

A Work Project, presented as part of the requirements for the Award of a Master's degree in
Management from the Nova School of Business and Economics.

**SCENARIOS FOR THE FUTURE OF THE GERMAN CONFECTIONERY MARKET
BY 2030 - STRATEGIC IMPLICATIONS FOR
FERRERO DEUTSCHLAND GMBH - SCENARIO 4: SUGAR SHOCK -
NARRATIVE AND STRATEGY**

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20/12/2023

Abstract

This work project explores the future of the German confectionery market employing the ‘*Intuitive Logics School*’ of scenario planning. The report focuses on extensive expert and client involvement, particularly collaborating with Ferrero Deutschland GmbH. The primary objective is to navigate high uncertainty, understand plausible events' impacts on industry, retail, and consumers, and dynamically respond to an unknown future. The development of four plausible scenarios centered on the key uncertainties ‘*Stability of Supply Chain*’ and ‘*Health Regulations*’, contributes to fostering a heightened awareness. This individual part highlights with “Sugar Shock” a scenario that is determined by supply chain disruptions and strict health regulations. General and scenario-specific strategic implications, offering action plans for the four distinctive futures for Ferrero Deutschland GmbH are provided.

Keywords: Confectionery; Scenario Planning; Strategic Foresight; Management; Strategy

Acknowledgments: To the entire team at Ferrero Deutschland GmbH, and in particular to the managing director, Volkmar Schwenk, for being available throughout the project to pass on knowledge and ideas about the industry and the company itself. To Adnana Osmanbašić, Thomas Effinger, and Carsten Simon for sharing their knowledge of the industry. And to Professor António Alvarenga for his help and support.

This work used infrastructure and resources funded by Fundação para a Ciência e a Tecnologia (UID/ECO/00124/2013, UID/ECO/00124/2019 and Social Sciences DataLab, Project 22209), POR Lisboa (LISBOA-01-0145-FEDER-007722 and Social Sciences DataLab, Project 22209) and POR Norte (Social Sciences DataLab, Project 22209).

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Glossary

AI: Artificial Intelligence

AR: Augmented Reality

CAGR: Compound Annual Growth Rate

CIA: Cross Impact Analysis

EGD: European Green Deal

EU: European Union

HFSS: High in Fat, Salt and Sugar

M&A: Mergers and Acquisition

NCD: Non-Communicable Disease

OECD: Organisation for Economic

Co-operation and Development

PMT: Probabilistic Modified Trends

TIA: Trend Impact Analysis

US: United States

VAT: Value-Added Tax

VR: Virtual Reality

WHO: World Health Organization

1. Introduction

"If you want to view paradise, simply look around and view it.", a line said by Willy Wonka while standing in his chocolate factory, demonstrating his legacy to the kids with golden tickets (Stuart 1971). No CEO of a chocolate company is likely to say that about the environment in today's world. A stagnant confectionery market, rising health trends, sustainability concerns, and new regulations paint a less-than-sugar-sweet picture with several potential threats to follow in the future. The environment is changing, but there are also potential opportunities that might help to recreate the paradise that Willy Wonka envisions.

This work project is dedicated to a comprehensive exploration of challenges that may manifest in diverse future scenarios, ultimately aiming to devise a strategy that not only navigates threats but strategically capitalizes on emerging opportunities. Through a collaborative partnership with Ferrero Deutschland GmbH, the following succinctly central challenge was articulated: *"How can Ferrero Deutschland GmbH maintain its profitability and customer loyalty in the face of increasing regulatory and social pressures on foods high in sugar, salt, or fat?"*

The *'Intuitive Logics School's'* scenario planning approach is used to navigate high uncertainty and understand the impact of plausible events on industry, retail, and consumers. The goal is to respond dynamically to an unknown future and foster a heightened awareness of these futures within Ferrero Germany GmbH's management. According to van der Heijden (1997), a *'scenario thinker'* is someone who can overcome analysis paralysis in the face of uncertainty. Rather than becoming trapped in endless attempts to predict the future, this strategic thinker knows when to pivot. They shift their focus to essential questions such as *"What do we do if...?"* and then consider *"What does this mean for what we do now?"* (van der Heijden 1997). This adaptive approach acknowledges the limitations of predicting the future and emphasizes dynamic and proactive thinking, a key aspect of scenario planning.

Through this lens, the objective is to equip Ferrero Deutschland GmbH's leadership with the

foresight and agility needed to navigate the complexities of an evolving industry landscape.

1.1 Market Overview

The German confectionery market constitutes a substantial segment within the European Union (EU) and the global confectionery sphere. In 2021, the German market recorded total revenues of €10,217.3 million underlined by its share of 15.9% in the EU confectionery market and 6.2% in the global confectionery market (Fortune Business Insights 2021). Over the observed period from 2017 to 2022, the German market exhibited slow growth, registering a CAGR of 1.1%, reaching a consumption volume of 1,145.1 million kilograms in 2022 (MarketLine 2022).

Projections suggest an intensified growth trajectory, with a projected CAGR of 3.1% anticipated for the period spanning 2021 to 2026. This projection positions the market to attain a value of €11,914.0 million by the end of 2026, representing the most robust growth among EU confectionery markets (MarketLine 2022).

Within the German confectionery market, key segments comprise chocolate, sugar confectionery, and gum. As of 2021, chocolate stands as the predominant segment, commanding a share of 66.1%, showcasing a noteworthy increase from 2016. The sugar confectionery segment has maintained a steady share of 28.4% since 2016, reflecting its resilience in the market. In contrast, the gum segment constitutes 5.4% of the market share, experiencing a decline from its 2016 standing. Notably, the CAGR of the chocolate segment contributed to overall market growth (MarketLine 2022).

The structural landscape of the German confectionery market is characterized by a diverse array of players, with key market shares delineated as of 2021: Leading the industry, Ferrero S.p.A. holds a share of 12.6%, closely followed by Mars, Incorporated at 11.4%. Mondelez International, Inc. holds a position with a market share of 10.2%, and Chocoladefabriken Lindt & Sprüngli AG contributes with a share of 7.6%. The remaining 58.2% is dispersed among approximately 200 other members affiliated with the Bundesverband der Deutschen

Süßwarenindustrie e.V. (BDSI), signifying the diverse and decentralized nature of the industry (MarketLine 2022).

Sales channels play a relevant role in the market, with supermarkets constituting the predominant share at 50.7%. Convenience stores contribute significantly with a share of 26.6%, while other channels collectively represent 22.7%. Notably, the reliance on large German retailers such as EDEKA, Lidl and Kaufland (Schwarz Group), REWE Group, and Aldi South and North, underscores the market's dependence on a few major retail players (MarketLine 2022).

1.2 Introduction of Ferrero

Ferrero S.p.A., the parent company of the project partner Ferrero Deutschland GmbH, stands as an illustrious Italian multinational renowned for its commitment to producing high-quality confectionery products. Founded in 1946, in Alba, Italy, by Pietro Ferrero, the company has since become a global powerhouse in the confectionery industry. Employing over 46,000 individuals as of today, Ferrero S.p.A. operates in more than 50 countries and has successfully expanded its market presence to encompass over 170 countries (Ferrero International 2023a). In the fiscal year ending on August 31, 2022, Ferrero S.p.A. reported a consolidated turnover of more than €14 billion with a net profit of €751 million for the same period. The company's growth trajectory is evident in its consistent upward trend, as demonstrated by a significant 10.4% increase in turnover for the fiscal year 2021-2022 compared to the previous year (Ferrero International 2023a).

Ferrero S.p.A. exhibits a comprehensive and globally diversified product portfolio, encompassing over 35 distinct brands. Within the German market, Ferrero Deutschland GmbH maintains a significant presence with prominent brands including Nutella, Kinder, Ferrero Rocher, and Tic-Tac (Ferrero 2023).

2. Literature Review

2.1 Scenario Planning: Conceptualization and Categorization

Scenario planning is a strategic planning method that uses narratives, namely scenarios, to illustrate potential futures and explore the implications for organizations. It is not about predicting the future, but about developing a deep understanding of the key drivers of change and preparing for a range of plausible futures (Wack 1985; Lindgren and Bandhold 2003).

Scenario planning was first developed in the 1960s by visionaries such as Herman Kahn and his colleagues at the RAND Corporation. It was initially used for military strategy and later adapted for other fields (Bradfield et al. 2005; Amer, Daim, and Jetter 2013). Businesses began using scenario planning in the 1970s, with Royal Dutch Shell Group being one of the pioneers in this field, utilizing it to forecast the impending oil crisis (Wack 1985).

Since then, scenario planning has been used by various organizations, including governments, non-profit organizations, and international agencies. It is helpful to explore a wide range of issues, such as climate change or technological change but also to explore different levels of uncertainty (Amer, Daim, and Jetter 2013; Bradfield et al. 2005). In the public domain, scenario methodologies are instrumental in delineating planning activities and policy alternatives, and within the corporate arena, they have firmly established themselves as indispensable tools for formulating business strategies (Amer, Daim, and Jetter 2013).

Scenario planning is a valuable tool for organizations of all sizes and in all sectors. It can help organizations to improve strategic thinking, reduce uncertainty, increase flexibility, and develop more robust strategies (Bradfield et al. 2005; Schoemaker 1995). While it can be a complex process, it is a valuable investment for any organization that wants to be prepared for the future.

2.2 Scenario Planning: Approaches

Scenario planning has evolved into a diverse landscape of methodologies, each offering a unique perspective on navigating uncertainty and envisioning the future. Yet, the absence of a

universally accepted method requires planners to carefully select the approach that aligns most closely with their specific objectives and organizational context (Amer, Daim, and Jetter 2013). In this diverse landscape, three dominant approaches have emerged as focal points of exploration: '*Intuitive Logics School*', the French approach of '*La Prospective*', and '*Probabilistic Modified Trends*' ('PMT') School (Bradfield et al. 2005).

Of these, the '*Intuitive Logics School*', sometimes referred to as the '*Shell Approach*', is the most widely used in the US and many other nations and has received substantial attention in the scenario planning literature (Bradfield et al. 2005). It involves identifying and understanding key drivers of change, creating diverse scenarios, and discerning strategic implications for each scenario. Moreover, the approach is flexible, adaptable, and relatively low-cost, making it a valuable tool for organizations of all sizes and sectors (Amer, Daim, and Jetter 2013). The '*Intuitive Logics School*' assumes that business decisions are based on a complex set of relationships among political, economic, social, technological, environmental, and legal (PESTLE) factors. Therefore, it is important to understand these factors clearly to provide insights and improve the decision-making process. The '*Intuitive Logic School's*' approach differs from other scenario planning approaches in that it does not rely on mathematical algorithms (Pillkahn 2008). Instead, it relies on the knowledge, commitment, credibility, and communication skills of the scenario team members.

The '*Intuitive Logics School*' encompasses a series of steps, commencing with '*Framing and Scoping*' to identify the focal issue, the strategic focus of the project, and the applicable time horizon. Next, in the '*Explore*' stage, the key drivers of change impacting the focal issue are explored, employing research and expert brainstorming. This analysis helps top management plan the future direction of the company. In the '*Synthesize*' stage, the drivers are then combined, taking into account their level of uncertainty and impact, resulting in a scenario matrix. This matrix guides the creation of four distinct scenarios, each named, described, and complemented

by a narrative. The following step, named ‘Act’, is about identifying strategic implications for the organization within each scenario, laying the groundwork for an overall strategic action plan (Schwartz 1991; van der Heijden 2010). During the follow-up ‘Monitoring’ phase, early indicators are identified, based on the strategic implications, which may indicate that certain impacts are becoming more significant.

In contrast to the qualitative approach of the ‘*Intuitive Logics School*’, the ‘*Probabilistic Modified Trends*’ (‘PMT’) school and the French school of scenario planning (‘*La Prospective*’) incorporate quantitative and mathematical methods to develop scenarios.

The ‘PMT’ school uses two matrix-based methodologies: Trend Impact Analysis (TIA) and Cross Impact Analysis (CIA). TIA probabilistically modifies extrapolated trends, while CIA captures the interrelationship between key influencing factors. Both approaches aim to enhance scenario analysis by considering the effects of unforeseen future events and the interaction of key factors (Bradfield et al. 2005).

‘*La Prospective*’ emphasizes the development of normative scenarios, which are aspirational visions of the future that can guide policymakers and stakeholders in making decisions. The French school of scenario planning is often used in public sector planning in France, which results in scenario work that is typically narrowly focused. This approach is based on four key concepts: the base (an in-depth analysis and scanning of the present situation), the external context (a study of the general environment of the system), the progression (a historical simulation derived from the dynamic base and constraints of the external context), and the images (a snapshot of what reality might look like at a given point in time) (Godet and Durance 2011).

The ‘PMT’ school and ‘*La Prospective*’ provide organizations with valuable instruments for crafting resilient and forward-looking strategies. By exploring a variety of potential future scenarios, these methods assist organizations in recognizing and addressing risks, leveraging

opportunities, and attaining their overarching objectives (Bradfield et al. 2005).

2.3 Scenario Planning: A Strategic Tool

Scenario planning serves as a crucial strategic tool for organizations, offering a multifaceted approach to enhance their adaptability and decision-making. By connecting scenarios to strategy, organizations can effectively navigate changing environments and develop resilient strategies (Schwartz 1991; Tiberius 2019). Lindgren and Bandhold (2003) outline four key purposes of scenario planning: strategy development, innovation, learning, and evaluation.

First and foremost, scenario planning acts as a catalyst for strategy development, enabling organizations to explore multiple potential futures and rehearse strategic options (Schwartz 1991). This process is essential for enhancing an organization's readiness to face uncertainties and discontinuities in its external environment. It promotes a flexible and open-minded approach to strategic thinking, allowing organizations to adapt and respond effectively to emerging challenges (Schoemaker 1995).

In the realm of innovation, scenario planning serves as a wellspring of inspiration, driving the generation of new ideas and concepts (Lindgren and Bandhold 2003). It encourages organizations to explore uncharted territory and consider unconventional solutions, fostering a creative climate that embraces complexity and paradoxes (Chermack, Lynham, and Ruona 2001).

Moreover, scenario planning plays a vital role in organizational learning, challenging existing mental models and promoting analytical capabilities (Lindgren and Bandhold 2003). Through scenario analysis, participants gain a better understanding of the causal processes and relationships that underlie environmental change. This thought-experiment-like learning enhances strategic thinking abilities, enabling organizations to make more informed decisions (Schoemaker 1995).

In addition, scenario planning offers a structured approach to evaluate an organization's current

strategy. It helps identify elements that may be at risk in the future and supports necessary modifications, resulting in a more resilient and robust overall business strategy (Wilson 2000).

This emphasizes that the adoption of scenario planning as a strategic tool brings significant benefits. It expands organizational thinking, improves perception, and challenges existing assumptions and mindsets of managers (van der Heijden 2002). Additionally, scenario planning enhances understanding of causal processes and logical sequences, ultimately aiding strategy development and decision-making (Wright, Bradfield, and Cairns 2013).

Consequently, scenario planning goes beyond mere speculation about the future; it empowers organizations to proactively shape their strategies, foster innovation, promote learning, and evaluate their current approaches. Its ability to navigate uncertainty and complexity makes it an indispensable asset in the strategic toolkit of organizations.

3. Methodology

The methodology chapter outlines the scientific framework and procedures used in the formulation of this report. It elaborates on the key stages of the strategic foresight and scenario planning methodology, providing a comprehensive description of the processes and other scientific frameworks and tools employed. The chapter concludes with a summary of the client engagement in this collaborative project.

3.1 Research Design and Implemented Tools

Building upon the foundations laid in the prior section (referenced in Chapter 2.2), this work project adopts the qualitative methodology of scenario planning, aligning with the principles of the *'Intuitive Logics School'*. This approach enables a comprehensive analysis of the most influential factors shaping the industry, allowing the company to stay abreast of evolving trends and prepare for various plausible future scenarios. In addition, it is particularly advantageous for investigating sectors like the confectionery industry, where uncertainty is a significant factor. The confectionery market faces numerous unpredictable factors that could have a

significant impact on its future, including new product innovations, changes in consumer tastes, and governmental actions. Therefore, strategists must consider a spectrum of potential occurrences, which could profoundly influence the market dynamics. This justifies why the research team, in collaboration with Ferrero Deutschland GmbH, has chosen this approach to address the focal issue of the future market scenario (as outlined in Chapter 4.1).

Furthermore, the participatory nature of this approach permits the incorporation of valuable insights from the company, aligning the research with their perspective (Antonio Martelli 2014). Engaging with stakeholders and experts through interviews or workshops at different stages of the process ensures that the research is finely tuned to the specific needs of the confectionery industry.

The research design for this scenario planning project with Ferrero Deutschland GmbH is structured into five main components, that correspond to the various stages of the *'Intuitive Logics School'* approach.

'Framing and Scoping': The initial phase involved a collaborative discussion with Ferrero Deutschland GmbH to delve into their most pressing *challenges*. This crucial dialogue led to the identification of one key challenge, setting the stage for the subsequent phases of the work project.

Based on the identified challenge, the *focal issue and time horizon* were set, employing widespread desk research. The focal issue serves as the compass for the scenario thinking and building process and is supported by several guiding questions. After, both were validated by Volkmar Schwenk (Managing Director of Ferrero Deutschland GmbH), with a decision to set a 7-year time horizon, balancing the rapid pace of market trend shifts with the typical duration for regulatory changes to take effect.

'Explore': In this stage, the team utilized both primary and secondary data sources, including major confectionery manufacturers' news articles and relevant journal articles to identify the

drivers of change. Each member conducted independent research based on the PESTLE framework, and the findings were then aligned during a working session. The PESTLE framework focuses on political, economic, social, technological, legal, and environmental factors, as summarized in the acronym PESTLE (Burt et al. 2006). It was integrated into this phase because it facilitates the thorough examination of the macro-environmental variables and their changes (Fisher, Wisneski, and Bakker 2019). The framework's extensive coverage of key market variables and structured category differentiation reinforced this choice, ensuring a thorough analysis of the German confectionery market. The principle of analyzing the macro-environment using a structured approach was also applied to the analysis of the uncertainties affecting the confectionery market. This phase was completed by discussing and validating the final set of drivers of change with various interview partners (Appendix 4).

‘Synthesize’: In the scenario development phase, the research team employed a deductive, top-down approach, selecting the relevant drivers of change to construct the framework of possible futures for Ferrero Deutschland GmbH. The uncertainties were categorized based on their impact on the focal issue and level of uncertainty. The categorization was done by gathering expert opinions, conducting a survey with Ferrero Deutschland GmbH, and doing secondary research. Upon analysis of the survey results, a diagram was devised, delineating uncertainties based on their average ratings. Following, an area of interest was defined, accomplished by applying threshold values for impact and uncertainty derived from the survey distribution. Subsequently, the identified uncertainties were tested for interdependencies. This analytical process aimed to identify potential groupings based on shared characteristics and causal relationships and to ensure sufficient independence between clusters. Two key uncertainty groupings with the highest impact/uncertainty rating were selected. These represented the key uncertainties and served as axes on a matrix, framing the polarities of what could potentially unfold within the time horizon set. By crossing these axes, the four distinct quadrants can be

explored, each representing a unique scenario narrative with its own set of key ideas and contrasting stories. This matrix is known as a scenario matrix and was cross-validated with multiple interviewees to ensure its robustness and relevance. Subsequently, the research team crafted a foundational structure for each scenario, considering contextual factors such as political, legislative, environmental, socioeconomic, and supply chain impacts.

In preparation for a workshop with Ferrero Deutschland GmbH, a Miro board was designed to visually present the scenario matrix and the narratives of the four scenarios (Appendix 5). This interactive workshop allowed for a deep dive into the contextual factors of each scenario. Ferrero Deutschland GmbH's participation was pivotal in challenging and expanding the predefined scenarios, especially regarding transactional factors that influence industry dynamics, retail operations, and consumer behavior. Additionally, scenarios were validated to ensure that they provide an appropriate basis for decision-making using the five criteria suggested by Fahey and Randall (1998):

- *Plausibility*: Each scenario must be within the scope of possibility,
- *Consistency*: The logic underlying each scenario should be free of inherent contradictions or inconsistencies,
- *Utility/relevance*: Each scenario should provide unique and relevant perspectives that aid in decision-making,
- *Challenge/novelty*: The scenarios should provoke thought and challenge existing beliefs about the future,
- *Differentiation*: Each scenario should be fundamentally unique, avoiding mere variations on a single concept.

The collaborative nature of this session ensured that the scenarios not only depicted diverse futures but were also grounded in practical insights, reflecting the real-world complexities of the confectionery market.

In addition, to add a quantitative component, a financial simulation analysis was performed for each scenario. The purpose of this simulation was to predict the possible effects of the four distinct scenarios on the financial output of the German confectionery industry within the specific time frame considered. To achieve this goal, attention was focused on three key factors that characterize the overall market: market size in terms of revenue, market volume, and price developments. In particular, the financial impact of the negative extremes of the key uncertainties on these three factors was quantified to understand how they will shape the confectionery market in each scenario.

‘Act’: During the ‘Act’ phase the team employed the scenarios to clarify and answer the challenge identified at the beginning of the work project. Another workshop was organized for this purpose, the aim of which was to explore the strategic implications of each scenario for Ferrero Deutschland GmbH in more detail (Appendix 5). Firstly, Ferrero Deutschland GmbH’s current strengths and weaknesses were defined. After, the analysis was deepened using a TOWS matrix. Originating from the principles laid down by Weihrich in 1982, the TOWS matrix is a strategic planning tool that methodically evaluates the threats (T) and opportunities (O) arising from the external environment in conjunction with an organization’s internal weaknesses (W) and strengths (S). Subsequently, four distinct combinations of strategies are developed by combining the variables of the internal and exterior world. The formulation of a TOWS matrix should include a forward-looking perspective that takes into account potential future changes in the external environment, as advocated by Weihrich (1982). Consequently, this framework is used in this study as it harmonizes prospective external factors, in this work, represented by the envisioned scenarios for the confectionery market in 2030, with a critical assessment of the company's internal capabilities. This integrative approach makes it possible to strategically align Ferrero Deutschland GmbH's internal competencies with external opportunities and threats that derive from each scenario. Thereby it facilitates the exploitation of emerging

opportunities and the minimization of potential risks through the strategic reinforcement of existing strengths and the improvement of prevailing weaknesses.

The outcomes of this workshop were essential in deriving strategic implications for each scenario, leading to the formulation of an overall strategic action plan for Ferrero Deutschland GmbH.

‘Monitor’: In the *‘Monitor’* phase, the research team used the Scenario Cockpit tool to establish a collection of early indicators that can help predict how each scenario will unfold. The Scenario Cockpit, developed by Wulf, Meissner, and Stubner, provides a framework for monitoring indicators and assessing which scenario the indicators are trending toward (Wulf, Meissner, and Stubner 2010). This three-step approach provides a structured and dynamic mechanism for tracking developments in line with the four scenarios developed. This tool serves as a critical component in the ongoing refinement and adaptation of strategic plans. To begin key indicators for each scenario are identified (1) and ranges for these indicators are established (2). By benchmarking against actual values, the Scenario Cockpit allows assessing which scenario best reflects real-world developments. Constant monitoring of leading indicators (3) ensures an agile and informed response to emerging changes, enhancing the overall effectiveness of scenario planning in navigating an uncertain future. Therefore, thresholds indicating the evolution for each of the scenarios have been defined for all indicators for 2025, 2027, and 2029. Confectionery companies can respond to new developments, refine plans, and remain agile in the face of changing market dynamics by regularly tracking these indicators.

This methodical and collaborative approach not only accommodates Ferrero Deutschland GmbH's insights but also ensures that the research process is aligned with their perception, ultimately aiming to develop sound and distinctive scenarios.

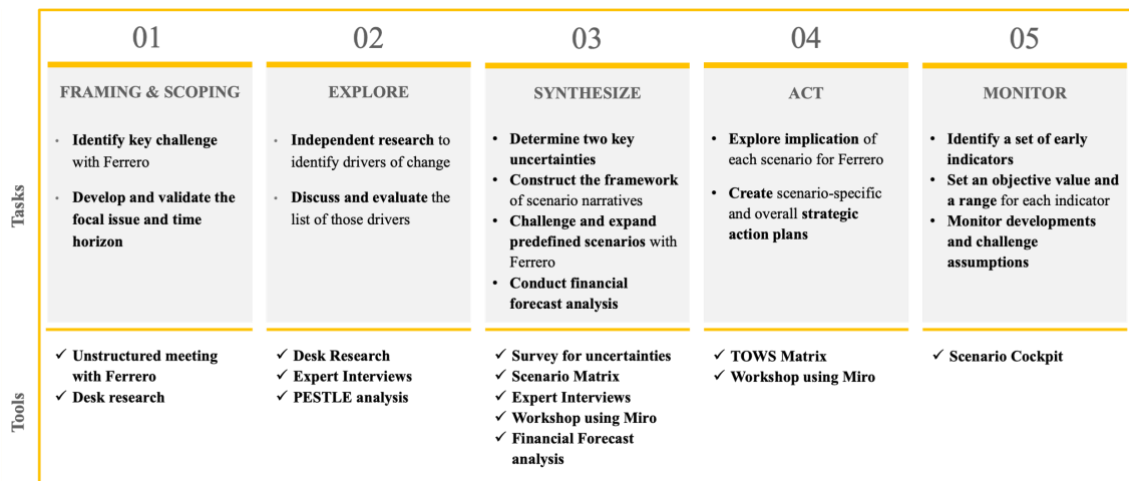


Figure 1: Scenario Planning Process | Source: Own Creation based on van der Heijden (2002), Schwartz (1991)

3.2 Strategic Collaboration: Client and Expert Involvement

Client and expert involvement constituted a crucial facet in each phase of the scenario planning work project, infusing the process with a systematic and strategic orientation tailored to Ferrero Deutschland GmbH's future challenges. The research team worked closely with a core team from Ferrero Deutschland GmbH but also involved external experts for specific areas.

