



How did a niche wholesaler adapt its strategy in response to the challenges posed by the EU REACH regulation, leveraging its resources and dynamic capabilities?

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## Abstract

Since the EU's REACH regulation, the flavor and fragrance industry has faced significant challenges. Especially for small and medium-sized enterprises (SMEs) adapting to these stringent regulatory demands has been a complex and resource-intensive effort. This thesis investigates the strategic response of an anonymized wholesaler, WFF, to the regulation. A pedagogical case study is used in which students are given a real-world scenario to assess the strategic alignments. By utilizing semi-structured interviews and secondary data, it aims to explore the adaption through dynamic capabilities and strategic alignment. The main findings can be broken down into 3 main points: (1) The need for SMEs in the flavor and fragrance industry to adopt advanced technologies and innovation responses to regulative hurdles. (2) The importance of restructuring both internal and external processes to maintain compliance and efficiency. This includes revising business models to adapt to the evolving regulatory and market landscape. (3) The necessity for advanced risk management and strategic foresight and to leverage technological advancements and data sharing within the industry. This broad approach highlights the importance of holistic management practices in navigating industry regulations.

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## Resumo

Desde o regulamento REACH da UE, a indústria de aromas e fragrâncias tem enfrentado desafios significativos. Especialmente para as pequenas e médias empresas (PME), a adaptação a estas exigências regulamentares rigorosas tem sido um esforço complexo e intensivo em termos de recursos. Esta tese investiga a resposta estratégica de um grossista, a WFF, ao regulamento. É utilizado um estudo de caso pedagógico em que os alunos recebem um cenário real para avaliar os alinhamentos estratégicos. Através da utilização de entrevistas semiestruturadas e de dados secundários, pretende-se explorar a adaptação através de capacidades dinâmicas e do alinhamento estratégico. As principais conclusões podem ser divididas em 3 pontos principais: (1) A necessidade de as PME da indústria de aromas e fragrâncias adotarem tecnologias avançadas e respostas inovadoras aos obstáculos regulamentares. (2) A importância da reestruturação dos processos internos e externos para manter a conformidade e a eficiência. Isto inclui a revisão dos modelos empresariais para se adaptarem à evolução do panorama regulamentar e do mercado. (3) A necessidade de uma gestão avançada dos riscos e de uma previsão estratégica, tirando partido dos avanços tecnológicos e da partilha de dados no sector. Esta abordagem alargada realça a importância de práticas de gestão holísticas para navegar na regulamentação do sector.

**Título:** Como é que um grossista de nicho adaptou a sua estratégia em resposta aos desafios colocados pelo regulamento REACH da UE, tirando partido dos seus recursos e capacidades dinâmicas?

**Autor:** Niclas Schmidt

**Palavras-chave:** Capacidades Dinâmicas, Visão Baseada em Recursos, Regulamento da UE, Estratégias Cooperativas, Estratégias Adaptativas, Regulamento REACH, Indústria de Aromas e Fragrâncias, Óleo Essencial, Gestão Estratégica, Conformidade e Eficiência

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## List of Abbreviations

EU - European Union

REACH - Registration, Evaluation, Authorization, and Restriction of Chemicals

SMEs - Small and Medium-Sized Enterprises

NCS - Natural Complex Substances

ECHA - European Chemicals Agency

SIEFs - Substance Information Exchange Forums

CAGR- Compound Annual Growth Rate

MD - Managing Director

RM - REACH Manager

VRIO - Valuable, Rare, Inimitable, and Organized

RBV - Resource-Based View

VRIN - Valuable, Rare, Inimitable, Non-substitutable

DCV - Dynamic Capability View

SCA - Sustainable Competitive Advantage

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# 1. Introduction

Fine perfumes, flavored sodas, and luxurious soaps all share a common thread - they are products of the flavor and fragrance industry. This persuasive sector touches many parts of our daily lives by using essential oils to add a variety of tastes and scents to our everyday products. Numerous flavors and smells that affect these senses are provided by the natural world either directly or indirectly. Many thousands of plant species have been used to produce innumerable varieties of flavors and smells over time, which have made their way into daily life through essential oils (Coppen, 1995). In the global trade sector, the essential oil market stands out for its enormous scale and economic impact. In 2017, the world's essential oils production surpassed 150,000 tons a remarkable figure that shows a threefold increase in production as compared to 1990 and therefore portrays a high stage of development within the industry (Barbieri & Borsotto, 2018). The essential oils market weaves together various cultures of different geographies with its complex mix that comprises nature-sourced materials and long-extended supply chains (Barbieri & Borsotto, 2018).

In 2007, the European Union's (EU) Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH) regulation was enacted and put the industry in a state of shock. The regulation seeks to safeguard human health and the environment from the risks posed by chemicals. Despite its laudable goals, REACH poses substantial challenges for companies, including disproportionate compliance costs, demanding data requirements, and increased supply chain complexity (European Federation of Essential Oils, 2016). This regulation has not only impacted large corporations but also significantly affected small and medium-sized enterprises (SMEs), farmers, producers, and processors. The complexity of compliance with REACH has been a particular challenge for those handling essential oils, as Essential oils fall under the most complex category within REACH and are classified as Natural Complex Substances (NCS) in the industry (European Federation of Essential Oils, 2021).

This thesis investigates how a wholesaler in the fragrance and flavor industry, adapted its strategy in response to the challenges posed by the EU REACH regulation. It particularly focuses on how the company leveraged its resources and dynamic capabilities to navigate and thrive within this regulatory landscape. The company at the focus of this thesis, herein referred to as WFF, is an anonymized entity representing a real business within the flavor and fragrance industry.

## 1.1 Methodology

The main objective of this case study is to explore how WFF, a wholesaler in foreign trade specializing in essential oils, adapted its strategy in response to the EU REACH regulation. The focus is on understanding the strategic alignments, collaborative efforts, as well as IT transformations undertaken by the wholesaler. Not only to comply with the regulations but also to maintain and potentially enhance its competitive advantage in the face of future challenges.

For this case study a qualitative approach was adopted and conducted by utilizing semi-structured interviews. According to (Drever, 1995), semi-structured interviews are especially effective in qualitative research as they offer a certain flexibility enabling researchers to dive deeper into various topics, which enables a comprehensive analysis of complex topics. This format was suitable for the case study in the specific instance of WFF since it enabled a thorough examination of the company's strategic reaction to the REACH law and its implications for the company's long-term competitive standing.

In total six interviews were conducted to gather the primary data. These interviews can be divided as follows:

### **Internal Management Interviews:**

Three interviews with WFF's management. The main focus lies on the perspective on the strategic changes and the challenges confronted during the phase of adaption.

**Regulatory Perspective:** Two interviews with the head of regulatory affairs at WFF, aiming to gain valuable insights into the specific regulatory challenges and the company's compliance strategies.

### **External viewpoint:**

One interview with an industry expert, to provide an external perspective on the industry's overall response to the REACH regulations and to compare and contrast different approaches.

In order to guarantee that the information gathered was both pertinent and insightful, interview subjects were chosen based on their direct involvement in and knowledge of the study's pertinent fields. The interviews were held in German the native language of the participants. The approach aimed to facilitate a more open and detailed discussion, providing richer data for analysis. In addition to the primary data collected from the interviews, secondary data was used to complete and contextualize the findings. This included industry reports, academic articles, statements and press releases from associations and the European Union, general firm intern documents, and other relevant documents. These documents helped broaden the understanding of the industry's response to the REACH regulation and strategic alignments for companies such as WFF.

The primary and secondary data were analyzed to construct a comprehensive picture of WFF's strategic adaptation. This analysis aimed to identify the key patterns and insights regarding the company's response to regulatory challenges and its efforts to secure a competitive advantage in the evolving industry landscape.

## 2. Case Study

### 2.1 Introduction to the Industry and WFF

Fragrances have been used for therapeutic and recreational purposes for as long as humans have been, demonstrating our enduring fascination with the sense of smell (Berger, 2007). The first true period of perfumery as we know it began in the late 1800s when developments in organic chemistry allowed for the creation of new scents and the use of synthetic perfume ingredients (Berger, 2007). Major chemical discoveries more than 150 years ago inspired enterprising scientists and businesspeople to start the first flavor and fragrance companies, igniting the industry (Berger, 2007). This sector has grown into a very lucrative niche market over time. It provides services to retail businesses in the fragrance, food and beverage, cosmetics, toiletries, and domestic goods sectors. Private label and food service businesses are becoming more and more important in this industry (Berger, 2007).

This section examines the fundamentals of the industry, including its worldwide dynamics, market trends, and manufacturing subtleties. It also presents the distinct profile of WFF, a significant player that has developed in the sector for more than 60 years. This work intends to examine the industry's rapid expansion, which has been fueled by consumer demand for natural products, as well as WFF's calculated reaction to changes in the market and regulations.

