility of putting it into practice in their industry or company. The effort will be fully rewarded after the benefits they will gain from this rewarding practice. For extra academic literature on this topic, the author recommends to the readers the title "*Key Performance Indicators. Developing, Implementing, and Using Winning KPI's*" by David Parmenter 2015, a literary resource on which the author bases and supports the development of his theoretical research.

7.4 Learning Reflection

From the beginning, this thesis represented a challenge for the author. A challenge that would enrich him personally, academically, and professionally and that would culminate in his higher studies after 4 exciting and challenging years studying the GLOBBA International Business program at the Haaga-Helia University of Applied Sciences in Helsinki, Finland.

This work represents the sum of many efforts, hours of study, and finally, the application of many of the subjects studied throughout his undergraduate studies. It required the author to put into practice from basic skills that he studied in the first semester such as academic writing in the English language, a concept he studied in the "Business Communication" course, the research skills that he learned in the subject of "Research Methods" and "Internationalization of a Firm", and finally some more technical from the block of his specialization in SC such as the development of KPIs in the course "Developing Supply Chain".

In this thesis, the author managed to put into practice all his knowledge acquired throughout these years of study in the program. Each course and each teacher throughout these four years have had their significance in the professional development of the author and the execution of this work. The merit in carrying out this work belongs to them as well.

The execution of this work challenged the skills of writing, research, time management, and effective communication among many others. It involved a huge commitment and required countless hours of research and application of skills to get to this point. During the execution of this thesis, throughout 8 months since it began, the author was undertaking a new experience in his Erasmus in Vienna, Austria, and later his international work placement in Madrid, Spain for 3 more months. This represented a challenge since finding a balance between personal, academic, and professional life was difficult, but it also contributed to the author's development in all senses. Some challenges were presented during the development of this work, fortunately the author was able to manage them, and these did not affect the completion of the thesis.

Finally, this experience has been enriching in every way. The result will be shared with the users surveyed, interviewed, and with everyone involved in the execution of this work. The successful completion of this thesis was possible thanks to the motivation of the friends and family of the author who supported him in all senses and were crucial motivators for him during all this process.

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9 Appendix

Appendix 1. Overlay Matrix

Investigative question	Theoretical Framework	Research Methods	Results (chapter)
IQ1. How does supply chain management operate in FMCGs multinational companies and what makes them complex?	Supply chain is a complex branch of the operations of any company. It comprehends distinct areas of the company such as logistics, purchase, warehousing, and planning.		X
IQ2. What are the global challenges why FMCGs multinationals should prioritize the measurement of performance metrics?	<p>By its nature, the management of the operation of this specific field of the company is challenging. Commonly both internal and external factors that constantly complicate operations are challenged.</p> <p>For example, internal challenges relies on mis- communication between departments, lack of visibility on the operations, etc.</p> <p>External factors are related to politics, geographic, natural disasters, social movements, etc.</p>	<ul style="list-style-type: none"> • Qualitative & quantitative interview to experienced FMCG's profesionists. • Quantitative analysis & interpretation of results. • In-depth academic research to backup outcomes. 	X
IQ3. How do KPIs measurement benefits FMCGs multinationals and what are the advantages in the short, medium, and long term?	<p>The punctual follow-up of accurate metrics will provide the company a realistic overall assessment of the performance of the business operations.</p> <p>Logistics, operational and production processes are noticeably improved. For example, leverage of resources, shortening of delivery times, improvement on customer service, etc.</p>		X
IQ4. In general terms, what are the key elements to design & select accurately the metrics that are valuable for the operations of an MNC in the FMCG industry?	An step-by-step theoretical research will be executed to explain how can an organization make an accurate analysis to identify opportunity areas and determine valuable metics to improve the business.		X

Appendix 2. Research Instruments



Haaga-Helia
University of Applied Sciences

Impact of KPIs measurement in the supply chain in FMCGs multinational companies.