Commencing with the *'Framing and Scoping'* stage, an unstructured meeting with Ferrero Deutschland GmbH's managing director, Volkmar Schwenk, aimed to discern Ferrero Deutschland GmbH's challenges. This involved a working meeting where several broad questions were posed to understand the potential obstacles faced by the business in the future. Subsequent deep dives with clarifying questions facilitated the collaborative setup and formulation of the challenge. Validation of the focal issue and time horizon was achieved through a subsequent semi-unstructured meeting with Volkmar Schwenk, where the derived insights were presented, and adjustments were made based on constructive feedback.

In the *'Explore'* and *'Synthesize'* stages, a survey of uncertainties was conducted (Appendix 3), engaging Ferrero Deutschland GmbH's top management to rank 11 identified uncertainties for impact and uncertainty. An informal exchange with Adnana Osmanbašić, a Deloitte Consultant from Norway (Appendix 4), experienced in formulating strategies for major confectionery manufacturers, provided insights into current trends in progressive markets, particularly

focusing on Norway and Europe. The discussion encompassed industry trends, brainstorming plausible future developments, and delineating the impact of scenarios on the market.

The first workshop with Ferrero Deutschland GmbH's top management served to validate the scenario matrix and enhance understanding of the transactional impact of each scenario (Appendix 5). Unstructured questions were directed toward uncertainties with significant impact and uncertainty. Additionally, the survey results were presented and the transactional impacts on industry, retail, and consumers were discussed. Moreover, two semi-structured interviews with external experts, namely Deloitte Consultant Thomas Effinger and Managing Director of Mars GmbH, Carsten Simon, contributed fundamentally to scenario matrix validation and understanding of the transactional impact of each scenario (Appendix 4). Discourse encompassed current market and consumer trends in the confectionery industry, validation of the scenario matrix, and exploration of plausible future developments across different scenarios.

In the 'Act' stage, a second workshop with Ferrero Deutschland GmbH's top management sought to identify Ferrero Deutschland GmbH's current strengths and weaknesses, along with opportunities and threats for each scenario (Appendix 5). An unstructured assessment of Ferrero Deutschland GmbH's current standing illuminated the organization's status quo by evaluating its strengths and weaknesses.

Throughout the work project, the orchestrated involvement of Ferrero Deutschland GmbH's top management and external experts adhered to a methodical approach. This ensured a systematic grounding of the scenarios and strategic considerations in the intrinsic challenges and objectives of the company, all while integrating diverse perspectives and expert insights to fortify the robustness and applicability of the developed scenarios and strategies.

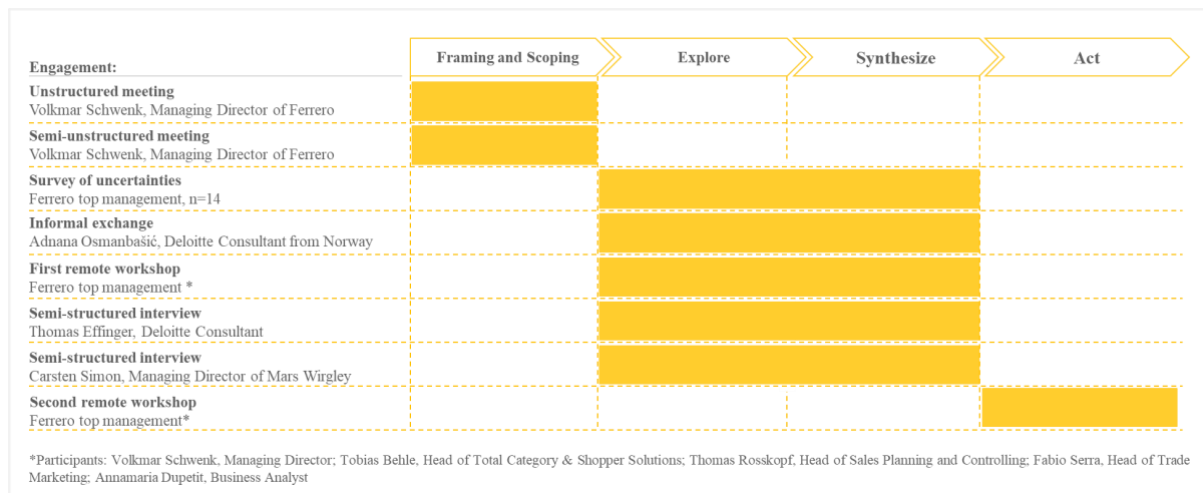


Figure 2: Client and Expert Involvement per Phase of the Scenario Planning Process | Source: Own Creation

4. Phase I: Framing & Scoping

At the beginning of the scenario process, the strategic focus of the work project and the time horizon are defined. This is the starting point for the subsequent process, which will aim to answer the focal issue defined at this stage.

4.1 Focal Issue

A focal issue plays a central role in guiding a foresight project, representing the primary research question essential for supporting the formulation of strategy, innovation, or organizational development. Serving as both the destination and the roadmap, focal issues direct the trajectory of the project (Bowers, 2022). The initial phase of a scenario planning endeavor involves pinpointing a central question focused on the external environment, laying the foundation for the subsequent four phases (Schwartz, 1996). The formulation of the focal issue aimed to align the project with Ferrero Deutschland GmbH's challenges, considering the evolving landscape of opportunities and obstacles within the confectionery industry in recent years.

Foods high in fat, sugar, and/or salt significantly impact public health and are significant contributors to non-communicable diseases such as ischemic heart disease, stroke, cancer, and type 2 diabetes (Nneli, Revoredo-Giha, and Dogbe 2023). Healthy diets can prevent the

premature deaths of 11 million adults worldwide each year, while at the same time reducing the healthcare costs associated with diet-related disorders (European Commission 2023; Lancet 2019). Nutrition taxes have been explored and tested in various contexts as part of other government's attempts to combat obesity worldwide. The World Health Organization encourages governments to use fiscal policy to promote better habits and to implement measures to limit the advertising of products high in fat, sugar, and/or salt to children, in line with the United Nations Sustainable Development Goals for 2030, to improve health and nutrition (WHO 2023b; Froidmont-Görtz et al. 2020). To this end, the German government is proposing to implement a restriction on advertising to children under the age of 14 by 2027, so its adoption is expected to have a yet unknown influence on national confectionery operations (Committee 2023). In addition to these regulatory changes, the sector faces several other uncertainties that are driving significant change in the German confectionery market, from new product development to changing consumer preferences.

As the whole of the confectionery industry, including Ferrero Deutschland GmbH, finds itself in this context, it was decided that the focal issue of this work project would be: “The future of the confectionery market in Germany”. Furthermore, as a more in-depth approach to guiding the research and explaining the stated focal issue, the following supporting questions were developed:

- How will regulatory changes impact the confectionery industry, including restrictions on advertising and ingredients?
- How will the growing emphasis on sustainability impact the confectionery industry's future landscape in terms of production, sourcing, and consumption?
- How will heightened consumer awareness of nutritional information, public health campaigns, and evolving dietary recommendations affect the perception and demand for confectionery items?

- How can confectionery manufacturers innovate their product portfolio to meet the growing demand for healthier products without compromising on taste and quality?
- How can confectionery brands sustain their competitiveness and continuously drive consumer demand for their products?

4.2 Time Horizon

Defining the accurate time frame for the scenarios is critical when defining the focal issue. This is because the time horizon influences the scope of the issues to be considered during the scenario-building process (Bowers 2022). The time horizon chosen should correspond to the anticipated pace of change for the specific issue being addressed. The idea is to push the scenario planning process far enough into the future to challenge established assumptions and present potential futures that may differ significantly. However, it is also important to stay close enough to the present to ensure that the scenarios are meaningful and reliable in the eyes of decision-makers (Schwartz 1996; Searce and Fulton 2004).

Although a number of laws restricting the advertising of HFSS products have already been drafted in Germany, it will be several years before these, or other laws come into force (expected date 2027) (Committee 2023). After that, it will be difficult to draw conclusions on their possible implementation before 2030, as it will take time to fully assess their impact on the confectionery market. Moreover, the excessive consumption of confectionery products has been identified as a public health priority by the World Health Organization. A comprehensive course of action with a target year of 2030 is currently being developed (Froidmont-Görtz et al. 2020). This plan will establish a global strategy to raise knowledge about health consequences related to the consumption of confectionery. It will include the implementation of an international communication plan and marketing campaigns, with a particular focus on children (Committee 2023; WHO 2023c). Given the vulnerability of the sector to short and medium-term changes in consumer preferences, technological improvements, and regulatory developments in today's

fast-paced business environment, the time horizon cannot be too long.

This is why a time horizon of 7 years, until 2030, has been determined considering the subsequent factors. A period of seven years was considered appropriate to allow for possible changes or uncertainties in the regulatory and social context, as well as the likely responses and adaptations of the confectionery industry in Germany.

5. Phase II: *‘Explore’*

To account for the unpredictable and uncertain forces driving the future of the German confectionery sector, it is necessary to consider various scenarios. Plausible future scenarios can be generated by clarifying potential causes and their consequences based on a variety of observations. It is therefore necessary to look at a wide range of drivers with direct and indirect impacts on the future development of the confectionery industry. These drivers can be grouped into the areas of political developments, economic shifts, social change, technology advancements, legal considerations, and environmental trends (PESTLE Factors).

5.1 Megatrends & Trends

Megatrends and trends serve as powerful lenses through which dynamic shifts shaping our world can be observed and understood. Megatrends are influential forces of transformation that have a considerable effect on a broad scope of sectors. These are enduring factors that are observable and will shape future markets in the long run (Joint Research Center 2023). In contrast, a trend represents an emerging pattern of change. It is usually a gradual and long-term change in the drivers that shape the future of large social groups or potentially even of state governments (European Foresight Platform 2023).

Individual Part – Francesco Nicolai

5.1.1 Megatrend I: *‘Shifting Health Challenges’*

Sub-trend – *‘Government Awareness/Action I – Health’*

Sub-trend – *‘Consumer Health Awareness’*

Sub-Trend – ‘Portion Control’

5.1.2 Megatrend II: ‘Neo-Ecology’

Sub-trend – ‘Government Awareness/Action II – Environment’

Sub-trend – ‘Sustainable Consumption’

Sub-trend – ‘Supply Chain Resilience’

.

Group Part

5.1.3 Megatrend III: ‘Accelerating Technological Change’

Technology is impacting not only the type and rate of scientific discoveries but also the management, administration, and production systems as well as the ways in which humans interact with one another, learn, and work. Furthermore, the connectivity between devices, computers, and data via the internet is increasing and the links between the real world and the digital world, like the metaverse, are starting to develop (Joint Research Center 2023).

Moreover, there is an acceleration in both the pace of development for novel technologies and the rate at which consumers and enterprises assimilate these advancements (McGrath 2019).

Advancements in technology, driven by AI, machine learning, robotics, and IoT, are increasing automation and productivity (Joint Research Center 2023). This surge in technological progress is significantly impacting numerous industries, particularly influencing production processes within the confectionery industry.

A study published by McKinsey predicts that applied artificial intelligence can support businesses including consumer packaged goods by adding capabilities and offerings and also making better decisions, helping to solve problems, and driving automation (Chui et al. 2023).

An area of prospective application for artificial intelligence (AI) resides in AI-driven production technologies, which hold the potential to facilitate enhancements in the packaging and design of confectionery products. Additionally, AI can help manufacturers assess their customer data like browsing and purchase history and thus help to identify new trends, analyze the market,

and gather customer insights (Sidickk, Jain, and Narayanan 2021).

Moreover, technological advancements in confectionery packaging contribute to manufacturers aligning with the second megatrend '*Neo-Ecology*'. These recent developments in sustainable packaging and production technology enable firms to adapt to changing consumer demands as sustainability gains importance. But also, improvements in wrapping machines showcase the importance of technological progress for the confectionery industry. Modern machinery can produce complex designs of sweets, employ environmentally friendly packaging, and rely on innovative hybrid technologies that reduce energy consumption (Bünnagel 2023). These advancements consequently shape the industry by influencing production methods, reducing costs, and allowing for innovative designs in packaging.

Beyond reshaping packaging and production, technological advancements are also pivotal in research and development, significantly aiding in the discovery of new ingredients. Studies on alternative sweeteners and technological advancements in ingredient production led to the development of substitutes with functions and tastes comparable to those of sugar. One of these alternatives is rare sugar, which has comparable sweetness and volume but fewer calories than regular sugar. New soluble fibers have the potential to partially reduce the sugar content in confectionery while providing mild sweetness and adding bulk, as highlighted by Innova Market Insights (2023b). These new types of ingredients provide the confectionery industry with new opportunities to innovate and create new products.

Sub-trend: '*Personalized Nutrition*'

Personalized nutrition has been ranked as one of the most important food trends of 2021 under the name "Tailored to fit" by the market research company Innova Markets Insights (Ohr 2022). It takes the concept of healthier alternatives in foods one step further by considering how nutrition when customized to an individual's needs and preferences, may improve both physical and mental performance. Instead of just offering food with ingredients that match the needs of

one consumer group, personalized nutrition aims to supply individuals with precisely the ingredients they require (Hansen, van Wijk, and de Jong 2021). One proposed definition for personalized nutrition is made by the American Nutrition Society as: “a field that leverages human individuality to drive nutrition strategies that prevent, manage, and treat disease and optimize health [...]” (Bush et al. 2020). People are already tailoring their diets with the aid of technological devices like calorie trackers and smartwatches. Companies also use these kinds of gadgets along with other AI technologies to combine data from various sources, allowing for real-time biometric data and, as a result, personalized recommendations (Bernatonyte 2023). Therefore, the development of technology and digitalization is a crucial element required for the success of this trend (Pfersdorf 2023).

This trend also involves the creation of particular food items and supplements that can be utilized to enhance individual nutrition. Increasing the nutritional value of tomatoes by adding minerals and vitamins is one example already in development (Hansen, van Wijk, and de Jong 2021). In addition, the emergence of 3D printing technology for food is facilitating personalized nutrition by permitting the mass customization of products that incorporate functional ingredients impossible to achieve with other technologies (Eswaran, Ponnuswamy, and Kannapan 2023).

The various facets of this trend possess significant potential to impact the confectionery industry on multiple levels. The widespread implementation of personalized nutrition plans has the potential to decrease the demand for unhealthy confectionery items by consumers who are highly aware of their nutritional intake. In contrast, optimized food research offers opportunities to manufacture confectionery products that meet individual needs. This emerging category potentially offers new opportunities to grow for the confectionery industry.

Sub-trend: ‘*Digital Commerce and Engagement*’

The second sub-trend characterizes the influence of the technology megatrend on the promotion

and sales channels of the German confectionery industry. Internet usage in Germany has been constantly rising. In 2022, a total of 95% of the German population used the Internet (Statistisches Bundesamt 2023a; Deutscher Bundestag 2007), which corresponds to a sharp increase in penetration from 62.7% in 2007 (Deutscher Bundestag 2007). According to Schwarzl and Grabowska (2015), the number of internet users can be viewed as a key indicator for the development of online marketing as the internet user represents the potential audience and thus the potential for online marketing strategy.

This important area for advertising continues to evolve and new trends are emerging that may shape the future of online marketing. Important trends for the future include virtual and augmented reality, artificial intelligence, personalization, influencer marketing, and the trend of short videos on platforms like TikTok and Instagram (Pec 2023). Industry expert Thomas Elfinger (2023) emphasizes the significance of utilizing platforms such as TikTok and Instagram to address the young consumers who are predominantly active on these channels. He asserts that such trends are already evident in the United States and Asia and hold the potential to extend to the German market. Similarly, virtual and augmented reality have the ability to produce novel customer experiences, claims Lutz Anderie (2023) in an interview with *Lebensmittelzeitung*. Furthermore, he points out potential options for corporations in the food sector to get involved in marketing activities related to e-sports and cross-over marketing. According to Lutz Anderie businesses that support e-sports teams or combine products from the food and gaming industries can benefit both parties (Anderie 2023).

Overall, novel technological developments offer different potential touch points to the consumer and consequently drive innovative forms of marketing and customer engagement.

In addition to the general use of the internet and the associated novelties in marketing, 66% of the German population uses the Internet for shopping (Statistisches Bundesamt 2022).

This large-scale utilization of the Internet for purchases has not yet been reflected in the

anticipated breakdown of confectionery products. However, over the period considered, there is a noticeable trend toward increasing shares of online confectionery purchases.

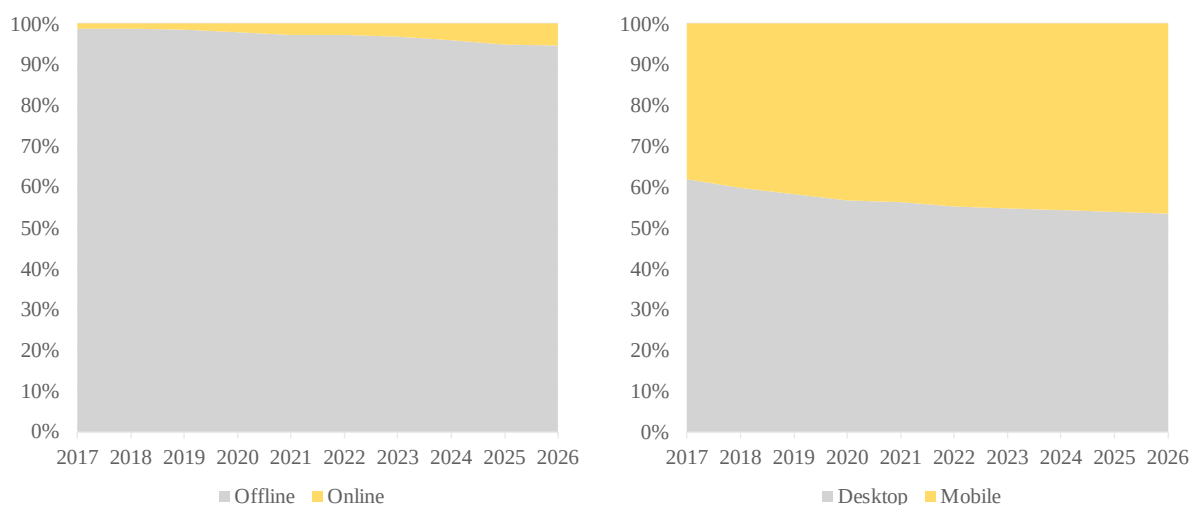


Figure 3: Confectionery & Snacking Revenues – Online/Offline Split and Desktop/Mobile Split |Source: Own Creation, Data: (Statista Market Insights 2023)

The share of revenue generated with online sales of the total market has constantly grown since 2018 and is predicted to continue its growth for the forecasted period until 2026. It is predicted to reach 5.7% in 2027 coming from 2.8% (Statista Market Insights 2023). This early trend highlights the increasing importance of e-commerce for the confectionery industry.

Within the online sales channels, the disparity between desktop and mobile purchases is predicted to decline, resulting in 53.6% usage of desktop computers and 46.4% mobile usage for purchases of confectionery (Statista Market Insights 2023). This trend emphasizes the increasing importance of mobile purchases for e-commerce in the confectionery market.

A special category of e-commerce is subscription-based e-commerce. Here, boxes containing the desired products are delivered at regular intervals. In the US, the entire market for subscription boxes grew by over 100% within five years before 2018 (Chen et al. 2018). Already in 2017, 5% of Germany used subscription boxes for food (Suhr 2017). There are also offers for subscription boxes with confectionery in Germany (e.g., boxes from Vernaschediewelt.com and worldofsweets.de). This segment could potentially represent a new

growth market in the e-commerce sector and thus further accelerate e-commerce for the confectionery market.

5.2 Predetermined Elements

Following the exploration of dynamic megatrends and evolving trends within the confectionery market, the focus now shifts to the predetermined elements. In the field of scenario planning, predetermined elements refer to predictable trends whose consequences are foreseeable but not yet fully apparent. They form the basis for developing future strategies (Amer, Daim, and Jetter 2013). Among these, '*Consumer Health Awareness*' and '*Sustainable Ethical Shift*' stand out as particularly important factors.

'*Consumer Health Awareness*' has become a prominent market trend. Unlike mere market trends, the growing focus on health and well-being among consumers represents a deeply established change in behaviors and expectations that are expected to persist and evolve. While it is evident that increasing consumer health awareness will continue to influence market strategies, the complete spectrum of its consequences in the confectionery industry is yet to be fully realized. This means that confectionery market strategies must invariably conform to these health trends, requiring the incorporation of 'better-for-you' products, embracing innovations in healthier ingredients, and transparent labeling practices (Elfinger 2023; Simon 2023). As a constant element in the confectionery market, this aspect of consumer behavior influences all facets of the industry, ranging from production processes to marketing strategies and sales tactics. Therefore, aligning with these evolving health-conscious demands is vital.

Simultaneously, '*Sustainable Ethical Shift*' is emerging as another critical predetermined element, reflecting a profound shift in consumer values toward sustainability and ethical business practices. The demand for ecologically responsible and ethically sourced products is an established and enduring trend that is reshaping the industry's operating norms. Confectionery businesses should adjust by incorporating sustainable sourcing techniques,

providing transparency in their supply chains, and embracing environmentally friendly packaging solutions (Elfinger 2023; Osmanbašić 2023). This alteration is not merely a response to consumer demand, but also a strategic obligation to align with regulatory standards and global sustainability goals. In the context of scenario planning, recognizing this trend as a consistent factor enables a more nuanced comprehension of future market dynamics, directing businesses toward strategies that are responsive and responsible.

These predetermined elements, '*Consumer Health Awareness*', and the '*Sustainable Ethical Shift*' are not just influential market forces but also critical benchmarks for the confectionery industry's strategic planning. They represent the undercurrents that, while constant, demand agility and foresight in business strategies, ensuring that companies not only remain competitive but also resonate with the evolving expectations of their consumer base.

5.3 Uncertainties

As the next step in '*Explore*', the uncertainties for the confectionery market were examined. These unpredictable forces can greatly affect the focal issue (Searce and Fulton 2004) and their possible configurations have the potential to structure different futures for the actor's context. Following a comprehensive review of the key drivers of change, 11 uncertainties were identified, defined, and categorized, covering a range of critical external factors. The identification of these uncertainties was the result of extensive desk research, and Appendix 2 has a more extensive description of each uncertainty.

In Phase III, '*Synthesize*', a comprehensive visualization is presented, which shows all the uncertainties that have been discovered and their corresponding classifications.

'Global Trade Policies': The confectionery sector is vulnerable to the dynamics of global trade as it depends on it for the import and export of ingredients and products (MarketLine 2022). Uncertainties arising from geopolitical tensions, economic fluctuations, and consumer demands

for fairer deals can lead to changes in international trade agreements and tariffs, with varying impacts on global supply chain dynamics (Amighini et al. 2023).

'Health Regulations': Political decisions on health regulations are another uncertainty that will affect consumer preferences and the actions of confectionery companies. Potential restrictions on advertising, sale, and placement of high-sugar products in stores may not have a significant impact on demand, or they may radically alter the paradigm of consumption and production for these products (WHO 2023d).

'Consumer Spending Power': It is a key driver of product demand and pricing strategies in the confectionery sector. This uncertainty is dynamic and not predictable, as it depends on volatile and variable factors in Germany such as inflation and the cost of living, consumer confidence and preferences, income levels, and others (Hayes 2023a).

'Global Economic Stability': Economic fluctuations and global financial crises often lead to a recalibration of consumer spending and a reduction in non-essential consumption, including confectionery (Adrian 2021). Armed conflicts, pandemics, and extremist political forces that affect people's purchasing power and the cost of raw materials create uncertainty about the ability of confectionery manufacturers to meet these unpredictable economic challenges (Confectionery Production 2023b).