#### 2.1.1 Overview of the Flavor and Fragrance Industry: Industry dynamics and trends

Using fragrances is a common human experience. Different smells and tastes have evolved into essential components of daily goods, ranging from food and drink to cosmetics, personal hygiene, and medications. These modifications frequently seek to enhance appearance or cover up offensive tastes and smells (Coppin J., 1995).

Essential oils are the most widely used natural scents. They are complex blends of terpenes and other aromatic or aliphatic chemicals that are created as secondary metabolites in specific secretory tissues of aromatic plants (Bakkali et al., 2008). Approximately 2000 of the 400,000 known species of aromatic and therapeutic plants are found in roughly 60 different botanical groups that contain plants that yield essential oils (Singh et al., 2014). Globally, essential oils are utilized extensively, and their

use is expanding because of the high demand for all-natural products in a variety of industries. As a result, huge volumes of essential oils are produced worldwide to support the aromatherapy, phytomedicine, and fragrance and taste businesses ((Baser & Husnu Can, 2009); (Can Başer & Buchbauer, 2015)). According to the analysis conducted by Grand View Research (2022), the current market value of the global essential oil industry stood at approximately USD 21.79 billion in 2022. With an expected compound growth rate (CAGR) of 7.9 % from 2023 to 2030.

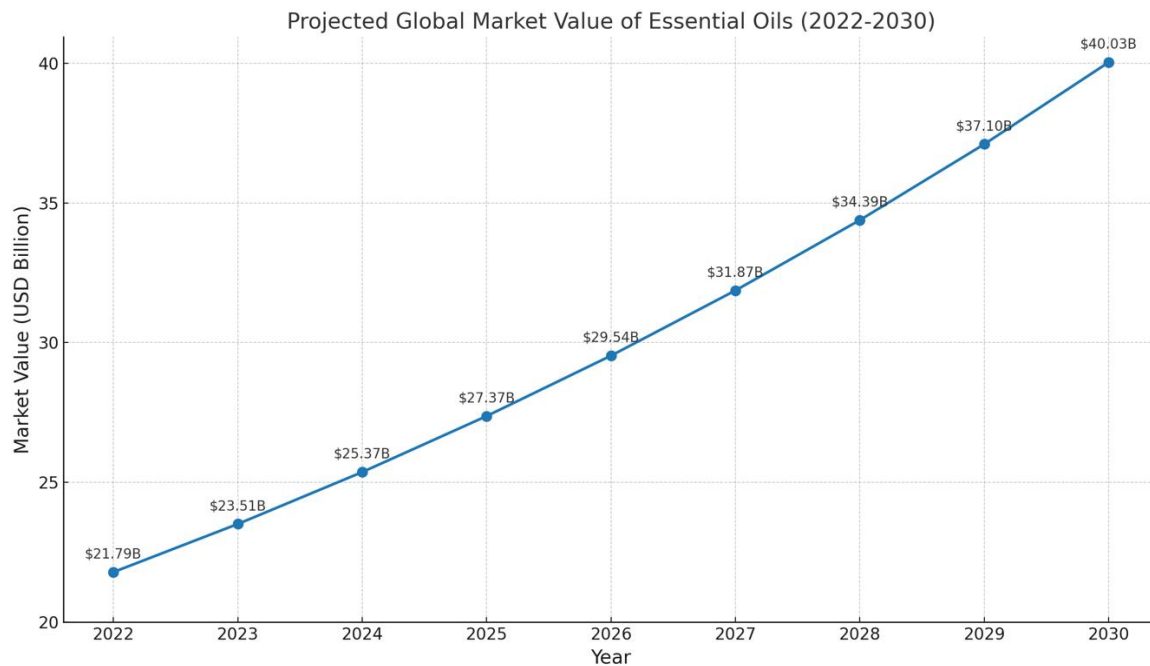


Figure 1: Projected Market Value of Essential Oils (2022-2030). Source: Grand View Research

Essential oils are produced globally, with Asia leading the charge through dominant contributors like China and India, complemented by nations like Indonesia, Sri Lanka, and Vietnam. Africa has its major players in Morocco, Tunisia, Egypt, and Algeria, while countries like South Africa and Kenya play smaller roles. North America, with the US, Canada, and Mexico, stands as another significant producer, while South American and Caribbean nations, including Argentina and Haiti, also contribute sizably. Europe and other Asian countries, such as France, Germany, and Japan, add to the global tally. Interestingly, 65% of global production stems from developing countries with lower-cost operations (Lawrence, 2009).

Approximately 600,000 ha of the 1.6 billion ha in agricultural output are used to produce essential oils worldwide, according to data from the European Federation of Essential Oils (2015). In the sector, there are about a million farms that produce goods: this amounts to 0.06% of the 1,600 million farms worldwide. With an estimated total production of 100,000 tons, the top three essential oil crops-

orange, mint, and lemon-account for more than two-thirds of all essential oil crop production (European Federation of Essential Oils, 2015). The essential oils sector is influenced by several market factors, the most important of which is the increasing consumer inclination towards natural products. This is reinforced by the growing acceptance of other relaxation therapies, including wellness services, aromatherapy, and the use of flavors and fragrances, all of which are supporting the expansion of the sector. Another driver for the market is the increase in disposable money due to improved living conditions and increasing knowledge about the harmful effects of chemicals (Barbieri & Borsotto,2018).

The inherent antibacterial and antiseptic properties of essential oils, combined with their aromatic flavors, have significantly increased their appeal, and use in a variety of industries. As raw material prices are expected to remain stable, which is crucial for the essential oils market, the market is predicted to remain stable as well. This hypothesis is in line with the industry's dependence on affordable and available raw materials, which guarantees stable market development for the foreseeable future (Barbieri & Borsotto, 2018).

Beyond the economic metrics, the industry's socio-environmental footprint is profound. Supporting approximately 1 million farms worldwide, it plays an integral role in bolstering local economies, especially in developing regions. Additionally, the cultivation practices associated with essential oils have commendable environmental benefits, fostering biodiversity and nurturing natural ecosystems (Barbieri & Borsotto, 2018).

### 2.1.2 Profile of WFF: Strategic Evolution and Market Positioning

Founded in 1960, WFF has undergone over 60 years of market development and has become a serious player within the flavor and fragrance industry combining tradition and forward-thinking practices. In 1996 the enterprise reached a significant milestone when leadership passed to a key figure in its history, marking the beginning of a new era. This strategic position was significantly strengthened in 2009 when a valued industry expert with more than two decades of experience in the sector became a shareholder. This move not only cemented the company's leadership but also brought in fresh perspectives for expansion, with two equal shareholders driving the company towards broader horizons. In 2020, the landscape changed again when WFF joined a large corporation, which meant the departure of its long-standing head and set the course for further growth and innovation.

With its 10,000 m<sup>2</sup> headquarters located in Hamburg, WFF has taken use of its advantageous location to acquire logistical advantages that are essential for efficient international trading. The site houses state-of-the-art offices, laboratories, and warehouses that are suitable for handling hazardous substances. These facilities enable the shipment of more than 1,000 different items all over the world.

This range serves food and beverage, cosmetics, aromatherapy, and oleoresin, as well as flavorings, absolutes, and resinoids. More than 500 different types of essential oils are included in this range.

WFF's commitment to maintaining high standards is reflected in its certifications, which include Kosher<sup>1</sup>, Organic<sup>2</sup>, and FSSC 22000<sup>3</sup> for food safety. The company's commitment also extends to future efforts with projects aimed at reducing its carbon footprint, achieving ISO 14001:2015 environmental management certification, and joining the Rainforest Alliance.

With a 25-million-euro turnover, WFF has a strong financial position, which is a result of its smart business management and customer-focused philosophy. The company, which employs twenty people, manages to deliver an astonishing two hundred thousand tons of product while cultivating a culture of knowledge and individualized care. The long-standing customer relationships, some of which extend over 15 years, confirm WFF's reliability in providing high-quality products and services. In order to sustain its market position, WFF has skillfully adjusted its strategy in response to increasingly strict laws such as EU REACH. Its broad industry expertise, strong supplier relationships, and flexible management demonstrate its ability to prosper in the ever-changing context of global trade. WFF is a shining example of a company that not only endures but prospers in the constantly changing landscape of international trade. Its development from its beginnings to its current position provides an engaging case study of how innovation, custom, and strategic business management are intertwined in the flavor and fragrance industry.