Mandatory questions are marked with a star (*)

Hi, this brief survey won't take you more than 5 minutes to be answered.
This survey serves as a qualitative and quantitative data collection instrument for field research for a bachelor's thesis in Supply Chain at Haaga-Helia University of Applied Sciences.
At the progress of the survey, you will find some terms presented as acronyms. These are presented below with their respective meanings.
-KPIs: Key Performance Indicators.
-MNCs: Multinational Corporations.
-FMCGs: Fast-Moving Consumer Goods (Industry as well known as Consumer Packaged Goods).
Finally, I'm very grateful for your participation in this research sample. If you are receiving this survey, it is because you were cautiously selected to answer it given your knowledge, expertise, and relationship with this topic. Therefore, I would beg you not to share it freely so as not to bias the data collected.
THANK YOU!
Ricardo Barrera-Reynoso M.
GLOBBA IB 2018 Cohort Student
PS. If you face any troubles answering the survey, feel free to share your comments to the email: ricardo.barrera-reynoso@my.haaga-helia.fi

1. Do you know what KPIs are? *

Yes
 No

2. Currently or in the past, have you ever worked with KPIs? *

Yes
 No

3. Do you think that the close follow-up of KPIs provides valuable information to the business? *

Yes
 No

5. On a scale from 1 to 5, being 1 "Nothing" and 5 "Very Important", how valuable do you find the measurement of operations in MNCs through KPIs? *

Nothing 1 5 Very Important
To answer this question slide the bar.

6. Do you think that businesses that track the performance of their operations through KPIs are likely to have better operative results than businesses that don't? *

Yes
 No

7. There are many risks and challenges along the supply chain flow. With which of the following statements you feel more connected? *

Tracking KPIs doesn't help to mitigate or identify risks in the operation.
 Tracking KPIs can help a team to identify possible risks in the operation.
 Tracking KPIs can help mitigating possible risks in the operation.
 Tracking KPIs can help to identify AND mitigate possible risks in the operation.

8. How do you think that KPIs help to make the supply chain operations to flow smoothly? *

9. Talking about a MNC in the FMCGs industry, what is the value that you identify in the good practice of KPIs follow up to its operations? *

10. If you have any additional comments you consider valuable for the aiming of the project, feel free to express them in the open-ended box below.

After filling in all your answers click submit to send the collected data.



Haaga-Helia
University of Applied Sciences

Impact of KPIs measurement in the supply chain in FMCGs multinational companies.

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Hi, this brief survey won't take you more than 5 minutes to be answered.
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1. Do you see any value in the measurement of KPIs? *

Yes
 No

2. On a scale from 1 to 5, being 1 "Nothing" and 5 "Very Important", how important do you consider the practice of measuring KPIs in multinational companies? *

Nothing 1 5 Very Important
To answer this question slide the bar.

3. From your own experience, what is the most valuable feature about the practice of KPIs measurement? (One answer only) *

Provides valuable data.
 Helps the organization set reachable goals.
 Gives direction to the operation.
 Helps the organization identify possible risks.
 Helps to visualize out-of-budget expenses.
 Helps to track the operations timing.

4. From the list below, which three attributes do you value most in KPIs capture and measurement good practice? *

Operation visibility.
 Identification of possible risks.
 Time performance in the operation.
 Visible impacts.
 Out-of-budget expenses.

5. Do you think that KPIs measurement can help to overcome some of the challenges faced in the day-to-day operations? *

Yes
 No

6. If your answer to the previous question is YES, briefly explain how. *

7. Do you see any return over investment when running an effective KPIs measurement practice inside an organization? Please, briefly explain your answer. *

8. How can KPIs measurement help MNCs in the FMCGs industry to overcome the old and new challenges faced along the supply chain? Please, briefly explain your answer. *

9. If you have any additional comments you consider valuable for the aiming of the project, feel free to express them in the open-ended box below.