'Stability of Supply Chain': The German confectionery industry is immensely reliant on its supply chain stability (MarketLine 2022), which is jeopardized by unpredictable weather patterns, environmental changes, and global geopolitical upheavals that potentially cause significant disruptions (Myers 2022). Furthermore, the industry is heavily dependent on external suppliers for a majority of the raw materials, magnifying the effects of these risks.

'Commodity Price Volatility': The confectionery industry faces significant vulnerability to price volatility stemming from fluctuations in the availability of key ingredients as a result of weather conditions, instability in producing regions, and shifts in global demand. Due to these

occurrences beyond the industry's control, commodity prices fluctuate, leading to unpredictability in future price levels (ChAI 2022).

'E-Commerce': While e-commerce is on the rise in the confectionery sector, the development and impact of this sales channel on the sector is still uncertain. This is due to the potential limitations on the availability of products with a high sugar content (including in the digital universe) and the fact that confectionery is mainly an impulse purchase for immediate consumption, which online shopping with its delivery time cannot fulfill (Mordor Intelligence 2023; Livingston 2022).

'Alternative Sweeteners and Production Methods': Confectionery manufacturers are increasingly looking for alternative sweeteners in their product lines and ways to reduce sugar (Confectionery Production 2021). However, the development of new alternatives is limited by the constantly changing consumer preferences that currently favor plant-based alternatives. It remains uncertain how the market will respond (Foodware 365 2021).

'Climate Change Impact': The full effects of climate change on the regions supplying raw materials to the German confectionery industry are uncertain due to unpredictable changes in weather patterns (Umweltbundesamt 2021; Nieburg 2017). Thus, climate change presents a significant challenge for the industry due to the uncertain and unpredictable availability and quality of essential raw materials.

'Packaging Innovations': Driven by government regulations and consumer preference, packaging in the confectionery industry is undergoing changes. It remains uncertain whether returnable and refillable packaging will be embraced by consumers, as well as whether companies will be able to afford and mass-produce returnable and portion-controlled options (Sutaria 2023).

'Food Labeling Laws': Despite calls for a single European framework and the European Commission's Farm to Fork strategy for standardized front-of-pack nutrition labeling,

uncertainty remains about the future regulatory landscape for the German confectionery sector. This is because many labels are still voluntary and consumer demands are constantly evolving (European Commission 2023; BMEL 2023).

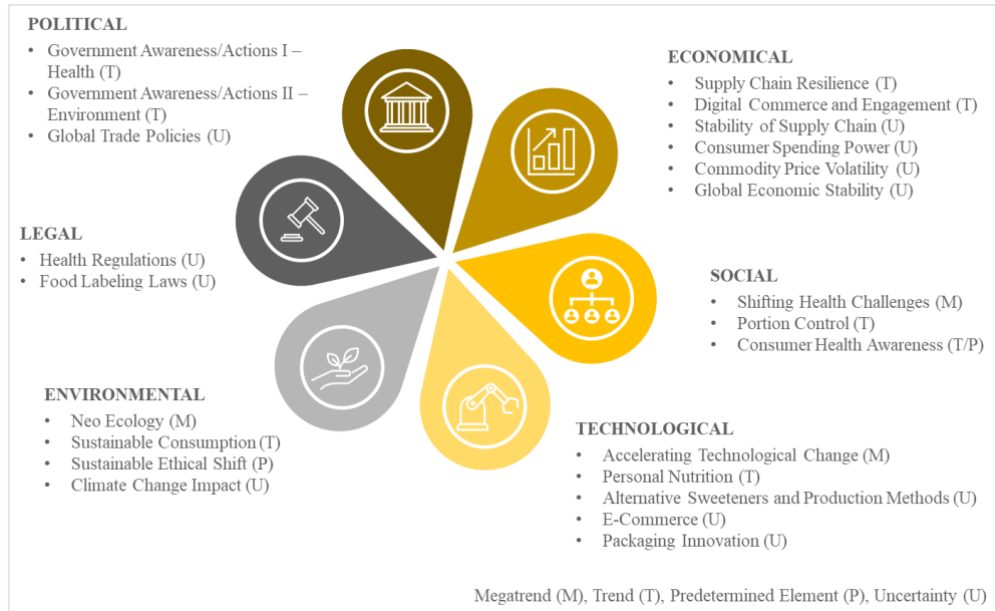


Figure 4: PESTLE Framework with all Drivers of Change | Source: Own Creation

6. Phase III: ‘Synthesize’

After analyzing the external environment affecting the German confectionery industry (Phase II: ‘Explore’), the focus shifts to identifying the most critical and uncertain factors. These elements, called ‘key uncertainties’, are the cornerstone of scenario building. The aim is to identify the two most important and uncertain driving forces for the focal issue. These two uncertainties serve as axes in a matrix, framing the polarities of what could potentially unfold within the defined timeframe of 2030. The intersection of these axes allows for the exploration of four distinct scenarios that challenge assumptions and respond to strategic concerns (Searce and Fulton 2004; Schwartz 1996).

6.1 Development of Scenario Matrix

In the process of matrix development, a four-step approach is undertaken. The first step involves conducting a survey to rank uncertainties based on their impact and level of uncertainty

(Appendix 3). Following this, related key uncertainties are grouped to streamline the scenario development process. A deductive approach is then employed to construct a scenario matrix. To enhance the robustness and applicability of the scenarios, the final step involves cross-validation of the scenario matrix through interactions with industry counterparts, a workshop, and an expert.

6.1.1 Mapping Uncertainties

After evaluating the survey outcomes, a graph was constructed to visualize uncertainties according to their average impact and uncertainty ratings. The subsequent stage involved delineating the area of interest, achieved by applying threshold values (7.5 for impact and 8 for uncertainty) derived from the survey distribution. Within this defined area, four critical uncertainties emerged: '*Health Regulations*', '*Stability of the Supply Chain*', '*Climate Change Impact*', and '*Commodity Price Volatility*'. These uncertainties play a foundational role in shaping the scenarios that are pertinent to the future of the German confectionery market.

6.1.2 Grouping of Uncertainties and Identification of Key Uncertainties

The subsequent phase involved examining the four identified uncertainties for interdependencies. This analytical process aimed to identify potential groupings based on shared characteristics and causal relationships and to ensure sufficient independence between clusters. '*Stability of the Supply Chain*' emerged as a critical factor influenced by a spectrum of elements, encompassing geopolitical tensions and political instability. These disruptions were referred to as a multidimensional challenge since they may result in imbalances between supply and demand, which would then cause price volatility (Attinasi et al. 2021). Additionally, '*Climate Change Impact*', with its potential to intensify the frequency and severity of extreme weather events, emerged as intricately tied to commodity price volatility and global supply chain disruptions (United Nations 2023). Furthermore, climate change impact is identified as exerting pressure on affected economies, fostering political instability and unrest, subsequently

leading to disruptions in the supply chain (Marchant 2021).

In contrast, *'Health Regulations'* is identified as an independent variable. Although health regulations can indirectly influence supply chains (Attinasi et al. 2021), primarily during wildcard events such as Covid-19 with imposed regulations on trade and day-to-day consumption, their capacity for independent adjustment sets them apart. Even in the face of potential challenges such as instability of the supply chain, climate change impacts, or commodity price volatility, health regulations emerged as resilient and sufficiently independent influences unaffected by environmental factors.

This analysis led to the definition of two distinct clusters, with *'Stability of Supply Chains'*, *'Climate Change Impact'*, and *'Commodity Price Volatility'* forming one group, and *'Health Regulations'* comprising the other.

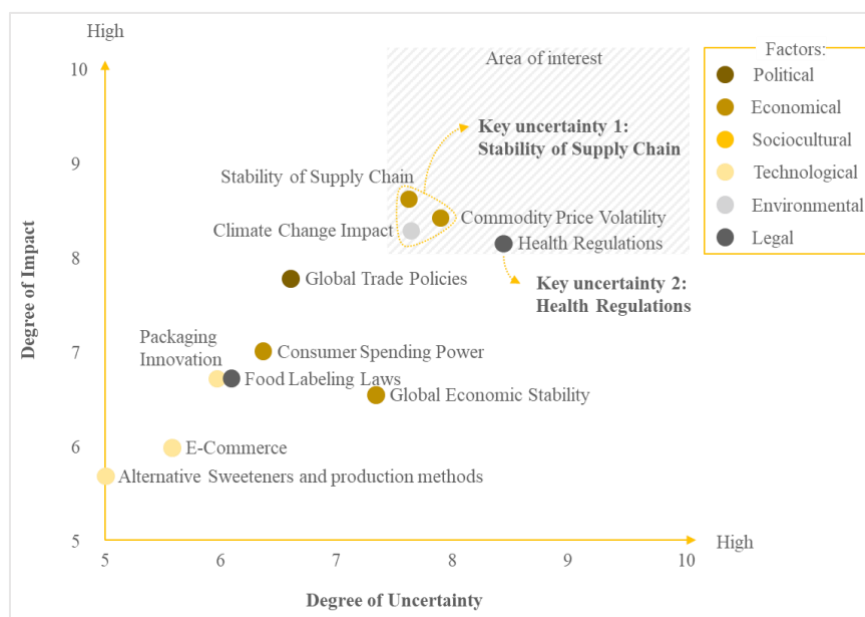


Figure 5: Uncertainties Mapping | Source: Own Creation

6.1.3 Key Uncertainties

To substantiate the categorization as a key uncertainty, it is essential to establish a significant degree of both impact and uncertainty. This necessitates offering a rationale aligned with the findings obtained from the survey.

Key Uncertainty 1: *'Stability of Supply Chain'*

High impact: '*Stability of Supply Chain*' significantly influences the German confectionery industry, portraying a high impact on various crucial dimensions. Firstly, the industry heavily relies on the intricate global network of exports and imports for essential raw materials, particularly cocoa and nuts (BDSI 2023). The vulnerability of this interconnected supply chain becomes evident in the event of disruptions, such as shipping delays, travel limitations, and shortages of supplies. As exemplified by the challenging global economic and political environment, these disruptions invariably escalate costs for manufacturers, encompassing higher expenses for raw materials. The surge in commodity prices underscores the industry's susceptibility to supply chain disturbances (Livingston 2022). Moreover, the consequential limitations on agility pose a substantial threat to the industry's capacity to adapt promptly to environmental changes and shifting consumer trends, thereby jeopardizing overall profitability (Abdoli and Valmohammadi, 2017).

High uncertainty: The uncertainty surrounding the '*Stability of Supply*' Chain in the confectionery industry is characterized by multifaceted dimensions. Foremost among these uncertainties is the climatic outlook for key raw material production, notably cocoa and nuts. Climate models project a potential crisis, with forecasts indicating that cocoa farms in critical regions such as Côte d'Ivoire and Ghana may become unsuitable for cocoa production by 2050 (Brodwin 2018). This impending threat introduces a high degree of uncertainty regarding the timeline of climate change impacts on cocoa production, considering the 2030 horizon. Furthermore, the externalities of climate change might exert unforeseen pressures on political stability in the primary raw material countries (OECD 2015), thereby adding an additional layer of uncertainty to the industry's supply chain dynamics.

Additionally, Gunnella and Quaglietti (2019) highlight a surge in geopolitical tensions, primarily attributed to the escalating wave of protectionism. This is evident in the proliferation of both non-tariff and, more recently, tariff barriers as well as a decline in public support for

globalization. The consequences of these tensions manifest in trade disputes involving multiple countries, resulting in the imposition of tariffs that, in turn, adversely affect trade and economic activities. The subsequent surge in trade costs amplifies uncertainty, creating a confluence of challenges intertwined with financial stress.

The convergence of these factors makes the confectionery industry highly vulnerable to the unpredictable effects of climate change and related geopolitical consequences, adding to the overall uncertainty surrounding supply chain stability.

Key Uncertainty 2: ‘Health Regulations’

High impact: ‘Health Regulations’ emerge as a vital factor exerting a high impact on the German confectionery industry due to several interconnected dimensions. Firstly, the confectionery products inherently exhibit a high added sugar content, a characteristic that aligns with the industry's traditional offerings. The association between excessive sugar consumption and adverse health effects, including cardiovascular diseases (Harvard Health 2022), obesity (Ndumele 2021), and diabetes (Harvard Health 2022), underscores the industry's vulnerability to regulatory changes targeting added sugar content. Any alterations in health regulations on sugar content would reverberate across a substantial portion of confectionery products. Additionally, health regulations are often accompanied by educational campaigns promoting healthier consumption, thereby fostering increased health-conscious trends among consumers (Bradley et al. 2020). This shift in consumer behavior, prompted by regulatory changes, could lead to a decreased demand for traditional confectionery products, posing a formidable challenge to the industry's established market dynamics. The compliance costs associated with adapting to heightened regulations further amplify the impact, imposing financial burdens on confectionery manufacturers (Krishna 2017).

High uncertainty: The uncertainty surrounding ‘Health Regulations’ in the confectionery industry is marked by intricate dynamics rooted in various influencing factors. Firstly, the

dependence on governing political parties introduces a layer of unpredictability, as different parties espouse diverse policy priorities, ideological stances, and susceptibilities to lobbying efforts (Kearns, Schmidt, and Glantz 2016). The variance in how political entities value public opinion further exacerbates the uncertainty, making it challenging for industry stakeholders to anticipate and adapt to shifting regulatory landscapes. Disagreements among experts constitute another facet of uncertainty, with divergent perspectives on the effectiveness and relevance of measures like sugar tax and advertising bans (Dogbe and Revoredo-Giha 2022). Such discordant viewpoints contribute to ambiguity regarding the tangible impact of proposed health regulations on the confectionery industry. Additionally, the landscape of healthcare innovation, including the development of weight-loss drugs, introduces a dimension of uncertainty, as unforeseen advancements in this realm could potentially not only reshape but reduce the necessity of regulatory in the first place, even though weight-loss drugs are recommended to be accompanied by a “broader medical weight-loss program” and change in diet (Harvard Health 2018). The intricate interplay of these factors underscores the multifaceted and uncertain nature of *‘Health Regulations’* for the confectionery industry.

6.1.4 Scenario Matrix

The scenario matrix is constructed, incorporating two key uncertainties: *‘Stability of Supply Chain’* and *‘Health Regulations’*. These uncertainties are configured into four distinct scenarios, each capturing a unique combination of factors that could shape the future landscape of the German confectionery market.

The first axis of the matrix, *‘Stability of Supply Chain’*, is defined by two configurations. Configuration 1, characterized as “*Disruption-free*,” envisions a scenario where there is no relevant climate change impact on confectionery raw materials, no supply chain disruptions, and normal commodity price volatility. In contrast, Configuration 2, termed “*Disrupted*,” foresees climate change impacting confectionery raw material production, supply chain

disruptions arising from climate change and geopolitical tensions, and an increase in commodity price volatility.

The second axis, ‘*Health Regulations*’, is delineated into the following two configurations: Configuration 1, denoted as “*Current*,” assumes no change to the current regulatory environment, whereas configuration 2, labeled “*Strict*,” envisions the introduction of severe regulations specifically targeting the confectionery industry.

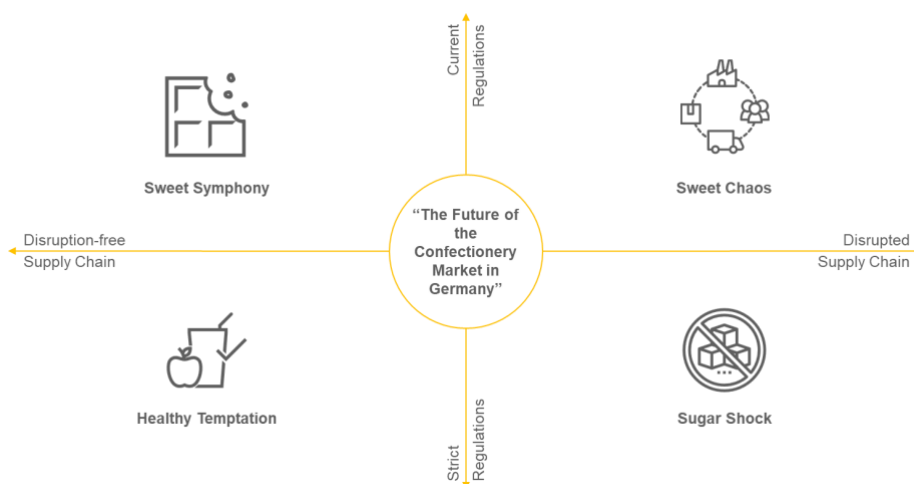


Figure 6: Scenario Matrix | Source: Own Creation

The resulting four scenarios, namely ‘*Sweet Symphony*’, ‘*Sweet Chaos*’, ‘*Healthy Temptation*’, and ‘*Sugar Shock*’, encapsulate the contrasting states of the world arising from different combinations of ‘*Stability of Supply Chain*’ and ‘*Health Regulations*’.

These scenarios exhibit a high degree of expressiveness, providing clear and contrasting high concepts. The matrix is inherently relevant to the focal issue of the future of the German confectionery market, illuminating the key uncertainties that could impact the industry. Plausible stories emerge from the configurations, aligning with potential real-world developments. The scenarios diverge significantly, offering distinct narratives crucial for scenario planning. Each quadrant poses unique and relevant challenges, contributing to the matrix's effectiveness in guiding strategic decision-making for the confectionery industry.

6.1.5 Cross-validation of the scenario matrix

The cross-validation process for the scenario matrix consisted of three primary sources

involving both the client, Ferrero Deutschland GmbH, and two external sources. The primary objective was to validate the customized view of Ferrero Deutschland GmbH presented in the survey and ensure its applicability to the broader context of the entire German confectionery market.

The first phase of validation involved presenting the scenario matrix to Mars GmbH, the second-largest player in the German confectionery market. In an interview with Mars GmbH's Managing Director, Carsten Simon, the matrix's key uncertainties, namely '*Stability of Supply Chain*' and '*Health Regulations*', were examined. This step aimed to assess the matrix's transferability beyond Ferrero Deutschland GmbH, incorporating diverse perspectives from another major industry player.

The second phase focused on internal validation within Ferrero Deutschland GmbH. A workshop setting provided a platform to present the scenario matrix and engage Ferrero Deutschland GmbH's management in the discussion. This internal validation ensured that the matrix resonated with Ferrero Deutschland GmbH's perspectives and the coherent interpretation of survey results.

The final phase engaged an external expert, Deloitte Consultant Thomas Elfinger, for an independent validation of the scenario matrix. In an interview, the matrix was presented and discussed, seeking an external perspective on its relevance, robustness, and applicability to the broader industry landscape.

6.2 Scenario Narratives

In this section of the report, the focus lies on scenario analysis for the German confectionery market leading up to 2030. This phase synthesizes earlier discussions of market drivers and trends into four distinct scenarios, each illustrating a unique future landscape for the industry. These scenarios are designed not as predictions, but as strategic tools to navigate the uncertainties and possibilities that lie ahead, providing insights for informed decision-making in

the face of evolving market dynamics and consumer behaviors.

Individual Part - Chantal Valerie Weber

6.2.1 Scenario 1: ‘Sweet Symphony’

Individual Part – Rita Gomes Mendes

6.2.2 Scenario 2: ‘Sweet Chaos’

Individual Part – Janis Nikolai Drescher

6.2.3 Scenario 3: ‘*Healthy Temptation*’

Individual Part - Max Friedrich Lohmann

6.2.4 Scenario 4: ‘Sugar Shock’

The German confectionery market is under immense strain, grappling with heightened regulatory measures and a disrupted supply chain, creating an environment characterized by tension and pressure. On one side, a disrupted supply chain unfolds, characterized by climate change-induced impacts, particularly affecting cocoa. Additional disruptions stem from political instability, negative economic consequences resulting from climate change, and escalating geopolitical tensions, all culminating in heightened commodity price volatility. On the opposing side, the scenario introduces new health regulations, chiefly marked by the implementation of a sugar tax, a VAT increase, and an advertising ban targeting children under 14 years.

Contextual Analysis

Led by the Alliance 90/The Greens and Social Democratic Party of Germany, the ruling coalition has prioritized a collective well-being approach, addressing health crises and the externalities linked to unhealthy behaviors (Goldenberg 2021). The government collaborates closely with health authorities, resulting in comprehensive public health campaigns and educational initiatives (Alderwick et al. 2021). The overarching goal is to reshape consumer

behavior, emphasizing the need for informed choices and healthier lifestyles.

Simultaneously, economic policies have undergone a noticeable shift, incentivizing the production and consumption of healthier confectionery options (World Economic Forum 2020).

In the international context, the government and EU respond to disruptions caused by supply chain challenges. Companies and policymakers strategically diversify international trading partners and alliances, recognizing the impact of sustainability standards on global trade dynamics (Szczepański 2021). Efforts are underway to balance these dynamics, ensuring that international trade aligns with domestic social and environmental goals.

Furthermore, the government actively engages in EU efforts to further harmonize food safety and labeling standards in order to reduce costs of compliance and streamline trade across countries. Acknowledging the interconnectedness of the EU food supply chain, the emphasis is on aligning with EU regulatory frameworks. This harmonization aims to create a standardized approach that benefits both domestic and European markets (Unver 2021).

Collaboration between the government and the confectionery industry is recognized as essential, with public-private partnerships becoming crucial for driving initiatives related to health, sustainability, and societal well-being (Gomez 2023). However, the industry faces challenges in influencing political decisions due to the high pressure exerted by the population and government bodies.

The government responds to global disrupted supply chains by implementing regulations aimed at enhancing resilience. A comprehensive EU supply chain law is enacted, following the German supply chain law implemented in 2022/2023, influencing transparency in the supply chain. This includes provisions for risk assessments, contingency planning, and regulatory requirements for supply chain transparency (European Commission 2022a). The legislative focus on supply chain resilience reflects an effort to ensure businesses are well-prepared for disruptions, can adapt to changing market dynamics, and reduce harmful externalities of global

trade (Padgaonkar 2023).

The compliance costs emerge as a critical consideration for confectionery companies. Compliance with new health and supply chain regulations introduces financial implications, including costs related to reformulation, testing, and compliance monitoring. Larger companies navigate these costs more effectively, while smaller enterprises face greater challenges (Lev, Srivastava, and Enache 2019). Government initiatives include support mechanisms to assist smaller businesses in adapting to new regulations and recognizing the need for a level playing field in the industry (Lin et al. 2022).

Health consciousness amongst buyers increases, with amplified awareness of the impact of diet on overall well-being. This awareness results in a more critical evaluation of food choices, including confectionery products. Consumers increasingly seek healthier alternatives with better nutritional profiles and reduced sugar content, reflecting a broader trend toward health-conscious consumption (Grimmelt et al. 2022).

Income inequality plays a dual role, with higher income levels driving a premiumization trend in confectionery. However, lower income levels lead to affordability concerns, prompting some consumers to prioritize cost-effective alternatives.

This leads to an increased role of e-commerce and retail technology, with significant growth in online shopping for confectionery products (Nieburg 2017) as this channel provides cost-sensitive customers with transparency and comparability on prices.

Sustainable practices emerge as a key consideration for both consumers and companies. The confectionery industry witnesses a shift toward eco-friendly packaging (Berg et al. 2020), ethical sourcing of ingredients (Fairtrade International 2023), and corporate social responsibility (White, Hardisty, and Habib 2019).

Ethical sourcing gains prominence as consumers prioritize products sourced from socially responsible supply chains. Companies respond by obtaining certifications and employing clear

labeling to communicate their commitment to ethical sourcing and responsible practices.

Companies operating in the confectionery market increasingly prioritize sustainable sourcing of raw materials. Efforts continue with a focus on ensuring that ingredients like cocoa and nuts are produced in an environmentally responsible (World Cocoa Foundation 2023) and socially ethical manner (International Cocoa Initiative 2023).

Amidst the challenges posed by climate change, the confectionery industry is actively working to minimize its environmental effects. Focusing on CO₂ reduction, companies are committing to renewable energy, embracing energy-efficient manufacturing, and participating in carbon offset programs (Ferrero International 2023b; Mars, Incorporated 2023; Lindt & Sprüngli Group 2023; Mondelez International 2023).

Aligned with the government's collective good focus on reducing obesity and the negative externalities of unhealthy foods, a robust set of health regulations is introduced in the confectionery market. The government takes a proactive stance, addressing concerns about the impact of confectionery on public health. Stringent measures are implemented to curb the prevalence of health issues attributed to confectionery consumption. One significant regulatory intervention is the introduction of a sugar tax on confectionery, taking inspiration from successful implementations such as the sugar levy in the UK (Sasse and Metcalfe 2022). This tax incorporates a threshold for added sugar, aiming to reduce overall added sugar consumption, as developed in Scenario 3: *'Healthy Temptation'*.

Furthermore, a modification to the VAT is implemented, as confectionery products are no longer categorized as basic food items. This results in a significant VAT hike from 7% to 19%. The government adopts evidence-based strategies, drawing from successful models to encourage healthier dietary choices among the population.