## 2.2 The REACH Regulation: Background and Impact

This chapter delves into the REACH Regulation, a key legislative framework within the European Union, focusing on its implications for environmental and human health protection, as well as its impact on the competitiveness of the chemical industry. The following sections provide a detailed overview of the regulation, covering its operational mechanics, and the different effects it has on businesses across the EU.

### 2.2.1 REACH Regulation: An Overview

The Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH) is a legislative framework of the European Union. The Reach Regulation is primarily intended to improve the protection of human health and the environment from the potential risks of chemical substances.

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<sup>1</sup> **Kosher**: Ensures adherence to Jewish dietary laws, emphasizing cleanliness and quality.

<sup>2</sup> **Organic**: Certifies products produced without synthetic pesticides, fertilizers, or GMOs, focusing on ecological sustainability.

<sup>3</sup> **FSSC 22000**: Food safety standard recognized by the Global Food Safety Initiative, ensuring effective food safety management.

However, it also aims to strengthen the competitiveness of the chemical industry in the EU. The European Chemistry Agency (ECHA) further states that the regulation supports the promotion of alternative methods for the hazard assessment of substances, in particular, to minimize animal testing (European Chemicals Agency, n.d.). The products affected by the REACH regulation cover a wide range of chemical substances. These are used in different contexts, ranging from industrial processes to everyday objects (European Chemicals Agency, n.d.). This wide application spectrum makes REACH influential across a broad range of companies within the EU. It is essential to understand that the burden of proof is shifted to the companies. They are obliged to identify, manage, and communicate the risks associated with the substances they manufacture or market in the EU. If the risks associated with certain substances are considered unmanageable, the authorities are authorized to restrict or even ban their use and promote the gradual replacement of hazardous substances with safer alternatives (European Chemicals Agency, n.d.).

The Impact of REACH extends to a wide range of companies across many sectors, even those that may not directly associate themselves with chemicals. Under REACH, the ECHA defines the different roles as follows:

- 1. Manufacturers:** Those who produce chemicals, for either their own use or for supply to others (including for export), have significant responsibilities under REACH. This includes ensuring safe usage and managing associated risks.
- 2. Importers:** Entities importing any products containing chemicals into the EU, whether they are individual chemicals, mixtures, or finished goods, must comply with REACH obligations.
- 3. Downstream Users:** Companies that handle chemicals in their industrial or professional activities, often unknowingly, are also subject to REACH's regulations and must understand their specific obligations.
- 4. Non-EU Companies:** While companies outside the EU are not directly subject to REACH, their EU-based importers or EU representatives must fulfill REACH requirements, including registration, for any exported products entering the EU.

To implement the REACH regulation, coordination with the European Commission and the ECHA is essential. The Commission is specifically involved in the approval process since it determines which materials require authorization and makes decisions regarding the distribution of approvals. The commission also approves restrictions spanning the EU (European Commission, n.d.). The ECHA set up a step-by-step registration process to facilitate compliance. In 2010, the first phase was applied to chemicals that accumulated to more than 1,000 tons or those that were

extremely dangerous. Substances produced or imported in amounts of 100 – 1,000 tons annually were the focus of the second phase in 2013. Materials ranging from 1 to 100 tons annually were the focus of the last phase in 2018. The aim was to use a methodical approach to create the world's largest chemical database. (European Chemicals Agency., 2015)

The registration process itself is based on the principle of “one substance, one registration”. This requires the manufacturers and importers of the same substance to prepare a joint registration. This approach avoids the duplication of testing and promotes data sharing. Companies are either encouraged to communicate in Substance Information Exchange Forums (SIEFs) or to organize in Consortia, with a Lead Registrant coordinating the preparation of a comprehensive Lead Dossier for submission to the ECHA. At the same time, downstream users must focus on compliance with the safety data sheets and the management of exposure scenarios and risks, while observing the guidelines specified by the manufacturers or importers (European Chemicals Agency, n.d.). The regulation's comprehensive approach towards chemical safety underscores its significance in safeguarding human health and the environment while fostering a responsible and competitive chemical industry in the EU.

### 2.2.2 Implementation and Operational Impact at WFF

The implementation of the EU REACH regulation at WFF was a significant process, that has affected the company at various levels. Under the leadership of the Managing Director (MD) and a firm in-house expert in the fields of chemistry and regulatory affairs, WFF has implemented a comprehensive REACH compliance system. This system is key for monitoring and managing the complex requirements that REACH places on the company. At the outset of the implementation, WFF took the necessary steps that included the pre-registration of potential substances and the creation of a complete portfolio for submission to the ECHA to lay a solid foundation for the regulatory challenges ahead. As the final deadlines for the registration approached, the regulatory affairs officer was supported by an external consultancy to structure the REACH product dossier.

The continuous registration at WFF follows an established procedure that includes annual monitoring of the imported tonnage of products. Further, a specially developed algorithm helps the company determine when the quantity of a certain product subject to registration exceeds the pre-registered quantities. The REACH Manager (RM) explains that the calculation of imported tonnages is a pivotal component of the work, as registering larger quantities will escalate the REACH-related costs. What makes it challenging is the fact that most of WFF's products have several areas of application. Products that find their way into the pharmaceutical and food industries are not subject to the REACH regulation and are therefore not included in the calculation of annual tonnage. The RM describes the

task to ascertain the application of products as very complex, as WFF's customers often obscure the end-user. In praxis, WFF has to follow the supply chain carefully and try to gather detailed information. Especially in the beginning, this resulted in a lack of understanding from the distributors, as they were either not willing to share that information or did not even know at the point, they bought a certain product. Although no inspections by the ECHA or other authorities have taken place at WFF to date, the company is prepared for such eventualities and constantly keeps its documentation and procedures up to date, reflecting its commitment to compliance and operational efficiency.

The introduction and implementation of the REACH regulation at WFF shows how the company has adapted to meet the extensive regulatory requirements. Through these adjustments, WFF was able to find an efficient and effective way to ensure compliance while maintaining operations.

## 2.3 Adapting the Strategy

In the ever-evolving global trade and environmental regulations landscape, WFF had to navigate complex challenges that demand strategic flexibility. The EU REACH regulation, designed to ensure the safety of chemicals and their potential impact on both human health and the environment, introduced significant changes that businesses had to accommodate. For WFF, this was not just about compliance but about survival, growth, and maintaining a competitive advantage.

### 2.3.1 Pre-REACH Strategy

Before the enforcement of REACH regulations, WFF's strategic orientation was heavily centered on a trade-focused approach, prioritizing direct sales and efficient distribution channels. The compliance requirements in the business model were primarily based on the compliance requirements of the customers. The focus was on the assurance of their product quality and safety that met the regulatory standards of the time. WFF's Quality Assurance was already a cornerstone of WFF's operations. The aim was to respond flexibly and with expertise to immediate customer needs. The company's competitive positioning in the market was secured through the availability and excellence of its products. Further, its reputation for reliability was well-established within the market. The Managing Director (MD) explains that at least for this industry, this customer-centric model cultivated a sense of confidence that the existing regulatory demands were sufficiently met without the need for stringent external oversight. Further, the fact that the company primarily trades in dangerous goods, a very thoroughly monitored industry sector, reinforced that impression. Due to this for the MD, the necessity for comprehensive regulatory compliance frameworks initially seemed questionable. Before the implementation, in general communication with clients was more straightforward and less intertwined with the complexities of regulatory observance. It was a simpler time when meeting

customer preferences and needs was the clear priority. Beyond that the MD elaborates that collaboration with other industry players was minimal and was mainly limited to matters such as crop development, market demands, and logistics. He explains that the protection of trade secrets, such as the quantities and different types of material, was considered closely guarded information, where the flow of information was strategic and cautious. For WFF this was a deliberate way to secure its place in a market where proprietary knowledge seemed to play a major role.

Before the implementation, Data Management Systems were initially set up to maximize operational efficiency with a particular focus on sales and customer care and primarily did not seem necessary for compliance matters. Investment in technology was primarily directed at enhancing operational efficiencies and improving customer interactions. Although the upcoming regulatory changes were anticipated, they did not yet catalyze the tactical distribution of available resources.

The MD considers WFF's approach in this pre-REACH era as symbolic of a time in the industry when customer requirements and market flexibility were the pivotal points on which companies orientated themselves to maintain their market dominance.

### 2.3.2 Adaptation to REACH

As the REACH regulation posed a unique challenge, WFF had to thoroughly rethink and adapt its business strategy. The impact of the regulation went beyond mere compliance, ranging from safety standards to customer relations and internal management processes. In response to the stringent regulations and changing market conditions, WFF began to significantly change its strategy and approach to compliance. This change included several steps to ensure that WFF's operations complied with the new regulations and to find new ways to grow and differentiate itself from the competition.