Additionally, the government imposes advertising bans for unhealthy confectionery targeting children under 14, with a specified threshold for added sugar content (Bundesministeriums für

Ernährung und Landwirtschaft 2023). This measure is driven by strong public demand, as polls indicate that over 75% of the population supports or strongly supports this ban. The increasing trend in public endorsement, from 65% in 2023 to over 75% in recent polls, underscores the widespread societal commitment to healthier consumption (Foodwatch Deutschland 2023).

Government initiatives extend beyond regulations to encompass comprehensive public health campaigns and early education. Collaborating with other entities such as done by Public Health England, these initiatives aim to educate consumers about the health impacts of confectionery consumption. By combining regulatory measures with educational efforts, the government endeavors to create a holistic approach to address public health concerns associated with confectionery products (Public Health England 2019).

The German confectionery supply chain relies predominantly on domestic sourcing for its ingredients, including substantial quantities of sugar (750,000 tons), flour (450,000 tons), potatoes (390,000 tons), glucose and starch (220,000 tons), and milk and other dairy products (175,000 tons). However, cocoa and nuts, essential for flavor and texture and included in almost every confectionery product, are sourced primarily from regions outside the EU (BDSI 2023).

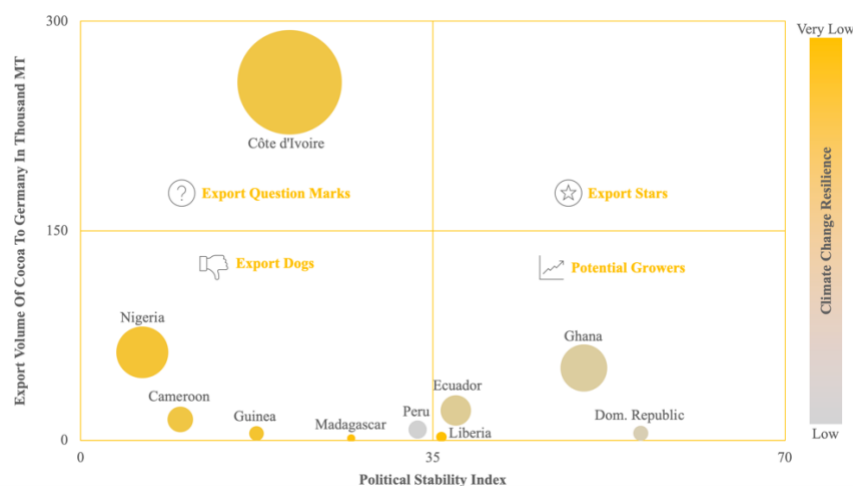


Figure 7: Political Stability and Climate Resilience in Cocoa Export nations | Source: Own aggregation of BDSI (2023a), World Bank (2023), and Notre Dame Global Adaptation Initiative (2017)

This global network is tightly connected to equatorial regions, particularly in the global south, where the impact of climate change is unfolding (King et al. 2023). Climate change presents a

significant and current threat to the confectionery supply chain, especially in regions critical for cocoa and nut cultivation (Läderach et al. 2013). These crops, inherently sensitive to climatic shifts, require precise conditions for optimal growth. Increasing temperatures (Agbenyo et al. 2022), coupled with extreme weather events like droughts and floods, create a challenging environment (Serwaah and Gutiérrez 2019). These climate-induced factors not only jeopardize yields but also heighten the risk of pests and diseases, compromising the quality of cocoa and nuts. The resulting scarcity contributes to elevated prices and introduces the potential for supply chain disruptions (Attinasi et al. 2021). Additionally, the economic consequences in these regions intensify the situation (OECD 2015), leading to decreased political stability and heightened social unrest.

Simultaneously, geopolitical tensions, unrest, and increasing political instability in these essential regions magnify the risks associated with the confectionery supply chain, resulting in shortages of raw materials and critical disruptions in production.

The far-reaching impacts of climate change, particularly on cocoa, contribute to diminished availability and quality concerns. Concurrently, diminishing political stability and escalating geopolitical tensions inject a heightened level of uncertainty into the supply chain. This atmosphere of unrest amplifies the unpredictability of commodity supply. The global market, intricately affected by supply/demand imbalances, further exacerbates the challenge, culminating in a significant rise in commodity price volatility.

Transactional implication

Industry

The confectionery industry is undergoing a significant transformation with increasing cost pressure from supply chain and health regulations. Shifting consumer preferences toward healthier snacking alternatives, driven by both health consciousness and affordability considerations, are contributing to a contraction of the traditional confectionery market. As

consumers seek alternatives aligned with their health goals, the market for conventional chocolates is shrinking, challenging industry players to adapt to evolving demand patterns (Simon 2023).

The product portfolio within the confectionery industry is experiencing a profound overhaul with companies drastically reducing portfolio variety (Behle et al. 2023a; Simon 2023). Traditional chocolates are becoming scarce, with a noticeable increase in prices, positioning them as premium products (Simon 2023). Companies are strategically focusing on cash cow products, leveraging economies of scale and operating leverage to stabilize profits. Amid the challenging regulatory and supply chain landscape, there is a strategic shift from investing in a broad range of innovative products to concentrating efforts on a select few winning products (Behle et al. 2023a). This approach is accompanied by a reduction in research and development spending due to the heightened pressure from regulatory constraints and supply chain uncertainties. To mitigate risks associated with in-house product development, companies are acquiring sustainable and healthier products, contributing to the streamlining and transformation of product portfolios (Behle et al. 2023a).

The industry is witnessing a strong consolidation (Behle et al. 2023a) despite governmental support programs as small and medium enterprises face increasing challenges from supply chain laws, supply chain disruptions, and compliance with health regulations, rendering them unprofitable. Large players are capitalizing by acquiring know-how and intellectual property from struggling competitors. This consolidation trend is reshaping the competitive landscape, with fewer but more dominating players in the market.

Climate change-induced disruptions are reducing the quantity and quality of raw materials, leading to a general increase in prices. Commodity price volatility, exacerbated by climate-related uncertainties, necessitates additional costs associated with hedging strategies to mitigate the impact of fluctuating prices. The introduction of a sugar tax introduces further complexities,

prompting diverse industry responses. Strong brands attempt to pass on the price increase of traditional confectionery driven by overall cost pressures from supply chain disruptions and sugar tax to customers (Behle et al. 2023a; Simon 2023). Alternatives include adjusting sugar content in products, particularly among private labels, and the simultaneous introduction of reduced-sugar products to cater to price-sensitive and health-conscious consumer segments.

Retailers

The implications of climate change on key ingredients pose a significant threat to the availability and assortment of confectionery products on retailers' shelves. The unpredictability in the supply chain directly affects retailers, leading to shortages and influencing the mix of products they can offer to consumers. As a result, bargaining power undergoes a notable shift from retailers to those companies that demonstrate resilience and reliability in supplying products amidst the challenges (Behle et al. 2023a). This, in turn, allows such companies to negotiate more favorable terms, consolidating their position in the market.

Retailers face the challenge of navigating changing consumer preferences, driven by a heightened focus on health considerations and a growing demand for sustainably sourced confectionery. Adapting to these evolving preferences necessitates adjustments in product offerings, shelf space, and marketing strategies. Proactive efforts by retailers to align with health and sustainability trends involve expanding portfolios to include healthier options (Simon 2023).

In response to the heightened unpredictability, retailers opt for long-term contracts with confectionery suppliers (Behle et al. 2023a). While these agreements offer a degree of security in the face of supply chain disruptions, they also limit the flexibility of retailers to respond swiftly to short-term trends or sudden shifts in consumer demand. The trade-off between stability and adaptability becomes a strategic consideration for retailers.

Consumers

The influence of health-conscious trends and stringent regulations, coupled with state-led educational campaigns, is intense (Simon 2023). Consumers are actively steering toward healthier alternatives, realigning their preferences, and influencing purchasing decisions. This dynamic shift in consumer demand is not only health-driven but also responds to the price sensitivity of consumers.

Affordability challenges due to price increases on traditional confectionery products impact a significant consumer base, leading to a discernible premiumization trend. Constrained by budget considerations, consumers limit their confectionery purchases, further exacerbated by the shrinking availability of these products. Quality concerns, arising from variations in raw material quality influenced by climate change, play a pivotal role in shaping consumer behavior. In response to these prevailing conditions, consumers are reducing consumption in the confectionery segment and making a noticeable shift toward more affordable and healthier snacking alternatives. This transition reflects a pragmatic approach, where consumers seek products that satisfy cravings, align with budget constraints, and cater to health-conscious preferences.

Group Part

6.3 Scenario Analysis and Comparison

The confectionery industry will be affected differently by each of the scenarios described. Table 1 shows the most relevant aspects for industry dynamics, namely consumer demand for traditional and healthier products, portfolio size, type of ingredients used and, confectionery pricing behavior, always compared to the current confectionery reality in 2023. This analysis allows the comparison of the different scenarios and a better idea of which would be more or less favorable for the industry if they were to be in place in 2030.

Table 1: Comparison of the Four Scenarios | Source: Own Creation

	Demand for Traditional Confectionery	Demand for Healthy Confectionery	Size of Existing Portfolio	Size of New Portfolio	Ingredients in Existing Portfolio	Ingredients in New Portfolio	Prices for Confectionery Products
Sweet Symphony	→	↗	→	↗	No changes	Organic & Plant-based	→
Sweet Chaos	↘	↗	↘	↗	No changes	Cheaper Ingredients	↗
Healthy Temptation	↓	↑	↘	↑	No changes	Alternative Sweeteners & Reduction of Sugar	↗
Sugar Shock	↓	↗	↘	↗ 	No changes	Cheaper Ingredients	↑
 Increase  Slight Increase  Stagnation  Slight Decrease  Decrease  Slight increase due to M&A							

The ‘*Sugar Shock*’ scenario, with higher product prices due to supply chain difficulties and an attempt to make the product portfolio healthier, will result in the largest decline in demand for traditional products. On the other hand, in the ‘*Sweet Symphony*’ scenario, confectionery manufacturers will continue to grow slowly, gradually introducing more organic and plant-based products, without there being any major restrictions or changes in the production of and demand for traditional products. The ‘*Sweet Chaos*’ and ‘*Healthy Temptation*’ scenarios pose different challenges to the industry. One is the search for cheaper and more readily available products to cope with the disruptions in the supply chain, which will result in reducing the traditional product portfolio as well as modest price increases. And the other is the production of alternative sweeteners and sugar reduction to satisfy the increase in consumption of healthier confectionery. Common to all the scenarios is that it is not plausible to change the ingredients used to make the existing confectionery products. As discussed with the client and referred to in the scenarios, in order to maintain the quality, taste, and texture of current products, companies in the sector prefer to introduce a new product line with new ingredients rather than take the risk of changing traditional recipes and product ingredients (Behle et al. 2023a).

6.4 Market Financial Simulation

The primary objective of the financial simulation is to anticipate the potential financial developments within the German confectionery sector by the year 2030 under the four distinct scenarios. This analysis delves into key aspects, including revenue, market volumes, and the resultant price dynamics. Employing a technique that integrated research-based assumptions, the simulation statistically assesses the impact of significant uncertainties on these market characteristics (full calculations at Appendix 6).

The modeling process involves the quantification, application, and combination of the impacts arising from strict health regulations and disrupted supply chains for each scenario. The baseline scenario, '*Sweet Symphony*', which remains largely unaffected by these extremes, is considered the status quo forecast based on the German confectionery market's trajectory (MarketLine 2022).

The simulation expands upon the baseline scenario by tailoring the financial model for every scenario and accounting for supply chain disruption and stringent health regulations. Supply chain disruption's impact on market revenues and volumes is quantified by considering the direct effect on prices due to disruptions along the supply chain and cost increases of key raw materials.

The raw materials' impact is calculated by assuming the price increase (Trading Economics 2023b; 2023a; 2023c) for key raw materials (sugar, cocoa, wheat, and others) (BDSI 2023). Subsequently, their impact on the general gross margin across the industry (CSI Market 2023) is factored in, resulting in a final price effect of the raw materials at 11.7%. The supply chain disruptions are evaluated based on a McKinsey study, with a 5% price increase representing the impact on the EBITDA margin (Baumgartner, Malik, and Padhi 2020; CSI Market 2023).

Regarding the stricter health regulations' impact on both price increases and product demand, several factors are considered. These include a VAT increase from the current 7% to 19%

(Bundesministerium der Justiz 2006), a 10% direct rise in price due to the sugar tax (Gonçalves 2022), and a 7% decrease in overall demand attributed to an advertisement ban (Dubois, Griffith, and O'Connell 2018; Yau et al. 2022).

The raw materials and supply chain disruption's impact is calculated and applied on a year-on-year CAGR basis, ultimately determining the final figure for 2030. The simulation results combine the impacts of key uncertainties for each scenario, providing a comprehensive understanding of the potential financial landscape within the German confectionery sector. After excluding the initial baseline scenario, the price increase for the current year and the future price changes were calculated. The volumes and revenue of the market were then determined using the price elasticity of -1.35. This elasticity value was derived as an average of the price elasticity figures from the US for four major confectionery companies also operating in Germany: Lindt, Ferrero, Mondelez, and Mars (UBS Evidence Lab and Nielsen 2019).

'Sweet Symphony'



Figure 8: Financial Forecast for Revenue, Volume, and Price in 2030 for 'Sweet Symphony' | Source: Own Calculation

In this scenario, the financial outlook appears promising for the market, despite the presence of highly unfavorable uncertainties. Notably, the highly unfavorable uncertainties exert no influence on this particular scenario, further bolstering its positive course. Within this context, market volumes exhibit a steady increase, consistently growing at a CAGR of 1.1%. While the volume growth rate may be deemed moderate, the primary driver of overall market income stems from the consistent upward trend in pricing. The price trajectory remains stable, continuing to ascend at a CAGR of 1.98%. The scenario resulted in strong financial

performance due to a combination of moderate volume growth and sustained price increases.

As a result, market revenue showed solid growth, climbing 24% over the seven-year period.

‘Sweet Chaos’

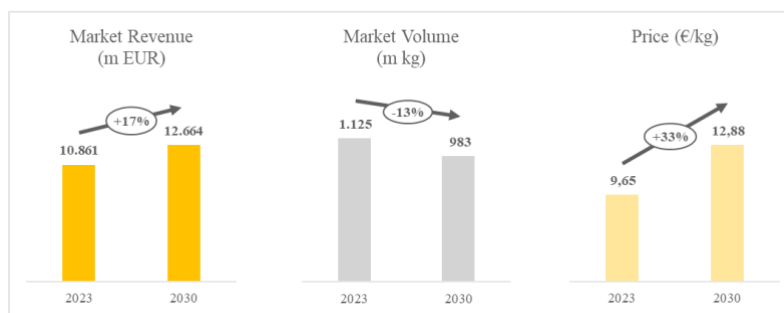


Figure 9: Financial Forecast for Revenue, Volume, and Price in 2030 for ‘Sweet Chaos’ | Source: Own Calculation

In this scenario, supply chain dynamics significantly influence the financial outlook. The scenario grapples with disruptions in the supply chain, leading to a noteworthy annual price increase of 2.23%. This additional increase compounds with the baseline price growth observed in the baseline scenario, resulting in an overall CAGR of 4.2% in prices through the year 2030. However, this considerable price increase is not without consequences. The disrupted supply chain contributes to a consequential decrease in volumes, marked notably by a decline of 13% from 2023 to 2030. Although the volumes have decreased, the scenario's resilience is evident as the robust price increase effectively mitigates the adverse impact on revenue. The combination of reduced volumes and a significant increase in prices results in an overall solid increase in market revenue. The outcome demonstrates the scenario's ability to navigate challenges, showing that the significant price increase can offset the negative impact on volume, resulting in an overall positive financial trend.

‘Healthy Temptation’

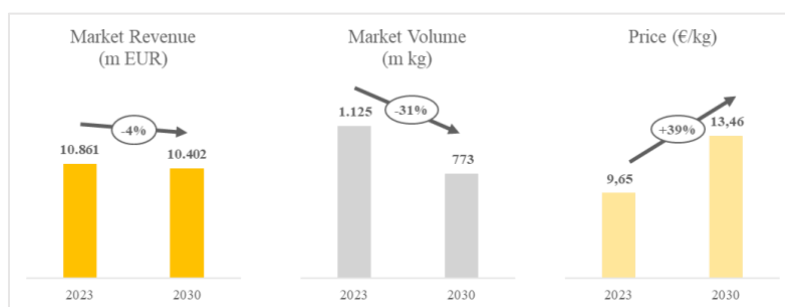


Figure 10: Financial Forecast for Revenue, Volume, and Price in 2030 for ‘Healthy Temptation’ | Source: Own Calculation

This scenario is characterized by the convergence of several adverse regulatory factors that affect the financial outlook. Specifically, an advertisement ban appears as a prominent driver, leading to a reduction in demand. This decrease in demand is compounded by the negative impact of both a sugar tax and an increased VAT on the pricing structure. The combined effect of these three factors results in a significant impact on the market. The market's resilience is being adversely affected by the simultaneous reduction in demand and the direct negative influence on prices, resulting in a discernible contraction in total market revenue, with a notable decline of 4% between 2023 and 2030.

‘Sugar Shock’

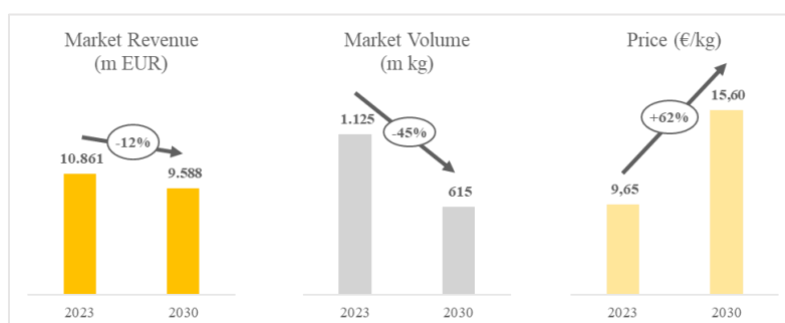


Figure 11: Financial Forecast for Revenue, Volume, and Price in 2030 for ‘Sugar Shock’ | Source: Own Calculation

The financial forecast presents a challenging outlook due to the impact of a disrupted supply chain and a stringent regulatory framework on the market. These factors, acting conjointly, exert direct and substantial influence on the scenario's financial outlook. The disrupted supply chain and regulatory measures have several manifestations. Issues within the supply chain, coupled with an increase in VAT and the imposition of a Sugar Tax, have led to a considerable

escalation in prices. Additionally, the enforcement of advertisement bans has caused a decline in consumer demand. The price increase, which reached a significant 62% within the considered timeframe, cannot be offset by any mitigating factors, especially when compounded by a concurrent decrease in demand. This combination of factors leads to a significant and persistent decrease of 12% in market revenue.

7. Phase IV: ‘Act’

The ‘Act’ phase involves translating the implications of the scenarios developed in the previous phase (Scenario Narratives) into strategic recommendations for the company (Luther and Ali 2022). This involves identifying the impact of external elements in each future developed and establishing the company’s options for strategy (Searce and Fulton 2004). To this end, the current strengths and weaknesses of Ferrero Deutschland GmbH were analyzed in the second workshop (Appendix 7) and strategic recommendations for the company were developed with the use of the TOWS matrix to secure its leading position in the German confectionery market by 2030. In addition to defining specific actions according to the characteristics of each scenario, a base strategy was developed for Ferrero Deutschland GmbH suitable for any possible

Scenario-based Strategy Development

7.1.1 Scenario 1: ‘Sweet Symphony’

7.1.2 Scenario 2: ‘Sweet Chaos’

7.1.3 Scenario 3: ‘Healthy Temptation’

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7.1.4 Scenario 4: ‘Sugar Shock’

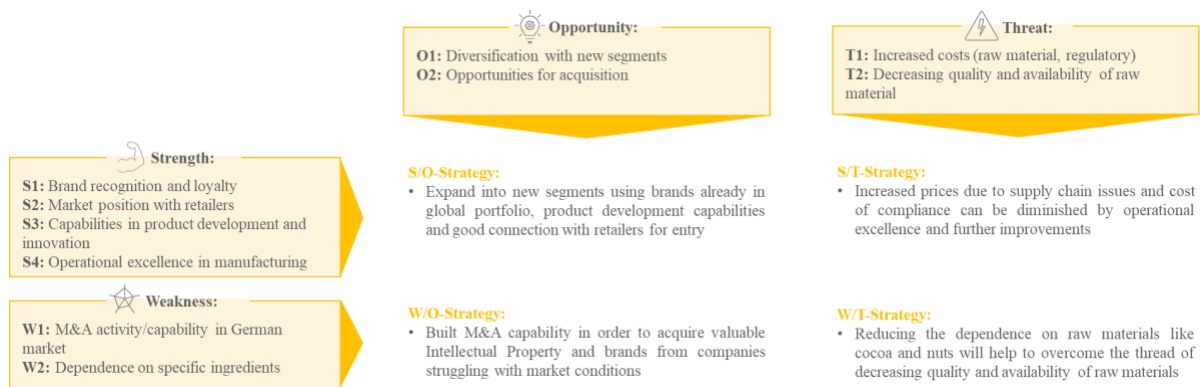


Figure 12: TOWS Matrix for Scenario ‘Sugar Shock’ | Source: Own Creation

The convergence of health regulations and a disrupted supply chain renders this scenario particularly challenging. Ferrero Deutschland GmbH must implement strategic measures to address emerging challenges and sustain profitability.

W/O-Strategy: In light of the prevailing trend toward market consolidation in the confectionery industry, Ferrero Deutschland GmbH is strategically poised to harness this momentum for robust growth. Acknowledging the challenges faced by small and medium enterprises due to supply chain disruptions and health regulations, Ferrero Deutschland GmbH should proactively seize this as an opportunity for strategic acquisitions. A meticulous evaluation of potential targets will enable Ferrero Deutschland GmbH to acquire valuable intellectual property and brands, enriching its portfolio and fostering industry innovation.

To effectively address the industry's shrinking market size, Ferrero Deutschland GmbH should strategically position itself for future growth. Conducting in-depth market analyses will empower the company to identify emerging niches and untapped segments. Through the diversification of its product offerings in alignment with evolving consumer preferences, Ferrero Deutschland GmbH can successfully capture new market opportunities, ensuring sustained revenue growth amidst prevailing challenges.

To overcome the weakness of low M&A activity/capability in the German market, Ferrero Deutschland GmbH should embark on a comprehensive plan. This involves actively building

and strengthening its M&A capability by investing in dedicated teams proficient in mergers and acquisitions, strategic financial analysis, and due diligence. Prioritizing human resource development, Ferrero Deutschland GmbH should institute training programs to cultivate a team well-versed in negotiation, integration, and post-acquisition management.

Recognizing the imperative for increased financial flexibility, Ferrero Deutschland GmbH should optimize cash flow management and explore avenues to enhance cash availability. This strategic initiative ensures Ferrero Deutschland GmbH's preparedness to seize M&A opportunities, evaluate financing options, and secure lines of credit for strategic acquisitions. By aligning with this holistic strategy, Ferrero Deutschland GmbH positions itself as a proactive participant in shaping the confectionery landscape, ready for sustained growth and market leadership.

S/O-Strategy: Amidst the challenges faced within the contracting confectionery segment, Ferrero Deutschland GmbH has a distinct opportunity to diversify into new product segments, strategically mitigating risks associated with industry trends and potential market saturation. Recognizing the inherent vulnerability of a singular focus, Ferrero Deutschland GmbH should proactively leverage its global brand recognition and loyalty to establish a presence in emerging markets beyond confectionery.

The evolving market environment, rather than posing a challenge, should be perceived as an opportunity for Ferrero Deutschland GmbH to align its product offerings with shifting consumer preferences and trends while overcoming supply chain issues. Particularly promising is the snack category, representing a strategic avenue for diversification. By extending its iconic brands - Ferrero Rocher, Nutella, Kinder, and Tic Tac - into diverse product categories within the German market, Ferrero Deutschland GmbH can effectively cater to a broader consumer base and navigate the evolving market landscape.

Capitalizing on its robust capabilities in product development and innovation, Ferrero

Deutschland GmbH can play an essential role in crafting new and innovative products tailored for the targeted segments. This strategic advantage positions Ferrero Deutschland GmbH ahead in the diversification journey, ensuring a compelling and competitive product portfolio.

Given Ferrero Deutschland GmbH's strong market position in retail, the company should leverage established connections to strategically introduce and promote new products. This proactive approach secures prominent shelf space and visibility for Ferrero Deutschland GmbH's diversified portfolio, enhancing brand accessibility and resonating effectively with diverse consumer preferences. By capitalizing on this early advantage in the retail landscape, Ferrero Deutschland GmbH is poised for a swift and impactful market entry, reinforcing its position as an industry leader.

S/T-Strategy: Within the challenging landscape of increased costs associated with supply chain disruptions and evolving health regulations the impact on raw material costs is evident. The dynamic nature of ingredient availability and pricing fluctuations poses a substantial challenge to maintaining cost-effective production processes. Simultaneously, adherence to new regulatory requirements demands substantial investments in updated processes, technologies, and strict compliance standards, exerting financial pressure on Ferrero Deutschland GmbH.

However, Ferrero Deutschland GmbH should strategically leverage its longstanding commitment to operational excellence in chocolate and confectionery manufacturing as a robust foundation to address the complexities arising from increased costs. The precision, consistency, and efficiency ingrained in its manufacturing processes uniquely position Ferrero Deutschland GmbH to navigate challenges emanating from supply chain disruptions and evolving regulatory landscapes.

Acknowledging the cumulative impact on profitability, Ferrero Deutschland GmbH should capitalize on its operational expertise, particularly in supply chain management, to proactively mitigate disruption effects. Optimizing supply chain processes, negotiating robust agreements

with suppliers, and implementing agile sourcing strategies are integral components of Ferrero Deutschland GmbH's strategy to enhance resilience. This approach not only stabilizes raw material costs but also ensures a reliable and efficient supply chain capable of adapting to changing market dynamics.

Ferrero Deutschland GmbH's strategic response extends beyond mere mitigation efforts it involves an overarching focus on enhancing overall operational efficiency to protect profitability.

Ferrero Deutschland GmbH confronts the far-reaching effects of climate change, impacting the quality and availability of cocoa, a fundamental ingredient in its products. Shifts in climate variables adversely affect cocoa growing conditions, leading to a decline in cocoa bean quality and overall availability. This directly jeopardizes Ferrero Deutschland GmbH's commitment to maintaining high product standards, creating a significant challenge.

W/T-Strategy: The direct impact of climate change on cocoa prices further complicates matters, as scarcity increases competition for quality cocoa, driving prices higher. This poses a substantial threat to Ferrero Deutschland GmbH's profitability, necessitating a strategic response to secure the continued production of top-tier confectionery products. Acknowledging its vulnerability to climate-related challenges, Ferrero Deutschland GmbH should proactively address its dependence on cocoa. A strategic move involves reducing cocoa content in selected products, exemplified by developing innovative items like cookies with Kinder chocolate pieces. This shift in product composition, incorporating alternative ingredients and decreasing reliance on cocoa, enables Ferrero Deutschland GmbH to diversify its offerings and navigate the challenges posed by climate-induced cocoa scarcity.

To address the broader weakness of Dependence on specific ingredients, especially cocoa and nuts, Ferrero Deutschland GmbH should embrace a transformative approach by developing cocoa-free products. Leveraging its robust capabilities in product development and innovation,

Ferrero Deutschland GmbH should create confectionery items that rely on alternative ingredients. Venturing into cocoa-free products not only mitigates the impact of climate-induced cocoa challenges but also opens doors to new market segments and aligns with evolving consumer preferences.

Group Part

7.2 Cross-Scenario Strategic Action Plan

The above analysis shows many common opportunities but also threats across all four scenarios. Based on those, an overarching strategy was developed that includes specific strategic action plans that Ferrero Deutschland GmbH is recommended to follow to be properly prepared for different possible futures.

Innovation and Expansion of the core brands

Ferrero Deutschland GmbH's core brands, such as Ferrero Roche, Nutella, and Kinder are its power brands, generating the majority of total sales (Behle et al. 2023b). Thus, innovation is crucial to foster commitment to quality and taste. The most common reason people consume these traditional products is pleasure. Customers look for intense indulgence and immersive experiences when they want to treat themselves. There are different ways Ferrero Deutschland GmbH can deliver this experience to the consumer. First, they can use a multi-sensorial experience, which includes offering new and exciting tastes, appealing to the eye, or surprising through texture (Barry Callebaut 2023). According to Francisco Moreira, Chef Chocolatier in Portugal (2023), texture can make chocolate products richer, catchier, and more interesting. A product can be transformed into a completely new experience only by playing with more texture in the same flavor. Another way is through storytelling and origin. People are increasingly interested in knowing the history of products, and Ferrero Deutschland GmbH can provide this through single-origin chocolates, unique recipes linked to a specific location, or unique craftsmanship. They need to bring the culture of the product to the people. Exclusive or premium edition chocolates are also a way to deliver this experience. They can serve as good

alternatives to classic editions and thus can be perfectly used for gifts or special treats (Barry Callebaut 2023).

Besides impulsive indulgence people also increasingly look for mindful indulgence, meaning products that are not only tasty but also good for their physical and mental well-being and for the planet (Barry Callebaut 2023). Therefore, Ferrero Deutschland GmbH should create a new product line that promotes a healthier image. Before developing any products, Ferrero Deutschland GmbH should carefully monitor market reception and consumer adoption patterns. This data-driven approach will inform the scope and scale of investment in research and development, enabling the creation of innovative low-sugar products that meet precise consumer needs without diluting the heritage of their established brands.

Niche Market Engagement

Low-sugar or sugar-less as well as plant-based and organic chocolate present niche markets that Ferrero Deutschland GmbH should tap into as a response to increasing regulatory scrutiny and consumer advocacy for healthier options. By doing this, Ferrero Deutschland GmbH can proactively adjust the limitations of a singular focus by acknowledging the industry trends and potential saturation within the confectionery market. This strategic shift aligns with the market's move away from products that are high in sugar, salt, or fat. This will help sustain profitability while also strengthening customer loyalty. It also supports their goal to maintain being the number one confectionery manufacturer as it increases market share and helps address a wider customer range.

There is extensive research highlighting the increased interest of consumers toward organic chocolate and an increased number of companies in the German market providing it like Rapunzel Naturkost and Ecofina. The increase in offer and demand for organic chocolate has been fueling market growth and the market is supposed to increase further which is why Ferrero Deutschland GmbH should make a move and enter it (CBI 2022b). Similarly, the plant-based

confectionery market has witnessed a boom as health-aware consumers look for tasty but also healthy and sustainable products (Grand View Research 2023b). According to Research conducted by Barry Callebaut (2023), 48% of interviewed consumers think that every chocolate confectionery brand should have a plant-based, vegan, or dairy-free option. This shows that consumers are very critical of plant-based products. They demand "better for you" options without wanting to compromise on taste. This means Ferrero Deutschland GmbH should continue expanding its better-for-you snack portfolio with organic and plant-based options. In addition to the organic and plant-based market, the snacking market is also experiencing significant growth due to changing consumer eating habits (Grand View Research 2023a). Consequently, the strategic move to expand its footprint in the healthier snacking space toward organic and plant-based products is highly relevant and a key success factor. As Ferrero Deutschland GmbH owns its own snack-bar factory in Germany as of this year, it can use internal development to launch certain healthy snack bars and thus, expand its presence and product offering in the snack category. However, Ferrero Deutschland GmbH should also consider engaging in M&A activities as buying start-ups that already possess the required technology and knowledge to produce specific products can be a less resource-intensive and faster way.

Online Marketing

Another common opportunity that Ferrero Deutschland GmbH should capitalize on is online marketing. Ferrero Deutschland GmbH currently almost exclusively uses traditional marketing channels such as TV advertisements. However, online advertisement is starting to play an increasingly important role in the confectionery industry and besides that is an effective way of reaching different audiences and a wider range of people. Therefore, it is recommended that Ferrero Deutschland GmbH shifts its advertising focus to online channels and engages influencers for product promotion through social media platforms. To appeal to health-

conscious consumers, Ferrero Deutschland GmbH should consider using individuals who are associated with health, fitness, and well-being to promote their healthier product lines.

Digital Transformation of the Supply Chain and Operation

Besides digitalization efforts in marketing, Ferrero Deutschland GmbH should also transform its supply chain and operation toward more digitalization. Implementing a digitalization strategy across the supply chain and operation helps to be more efficient and reduce costs. “Even if you get your forecasting right if you haven’t got a way to automate the organization of your production waves throughout each trading day, staff end up making the right products in the right amounts but at the wrong times, which leads to food waste anyway.” (Confectionery Production 2022). Therefore, Ferrero Deutschland GmbH should invest in advanced technologies such as AI, blockchain, and data analytics tools to optimize its resource management and market analysis.

In addition, it is recommended that old tools be replaced with modern collaboration platforms that use a single source of truth data, intuitive modeling, and performance dashboards. This will improve the success of sales and operations planning by fostering collaboration between different parts of the business (Colehower 2023).

Moreover, network-wide inventory visibility can help avoid out-of-stock and overstock, reduce transportation costs, and improve customer satisfaction. By using advanced tracking technologies such as RFID, IoT sensors, and data analytics, Ferrero Deutschland GmbH can gain real-time insights into inventory levels, location, and movement, enabling it to make better data-driven decisions (Colehower 2023).

Another cutting-edge technology Ferrero Deutschland GmbH should implement to improve supply chain processes and survive disruptions is a digital twin. In times of uncertainty and constant disruption, digital twin technology improves visibility and performance in the supply chain. By using artificial intelligence (AI) and analytics, it models current supply chain states

and predicts future scenarios, taking into account numerous variables and constraints. This technology assists in analyzing risk, performance indicators, demand, inventory, supplier, and sales data in supply chain management, enabling optimal decision-making. Additionally, digital twin technology boosts order fulfillment by analyzing real-time data, leading to more accurate and efficient production planning, and minimizing the risk of shutdowns (Abouzid and Saidi 2023; Koshulko 2022). A digital twin offers more benefits than merely improving Ferrero Deutschland GmbH's supply chain processes. According to a McKinsey article by Brossard et al. (2022), implementing this technology can lead to a revenue increase of up to 10%, a decrease in time to market by as much as 50%, and an improvement in product quality of up to 25%. Due to the multitude of advantages offered by digital twin technology, it is highly recommended that Ferrero Deutschland GmbH implements it.

Sustainability and Eco-Friendly Practices

Moving on to another significant topic: Sustainability and Eco-Friendly Practices. Due to regulations, climate change impacts, and consumer expectations, Ferrero Deutschland GmbH has to continuously invest in a sustainability framework focusing on renewable energy, sustainable sourcing, and eco-friendly packaging. Investments in smart technologies are recommended to help with eco-friendly practices and waste management.

Additionally, Ferrero Deutschland GmbH is encouraged to use on-site renewable energy systems, such as solar panels or biodigesters that convert food waste into biogas, to reduce its environmental footprint while offsetting electricity costs (Iriondo-DeHond, Miguel, and Del Castillo 2018). This is because reducing food losses and waste has the potential to produce positive economic, social, and environmental outcomes. This includes enhancing food availability and accessibility whilst optimizing the sustainable use of vital natural resources. Another eco-friendly practice Ferrero Deutschland GmbH could make use of is the application of food byproducts in the production of its ice cream. Byproducts serve two distinct purposes:

a technical purpose, which includes enhancing shelf life, safety, stability, and sensory quality, and a biological purpose, which aims to augment health-promoting effects for their transformation into functional foods (Iriondo-DeHond, Miguel, and Del Castillo 2018). To give an example Ferrero Deutschland GmbH could use orange fiber as a novel fat replacer in lemon ice cream (Crizel et al. 2014) or enrichen the functional properties of ice cream with pomegranate by-products (Çam et al. 2013).

Another important strategic move in the confectionery industry is the shift toward independence, self-sufficiency, and local sourcing. To ensure success, it is advisable for Ferrero Deutschland GmbH to maintain its engagement in vertical integration by purchasing plantations to cultivate hazelnuts and other essential ingredients and prioritizing the sourcing of ingredients locally. This will provide resource availability even during disruptions and ensure product quality (Food and Beverage 2023).

Foresight Team

The final point of this strategic action plan is to create a foresight team responsible for monitoring market trends and innovations. The team will conduct market research to comprehend consumer preferences, generate an innovation monitoring report, and synchronize the report's outcomes and discoveries with all company divisions, especially with product development. Innovation monitoring enables Ferrero Deutschland GmbH to reliably track consumer trends and make swift product development adjustments, thereby reducing time to market and enhancing Ferrero Deutschland GmbH's competitive edge. The research results and findings can also be used to improve planning and develop targeted marketing campaigns. Effective communication of the findings is crucial in to ensure that all stakeholders understand the rationale behind the chosen strategies and their roles in implementation.

Objectives		Strategic Actions
 Innovation and Expansion of the core brands	➡	- Multi-sensorial experience incl. new & exiting tastes, appealing to the eye and surprising textures - Storytelling & Origin - Exclusive or premium editions
 Niche Market Engagement	➡	- Expand product portfolio for low-sugar, sugar-less, plant-based, and organic options - Further expand better-for-you snacking portfolio
 Online Marketing	➡	- Use of online advertisement channels (e.g. social media) - Influencer-marketing: Influencers that are associated with fitness, health and wellbeing
 Digital Transformation of the Supply Chain and Operations	➡	- Invest in advanced technologies for efficient resource management (e.g. tracking technologies) - Digital Twin - Modern collaboration platform that uses one source of truth data
 Sustainability and Eco-Friendly Practices	➡	- Move towards independence, self-sufficiency, and local sourcing - Use of smart software and food byproducts to reduce waste
 Foresight Team	➡	- Monitoring of market trends and innovations - Align the results with all company departments especially product development

Figure 13: Overview Strategic Action Plan | Source: Own Creation

8. Phase V: ‘Monitor’

The *monitoring* phase aims to anticipate the evolution of each scenario defined in Phase III: by identifying early indicators. Monitoring makes it possible to detect the first signs of the development of a scenario, providing valuable information about changes in the market and the growing relevance of specific implications (Searce and Fulton 2004). Once leading indicators are identified, strategies can be implemented to respond to the emerging reality (Luther and Ali 2022). According to the Scenario Cockpit framework, after the ranges for the indicators have been defined, they should be continuously monitored to enable confectionery companies to adapt quickly, adjust strategies, and proactively navigate the dynamic landscape of evolving market scenarios (Wulf, Meissner, and Stubner 2010).

Early indicator selection

In the selection of early indicators, a predominant consideration is their alignment with specified criteria crucial for providing relevant insights into emerging scenarios. These criteria include *relevance* to envisioned scenarios, *lead time* for proactive response, *quantifiability* for objective measurement, *accuracy*, and *reliability* for sound decision-making, sensitivity to change for discerning subtle shifts, and *accessibility* for practical implementation. The meticulous adherence to these criteria ensures the chosen indicators harmonize with the intricacies of

envisioned scenarios, providing decision-makers with timely, accurate, and actionable insights. Based on these criteria the following early indicators were identified:

‘Consumption of antidiabetic drugs’: The rise in diabetes, which affected 10 percent of the population in Germany by 2021 is expected to continue to rise and thus presents another public health concern. This situation puts more pressure on the German healthcare system and increases the costs associated with treating the disease (International Diabetes Federation 2021). Given that the rise in diabetes is often accompanied by a rise in obesity rates, food regulation, particularly on products high in sugar and calories such as confectionery, can be a major factor in slowing the rise in diabetes rates (Watts 2022). It is, therefore, necessary to monitor the use of antidiabetic drugs, as it provides information on the prevalence and management of diabetes in the population, and an increase above the predicted level (Appendix 8) should indicate the need for more stringent public health measures.

‘Healthcare spending’: Another relevant indicator that has a major impact on policy decisions and the implementation of more restrictive and effective measures is the cost of the health system (Appendix 9). Non-communicable diseases, many of which are the result of unhealthy eating habits, have a high cost to the German state, especially as they are long-term conditions that require treatment over many years. This therefore is an early indicator of the need to change legislation to reduce these high-cost diseases. In addition to saving lives, measures taken to lower risk factors for various diseases, such as eating unhealthy foods, can also greatly improve a nation's economic standing (WHO 2023a).

‘Sunday Federal Assembly Poll’: The way the rules are applied is also heavily influenced by the political forces that govern the country. That is why it is important to look at Sunday's Federal Assembly Poll (every Sunday, German national television broadcasts opinion polls on the results of the elections if they were held that day – Appendix 10) and see what the reality will likely be in Germany's upcoming elections in 2025 and 2029. The change of government is an opportunity

to introduce new policies aimed at adapting the food market and improving children's health. Both the Social Democratic Party (SPD) and the Greens Party are committed to taking effective action against childhood obesity by regulating the advertising of unhealthy foods, especially those targeted at children (Dahm 2021). Looking at the weekly polls, if the Green Party and the Social Democratic Party (SPD) together get enough votes to govern (more than 40% of the vote in their favor) in close proximity to new elections, then the most likely reality is that stricter health measures will be implemented (Wahlrecht 2023).

‘Rising temperatures in raw material regions’: The majority of nations committed in the 2015 Paris Agreement to limiting global warming to a rise in mean global temperature of no more than +1.5°C by 2030 compared to pre-industrial levels (1850-1900) (Jones 2023). This warming causes extreme weather and affects agricultural production. In the case of the confectionery industry, the rise in temperature is particularly relevant to control in cocoa-producing nations like Ghana, Côte d'Ivoire, and Nigeria as increasing temperatures negatively affect vital moisture levels (Masson-Delmotte et al. 2022). Escalating and surpassing predictions of climate change will intensify the occurrence of extreme weather events, such as droughts. To understand whether production in these countries could be at risk in the future, a projection of the expected increase in temperature levels was made for each of these countries (Appendix 11), making it easier to monitor this indicator of possible abnormalities and disruptions to these raw materials.

‘Cocoa Price’: Another indicator that provides relevant information about the availability and quality of cocoa on the market is price. The price of cocoa has risen significantly, reflecting the global supply shortage caused by unfavorable weather conditions in the growing areas. Heavy rains out of season and disease have affected the quality of this raw material, reducing its availability (Trading Economics 2023a). To determine if the disruptions will become a permanent reality, the price of cocoa has been forecasted for the next few years (Appendix 12) and should be monitored. This will help to understand the evolution of the uncertainty that is

affecting the supply chain.

 Supply chain indicators:	 Health regulation indicators:
Temperature change in key raw material regions (in °C) Source: Food and Agriculture Organization of the United Nations Database on year-over-year change • For Côte d'Ivoire • For Ghana • For Nigéria Objective: Assess the effect of climate change on main cocoa production countries and their suitability	Antidiabetics use in Germany (in Million DDD*) Source: Statista - Pharmaceutical consumption of antidiabetic drugs in Germany from 1996 to 2021 Objective: Indicate an abnormal increase of diabetes in the population that raises governmental concerns
Cocoa Price (US\$ per metric ton) Source: International Monetary Fund monthly by commodity, in terms of US\$, indices • For Cocoa beans, International Cocoa Organization cash price, CIF US and European ports (PCOCO) Objective: Tracking the cocoa availability and quality which is priced into the commodity index	Health-Care Spending (in Million EUR) Source: Statistisches Bundesamt (Federal Statistical Office) on Health expenditure: Germany, years, facilities • Total Health expenditure Objective: Monitoring the Health expenditure to be in line with forecasted values that do not threaten the government budget Voting patterns (in cumulative %) Source: Forsa institute on "How would you vote if the federal election were next Sunday?" • SPD party + Green party Objective: Assess the probability that parties which favor regulation are winning an election

* Defined Daily Dose

Figure 14: Overview of Early Indicators for Supply Chain and Health Regulations | Source: Own Creation

Value range determination

In determining value ranges for early indicators, the second systematic step of the scenario cockpit approach is employed (Wulf, Meissner, and Stubner 2010). This involves developing thresholds based on identified underlying trends for each indicator. Projected annually until 2030, these trends serve as benchmarks for assessing deviations (Appendix 8, Appendix 9, Appendix 10, Appendix 11, and Appendix 12). Thresholds indicate a change of direction from these trends, acting as triggers for potential shifts toward future scenarios. Notably, precise value thresholds are provided for all indicators and scenarios for 2025, 2027, and 2029. The following thresholds are indicating the development toward a scenario:

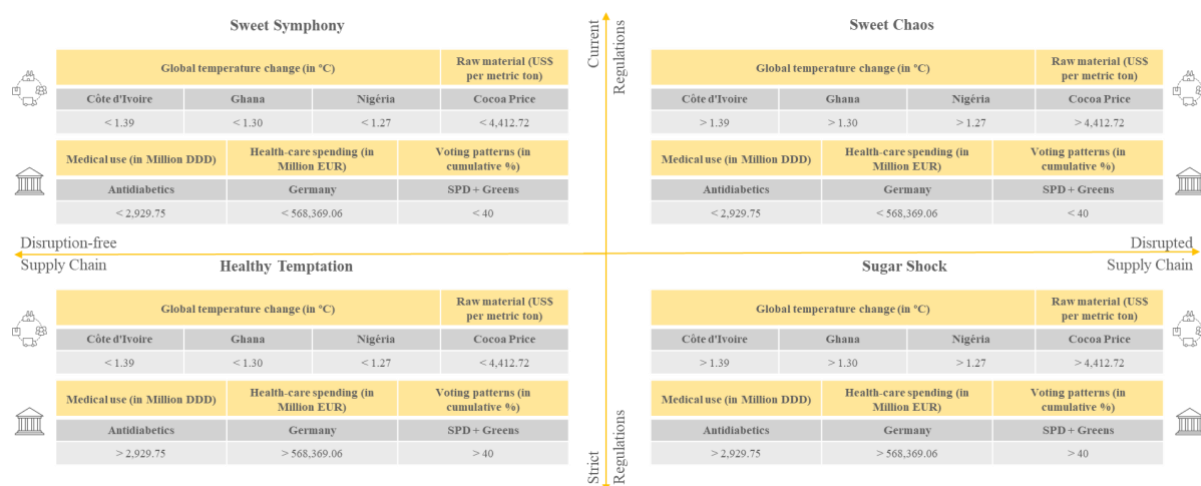


Figure 15: Monitoring thresholds for 2025 | Source: Own Creation

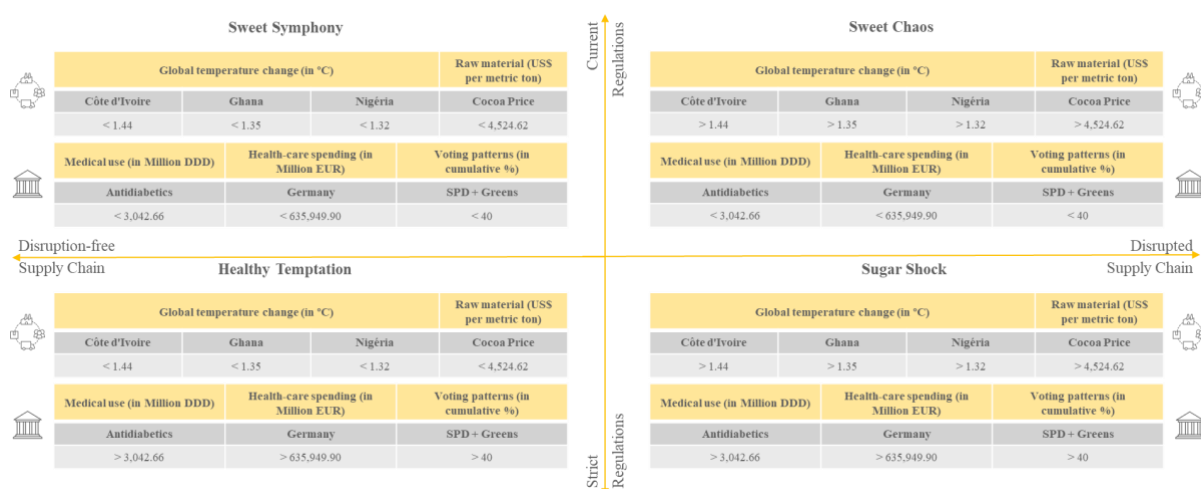


Figure 16: Monitoring thresholds for 2027 | Source: Own Creation

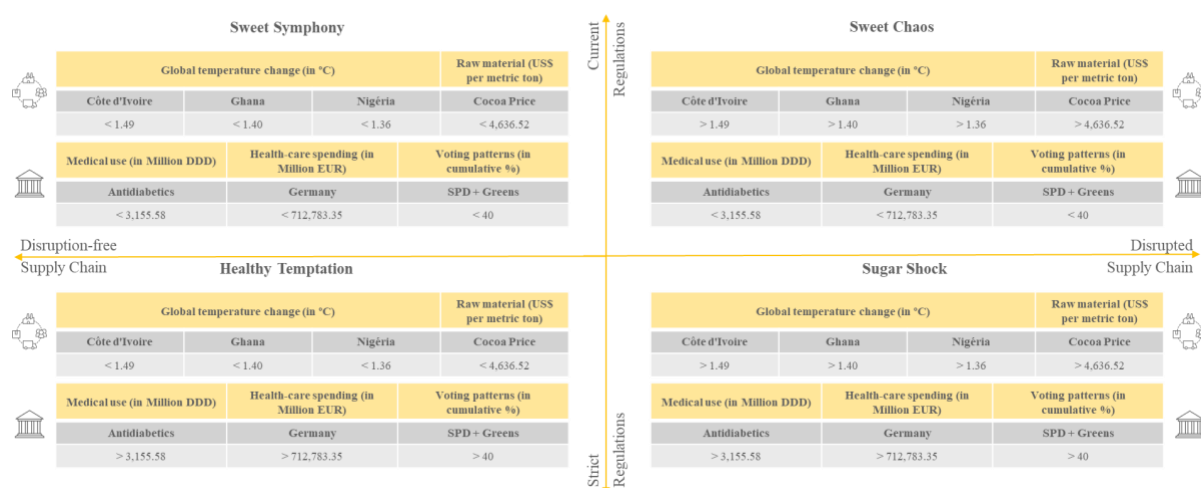


Figure 17: Monitoring thresholds for 2029 | Source: Own Creation

Constant monitoring

The third step in the Scenario Cockpit approach, constant monitoring of early indicators, is an indispensable practice for effective strategic planning and organizational resilience. Therefore,

indicators for 2025, 2027, and 2029 are provided in order to continuously assess the current trend toward one scenario. This ongoing monitoring process serves several critical purposes.