#### *Strategic Shift and Compliance Evolution*

The administration initially found itself in a phase of uncertainty, as the REACH requirements were not clearly defined, particularly concerning the categorization of essential oils. Therefore, WFF's initial approach to the REACH regulation was rooted in a profound understanding of its implications. The MD has experienced an increase in safety and quality requirements not only from the regulators but from the customers themselves. The MD quickly realized that the implementation of such regulation has fundamentally changed the industry's approach to safety and regulation. The previous strategy of conventional trading had to be reconsidered, as the new directives affected not only the sales process but also product evaluation and analysis, which had previously been primarily customer oriented. Recognizing the potential future challenges, WFF's management was forced to revise the

structure of its current understaffed Regulatory Affairs Department urgently. As a short-term reaction to this complex situation, the management decided to hire a new employee as a REACH Manager. Her sound chemical training provided a solid foundation, but she nevertheless had to deal intensively with the specific requirements of the REACH regulation. Hiring a specialist and integrating their insights into the company's strategy allowed WFF to demystify the complexities of REACH. In comparison and unlike WFF, other players within the market decided to fully outsource the REACH management to external consultants. An industry expert explains that even though this decision seemed cost-efficient in the first place, it resulted in challenges due to a lack of in-house expertise and slowed down internal operations. Due to these challenges and over time, many companies decided to establish their own regulatory affairs team to improve their strategic agility and regulatory responsiveness. For WFF, the newly acquired expertise provided the foundation upon which WFF has built its adaptive strategy, ensuring that the company wasn't just reactive but proactive in its approach. The MD explained that the key point was to be able to accurately evaluate what impact the REACH regulation would have on the current and future product portfolio. From his point of view, this was crucial to developing a sustainable long-term strategy that would both ensure compliance and guarantee operational efficiency. The MD describes this action as the first important step in adjusting the alignment and adapting the business model by transitioning from a traditional trading model to a service-orientated approach. Due to these investments, the company is now not only a distributor of essential oils but also a guarantor of the safety and compliance of its products. This service includes careful documentation, quality assurance, and compliance with all relevant standards. This differentiates the company from suppliers from third countries that may not be subject to the same strict EU regulations as well as increasing customer requirements. The MD further elaborates quality assurance is increasingly seen as an integral part of the value proposition. From his experience, European manufacturing companies are often willing to pay a higher price for tested and certified products, as this allows them to save on their costs and the time required for extensive safety checks. As a result, this increased safety and transparency has created a significant selling point and despite the higher costs of REACH compliance might have even created the company a competitive advantage.

### *Collaboration and Communication*

Another pivotal change and a clear departure from earlier practices was the need to collaborate with other businesses including potential competition. Through the form of consortia, companies were able to join forces and tackle the burdens and complexity of the regulations together. A key element

was the sharing of costs and tasks associated with the extensive testing and data collection, that was required to ensure the REACH compliance of the products subject to registration.

Within the consortia, the companies were able to establish intercompany practices that enhanced knowledge among the member firms. The MD explains that the collaboration resulted in a complementary collaboration from which many synergies have resulted. For example, some companies have great expertise in regulatory affairs, others have advanced data management systems, while for others the strength lies in the laboratory analysis of the products. The MD adds that effective governance, including the coordination and decision-making processes, had a positive impact on the transaction costs and processing time associated with the registration process. Even though the consortia approach aims to lower the costs, a market expert explained that many especially small market players decided to stop handling products subject to REACH, as their product volumes and margins were not in proportion to the associated REACH costs. The expert is certain that this resulted in a competitive advantage for larger players engaging and investing in consortiums. Although WFF's MD is certain about the benefits and necessity of such collaborative approaches, he elaborates that it also resulted in great uncertainty within the industry. This collaborative effort required companies to publicly disclose the types of products they were importing and processing as well as in what quantitative ranges. While the consortia provided a platform for the exchange of information and resources, member companies were keen to disclose as little as possible about the exact quantities of their products so as not to expose their competitive position. This cautious information policy reflected the concerns of the companies, which were reluctant to share their trade secrets with potential competitors despite existing confidentiality agreements. Communication within the consortia was therefore a constant balancing act between transparency and maintaining confidentiality. The companies had to agree on volume ranges without giving specific figures, which put trust and willingness to cooperate to the test. Such transparency was a marked change from the past when companies guarded this information closely to maintain competitive advantages.

The strategic realignment within the consortia required not only a reorganization of internal processes but also an intensive examination of the topic of communication. The MD and the RM played a crucial role in navigating these new requirements. Both argued that their engagement in open communication with customers and other market participants was crucial to engage in open communication to work towards their common goal of compliance and safety. The MD explained that although this shift towards transparency was challenging, it ultimately led to a more cooperative industry environment and fostered trust among stakeholders in the supply chain. From his point of view, this step toward collective responsibility has set a new standard for how companies operate within their sectors. Concurrent with the establishment of these consortia, the MD saw a notable

change in the company's strategy for client communication. Direct communication with customers became essential as a key component of the strategy realignment to comprehend the unique uses of products and their place in the market. To assure compliance with the complex criteria of REACH, businesses were required by law to make this shift towards more openness. For example, the Department of Regulatory Affairs was at the forefront of customer relations, working to clarify and record the various applications of its products. This is particularly crucial as a precise risk assessment and the development of safety precautions for each application depend on these discussions. Open communication and disclosure of the exact areas of application ensured that WFF was often able to better adapt to the customer. As an example, the MD mentions, that by keeping lines of communication open, the company was able to predict client wants better and with this knowledge was able to better negotiate prices at the source. In general, the MD is sure that this improved communication approach strengthened the company's commitment to safety, sustainability, and regulatory compliance while also bolstering customer trust.

### *IT Transformation*

Another important component of the company's strategic adjustment to meet the REACH requirements was capital investment in the IT sector. This decision was driven by the necessity to align with complex legal mandates efficiently and accurately. Key to this strategy was the overhaul of IT systems, that were engineered to update the processing of imports from non-EU regions and manage REACH registration numbers with precision. As a first step, it was important to integrate and establish an automated compliance tracking system for continuous monitoring and reporting of compliance status for imported goods. The MD explains that this was crucial, as this system not only ensured ongoing observance but also reduced the manual workload for the Regulatory Affairs Team. In addition, an interface between all involved departments was created, which enabled all parties to be informed about current import quantities, and REACH status and ultimately led to a sensitization of compliance matters. Due to the implementation of the tracking system, a robust data management system was needed. This involved strengthening the data storage and security protocols to safeguard sensitive compliance information. Building on this foundation, WFF further advanced its IT infrastructure by introducing a customer-centric platform, that allowed the customers to autonomously access the compliance documents and product analysis data. This platform not only expedited customer access to information but also significantly streamlined internal processes, effectively reducing response times for customer inquiries. Concurrent with this approach, a market expert explains that many industry players relied on off-the-shelf software solutions that were not

interlinked with the main Enterprise-Resource-Planning (ERP) systems. For many companies, this was a cost-effective solution that prevented the internal process from being disrupted.

In summation, WFF's MD puts the amount of the IT investment at around EUR 150,000, -. He goes on to explain, that the investments were a necessity that might even have resulted in a competitive advantage, as many competitors decided not to invest at an early stage, but over time had to readjust their strategy as the compliance burdens were too high. WFF's strategic IT investments have been integral to its ability to navigate through the landscape of compliance liabilities. The company's foresight in developing a dynamic and robust IT infrastructure highlights its commitment to operational quality and customer-centricity in an increasingly regulated global market.

### 3 Research Note

In the following chapter, literature and key theoretical frameworks in strategic planning and management are discussed. The objective is to provide a comprehensive theoretical background on how companies strategically respond to external challenges. This discussion aims to establish an understanding of the several tactics and capabilities organizations employ to adapt and thrive in the face of changes and market dynamics.

#### 3.1 Adaptive strategies

Businesses in the 21st century and previous decades have faced a variety of crises ranging from wars to economic downturns to natural disasters. These unpredictable challenges have required companies to recalibrate their decision-making processes and strategies to deal with these sudden systematic shocks (Wenzel M. et al., 2021). Analyzing previous crisis responses can serve as a beacon, providing modern-day managers with insights on how to navigate contemporary crises.