Firstly, it ensures an agile response to changes in the business environment. By continuously tracking early indicators, decision-makers and management can swiftly adapt strategies in response to emerging trends or potential disruptions. The timeline of this approach is crucial for addressing challenges and capitalizing on opportunities effectively.

Moreover, constant monitoring provides decision-makers and management with timely information about the development of uncertainties, allowing for informed and proactive decision-making. Early indicators serve as precursors to significant developments, offering a window of opportunity for organizations to navigate potential challenges posed by the key uncertainties.

Strategically, continuous monitoring empowers organizations to adapt their strategies in response to the most likely scenarios. This flexibility gives businesses a competitive advantage in the marketplace and helps them maintain their leading position.

9. Conclusion

This work project focused on exploring the future of the German confectionery market, which faces multiple challenges arising from changing consumer preferences, government policies, and product innovation. Using the qualitative scenario planning methodology, '*Intuitive Logic School*', and insights from industry experts, four plausible scenarios for 2030 were created and different strategies were defined for Ferrero Deutschland GmbH to remain profitable and retain its loyal consumer base.

To better understand how the industry will evolve in the coming years, several trends have been identified, including the evolution of health challenges as people's diets and lifestyles change, the shift toward more sustainable and environmentally friendly solutions, and the greater integration of technological solutions in the industry. Further, relevant and common to all

scenarios are the growing health awareness of consumers and their changing ideals of sustainability and business ethics. However, the complexity and dynamism of the sector is also a result of the many uncertainties it faces, particularly '*Stability of Supply Chain*' and '*Health Regulations*', which have a very high level of uncertainty and impact on the future of the German confectionery market.

To respond to the evolution of the external environment, there are general strategies that Ferrero Deutschland GmbH should adopt, such as focusing on niche markets, adopting more sustainable practices, or investing in digital transformation. In addition, the company should thrive in a balanced confectionery market that celebrates tradition and well-being, as in the '*Sweet Symphony*' scenario, through diversification of its specialty products and expansion into sustainable and low-sugar options. Alternatively, if Ferrero Deutschland GmbH wants to continue to meet the demand for its traditional products in the face of unchanged health measures and ongoing supply chain disruptions in the '*Sweet Chaos*' scenario, it will need to stick to its core products, search for alternative suppliers and find substitute/alternative ingredients. Despite the absence of supply disruptions, in the '*Healthy Temptation*' scenario, health regulations become stricter, increasing the demand for healthier alternatives, and forcing Ferrero Deutschland GmbH to explore new products and markets to compensate for the decline in demand for its traditional products and the high cost of sugar. Faced with rising product prices due to stricter health regulations and supply chain disruptions in the '*Sugar Shock*' scenario, the company's strategies for coping with declining demand for confectionery include expanding into new market segments and building M&A capabilities to reduce external dependency and diversify in the face of market conditions.

Finally, some relevant indicators have been identified to help companies adapt and implement different strategies according to how these indicators evolve, enabling them to maintain a competitive edge in the market.

In conclusion, this research has highlighted the complex environment in which German confectionery companies operate and the need for Ferrero Deutschland GmbH to understand the possible directions of change and be prepared to evolve with them in order to remain at the forefront.

10. Limitations and Further Research

This report analyzes the potential development of the German confectionery industry until 2030 using scenarios based on the *'Intuitive Logic School'*. It is suggested that other scenario planning techniques should also be considered to compare outcomes for the confectionery sector. In addition, it is important to recognize the potential for unexpected disruptive events, such as black swan events, even if their probability is low, as they can have a significant impact on the confectionery industry. This may require the reformulation of scenarios. In addition, the strategic implications workshop was conducted exclusively with Ferrero Deutschland GmbH. As the company specializes in chocolate confectionery, the experts' opinions are mainly related to this product category. In order to ensure a more comprehensive analysis, it is recommended to work with experts from different segments of the industry at this stage in order to include a wider range of perspectives in future research. Also, the regulations discussed in this report apply exclusively to the German confectionery market. However, it is important to consider that European Union legislation targeting confectionery would also affect the German market and should be taken into account when conducting further research.

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12. Appendix

Appendix 1 – Overview of the cooperation between the broader competence teams

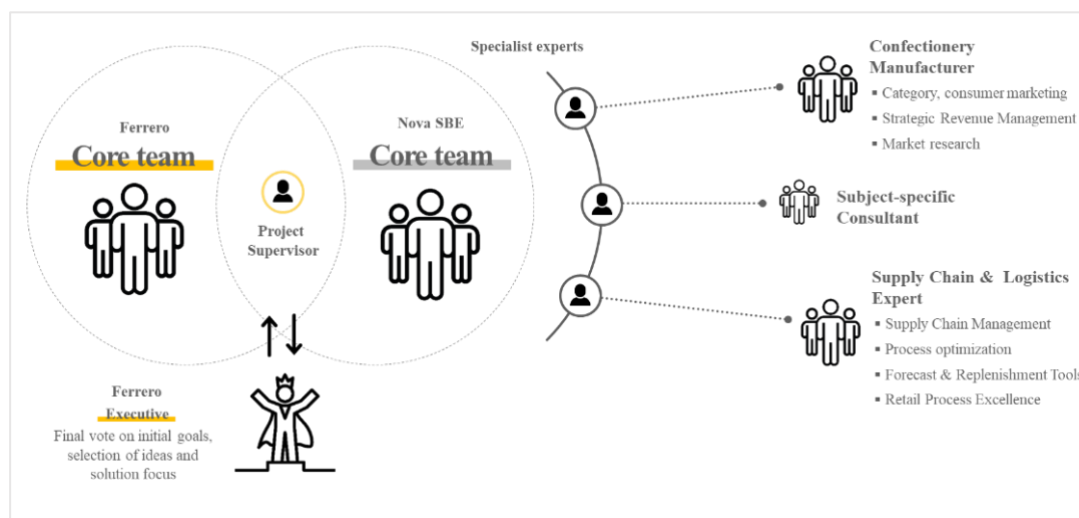


Figure 18: Client and Expert Involvement | Source: Own Creation

Appendix 2 - Description of Uncertainties

Table 2: Uncertainties | Source: Own Creation

Uncertainty	Description
‘Global Trade Policies’	The confectionery market is remarkably diverse, highlighting the sector's inherent vulnerability to global trade dynamics (MarketLine 2022). Changes in trade agreements, tariffs, and trade barriers can significantly impact the import and export of key raw materials, ingredients, and finished products (Amighini et al. 2023). Despite global supply chain issues and international trade concerns, such as those arising from the conflict in Ukraine, the confectionery export sector, a key element of the German confectionery and snacks industry, showed resilience in 2022, as evidenced by the 11.5% increase in export sales to around €10.3 billion (Confectionery Production 2023a). Trade policy disruptions can also affect the competitiveness of confectionery products, leading to potential changes in price dynamics and adjustments in the market positioning of different products. For example, Brexit has led to a 1.6% drop in German chocolate consumption in the UK, largely due to increased logistics costs and additional administrative burdens. (Myers 2023a). While the German confectionery market has historically benefited from the European single market, it must now adapt to the evolving international trade landscape, particularly in response to growing consumer demand for fair trade suppliers (MarketLine 2022).

Uncertainty	Description
<i>‘Health Regulations’</i>	The confectionery industry is under increasing regulatory scrutiny due to increased political awareness of lifestyle issues and World Health Organization recommendations to prevent young people from the adverse consequences of eating foods high in fat, salt, and sugar (WHO 2023d). As highlighted in Sub-trend 1.1 of Megatrend I several countries, including countries in Europe, have already introduced measurements such as advertising restrictions or sugar taxes on soft drinks to reduce the consumption of HFSS products. Although there is a growing concern about increasingly restrictive international measures limiting the advertising and sale of products with high sugar content, it is not yet clear what specific measures the German government will take and how companies in the sector will adapt.
<i>‘Consumer Spending Power’</i>	Consumer spending power is a key driver of product demand and pricing strategies in the confectionery sector (Hayes 2023a). In particular, favorable economic conditions and an upward trend in household purchasing power have contributed to moderate market growth from 2016 to 2021 (MarketLine 2022). In other words, the more money people have at their disposal, the more likely they are to buy more expensive goods, including premium dark chocolate (Choudhury 2022; MarkWide Research 2023). As a result, monitoring changes in disposable income and the evolution of consumer preferences is essential to understanding the evolving dynamics of the market. Although a slight increase in confectionery consumption is expected in Germany with projections of an average of 24.6 kilos consumed per capita by 2026, there is increasing uncertainty around consumer purchasing power, as evidenced by the escalation observed in the consumer price index (Statista 2023b, 2023c).
<i>‘Global Economic Stability’</i>	Economic fluctuations and global financial crises can significantly alter consumption patterns and affect the overall performance of the confectionery industry (Adrian 2021). These fluctuations often lead to a recalibration of consumers’ discretionary spending and a reduction in non-essential consumption, including confectionery. Globally, 53% of consumers are actively trying to reduce their spending on food and drink (Confectionery Production 2023b). The growing financial pressures on German confectionery companies, which influence their operational decisions, are unpredictable and increasingly recurring, as are armed conflicts, pandemics and extremist political forces, whose impact on the economy is difficult to anticipate (Confectionery Production 2023b; Euromonitor 2023). Furthermore, the stability and prospects of the industry will continue to be severely impacted by location-related burdens such as labor costs, taxes, and administrative complexity (Myers 2023c).

Uncertainty	Description
<i>‘Stability of Supply Chain’</i>	Supply chain disruptions have highlighted the vulnerability of the German confectionery industry, which relies on external suppliers for the majority of its raw materials (MarketLine 2022). However, unpredictable weather patterns and environmental changes could affect the availability and quality of these resources, increasing pressure on the industry's production capacity. The nuances of the supply chain are further complicated by recent upheavals in the global geopolitical landscape, such as the Russia-Ukraine conflict, which has led to potential trade restrictions and logistical challenges for the industry (Myers 2022). The scarcity of critical raw materials, combined with rising energy and transport costs, has put enormous pressure on manufacturers to find alternative solutions to ensure a consistent supply of resources (Economic Times 2023). The stability of the supply chain is increasingly uncertain, with varying degrees of impact, due to these external factors that are potential sources of disruption.
<i>‘Commodity Price Volatility’</i>	Commodity price volatility is a complex challenge with uncertain implications, characterized primarily by the unpredictability of future price levels. In recent years, disruptions in global supply chains, fluctuating demand patterns, and the complex geopolitical landscape have amplified commodity price volatility. This has significant effects on a number of industries, including consumers' daily lives (ChAI 2022). For the German confectionery industry, the impact of this volatility is evident in the significant increase in raw material prices and increased expenditure on energy, logistics, and packaging materials (Myers 2021). The confectionery sector is vulnerable to the volatility of key ingredients such as cocoa, which is affected by weather conditions, geopolitical unrest in producing regions, and changes in global demand (Zucchi 2021). Similarly, sugar price volatility is influenced by several factors, including weather patterns affecting crop yields, trade policies, and demand for alternative sweeteners (Amrouk and Heckelei 2020). Fluctuations in commodity supply and demand and climate change are unpredictable and are responsible for this uncertainty in the sector.
<i>‘E-Commerce’</i>	Online retailing is transforming the marketing and distribution of confectionery products. In Germany, the growth of online sales has led to increased sales for manufacturers and a more diverse customer base. (Mordor Intelligence 2023). According to the German Retail Association, the online grocery business, which includes confectionery sales, secured a market share of 2.7% in 2021 (Taxfba 2022). However, the online sales in the confectionery industry in Germany, while showing promising growth, are not yet as significant as in other sectors. This is mainly because confectionery is mostly an impulse purchase for immediate consumption and consumers are not yet prepared to wait for delivery times (Livingston 2022). Although the trend toward e-commerce is clear, the extent to which it will become more relevant and how it might reshape consumer expectations and behaviors in the digital realm and thus the confectionery industry's distribution channels remain uncertain.

Uncertainty	Description
<i>‘Alternative Sweeteners and Production Methods’</i>	The confectionery industry, driven largely by technological advances and changing consumer preferences for healthier alternatives, is undergoing significant changes in sweetening methods and production techniques (Confectionery Production 2021). Nevertheless, technological advances in the development of alternative sweeteners that can change the formulation of confectionery products are uncertain (McKenzie and Lee 2022). Confectionery manufacturers are increasingly looking for alternative sweeteners in product lines and ways to reduce sugar (Confectionery Production 2021). However, consumer preferences are constantly changing and currently favor the uptake of plant-based alternatives, which limits the development of new alternatives and it is unknown how the market would react (Foodware 365 2021).
<i>‘Climate Change Impact’</i>	Climate change is undeniable, and its effects are increasingly visible, even if they remain uncertain. The main problem the German confectionery industry is facing is that it heavily depends on natural raw materials sourced exclusively from regions classified as climate-vulnerable (Umweltbundesamt 2021). This could lead to import risks for German companies, especially for raw materials found exclusively in these countries (Nieburg 2017). The confectionery industry's dependence on specific regions (cocoa only grows in what is known as the “chocolate belt”) for raw material supplies increases its vulnerability to weather-related disruptions, leaving manufacturers vulnerable to supply chain constraints and price fluctuations (Mccarthy 2018). This ambiguity makes it difficult for the industry to anticipate future impacts on the availability and quality of key raw materials, leading to ongoing difficulties in predicting potential disruptions and price changes in the supply chain.
<i>‘Packaging Innovations’</i>	The confectionery industry is facing a period of uncertainty as it navigates the evolving trends in packaging innovation, driven by both government regulations and consumer preferences. Environmentally friendly packaging materials such as paper and bioplastics are becoming increasing (Sutaria 2023). However, it is not yet clear whether most packaging will be paper, as it is disposable. At the same time, there is still uncertainty as to whether the reuse and refilling of packaging can be made legally compulsory in Germany, as is already the case in EU countries such as France (Carbinato, Deryckere, and Shiran 2023). Convenience packaging, such as returnable and portion-controlled packaging, is also gaining in popularity, with consumers looking for on-the-go snacking options. However, the integration of these new alternatives is still unclear, mainly due to the higher costs they represent for confectionery companies (Sutaria 2023). Packaging innovation is being driven in an unknown direction by doubts about what confectionery products will look like in the future or about new packaging regulations for these food products.

Uncertainty	Description
<i>‘Food Labeling Laws’</i>	The industry is navigating this uncertainty with a strong focus on adapting to evolving food labeling rules and requirements, particularly those related to health claims and nutritional information (BMEL 2023). The lack of mandatory rules common to all EU Member States means that there are wide variations in product labeling (Confectionery Production 2022). As a result of pressure from various industries, particularly the German confectionery sector, the European Commission's Farm to Fork Strategy has emerged, proposing mandatory and harmonized front-of-pack nutrition labeling to help consumers make informed and healthier food choices (European Commission 2023; Myers 2023b). Despite this progress, the implementation and impact of it is still unknown, new labels may emerge in response to changes and new consumer demands for healthier and more sustainable products, so it is still difficult to see how food labelling laws will evolve.

Appendix 3 – Survey: Uncertainties in the Confectionery Industry

The following text was used to introduce participants to the topic:

“Umfrage: Unsicherheiten in der Süßwarenindustrie

Liebe Teilnehmer, Liebe Teilnehmerinnen,

wir sind eine Gruppe von Studenten der Nova School of Business & Economics in Lissabon.

Im Rahmen unserer Masterarbeit beschäftigen wir uns mit der möglichen Entwicklung der Süßwarenindustrie in Deutschland. Um ein möglichst holistisches Bild der Zukunft bilden zu können, werden vier mögliche Szenarien für das Jahr 2030 entwickelt.

Die Entwicklung der vier Szenarien basiert auf zwei Faktoren, welche den höchsten Einfluss auf die Entwicklung der Süßwarenindustrie haben und deren zukünftige Entwicklung noch nicht absehbar ist. (Bsp. Werden sich Verbraucherpräferenzen und -verhalten bezogen auf Süßwaren ändern?)

Gerne möchten wir Sie bitten, an dieser Umfrage teilzunehmen, um uns zu helfen, die potenziellen Faktoren zu bewerten und zu priorisieren. Die Umfrage besteht aus einer Liste von Faktoren, die nach deren Einfluss auf die Süßwarenindustrie bis zum Jahr 2030 und deren Unsicherheit bewerten werden sollen.

Die Bewertung des Einflusses und der Unsicherheit erfolgt jeweils anhand einer Skala von 1 bis 10:

- *Einfluss: 1 – „Sehr geringer Einfluss“ bis 10 – „Sehr hoher Einfluss“*
- *Wahrscheinlichkeit des Eintritts: 1 – „Sehr geringe Wahrscheinlichkeit“ bis 10 – „Sehr hohe Wahrscheinlichkeit“*

Die Umfrage dauert etwa 7 Minuten. Ihre Antworten werden anonym behandelt und werden ausschließlich im Rahmen dieser Masterarbeit verwendet.

Ihre Meinung ist für uns sehr wichtig und wird uns helfen realistische und relevante Szenarien zu entwickeln!

Vielen Dank für Ihre Teilnahme an unserer Umfrage. Sollten Sie Fragen oder Anmerkungen haben, können Sie uns gerne unter 55899@novasbe.pt kontaktieren.

Beste Grüße,

Max, Rita, Franceso, Chantal, Janis”

The survey was conducted in German. The uncertainties considered in this form are those set out in Table 2: Uncertainties | Source: Own Creation.

Figure 19: Overview of the Survey | Source: Own Creation

																	14-17	Average
Impact	Globale Handelspolitik	7	6	10	8	6	8	8	7	9	8	8	8	7	8	7.71		
Uncertainty	Globale Handelspolitik	6	8	7	8	4	8	6	6	9	6	3	8	7	6	6.57		
Impact	Gesundheitsvorschriften	8	9	10	10	3	8	10	8	5	7	10	9	8	9	8.14		
Uncertainty	Gesundheitsvorschriften	9	10	10	10	8	8	8	7	7	9	6	10	7	7	8.29		
Impact	Verbraucherausgaben	8	3	9	7	6	9	4	4	8	8	9	8	8	6	6.93		
Uncertainty	Verbraucherausgaben	8	5	9	7	6	9	4	4	7	4	5	8	8	4	6.29		
Impact	Globale wirtschaftliche Stabilität	9	3	9	8	4	9	5	5	7	5	6	9	8	6	6.64		
Uncertainty	Globale wirtschaftliche Stabilität	9	8	9	8	7	9	5	6	7	6	5	9	8	5	7.21		
Impact	Störungen in der Lieferkette	10	10	7	10	9	9	9	8	9	7	8	10	5	8	8.50		
Uncertainty	Störungen in der Lieferkette	10	7	7	10	9	9	8	6	8	3	5	10	6	8	7.57		
Impact	Preisvolatilität bei Rohstoffen	9	7	8	10	7	9	10	7	9	8	9	8	7	8	8.29		
Uncertainty	Preisvolatilität bei Rohstoffen	9	7	8	10	7	9	10	6	7	5	6	8	8	8	7.71		
Impact	Digitalisierung des Einkaufs	3	5	3	10	7	7	10	7	3	3	6	8	9	2	5.93		
Uncertainty	Digitalisierung des Einkaufs	3	3	3	10	9	7	10	5	3	1	4	10	10	1	5.64		
Impact	Alternative Süßstoffe und Produktionsmethoden	5	3	6	2	7	6	5	4	5	8	9	7	6	7	5.71		
Uncertainty	Alternative Süßstoffe und Produktionsmethoden	5	3	5	2	3	6	9	3	5	5	3	7	6	7	4.93		
Impact	Klimawandel-Auswirkungen	10	6	8	10	10	9	9	9	9	6	8	9	8	8	8.29		
Uncertainty	Klimawandel-Auswirkungen	10	4	8	10	9	9	9	7	7	5	7	8	8	6	7.64		
Impact	Verpackungsinnovationen	8	6	3	8	3	8	6	6	4	7	9	9	7	8	6.57		
Uncertainty	Verpackungsinnovationen	8	3	3	8	2	8	10	3	4	5	6	9	6	8	5.93		
Impact	Lebensmittelkennzeichnungsgesetze	8	6	4	8	3	8	8	8	3	5	10	10	7	5	6.64		
Uncertainty	Lebensmittelkennzeichnungsgesetze	8	7	2	8	6	8	8	3	3	5	5	10	7	4	6.00		

Figure 20: Results of the survey | Source: Own Creation

Appendix 4 - Expert Interviews

INTERVIEW 1

Interview date: 15.11.2023 I Interviewer: Chantal Weber

1. CONTEXT: PERSON & BACKGROUND

Name: Thomas Elfinger

Role: Deloitte Germany Consultant, before: Supply Chain Manager at different German Retailers

Connection with the topic:

- Focus Areas: Forecast & Replenishment, Supply Chain Management
- >7 years of work experience with different German retail/wholesale companies; Deponent and an analyst in the supply chain management for sweets & beverages

2. MARKET DYNAMICS & TRENDS

What do you think are the most relevant market dynamics and trends in the confectionery industry now and in 7 years?

The confectionery market has been constantly changing, so I would start with:

- Inflation
- Corona and everything around it
- Independence in distribution channels and so forth, which has intensified even more. This includes how many rely on their own logistics and how much external logistics are needed.
- Companies are asking themselves, 'How can I broaden my horizons?'
 - The confectionery industry is not growing much anymore, meaning the price competition and such will continue to increase. There's a push to gain market share.
 - People themselves, I believe it's proven, will not eat much more sweets. So, the question and new focus is how you present the sweets and create an experience for consumers so that they buy from you and get a cool feeling.
 - Two sides: creating an experience through advertising pressure vs. cost pressure (producing as efficiently as possible).
 - On the other hand, you must manage to produce as efficiently as possible and deliver good quality and sustainability, and that's the challenge.
 - Especially non-refrigerated products are easier in terms of efficiency.

Classic confectionery manufacturers are increasingly moving toward healthy snacks and expanding their product portfolio. Do you see that too?

- Yes, it's happening slowly. They're trying to establish a second line of business, but as of now, it's not efficient enough, not covering costs. No profit is being made, so the old products are still the cash cows.
- The assortment must be broadened in the next 3 to 10 years.
- As I said, sales are down, and other products will decline, so there's a need to broaden the range, especially due to challenges like rising costs.

- Many small retailers will not survive but will be bought out by larger ones, as is common elsewhere.

Do you think that in 7 years, classic sweets, like Ferrero's chocolate, will still be the big cash cow, or do you think healthy snacks will have caught up and become the big money-makers?

- I can't imagine much will have changed in 7 years. I'd be very surprised if it happened quickly; the industry is not that fast-moving.
- Maybe in 20 years.
- It depends on what happens with external factors, such as government incentives, to push products and achieve climate goals. Cost increases are also relevant here.
- Currently, everything is delivered by truck. I'm sure that will still be the case in 7 years, but politics will try to increase costs to create alternatives. Everyone has to think about this, but I believe we will see little change in the next 7 years because there is no alternative yet.

3. SCENARIO VALIDATION

[Presentation of the scenario matrix and the key uncertainties.]

Does our comparison make sense to you?

Of course, it's completely correct to think in this direction. With these 4 anchor points, it's right, but I believe it only shows that the challenges and requirements will grow, and more bureaucratic effort will come. But I think there will still be enough loopholes next year. Products must be expanded and respond to customer preferences. But no huge changes will come within the next 7 years.

Scenario 1: *What could the supply chain look like in 7 years? Which raw materials might be most affected by something like climate change? Resource scarcity – where could there be difficulties?*

- Small companies must ensure they secure capital, as rising interest rates are currently a big problem. Then it will probably only be possible through takeover or acquisition.
- Small companies can especially benefit if they are taken over by an international company. With regionalism and sustainability, they can differentiate themselves.
- I believe that's a big opportunity for the market, to focus on more regional and healthier products in the next 7 years. Own cultivation and therefore not having to import and being self-sufficient. This works with pooling, acquisition, and capital formation. Attempts are also being made to produce products through only one company and in-house to significantly reduce import paths and move toward sustainability. Independence, that's the key.

Can you imagine that in the next 7 years, especially since you say transport paths should be reduced, there will be an attempt to source more locally?

- Definitely! That works, but of course, only if the price-performance level is right, and that is currently the biggest problem and challenge.
- It's necessary to create mass through acquisitions first, and as I have said, it will stay with trucks for the next 7 years but hopefully more within Germany instead of Europe.

You say that prices are a big problem because otherwise, more local sourcing would be done. Do you think the EU or the German government could somehow support this?

- Yes, we need investments that increasingly promote regional products.
- For example, toll fees, and tariffs for Asia/USA could be increased to create more incentives.

INTERVIEW 2

Interview date: 15.11.2023 I Interviewer: Chantal Weber

1. CONTEXT: PERSON & BACKGROUND

Name: Adnana Osmanbašić

Role: Deloitte Germany Consultant from Norway

Connection with the topic:

- Forecasting and Management Reporting Experience
- Consulting project with a leading Norwegian confectionery & snacks manufacturer
 - Project: Development of a dynamic planning tool, capable of accommodating multiple drivers that impact various planning scenarios and KPIs. Tool for best- and worst-case scenarios

2. MARKET DYNAMICS & TRENDS

What do you consider to be the most relevant market dynamics and trends in the confectionery industry? (now, in 7 years)

- The company focused on innovation in the past
- However, Profits come from a few winning products
- The products that are selling and account for most of the profits are the rather unhealthy traditional products - focus on them rather than the whole portfolio
- Strategy to move from innovative products to winning products
- Focus on Sustainability (especially in packaging), as consumer awareness and regulations are getting stricter
- Business strategy is not promoting healthy products even though health awareness is increasing

What does the current legislative//environmental landscape look like in Norway?

- Sugar tax - changes sometimes they have it sometimes not (depends on the political party)
- Regulations on ingredients and proportions
- No regulations on advertisement
- High quality in production required
- Huge focus on sustainable packaging and waste management
- Recycling is important and they get fines for throwing food in the wrong bin

3. SCENARIO VALIDATION

In the next step, we would like to dive deeper into future scenarios of how the confectionery market might evolve. In Scenario 1 we have health regulations similar to today and a smooth supply chain.

What do you think will be the product consumers will demand in Scenario 1?

- The market for these healthy products (fruit bars, organic/plant-based confectionery) is not yet mature
- Norwegian confectionery manufacturers do not significantly tap into these niche markets because:
 - Snacks such as granola bars are also getting hated because they have a lot of sugar
 - The competition in these niche markets is intense
 - In the past they invested a lot in innovation and it did not pay off
 - Traditional confectionery products make up for the majority of their profits, so they feel like there is no direct need to tap into these new markets
- Consumers demand healthier products which is why companies go with this trend but they still focus on the traditional product lines
- Manufacturers are not targeting health-conscious consumers exclusively as they are either cutting out chocolate altogether or eliminating it from their diets.

Which marketing channels are presently used and will become more important in the confectionery market in the future?

- There are currently a lot of TV and social media advertisements. Both of these channels will also still be very important in 7 years. Also, confectionery manufacturers will increasingly use influencers

How will market dynamics and the innovative ecosystem look like in Norway?

- There is no need for big players to cooperate with start-ups as they have an established R&D and testing laboratory. Thus, they can do it themselves in a quick and agile way
- They are able and strong enough to invest in a new product themselves without the help of a partner

INTERVIEW 3

Interview date: 20.11.2023 I Interviewer: Max Lohmann

1. CONTEXT: PERSON & BACKGROUND

Name: Carsten Simon

Role: Managing Director, Mars GmbH

Connection with the topic:

- Managing the second largest player, Mars Germany, in the German confectionery market
- Over 20 years of industry experience

2. SCENARIO VALIDATION

Presentation of the scenario matrix with key uncertainties. Assessment of each scenario after the other.

Scenario 1: Existing health regulations, only minimal or no disruptions in the supply chain, and consumer preferences favoring health trends continue. How do you assess the impact of this scenario on the industry, trade, and consumers?

- Consumer-Driven Change:
 - The scenario is primarily influenced by changes driven by consumer preferences over the long term.
 - Consumers adapt their behavior, leading to shifts in demand based on their preferences.
- Moderate Consumer Behavior Shift:
 - Despite changes in consumer behavior, the scenario envisions a gradual and moderate shift, avoiding drastic and disruptive changes.
 - Consumer preferences evolve over time, influencing product demands, but without causing destructive upheavals.
- Growth in Healthy Snacking:
 - Within the evolving consumer landscape, the sector of healthy snacking is anticipated to experience continued growth.
 - Comparisons with the well-established healthy snacking market in the USA provide insights into potential market shares and shifts.
- Limited Impact on Traditional Chocolate:
 - Traditional chocolate remains largely unaffected, maintaining its status quo in the scenario.
 - The pace of change in consumer behavior does not lead to significant disruptions in the traditional chocolate segment.
- Trade Adjustments to Consumer Shifts:
 - The trade sector responds to evolving consumer preferences by adjusting its strategies and product offerings.
 - The scenario sees a strategic alignment between trade practices and changing consumer behaviors.
- Stable Industry Landscape:

- Overall, the scenario foresees a stable industry landscape with no major disruptive changes.
- While there may be a slight decrease in the number of startups, the industry remains resilient, adapting to shifts in consumer demands.
- Consolidation of Start-ups:
 - The scenario predicts a phase of consolidation among startups in the industry.
 - The current abundance of startups is expected to reduce over time as the industry matures and stabilizes.

Scenario 2: Existing health regulations, disruptions in the supply chain, and consumer preferences favoring health trends continue. How do you assess the impact of this scenario on the industry, trade, and consumers?

- Disrupted Supply Chain as Scarcity:
 - A disrupted supply chain is viewed as a form of scarcity, initially leading to price increases, as observed in the current context.
 - Over time, this scenario is expected to result in premiumization and consumer restraint due to sustained scarcity.
- Premiumization and Consumer Restraint:
 - The foreseen price increases, stemming from scarcity, would drive premiumization strategies in the industry.
 - Consumers, faced with higher prices and potential scarcity, may exhibit restraint in their consumption patterns.
- Resilience of the Confectionery Category:
 - Despite the challenges, the confectionery category is acknowledged as resilient against price increases.
 - However, if this trend continues until 2030, factors like climate change may further impact key raw materials, contributing to scarcity.
- Impact of Climate Change on Raw Materials:
 - A prolonged scenario of disrupted supply chains due to climate change may lead to shortages in key raw materials.
 - The slow adaptation to alternatives during this period contributes to scarcity in the industry.
- Industry Initiates Price Increases and Premiumization:
 - In response to scarcity, the industry is expected to initiate price increases and premiumization strategies.
 - This could trigger pricing conflicts with the trade sector, leading to challenges in pricing negotiations.
- Trade Sector Engages in Price Disputes:
 - As the industry raises prices and pursues premiumization, conflicts with the trade sector over pricing are anticipated.
 - The scenario envisions escalating disputes over pricing between the industry and the trade sector.
- Consumer Backlash and Purchase Restraint:
 - In the long term, sustained scarcity and premiumization may lead to a consumer backlash.
 - Consumers, concerned about the environmental impact and scarcity, may exercise restraint in purchasing products linked to these challenges.

- Potential Shift in Consumer Attitudes:
 - A perceived threat from climate change to raw materials could prompt consumers to reevaluate their attitudes toward products contributing to environmental challenges.
 - The scenario suggests a potential shift in consumer perceptions and behaviors related to the environmental impact of their consumption choices.

We identified cocoa as most vulnerable point in supply chain. What options are there to substitute or replace cocoa?

- Shift Away from Cocoa in Chocolate:
 - The core focus is on cocoa as a key ingredient, implying a scenario where traditional chocolate, by definition, might not contain enough cocoa to be classified as such.
 - The scenario envisions the emergence of alternative chocolate-like products that may lack the required cocoa content but still possess chocolate-like qualities.
- Introduction of Cocoa Alternatives:
 - In response to cocoa scarcity, the industry explores alternatives that serve as replacements for cocoa.
 - This could involve the development of products that retain a chocolatey or cocoa-like essence without relying on traditional cocoa sources.
- Complete Cocoa Replacement:
 - The scenario considers the possibility of a complete replacement of cocoa in chocolate products.
 - This suggests a fundamental transformation in the composition of chocolate, using substitutes or alternatives for cocoa.
- Pressure on Chocolate Industry:
 - The chocolate industry faces challenges not only due to cocoa scarcity but also because of the increasing demand for vegan products.
 - As climate change intensifies, animal-based products, including milk in chocolate, come under scrutiny, contributing to industry pressure.
- Vegan Requirement for Chocolate:
 - The scenario suggests a growing expectation that chocolate products must meet vegan standards.
 - Climate change concerns contribute to an increased emphasis on plant-based and vegan alternatives in the chocolate industry.
- Environmental Impact on Animal Products:
 - With the aggravation of climate change, there is a broader recognition that all animal-based products, including milk in chocolate, face environmental challenges.
 - The environmental impact prompts a reevaluation of the sustainability and viability of using animal-derived ingredients in chocolate.

Scenario 3: *Severe health regulations, only minimal or no disruptions in the supply chain, and consumer preferences favoring health trends continue. How do you assess the impact of this scenario on the industry, trade, and consumers?*

- Advertising Restrictions and Market Dynamics:
 - If advertising restrictions impact the entire category, it could result in market share being somewhat fixed.
 - This may pose challenges for startups and healthier alternatives, making it harder for them to gain traction in the market.
- Complex Consumer Behavior:
 - Consumer reactions may not align with intended outcomes, and reformulated or healthier products might struggle to gain market share.
 - The difficulty lies in promoting products as healthy enough to be advertised, potentially limiting their market penetration.
- Challenges for Healthier Alternatives:
 - Market dynamics, including sugar taxes and associated VAT, could lead to premiumization or consumer restraint.
 - Premiumization might be less likely due to concerns about absolute price points and potential limitations on consumer spending.
- Impact of Sugar and VAT Taxes:
 - Sugar and VAT taxes are expected to contribute to either premiumization or reduced consumer purchasing.
 - Absolute price points may pose challenges, making it essential for the industry to strategize around maintaining accustomed consumption levels.
- Market Attractiveness and Industry Consolidation:
 - The German market may become less attractive for the chocolate industry due to potential challenges.
 - This could lead to further industry consolidation as companies grapple with excess capacities and changing market dynamics.

How would you deal with a sugar-tax?

- Limited Reformulation Due to Sugar Tax:
 - The expectation is that reformulating recipes specifically due to a sugar tax will likely be the exception rather than the norm.
 - Existing recipes may not undergo significant changes, especially in mainstream chocolate products.
- Segment-Specific Impact of Sugar Tax:
 - Certain market segments, such as protein bars or other health-focused categories, could benefit from a sugar tax.
 - Products in these segments might become relatively more affordable as they contain a lower percentage of sugar.
- Relative Affordability in Specific Segments:
 - The impact of a sugar tax might manifest in certain market segments where products become relatively cheaper due to lower sugar content.
 - Rather than a broad reformulation, this scenario envisions a shift in the competitive landscape within specific product categories.

- Challenges Despite Tax Benefits:
 - Despite potential benefits in specific segments, the overall landscape includes challenges like advertising restrictions and a 19% VAT rate.
 - These factors contribute to an environment where products become more expensive, even with the potential benefits of a sugar tax.
- Portfolio Re-Engineering for Price Maintenance:
 - To maintain absolute price points, companies might engage in portfolio re-engineering.
 - This involves adjusting product portfolios to navigate the impact of various factors, including advertising restrictions and tax rates.

Scenario 4: Severe health regulations, disruptions in the supply chain, and consumer preferences favoring health trends continue. How do you assess the impact of this scenario on the industry, trade, and consumers?

- Convergence of Market Trends:
 - The scenario envisions a convergence of two trends – the scarcity and increased cost of traditional chocolate, and negative perceptions associated with factors like climate change and health concerns.
- Impact on Traditional Chocolate:
 - Traditional chocolate faces challenges of scarcity, significant price hikes, and negative public perception due to environmental and health issues.
- Influence on Consumer Behavior:
 - Over time, these factors are anticipated to influence consumer habits, prompting a shift toward healthier alternatives perceived as more sustainable and cost-effective.
- Shift to Healthier Alternatives:
 - A potential outcome is a consumer shift toward healthier alternatives, driven by perceptions of their safety, relative affordability, and a desire for more sustainable options.
- Role of Retailers in Driving Trends:
 - Retailers are expected to play a crucial role in accelerating these trends, actively promoting healthier portfolios and scaling back on traditional products.
- Strategic Portfolio Adjustments:
 - In response to changing consumer preferences and market dynamics, retailers may strategically expand healthier product lines and reduce traditional offerings to maintain profitability.
- Acceleration of Trends by Retailers:
 - Retailers would likely seek to expedite these trends within the market, leveraging their influence to shape consumer choices and adapt to the evolving landscape.
- Adaptation for Sustained Profitability:
 - To sustain profitability in this evolving environment, retailers may prioritize the promotion of healthier alternatives and actively respond to changing consumer preferences.

3. GENERAL QUESTIONS

What other uncertainties do you see besides health regulations and supply chain issues?

- Global Standing of Germany:
 - While Germany is currently viewed as an attractive location, its importance within the global landscape is expected to diminish by 2030.
- European Context:
 - Within Europe, Germany might face challenges, attributed partly to its heavy reliance on heavy industry and manufacturing, potentially making it less competitive.
- Shift in Global Importance:
 - Europe, as a whole, is projected to become less significant globally, and within Europe, Germany's prominence might decrease due to economic structure challenges.
- Impact on Employment:
 - Potential job losses, both from traditional industries and those affected by AI, could lead to macroeconomic transformations and workforce-related challenges.
- Labor Market and Immigration:
 - Existing difficulties in finding skilled labor could intensify, and addressing this gap might require increased immigration, a societal challenge that may not gather widespread support.
- Macroeconomic Transformation:
 - Macro-economic issues, including workforce-related challenges and the need for immigration, could become more pronounced, affecting both the industry and trade sectors.
- Global Investment Attractiveness:
 - If Germany becomes less attractive due to these challenges, there could be a decline in investments, making it less appealing for spending money on solutions to uncertainties.
- Impact on Industrial Attractiveness:
 - Germany's attractiveness for industries could decrease, especially if addressing the uncertainties mentioned involves significant financial investments.

If one says these are uncertainties or if one also says there will be health-related regulations, and we don't yet know to what extent, how are you developing your product portfolio?

- Research and Development Focus:
 - Mars is actively engaged in Research and Development, with a focus on addressing uncertainties, especially in response to potential health-related regulations.
- Investment in Innovation:
 - The company is investing significantly in innovation, exploring ways to enhance both the brand and the overall chocolate-eating experience.
- Strategic Acquisitions:
 - Mars is strategically acquiring startups that complement and enhance different aspects of its portfolio, whether through unique brand experiences or by adding healthier options.
- Premiumization of Offerings:
 - Acquisitions of brands align with Mars' strategy to premiumize its portfolio,

- providing diverse and appealing choices to consumers.
- Adaptation to Changing Trends:
 - Mars acknowledges the evolving trend toward healthier snacking and is actively adapting its portfolio to align with consumer preferences.
- Organic and Inorganic Growth:
 - The company's approach involves both organic growth through internal efforts and inorganic growth through strategic acquisitions to stay competitive in the evolving market.

What do you think about Carob? Does Mars already use it?

- Current Non-Use of Carob:
 - Mars does not currently use carob in its products.
- Emphasis on Enjoyment:
 - Chocolate is fundamentally viewed as a pleasure product, and Mars recognizes the importance of taste in consumer preferences.
- Consideration for Vegan Options:
 - The company acknowledges the growing market for vegan chocolate but emphasizes the importance of maintaining a delicious taste profile.
- Focus on Consumer Preferences:
 - Mars appears to prioritize consumer enjoyment, indicating a reluctance to incorporate ingredients that might compromise the taste experience.
- Market Dynamics:
 - The response suggests a market-driven approach, where the appeal and flavor of chocolate products remain central to decision-making.

What are alternatives to confectioneries?

- Consumer Behavior in Response to Price Increases:
 - Acknowledgment that consumers, if faced with significant price hikes in chocolate, may shift toward other indulgent products.
- Consideration of Health Perception:
 - Products perceived as healthier alternatives, with reduced critical ingredients such as cocoa or animal-derived components, could attract consumer attention.
- Emphasis on Lower Sugar Content:
 - Products with substantially lower sugar content are highlighted as an appealing option, aligning with the trend toward healthier choices.
- Snacking Habit as a Key Factor:
 - Recognizing snacking as a habitual behavior, Mars suggests that their products are interchangeable with other snacking options like yogurt or alternative snacks.
- Adaptability to Consumer Preferences:
 - The response reflects a strategic awareness of potential consumer shifts and a willingness to adapt product offerings accordingly.

Appendix 5 – Workshops with Ferrero Deutschland GmbH

WORKSHOP 1

Workshop date: 16.11.2023

1. Participants

Table 3: Workshop Participants - 16.11.2023 | Source: Own Creation

Name:	First Name:	Company
Behle	Tobias	Ferrero Deutschland GmbH
Drescher	Janis Nikolai	Nova SBE Work Project Team
Du Petit	Annamaria	Ferrero Deutschland GmbH
Gomes Mendes	Rita	Nova SBE Work Project Team
Lohmann	Max Friedrich	Nova SBE Work Project Team
Rosskopf	Thomas	Ferrero Deutschland GmbH
Schwenk	Volkmar	Ferrero Deutschland GmbH
Serra	Fabio	Ferrero Deutschland GmbH
Weber	Chantal	Nova SBE Work Project Team

2. Workshop Materials:



Figure 21: Miro Board for Workshop 1 | Source: Own Creation

WORKSHOP 2

Workshop date: 23.11.2023

1. Participants

Table 4: Workshop Participants - 23.11.2023 | Source: Own Creation

Name:	First Name:	Company
Behle	Tobias	Ferrero Deutschland GmbH
Drescher	Janis Nikolai	Nova SBE Work Project Team
Du Petit	Annamaria	Ferrero Deutschland GmbH
Gomes Mendes	Rita	Nova SBE Work Project Team
Lohmann	Max Friedrich	Nova SBE Work Project Team
Schwenk	Volkmar	Ferrero Deutschland GmbH
Serra	Fabio	Ferrero Deutschland GmbH
Weber	Chantal	Nova SBE Work Project Team

2. Workshop Materials:

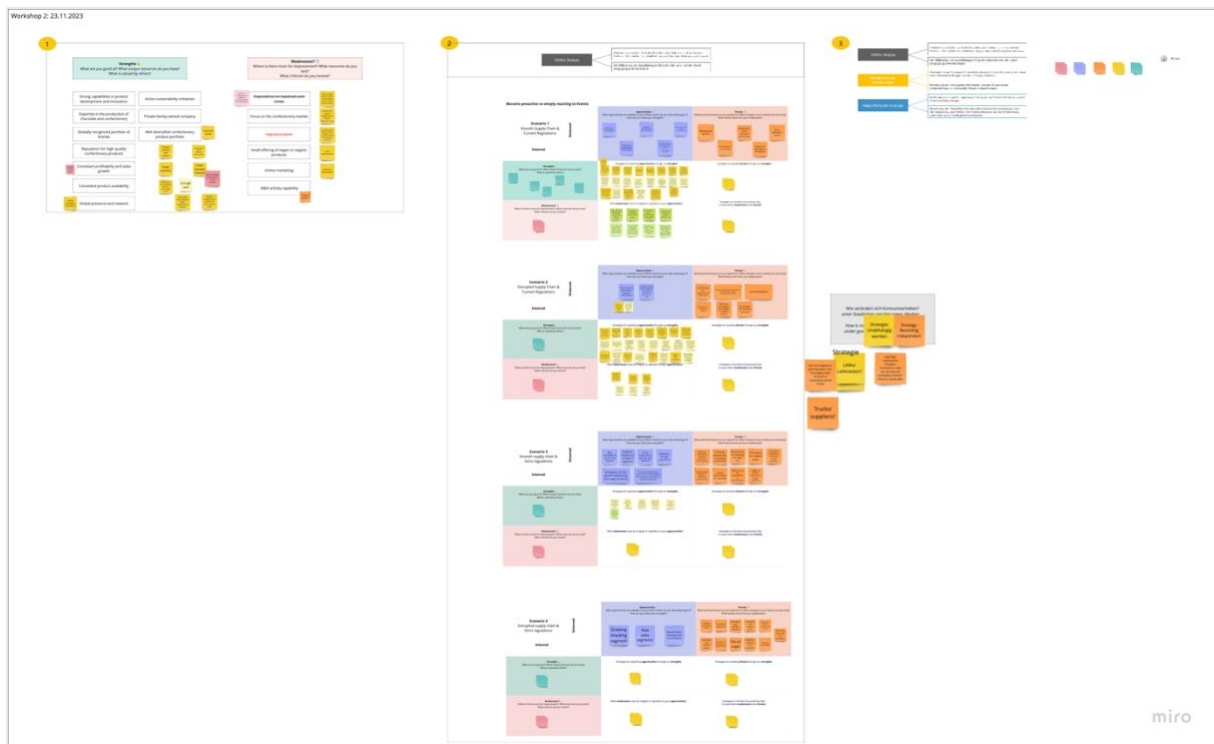


Figure 22: Miro Board for Workshop 2 | Source: Own Creation

Appendix 6 - Financial Simulation

To forecast the financial impact of the different scenarios the research team decided to consider three main factors: market revenue (EUR), volumes associated to this market size and the subsequent price per kg. Assumption supported by research will be made to quantify the impact of the key uncertainties on the market sizing.

All the different effect on price increase caused by supply chain disruptions and/or stricter regulatory framework will be added on top of the price increase of 1.98% highlighted in the baseline scenario (*'Sweet Symphony'*).

Supply chain disruption impact on price has been calculated through the subsequent steps:

- It was simulated the cost increase from 2023 to 2030 of the key raw materials used in the confectionery industry:
 - Sugar → assumed an increase of 19 % by 2030 based on the trend of last year (Trading Economics 2023b).
 - Wheat → assumed an increase of 17 % based on the trend of last the 5 years (Trading Economics 2023c) because it wouldn't be accurate to consider the beginning of this year because the price of wheat has been deeply affected by the Russian-Ukrainian started at the beginning of 2022.
 - Cocoa → since year-to-date cocoa price increased by roughly 70% (Trading Economics 2023a) due to drought we assume that by 2030 the price will increase at least by double, mainly due to climate change effects, resulting in a 140% increase.
 - Others → assumed a general 15% increase.
- It was then assumed that all these numbers will likely to happen by 2030
- The weight (in %) of each of these ingredients was calculated in the total volumes used in the confectionery industry in Germany (BDSI 2023).
- Each of the assumed price increase of the raw materials (%) was then multiplied by the weight (%) and they were then summed up together to have a weighted average of the impact of each price increase on the overall industry → 38.9%.
- This number was then multiplied and applied directly to the general gross margin of the food industry (30%) (CSI Market 2023) to get the final price effect of the cost increase of the raw materials → assuming that the costs will be passed on its entirety to the consumer → final raw materials number of 11.7%.

- To this number it was added a 5% of price increase that is the impact of supply chain disruption on the EBITDA margin if the whole supply chain breaks down for one month (Baumgartner, Malik, and Padhi 2020) reaching a final comprehensive price increase 16.7 % by 2030.
- It was later assumed that the impact of supply chain disruptions on the confectionery market will not be visible from the first year but will fully take place by 2030.
- Based on this final number a CAGR applicable to each year from 2023 to 2030 was obtained in order to reach that final number of 16.7% that is a 2.23% CAGR on the price.

To calculate the impact of the **strict regulatory framework** impact three main drivers were considered: the impact of sugar tax and VAT increase on the price and the advertisement ban impact on demand.

- Based on research (Gonçalves 2022), regarding the sugar tax it was assumed a 10% price increase that will be passed wholly to the consumer causing a 10% increase in price in 2024.
- In Germany, in the baseline scenario the confectionery products are considered essential and primary products with a reduced VAT of 7% (Bundesministerium der Justiz 2006) but in the scenarios with the stricter regulations, it was assumed that the confectionery products will be considered not as essential seeing an increase of the VAT to 19% (the general VAT applied in Germany). Hence, it was presumed that this VAT increase of 12% would be passed on its entirety to the consumer.
- The last assumption is that the advertisement ban will impact the demand for confectionery products causing a decrease of 7% in the demand in the first year based on research on potato chips and HFSS foods in general (Dubois, Griffith, and O'Connell 2018; Yau et al. 2022).