Wenzel et al.'s pivotal 2021 paper, "Strategic Responses to Crisis," emerged as a guiding document during this evolving business landscape. Published as the world grappled with the onset of the COVID-19 pandemic, this paper meticulously delineated the diverse strategic responses firms employ during crises, particularly those that are "sudden, unexpected, and massively disruptive" (Matthias Wenzel, 2021, p.8). Their extensive review unearthed four cardinal strategic responses: "retrenchment, persevering, innovating, and exit" (Wenzel M. et al., 2021, p.7). Delving deeper into Wenzel et al.'s findings, "retrenchment" is elucidated as a set of cost-cutting measures, potentially shrinking the firm's business range. While this might offer a short-term respite, especially during immediate revenue downturns, it can mistakenly cause long-term damage, such as the irreversible loss of synergies through asset divestment or other severe cost containment measures (Wenzel M. et al., 2021, p.9). The "persevering" strategy, on the other hand, advocates the continuation of the status

quo. This approach leans heavily on the availability of "slack resources", both internally and externally. While it offers a medium-term buffer against crises, the sustainability of this strategy in the long haul is debatable, as resources, both internal and external, could get depleted (Wenzel M. et al., 2021, p.11).

The "innovating" response is particularly noteworthy in our rapidly transforming business milieu. Here, firms embark on a journey of strategic renewal, potentially venturing into uncharted sectors, fortifying their corporate governance mechanisms, or even considering strategic acquisitions (Wenzel M. et al., 2021, p. 11). The profound societal and business repercussions of crises, as underscored by the COVID-19 pandemic, catalyze a reflective mode, nudging managers, and employees to challenge existing boundaries and envisage new possibilities (Wenzel M. et al., 2021, p. 13). In such transformative epochs, innovation-driven strategies could potentially be the cornerstone for firms aiming to not just weather the storm, but also to flourish in the post-crisis times. These responses, while distinct, aren't mutually exclusive and can be mapped to specific "time horizon" effects, indicating their potential outcomes.

Parallel to these strategic adaptations, there has been a discernible shift in how organizations perceive and address risks. Traditionally, the ethos of "risk avoidance" dominated, advocating for the complete elimination, or sidestepping of perceived threats. However, the modern dynamism of the business world, characterized by rapid changes and uncertainties, has catalyzed a transition to a more progressive "risk management" stance (Kaplan & Mikes, 2012). This evolved approach underscores the importance of proactive engagement with risks, acknowledging that in our complex business ecosystem, attempting to completely avert risks can be not only impractical but also limiting. When wisely managed, these risks can be transformed into gateways for growth and avenues for achieving greater returns (Kaplan & Mikes, 2012)

### 3.2 Resource Theory

The Resource-Based View (RBV) emphasizes the critical role a company's internal resources and capabilities play as determinants of its competitive edge (J. B. Barney, 1986). Founded by JB Barney in the late 1980s and early 1990s, RBV posits that not all resources hold equal strategic weight (J. Barney, 1991; J. B. Barney, 1986). Instead, resources characterized as Valuable, Rare, Inimitable, and Organized (VRIO) can set the stage for a sustainable competitive advantage.

In his foundational work in 1986 and 1991, Barney stressed that strategic choices should not just stem from external environmental scans but should also pivot on a profound understanding of a firm's unique skills and capabilities (J. B. Barney, 1986). He proposed that heterogeneous and immobile firm resources could become pivotal sources of long-term competitive advantage, especially if they

exhibit the four attributes of value, rareness, imperfect imitability, and non-substitutability (VRIN)(J. Barney, 1991).

In 1995, building upon these principles, Barney advanced the VRIN framework to VRIO, emphasizing that simple possession of resources isn't enough (J. B. Barney, 1995). They need to be strategically positioned, integrated, and coordinated to deliver true value. This framework was constructed through the prism of the SWOT analysis, balancing external (Opportunities and Threats) with internal (Strengths and Weaknesses) considerations (Barney, 1995). Offering a contrast to Michael Porter's Five Forces, Barney's perspective underlined that an inward focus, looking at a company's inherent strengths, is essential for discerning its competitive edge. He suggested that firms, regardless of their external adversities, can carve out competitive advantages by harnessing their internal strengths(J. B. Barney, 1995). For resources or capabilities to transmute into a lasting competitive advantage, Barney delineated four foundational criteria:

- Valuable: Resources should capacitate firms to exploit external opportunities or diminish threats(J. B. Barney, 1995, p. 50)
- Rare: Common resources, however valuable, don't confer a competitive edge. Rarity is what contributes to their strategic significance(J. B. Barney, 1995, p. 52)
- Inimitable: Hard-to-replicate resources can offer a distinct advantage. Such resources might derive from a firm's distinct history, a series of minor yet strategic decisions, or elements like reputation and trust (J. B. Barney, 1995, pp. 53–55)
- Organized: Firms need to be strategically aligned to harness these resources fully. Complementary assets, such as suitable compensation strategies and structural alignments, play a pivotal role in this (J. B. Barney, 1995, p. 56)

In conclusion, firms can hope to achieve and maintain a sustainable competitive advantage only when resources resonate with all four VRIO criteria. The RBV has been widely used to explain how firms can leverage their internal resources and capabilities to achieve and maintain competitive advantage. However, the RBV has also been criticized for being too simplistic and ignoring context's role in shaping organizational outcomes. Despite these criticisms, the RBV remains a valuable framework for understanding power dynamics in organizations.

Building on the RBV's emphasis on internal resources and capabilities, it is essential to understand the concept of competitive advantage. According to Peteraf and Barney (2003), competitive advantage can be defined as a firm's ability to generate more economic value than its competitors

within the same market. This includes an organization's capacity to surpass its breakeven competitors by producing higher financial returns, which suggests a stronger position in the market (Peteraf & Barney, 2003). Peteraf and Barney (2003) also highlight that firms will only achieve a competitive advantage if they can integrate different strategic resources and capabilities and not just excel in one category. The strength and sustainability of competitive advantage depend on how effectively a firm can develop and deploy its resources in a way that is not easily replicable by competitors. By doing this a company can create a unique value proposition in its market (Peteraf & Barney, 2003).

### 3.3 Dynamic Capabilities

Dynamic capabilities, a term coined by Teece, Pisano, and Shuen (1997), have garnered extensive attention within management science and related fields. This concept emerged as an extension of the firm's Resource-Based View (RBV), initially propounded by Barney (1986, 1991). A critical limitation of RBV, as noted by Barreto (2010), was its static nature that inadequately addressed firms' competitive advantages in rapidly changing environments.

Teece (2007) highlighted the shortfall of RBV in addressing the vitality essential in competitive and high-velocity markets. This necessitated the development of a paradigm that encompasses organizational agility and adaptability to diverse environmental shifts in the fields of technology, competition, and regulations. The Dynamic Capability View (DCV), which focuses on a company's capacity to integrate, develop, and reconfigure internal and external capabilities to navigate a dynamic environment, was the answer that led to the evolution of the discourse (Teece et al., 1997).

Barreto (2010) improved the framework and defined dynamic capabilities as a company's capacity for methodical problem resolution, highlighted by its capacity to identify opportunities and dangers in the market, make timely decisions focused on the market, and adapt its resource base. The multidimensional matrix included in this conceptualization will contribute to the advancement of the dynamic capabilities framework's research and development in the future (Barreto, 2010).

Skills, abilities, procedures, and routines are only a few of the attributes that make up the dynamic capabilities network (Barreto, 2010). Within this approach, Teece has identified three fundamental components: identifying (and molding) opportunities, seizing opportunities, and rearranging resources (2007). These components are the essence of dynamic capabilities, which allow businesses to recognize possible shifts in the market, efficiently mobilize resources, and realign organizational resources to capitalize on opportunities.

The discussion of dynamic capacities also considers the diversity of scholarly presumptions; some adhere to the RBV and support firm-specific and distinct capabilities, while others support commonalities within firms (Barreto, 2010). There is disagreement over whether having dynamic

capabilities in a company improves performance (Barreto, 2010; Teece et al., 1997). This disagreement also applies to the results related to those capabilities.

Particularly when considering the dynamics of the external environment, the operational context of dynamic capabilities is essential. Scholars exhibit varied opinions, associating dynamic capabilities with highly dynamic, moderately dynamic, or more stable environments (Barreto, 2010).

A nuanced aspect of the DCV is the disaggregation of dynamic capabilities into different clusters, enabling a firm to sense and shape opportunities and threats, seize identified opportunities, and maintain competitiveness through the assessment and reconfiguration of both tangible and intangible organizational assets (Easterby-Smith et al., 2009; Teece, 2007). This multifaceted view doesn't only aim for superior long-term performance but also fosters an idiosyncratic innovation drive and a broader reinvention of business processes and a firm's ecosystem.

Moreover, the DCV underscores the importance of effective and efficient integration of both internal and external resources. Internal resources pertain to assets and capabilities within organizational boundaries, while external resources could be accessed through strategic cooperation, alliances, or acquisitions, thus providing a conduit to assimilate further market knowledge and achieve Sustainable Competitive Advantage (SCA) through the absorption of extrinsic information and resources (Eisenhardt & Martin, 2000; Lin & Wu, 2014).

Teece also accentuated the role of entrepreneurial management in recognizing market disequilibria and deploying strategic resources and capabilities accordingly. (2007) The evolutionary and entrepreneurial fitness of an enterprise, as delineated by Helfat et al. (2007), hinges significantly on the managerial capacities to blend all three components of the DCV within the dynamic environmental influences (Barreto, 2010; Lin & Wu, 2014; Teece, 2007).

In summation, dynamic capabilities are pivotal for crafting and sustaining competitive advantage, allowing firms to navigate the tumultuous waters of market dynamism. While they present a robust framework for strategic management, it's paramount to recognize that dynamic capabilities aren't a cure-all for strategic challenges and necessitate a general approach possibly encompassing other strategic frameworks to ensure enduring competitive advantage (Arndt, 2019).

### 3.4 Cooperative Strategies

In the realm of strategic management research, cooperative strategies, particularly concerning inter-organizational relations, have gained significant attention. At the forefront of this exploration is the relational view, a framework suggesting that critical resources may not only be confined within firm boundaries but can also extend across them, serving as potent sources of inter-organizational competitive advantage (Dyer & Singh, 1998). This view is constructed on four foundational premises.

Firstly, investments by firms in relation-specific adaptations can lead to the creation of relation-specific assets, which are not only uniquely valuable but also arduous for competitors to replicate or substitute. Secondly, the establishment of interfirm routines that bolster knowledge sharing can result in synergies, thereby enabling partner firms to amalgamate and rearrange resources innovatively. Thirdly, when firms with complementary strategic endowments collaborate, a synergistic effect emerges, rendering the combined resources more valuable than if they were isolated. Lastly, the presence of efficient and effective governance mechanisms can curtail transaction costs, enhancing the overall benefits derived from interfirm collaborations (Dyer & Singh, 1998).

This perspective of the relational view diverges from traditional viewpoints, which primarily emphasize firm-specific assets as the chief source of competitive advantage. Instead, the relational view posits that resources, when accessed and amalgamated through interfirm relations, can serve as a robust differentiation and efficiency advantage (Dyer & Singh, 1998). This brings to light the concept of relational rents, defined as the supernormal profit conjointly produced in an exchange relationship, unattainable by either firm in isolation. Such profits emerge solely from the unique contributions of specific alliance partners. These relational rents have four determinants: relation-specific assets, knowledge-sharing routines, complementary resources/capabilities, and effective governance mechanisms (Dyer & Singh, 1998).

For managers aiming to harness the benefits of cooperative strategies, several implications arise from the relational view. Emphasizing investments in relation-specific assets can spawn unique value propositions. Furthermore, nurturing routines and mechanisms that promote interfirm knowledge dissemination can lead to pioneering solutions and methodologies (Child et al., 2019). Partnering with entities possessing complementary assets can result in a comprehensive and synergistic resource ensemble. Additionally, laying down clear and adept governance frameworks can minimize potential conflicts, ensuring seamless collaboration (Dyer & Singh, 1998).

## 4. Teaching Note

The case study is designed to help students apply the theoretical frameworks they learned to real-life cases. The frameworks outlined in the research note chapter should be taught beforehand.

### 4.1 Teaching Objectives

The primary goal of the following chapter is to enable students to understand how and why WFF had to adapt its competitive strategy in response to the regulatory introduction of the EU REACH regulation. This case study provides insights into how external factors like regulations impact a company's competitive advantage (CA) and how strategic concepts can assist in navigating such

challenges. Further, the case study uses the example of WFF to demonstrate the application of dynamic capabilities, as well as the advantages and disadvantages of cooperative strategies.

## 4.2 Teaching Audience

This case is suitable for undergraduate and postgraduate students in Management, Economics, and Business Administration. In particular, it is beneficial for coursework that concentrates on strategic management with a strong emphasis on how companies utilize dynamic capabilities to develop competitive advantages and engage in cooperative strategies to make strategic decisions. This approach aims to help students understand the complexities of strategic management in the face of regulatory changes and market dynamics.

## 4.3 Teaching approach

The case should be taught with prior knowledge of the theoretical frameworks that are outlined in the literature review. The approach integrates interactive discussions, the application of theoretical frameworks, and critical analysis.

Pre-Class Preparation: Students are encouraged to read the case study and the literature review chapters beforehand. This ensures they come to class with a foundational understanding of the company's situation concerning the REACH regulation and the relevant strategic management theories. The students are encouraged to answer a short quiz<sup>4</sup> about the case study to be completed before the class.

*Table 1: Class Structure*

<b>Session Phase</b>	<b>Duration</b>	<b>Objective</b>	<b>Activity</b>	<b>Process</b>
1. Introduction and Recap	10 minutes	Provide an overview of the WFF case study and session goals, assess prior knowledge	The instructor initiates with questions or quiz to engage students	N/A
2. Case Study Discussion	45 minutes	Engagement in an in-depth examination of the case study with specific focus areas	Class is divided into small groups, each with specific roles and aspects to analyze.	Each group has 10 minutes to discuss internally, then presents their

<sup>4</sup> See Appendix for the suggested quiz.

				findings to the class
3.Group Presentations and Discussion	30 minutes	Facilitate a broader discussion on WFF's strategic approach with peer feedback	Each group presents their findings, followed by a question-and-answer segment involving all students.	Structured feedback after each presentation.
Closing and Reflection	15 minutes	Summarize key learnings and encourage deeper reflection, note key takeaways	Students write down one key takeaway or question, prepare for the next class or assignment	Students share their takeaways, which can be discussed in the next session

#### 4.4 Discussion Points and Questions

1. Analyze how WFF adapted its strategy in response to the EU REACH regulation.
  - a) Discuss:
    - i. the strategic steps WFF took to align with these regulations.
    - ii. The impact on their operational process
    - iii. How this adaption influenced their market positioning
2. How did WFF utilize dynamic capabilities to respond to the REACH regulation?
3. Evaluate the role of cooperative strategies in WFF's response to the EU REACH regulation. Discuss the benefits and challenges associated with these cooperative strategies.
4. Using the VRIO framework, analyze WFF's response to REACH regulations in three areas: Strategic Shift, Collaboration and Communication, and IT Transformation. Determine how these adaptations contribute to WFF's competitive advantage in terms of value, rarity, imitability, and organization. Conclude with whether these strategies offer a sustainable competitive advantage.

#### 4.5 Expected Answers and Analysis

- 1) *Analyze how WFF adapted its strategy in response to the EU REACH regulation.*
  - a) *Discuss:*
    - i) *the strategic steps WFF took to align with these regulations.*

*ii) The impact on their operational process*

*iii) How this adaption influenced their market positioning*

This task will help students understand how WFF changed its strategy because of the EU REACH regulation. For students, it is important to understand the importance of investing in specialized expertise, as seen in the case of WFF by installing a new Regulatory Manager. This move illustrates how a deep understanding of new external challenges such as the regulative requirements is crucial to shape a long-term strategy. Students should note how WFF's shift from a traditional trading model to a service-orientated approach led to operational changes, such as emphasizing the need for robust documentation, quality assurance, and a customer-focused mindset. Further, the case highlights the role of technology in compliance, students should realize how the IT infrastructure enabled better handling of compliance data and customer engagement. The students should further acknowledge the role of collaboration dynamics in a competitive industry. In this case, forming consortia and open client communication were key to a successful adaption. Through this question, students are being educated on ways in which they can transform regulatory limitations into strategic benefits and comprehend various methods that enterprises deploy for both complying and achieving competitive advantage.

**Sample Solution:**

As a first response to the REACH regulation, WFF decided to invest in its expertise within the Regulatory Affairs department by hiring a new REACH and regulatory manager. Her sound scientific background enabled WFF to clarify the burdens of uncertainty with the new regulation. Further, it enabled the company to assess the potential regulatory impact on the current and future product portfolio. This helped the compliance management to become more streamlined and further laid the foundation for their sustainable long-term strategy ensuring both compliance and operational efficiency. In general, the strategic shift from a conventional trading model to a service-orientated approach had significant operational effects. Due to this shift, operations were obligated to ensure product safety and compliance, in addition to overseeing sales and distribution. This required the implementation of new procedures for documentation, quality assurance, and overall compliance reviews within the daily operations of WFF. Considering the higher demands raised by customers and regulatory authorities, the introduction of rigorous testing and certification procedures has gained greater significance. Therefore, a stronger focus on quality management emerged as a critical component of WFF's operations.