To sum up, the total price increase caused by the sugar tax and VAT increase is estimated to be 22% and the demand decrease induced by the advertisement ban is assumed to be 7%. Excluding the first baseline scenario, once calculated the price increase from the present year and the evolution of the aforementioned price in the time horizon, the volumes and the market revenue were calculated using the **price elasticity** of -1.35 obtained as an average of the price elasticity of four confectionery companies in the US that are also the largest in Germany (Lindt, Ferrero, Mondelez and Mars) (UBS Evidence Lab and Nielsen 2019).

Summary of the impact on each scenario (Table 5):

- ‘*Sweet Symphony*’: scenario in line with the market forecast.
 - Volume CAGR 2023-2030 → 1.1% → 1,215 m kg
 - Market size CAGR 2023-2030 → 3.1% → 13,448 m EUR
 - Price CAGR 2023-2030 → 1.98% → 11.07 EUR/kg
- ‘*Sweet Chaos*’ (disrupted supply chain affects the price)
 - Price CAGR 2023-2030 → 4.2% (baseline price increase of 1.98% + 2.23% of price increase linked to the supply chain disruptions) → 12.88 EUR/kg
 - Volume 2030 → calculated via price elasticity → 983 m kg
 - Market size 2030 → calculated multiplying price by volume → 12,664 m EUR
- ‘*Healthy Temptation*’ (strict regulatory framework affects price and demand)
 - Volume CAGR 2023-2024 → -7% caused by advertisement ban
 - Price CAGR 2023-2024 → 23.98% (baseline price increase of 1.98% + 22% price increase caused by Sugar Tax and VAT increase)
 - Volume 2024 was obtained by applying the price elasticity to the already-reduced volumes.
 - Price CAGR 2024-2030 → baseline price increase of 1.98% → 13.46 EUR/kg
 - Volume 2030 → calculated via price elasticity → 773 m kg
 - Market size 2030 → calculated multiplying price by volume → 10,402 m EUR
- ‘*Sugar Shock*’ (disrupted supply chain and strict regulatory framework affect price and demand)
 - Volume CAGR 2023-2024 → -7% caused by advertisement ban
 - Price CAGR 2023-2024 → 26.20% (baseline price increase of 1.98% + 22% price increase caused by Sugar Tax and VAT increase + 2.23% increase caused by disrupted supply chain)
 - Volume 2024 obtained applying the price elasticity to the already-reduced volumes.
 - Price CAGR 2024-2030 → 4.2% (baseline price increase of 1.98% + disrupted supply chain CAGR) → 15.60 EUR/kg
 - Volume 2030 → calculated via price elasticity → 615 m kg
 - Market size 2030 → calculated multiplying price by volume → 9,588 m EUR

Table 5: Financial Simulation | Source: Own Calculation

Price Effect														
			Weighted impact on gross margin	Gross margin	Weighted average price increase									
Supply chain														
Raw materials	11,7%		12%	30%	39%	Increase	Sugar	Cocoa	Wheats	Other	Total			
Supply chain disruption	5,0%					MT	750000	430000	450000	785000	2415000			
Total	16,7%					Weight	31%	18%	19%	33%				
Health regulations														
Sugar Tax	10,0%													
VAT increase	12,0%													
Demand effect														
Advertis. Ban	-7,00%													
Price elasticity														
	-135%													
Sweet symphony														
	Actual	Actual	Actual	Actual	Actual	Actual	Estimate	Estimate	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Market Size in m EUR	9.404,10	9.604,10	9.897,90	10.138,60	9.991,00	10.217,30	10.534,04	10.860,59	11.197,27	11.544,39	11.902,26	12.271,23	12.651,64	13.043,84
Volume in m kg	1.089,70	1.103,40	1.115,70	1.126,40	1.094,60	1.100,80	1.112,91	1.125,15	1.137,53	1.150,04	1.162,69	1.175,48	1.188,41	1.201,48
Price in EUR/kg	8,63	8,70	8,87	9,00	9,13	9,28	9,47	9,65	9,84	10,04	10,24	10,44	10,65	10,86
Price increase		0,86%	1,92%	1,46%	1,41%	1,69%	1,98%	1,98%	1,98%	1,98%	1,98%	1,98%	1,98%	1,98%
		2,1%	3,1%	2,4%	-1,5%	2,3%	3,1%	3,1%	3,1%	3,1%	3,1%	3,1%	3,1%	3,1%
		1,3%	1,1%	1,0%	-2,8%	0,6%	1,1%	1,1%	1,1%	1,1%	1,1%	1,1%	1,1%	1,1%
Sweet chaos														
	Actual	Actual	Actual	Actual	Actual	Actual	Estimate	Estimate	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Market Size in m EUR	9.404,10	9.604,10	9.897,90	10.138,60	9.991,00	10.217,30	10.534,04	10.860,59	11.101,60	11.347,95	11.599,77	11.857,18	12.120,29	12.389,25
Volume in m kg	1.089,70	1.103,40	1.115,70	1.126,40	1.094,60	1.100,80	1.112,91	1.125,15	1.103,7	1.082,7	1.062,1	1.041,8	1.022,0	1.002,5
Price in EUR/kg	8,63	8,70	8,87	9,00	9,13	9,28	9,47	9,65	10,06	10,48	10,92	11,38	11,86	12,36
Total Price increase		0,86%	1,92%	1,46%	1,41%	1,69%	1,98%	1,98%	4,20%	4,20%	4,20%	4,20%	4,20%	4,20%
Baseline price increase							1,98%	1,98%	1,98%	1,98%	1,98%	1,98%	1,98%	1,98%
Price effect of supply chain									2,23%	2,23%	2,23%	2,23%	2,23%	2,23%
Healthy temptation														
	Actual	Actual	Actual	Actual	Actual	Actual	Estimate	Estimate	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Market Size in m EUR	9.404,10	9.604,10	9.897,90	10.138,60	9.991,00	10.217,30	10.534,04	10.860,59	8.660,94	8.929,43	9.206,25	9.491,64	9.785,88	10.089,24
Volume in m kg	1.089,70	1.103,40	1.115,70	1.126,40	1.094,60	1.100,80	1.112,91	1.125,15	723,73	731,69	739,74	747,88	756,10	764,42
Price in EUR/kg	8,63	8,70	8,87	9,00	9,13	9,28	9,47	9,65	11,97	12,20	12,45	12,69	12,94	13,20
Total Price increase		0,86%	1,92%	1,46%	1,41%	1,69%	1,98%	1,98%	23,98%	1,98%	1,98%	1,98%	1,98%	1,98%
Baseline price increase							1,98%	1,98%	1,98%	1,98%	1,98%	1,98%	1,98%	1,98%
Price effect of health regulations									22%					
Sugar shock														
	Actual	Actual	Actual	Actual	Actual	Actual	Estimate	Estimate	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Market Size in m EUR	9.404,10	9.604,10	9.897,90	10.138,60	9.991,00	10.217,30	10.534,04	10.860,59	8.404,56	8.591,07	8.781,71	8.976,58	9.175,78	9.379,39
Volume in m kg	1.089,70	1.103,40	1.115,70	1.126,40	1.094,60	1.100,80	1.112,91	1.125,15	689,9	676,8	663,9	651,2	638,8	626,7
Price in EUR/kg	8,63	8,70	8,87	9,00	9,13	9,28	9,47	9,65	12,18	12,69	13,23	13,78	14,36	14,97
Total Price increase		0,86%	1,92%	1,46%	1,41%	1,69%	1,98%	1,98%	26,20%	4,20%	4,20%	4,20%	4,20%	4,20%
Baseline price increase							1,98%	1,98%	1,98%	1,98%	1,98%	1,98%	1,98%	1,98%
Price effect of supply chain									2,23%	2,23%	2,23%	2,23%	2,23%	2,23%
Price effect of health regulations									22%					

Appendix 7 - Ferrero Deutschland GmbH's Strengths and Weaknesses

Table 6: Ferrero Strengths | Source: Own Creation based on (Behle et al. 2023)

Strength	Description
Brand recognition and loyalty	Ferrero has a strong brand recognition and loyalty, which has helped it to maintain a competitive edge in the market. The company's flagship product, Nutella, is a household name and has a cult following around the world. Ferrero has also been successful in creating a strong brand identity for its other products, such as Ferrero Rocher and Kinder.
Global presence and network	Ferrero Deutschland GmbH is one of the international subsidiaries of the Italian parent company. This network provides a variety of experiences, partners, suppliers, and market knowledge. This extensive expertise can be utilized in the German market and has the potential to be a valuable resource for addressing supply challenges or developing new, attractive products based on international experience.
Private company	The German subsidiary of Ferrero SpA, a family-owned company in Italy, operates as a private business. This allows Ferrero Deutschland GmbH to make decisions without the constraints of short-term results often found in public ownership. Additionally, operating profits can be allocated toward long-term plans without being influenced by the reactions of capital markets.
Market position with retailers	The strong and cordial relationships with retailers are a notable strength of Ferrero Germany. These relationships foster collaboration and facilitate effective distribution channels, ultimately enhancing market penetration. Ferrero's ability to cultivate robust ties with retailers ensures not only optimal product placement and visibility, but also contributes to a favorable retail environment that fosters brand loyalty and consumer engagement. Strong relationships with retailers play a crucial role in maintaining the sustained market presence and competitive advantage of Ferrero Germany in the confectionery industry.
Capabilities in product development and innovation	There are two main objectives of Ferrero's product research and development. The first is to develop new products, while the second is to improve existing products with a focus on reducing production costs (Workshop). These strong capabilities are reflected in the successful launch of innovative products such as Nutella to go.
Operational excellence in manufacturing	One of Ferrero's key competencies in the confectionery industry is its ability to produce a wide variety of confectionery products of superior quality and consistent availability. This proficiency establishes the basis for numerous other strengths. In addition, when adjusting for new products or dealing with raw material supply constraints, production experience is an advantage.

Table 7: Ferrero Weaknesses | Source: Own Creation based on (Behle et al. 2023)

Weaknesses	Description
Strong focus on traditional confectionery	The current product portfolio of Ferrero Germany is focused on traditional confectionery products. Vegan and organic options or versions of popular products are currently not available, leaving Ferrero missing on growing markets and aligning with shifting customer demand.
Level of Digitalization	Digitalization is a key success factor for companies across all industries and plays a vital role in all business units from marketing to supply. Ferrero Deutschland GmbH identified its status of digitalization as being not on the level they are aiming at. For their marketing activities they assess a focus on conventional channels like TV and only small shares of the budget used for online marketing also showcasing a lower level of digitalization.
M&A activity and capabilities in German market	Ferrero's low M&A activity in Germany may indicate a lack of strategic focus or resources dedicated to this market. This could limit their growth potential and competitive positioning in the German confectionery and food industry.
Dependence on specific ingredients	Ferrero is mainly focusing on the production and distribution of products that contain chocolate and/or nuts like the worldwide recognized Nutella, Ferrero Rocher and Kinder Riegel. This dependence on ingredients could result in vast impact on production if shortages for one of these ingredients occurs.
Incorporation of trends	In the confectionery industry, new trends constantly arise, some of which are short-lived, providing a source of new opportunities. During the November 30 workshop, Ferrero's experts noted that the company is too hesitant and not agile enough in picking up on these trends. This inadequate approach poses a risk of falling behind in growth markets.

Appendix 8 – Forecast of Antidiabetic Drug Use in Germany

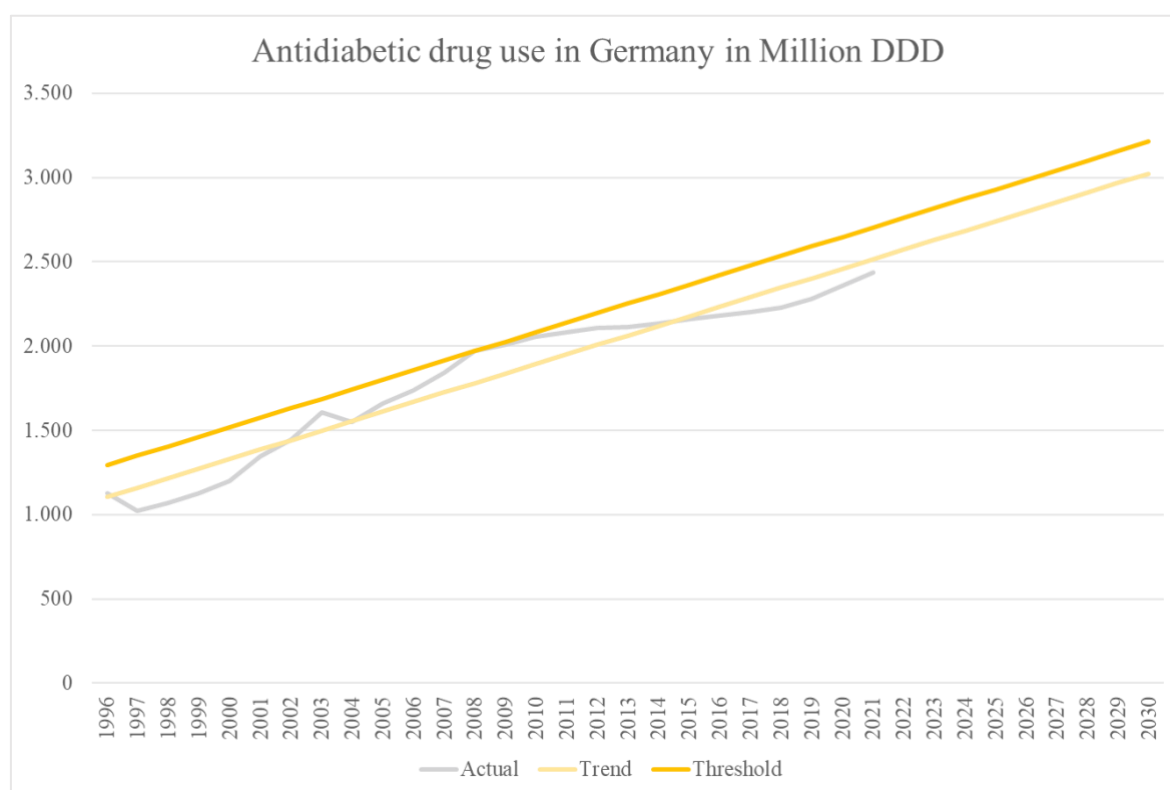


Figure 23: Forecast of Antidiabetic Drug Use in Germany | Source: Own Calculations based on IGES (2023)

Appendix 9 – Forecast of Health Expenditure in Germany

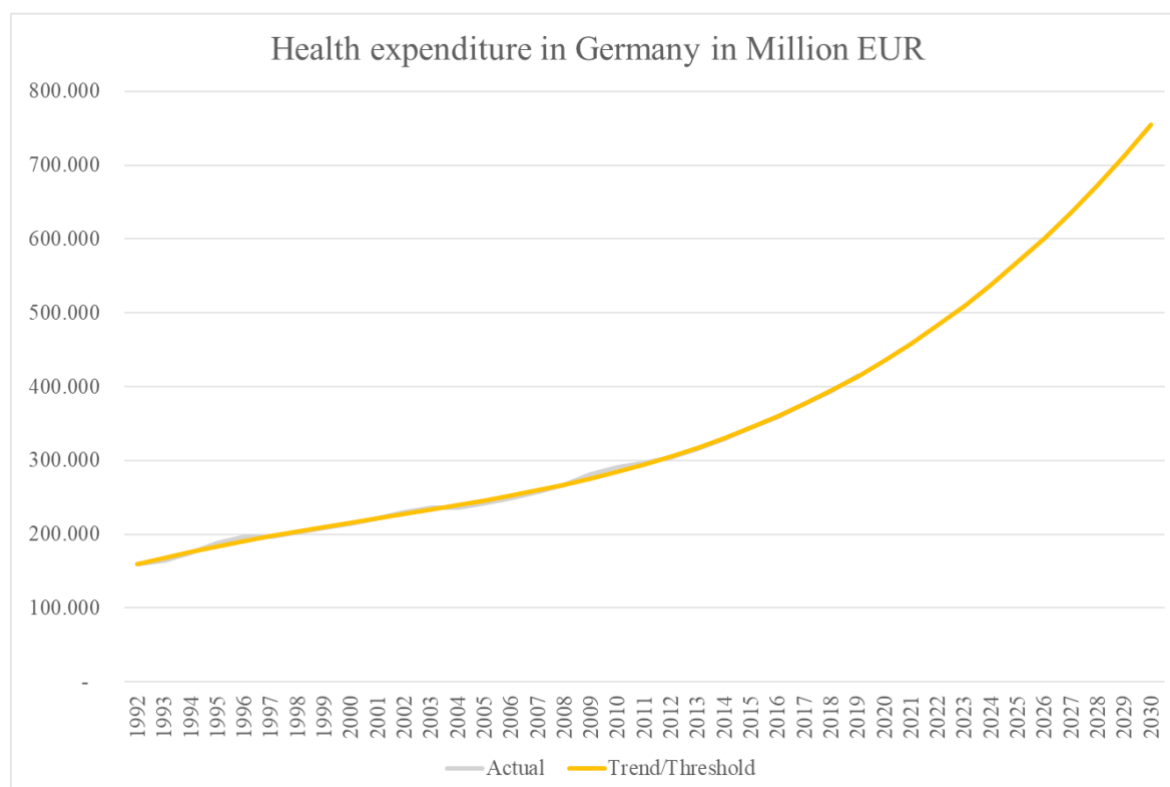


Figure 24: Forecast of Health Expenditure in Germany | Source: Own Calculations based on Statistisches Bundesamt (2023b)

Appendix 10 – Federal Assembly Poll Results [2013-2023]

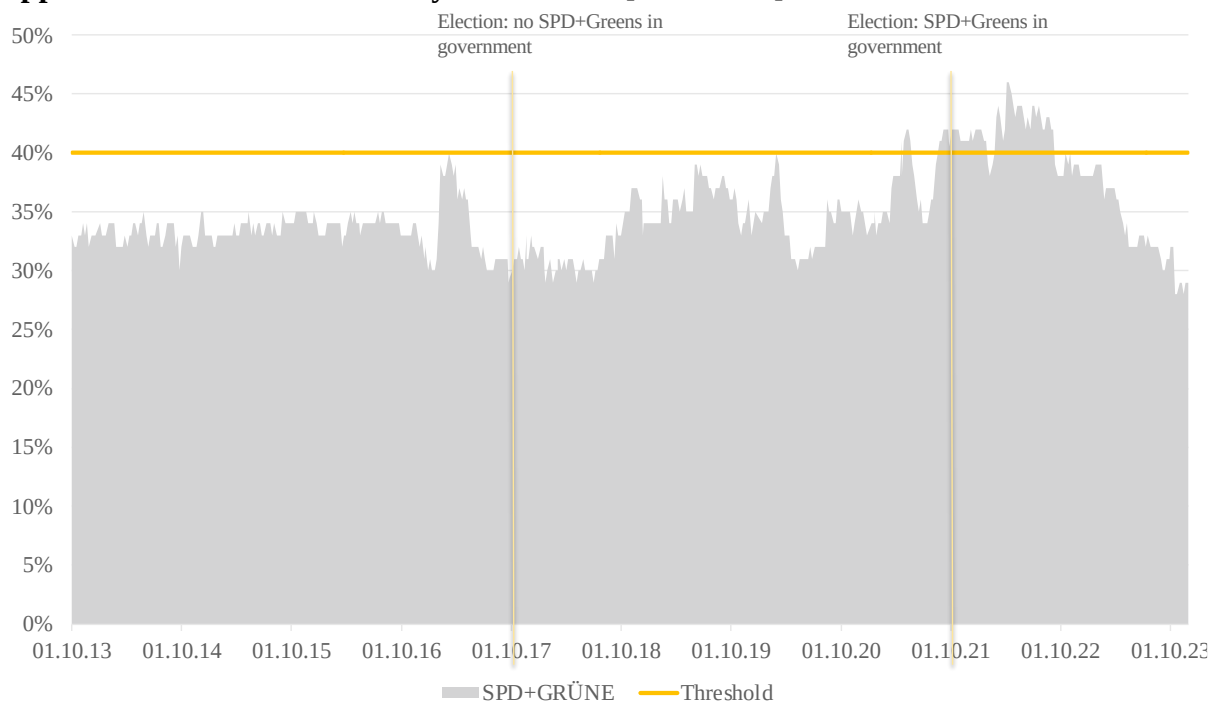


Figure 25: Federal Assembly Poll Results [2013-2023] | Source: Own Creation based on Forsa (2023)

Appendix 11 – Temperature Forecast for Ghana, Côte d'Ivoire and Nigeria

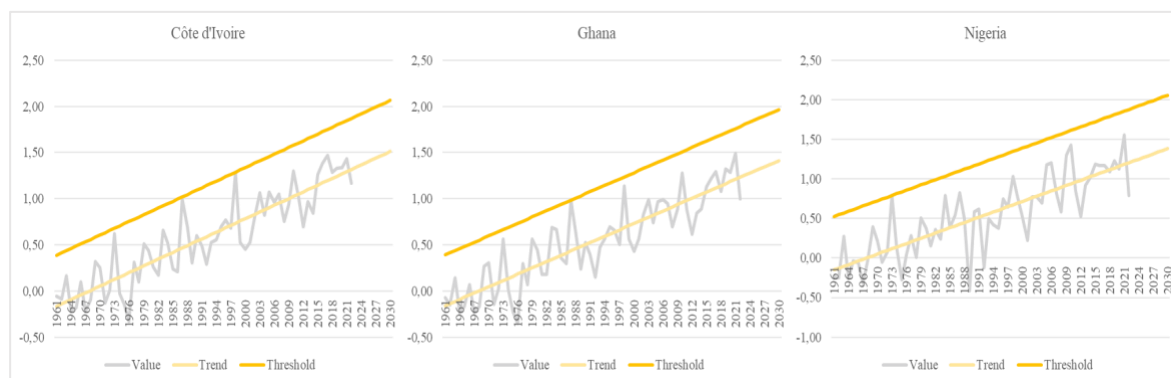


Figure 26: Temperature Forecast for Côte d'Ivoire, Ghana and Nigeria | Source: Own Calculation based on Food and Agriculture Organization of the United Nations (2023)

Appendix 12 – Forecast of Cocoa Price Index

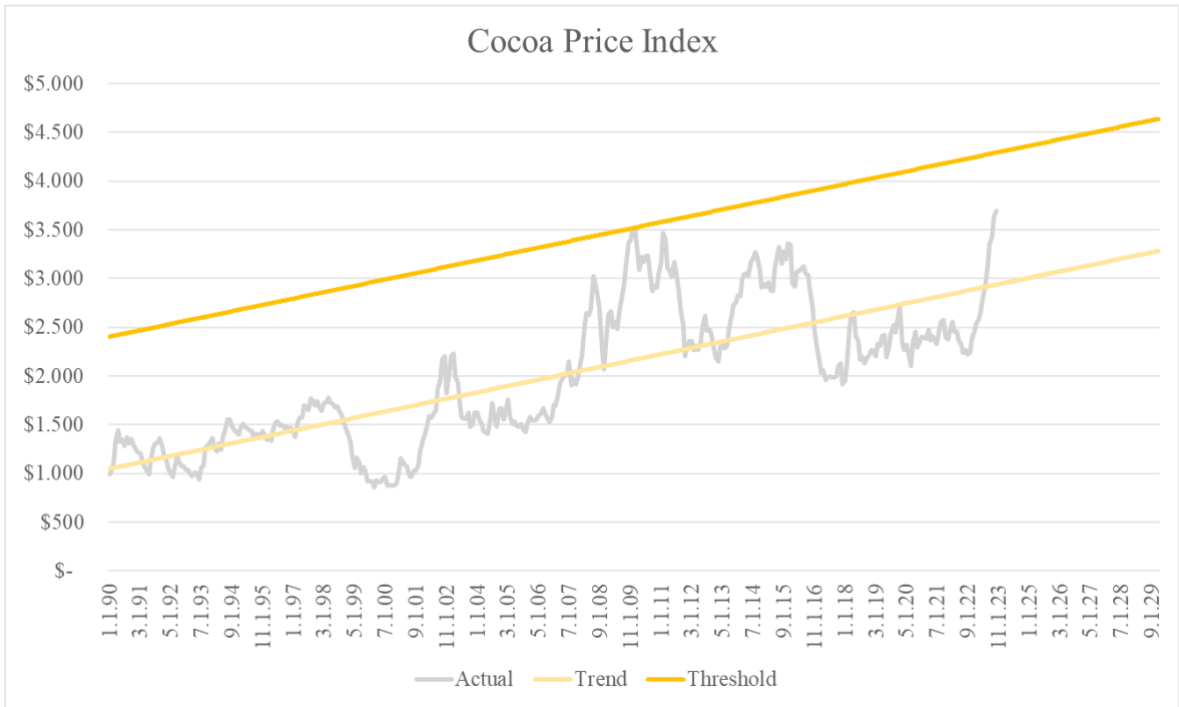


Figure 27: Forecast of Cocoa Price Index | Source: Own Calculation based on International Monetary Fund (2023)