In further response, WFF decided to upgrade its overall IT system and infrastructure. The company showed commitment to the process by investing in its IT sector, amounting to approximately EUR 150,000. The cornerstone of this strategy was a complete overhaul of the existing IT infrastructure by integrating compliance data such as the processing of imports and managing the REACH registration numbers with enhanced precision. Pivotal to this step, was the integration of a system that allowed for continuous monitoring and reporting of the compliance status of the imported goods. Due to this not only compliance was insured but also the manual workload of the Regulatory Affairs Team was lowered significantly. Further, the IT overhaul included creating an interface that connected all relevant departments and resulted in an increased awareness and understanding of compliance matters within the company. A significant move towards enhancing customer engagement was the introduction of a platform that enabled customers to autonomously access compliance and analysis documents. This launch resulted in expedited customer access to critical information and streamlined internal processes. Due to this WFF was able to reduce customer response times and enhance its overall customer satisfaction.

Another crucial change was the collaboration with other market participants including their competition. The collaboration and the engagements in consortia marked a clear deviation from traditional approaches and initially generated considerable uncertainty. Nevertheless, WFF understood that joining forces would allow the market participants to tackle the burdens and complexity of the regulations together. The consortia took center stage and were instrumental resulting in sharing costs and tasks associated with extensive testing and data collection required for the new compliance tasks. Alongside the communication within the consortia, WFF underwent a notable change in its approach to communicating with clients. Due to the new requirements concerning the end-use application WFF had to shift their client communication to a more direct one. This contributed to a better understanding of customer needs and the ability to predict client preferences more accurately and modify the product lineup accordingly. In general, this resulted in improved communication that has strengthened WFF's regulatory compliance while increasing customer trust.

## *2. How did WFF utilize dynamic capabilities to respond to the REACH regulation?*

For the students, it is integral to analyze WFF's utilization of dynamic capabilities in response to the challenges posed by the REACH regulation to understand modern strategic management in a regulatory context. This examination provides a clear example of a company's adaptability and strategic decision-making when faced with inflexible and impactful external regulations. The case

highlights the importance of proactive management and resource reconfigurations. It aims to demonstrate how companies transform such challenges into opportunities for growth and competitive advantage. Students' understanding of academic topics is widened, and their critical thinking and problem-solving abilities are strengthened by this practical application of the principles. Due to the focus on WFF's strategic approach, the case study serves as a valuable tool for students to learn how to navigate complex business environments.

Sample Solution:

### **Identifying Opportunities and Threats:**

WFF demonstrated its capability to identify opportunities and threats by the early recognition posed by the EU REACH regulation. From an early stage, the company noticed a change toward safer and more sustainable products in the market. The management understood that compliance with the regulation was not just a legal necessity but also an opportunity to strengthen its position within the market. Strategic reactions such as the investment in new internal expertise as well as in the IT infrastructure show WFF's ability to identify opportunities in regulatory changes. This attentive approach allowed WFF to anticipate potential risks and opportunities. Recognizing these at the beginning endorsed WFF to strategically align its business operations not just to comply with the regulations but to leverage these changes in a way that resonated with the emerging market trends.

### **Seizing Opportunities:**

WFF showed strategic agility in responding to the EU REACH regulation by seizing new opportunities. The company's decision to invest in new internal expertise and enhance its IT infrastructure marks a pivotal shift in its approach to regulatory changes. This proactive adjustment marked the start of a radical shift in WFF's business model rather than just a compliance tactic. WFF began evolving from a traditional trading approach to a more service-orientated process, indicating a thorough integration of regulatory compliance into the company's fundamental business operations. This shift towards a service-orientated approach illustrates how WFF transformed regulatory compliance from an obligation into a strategic opportunity for growth and competitive advantage. WFF profited from the market's trend toward sustainability and safety by doing this. The ability to make quick, well-informed decisions that satisfy market trends and regulatory requirements is a crucial component of dynamic capabilities, as demonstrated by this choice.

### **Rearranging Resources:**

WFF demonstrated its ability to adapt by skillfully reallocating its resources and procedures. In order to comply with the new regulatory requirements, the company had to adjust by strategically changing

its internal operations and placing a greater emphasis on compliance and quality assurance. This reconfiguration was a part of WFF's broader transition towards a service-oriented business model. Central to this transformation was the enhancement of WFF's IT infrastructure, which played a crucial role in facilitating regulatory compliance and improving operational efficiency. The company's proactive approach in adopting these changes not only ensured adherence to the REACH requirements but also positioned WFF for sustained success in a constantly evolving regulatory and market environment.

*3. Evaluate the role of cooperative strategies in WFF's response to the EU REACH regulation. Discuss the benefits and challenges associated with these cooperative strategies.*

For students, the study of WFF's cooperative strategies in response to the EU REACH regulation offers key insights into strategic management within regulatory frameworks. Central to the relational view in strategic management this case illustrates how collaboration with competitors and other market participants can extend a company's resources and capabilities beyond its boundaries. By examining WFF's approach, students learn the importance of collaboration and shared resource utilization in overcoming complex regulatory challenges. They also gain an understanding of the balance between transparency and protecting competitive intelligence in cooperative environments. Additionally, this case highlights the significance of effective governance in managing collaborative efforts. In essence, this analysis equips students with practical knowledge of the benefits and challenges of cooperative strategies, enhancing their ability to navigate regulatory landscapes in their future careers strategically.

Sample Solution:

When evaluating WFF's role of cooperative strategies in response to the EU REACH regulation it becomes obvious that it played a vital role in navigating through the complex burdens of the regulation. In line with Dyer & Singh's definition of the relational view, the strategic response of WFF to the EU REACH regulation highlights that critical resources and competitive advantages can extend beyond firm boundaries. The strategic response of WFF to the regulation involved cooperation between other market participants including its competitors in the form of consortia. WFF and the consortium members aligned their resources and created a unique valuable asset that is tailored to tackle the hurdle of REACH compliance. By combining the different complementary strategic abilities WFF was able to get access to resources they did not have and without consortia would not have gotten. The exchange of know-how in laboratory analyses, data management, and regulatory

affairs demonstrated how combining corresponding resources can result in innovative and efficient solutions for complex regulatory challenges.

The shared expenses and risks of compliance were one of these consortia's main benefits. Each participating company might decrease the personal impact of these onerous compliance requirements by dividing the financial and operational costs among themselves. This cost-sharing strategy played a key role in lowering each company's overall burden and helping to make the difficult work of REACH compliance easier to handle. It turned out that the cooperation within the consortia also led to synergetic cooperation. Companies with different strengths and capabilities worked together and were thus able to pool their significant resources, making them more efficient than each unit. Apart from sharing resources, a culture of knowledge sharing developed. This knowledge sharing within the consortia was essential for the development of sound strategies and successful implementation. However, the cooperative strategies also bring some major challenges. For WFF a significant challenge was the trade-off between transparency with the other consortia members and the need to keep certain information confidential to protect their competitive intelligence. For WFF it was a fine line between ensuring to benefit from the collaboration effort without compromising competitive data to the competition. Further, the governance of the consortia required careful management. Establishing effective governance methods was crucial for coordinating actions and decision-making processes, aligning diverse interests, and ensuring the efficient operation of the consortia.

*4. Using the VRIO framework, analyze WFF's response to REACH regulations in three areas: Strategic Shift, Collaboration and Communication, and IT Transformation. Determine how these adaptations contribute to WFF's competitive advantage in terms of value, rarity, imitability, and organization. Conclude with whether these strategies offer a sustainable competitive advantage.*

For students, the VRIO analysis of WFF's adaptation to REACH regulations provides a comprehensive learning experience in applying strategic management theories to real-world regulatory challenges. By evaluating WFF's strategic shift, collaboration and communication efforts, and IT transformation, students learn to identify and analyze the value, rarity, imitability, and organizational support of various strategic initiatives. This exercise helps students understand how companies can develop and sustain a competitive advantage by aligning their strategies with external regulatory demands. Furthermore, the VRIO framework used in this analysis teaches students to critically assess not just the strengths of a company's strategies, but also their potential vulnerabilities and areas for improvement. Ultimately, this case study equips students with practical insights into strategic decision-making thereby enhancing their preparedness for complex strategic planning and management roles in their future careers.

Sample solution:

Strategic Aspect	V	R	I	O
	Value	Rarity	Imitability	Organization
Strategic Shift	YES	NO	YES	YES
Collaboration & Communication	YES	NO	YES	YES
IT Transformation	YES	NO	NO	YES

Figure 2: VRIO Framework

### Strategic Shift

*Value:* WFF’s approach and transition to a more service-orientated business model align with the market and regulatory demands. By ensuring compliance and offering value-added services the company improves its market position.

*Rarity:* While WFF’s strategic shift is creditable it may not be unique in the industry. Other firms might follow a similar approach in adapting their strategies in response to regulatory pressures.

*Imitability:* The replication of this strategic shift would require a deep understanding of the regulatory landscape and a restructuring of the business operations. This step is challenging but possible for competitors with adequate resources.

*Organization:* WFF appears well-organized to capitalize on this strategic change. Proactive measures, such as hiring a specialized Regulatory affairs manager, indicate strong internal support and alignment with this news strategy.

### Collaboration and Communication

*Value:* Engaging in consortia for collaborative problem-solving and maintaining an open line of communication with both competitors and customers adds significant value for WFF. It enables cost sharing, risk mitigation, and improved knowledge sharing.

*Rarity:* While the approach of collaborating within industry consortia is valuable, it is not entirely rare, other might also engage in similar collaborative efforts, especially in industries with complex regulatory environments.

*Imitability:* Establishing effective consortia and maintaining a balance between confidentiality requires specific skills and trust-building. Trustworthy communication requires a lot of experience, trust, and respect within the industry, which makes it difficult to imitate.

*Organization:* This collaborative and communicative effort seems to be well supported and leveraged by WFF's internal structure and processes. This demonstrates admirable organizational competence in this regard.

### **IT Transformation**

*Value:* WFF's agile IT infrastructure addresses the compliance needs under the REACH regulation and enhances customer service efficiently. This provides a clear value on operations and customer relations.

*Rarity:*

Given the fact that other market participants have also invested in IT for regulatory purposes, the transformation is not unique.

*Imitability:*

Even though the IT transformation is valuable, the presence of similar IT investments within the industry suggests that it can be imitated by competitors.

*Organization:*

The successful integration and utilization of the agile IT system indicates a high level of organizational support and capability. This ensures the company can exploit this asset fully.

## **5. Limitations**

This study, while comprehensive in its exploration of WFF's strategic response to the EU REACH regulation, encounters several limitations that must be acknowledged.

The case study primarily focuses on data and insights specific to a defined period during which the impact of REACH on WFF was most significant. This time limit means that ongoing developments or changes in strategies after the study are not considered, which could affect the long-term transferability of the results. Given the sensitive nature of compliance and regulatory data, some information provided by WFF may have been generalized or modified to ensure confidentiality. This could mean that while the study reflects authentic strategic and operational changes, specific details critical to these changes might have been altered or omitted. Further, the study focuses on a single entity within the flavor and fragrance industry which might limit the generalizability of the findings and may not fully represent the broader industry's response to similar regulatory changes.

The qualitative approach, primarily through semi-structured interviews, is subject to the biases and perceptions of the interviewees. The interpretation of responses and the subjective nature of qualitative analysis could influence the study's outcomes.

## 6. Conclusion

The introduction of the EU's REACH regulation has marked a significant turning point within the flavor and fragrance industry. Especially in the case of WFF, a wholesaler operating within the industry, it presented both challenges and opportunities. This thesis examines how the wholesaler navigated the complex regulatory landscape imposed by REACH, leveraging its resources and dynamic capabilities. Their strategy adjustments took place on three different levels encompassing strategic, operational, and technological transformations. These changes were implemented with strategic foresight and agility and were built on the capabilities that WFF had developed over the years. Due to a lack of clarity on the definition of the regulation, WFF found itself in a phase of uncertainty. WFF quickly realized that investments in human resources are crucial and as a short-term reaction, the management decided to install a new compliance manager. Due to her expertise, WFF was able to demystify the regulative requirements and was able to accurately evaluate what impact the challenge had on the company. Recognizing the evolving regulatory landscape and market demands, WFF decided to transition from a traditional trading model to a service-orientated approach. For WFF this strategy was pivotal in maintaining the company's competitive advantage and was instrumental in transforming the REACH challenges into opportunities for growth and market differentiation. On the operational side, WFF's strategy was characterized by enhanced collaboration and communication. It involved working closely with other businesses to collectively tackle the challenges brought about by the REACH regulation. This approach allowed to streamline processes such as sharing costs, extensive data testing, and collecting important data. Even though these actions were burdened with complexities around confidentiality and competitive positioning, they ultimately led to a more cooperative industry environment. Besides, WFF's emphasis on more open client communication must also be marked as an important operational change. The open client dialogue allowed for a deeper understanding of the client's needs and applications thereby improving operational efficiency and customer satisfaction. On the technological side, WFF's strategic IT investments were another key response to the new regulatory demands. By integrating automated compliance tracking as well as a customer database, WFF achieved a significant advancement due to improved responsiveness to customer inquiries resulting in greater customer satisfaction. Further, it streamlined processes within the different departments and ultimately resulted in a reduced manual workload.

The EU REACH regulations have catalyzed a fundamental shift in the industry, underscoring the need for companies to transition from traditional manufacturing paradigms to more technology and compliance-focused approaches. This shift is not only about adapting to current regulations but also

about anticipating future trends and challenges. For WFF and similar companies, this means embracing a more integrated approach that combines product innovation with environmental and health considerations. The evolving business environment, characterized by increasing regulatory scrutiny and consumer awareness, presents new challenges and opportunities for the flavor and fragrance industry. WFF's proactive and strategic response to the REACH regulations serves as a model for other companies in the industry. In the future, the ability to anticipate market trends, invest in emerging technologies, and foster transparent and collaborative supply chain relationships will be crucial in securing a competitive edge.

## 7. Appendix

### Appendix A: Interview Transcripts

Given the confidential nature of the company's strategies, the thesis and the following interview transcripts were anonymized to protect the company's position in the market. Consequently, the following transcription provides a summary of the key points gained from the interviews. Further, the transcripts were translated from German and written in answer format for most questions.

**Introduction:**

Hello and welcome to today's interview!

I appreciate you taking the time and I am curious to discuss your role of regulatory practices in the industry concerning the REACH regulation. In this 45-minute session, I hope to gain a deeper insight into the operational challenges and strategic adaptations required by REACH. Through our conversation, I aim to document the practical aspects of regulatory management and the impact such regulations have on a company's operations and decision-making processes.

**Initial Questions:**

1. Can you describe your role and responsibility in the company?
2. What initial steps did you take in dealing with REACH?
3. What does the registration process for new products look like?
4. What is the cost structure like, and what role do consortia play?
5. Strategic Compliance and Adaption

**Strategic Compliance and Adaptation**

6. What changes has REACH brought to your company?
7. How important are collaboration and communication to the company?
8. How do you stay updated with REACH?
9. How does REACH affect your business relationships?

Table 3: Outline Answers Regulatory Affairs Interview

Question	Overview Answers (summarized)
<p>1. Can you describe your role and responsibility in the company?</p>	<p>I am the Regulatory Affairs Manager, my role encompasses a broad spectrum of responsibilities. I am the point of contact for all regulatory-related customer service matters and also act as the project manager for the safety data sheets, essentially becoming the steward of hazardous substance management and compliance within our company.</p>
<p>What initial steps did you take in dealing with REACH?</p>	<p>Upon my integration into the company, I found that REACH had already been initiated to some extent, with prior steps including pre-registration of potential substances and a comprehensive registration of our entire product portfolio at the Chemical Agency. To navigate the complexities of the REACH dossier, we engaged with external consultants who provided one or two specialized training and assisted significantly in structuring the dossier for submission.</p>
<p>What does the registration process for new products look like?</p>	<p>Our registration process for new products is methodical, starting with monitoring of imported tonnages. This is crucial as crossing certain tonnage thresholds necessitates registration. We engage with consortia for discussions, and if registration is warranted, we modify existing dossiers and submit them through the Chemical Agency's system. This step involves a series of adjustments to the dossiers, such as updating tonnage, integrating analytics, and verifying contact information before the final submission.</p>

<p>What is the cost structure like, and what role do consortia play?</p>	<p>The cost structure for registrations is multifaceted, influenced by factors like the size of the company and the tonnage of substances to be registered. Consortia play a pivotal role as they facilitate cost-sharing and collective action for registrations. As more companies join a consortium post-registration, costs are redistributed, often leading to refunds for earlier participants. The dynamic nature of consortia and their impact on cost is an integral aspect of the REACH process.</p>
<p>What changes has REACH brought to the company?</p>	<p>The advent of REACH initially imposed a considerable workload due to the need for numerous registrations, a task that has since stabilized. Annually, I allocate time for overview and potential registrations. This involves collaborative efforts with the purchasing and sales departments to ensure compliance, particularly for products that do not enter the food industry and thus require a different approach under REACH regulations.</p>
<p>How important are collaboration and communication to you?</p>	<p>An Effective collaboration and communication is one of my key roles. Especially the communication within consortia is crucial as the shared resources and information are keystones of a successful REACH compliance. My interaction with other companies, both as competitors and collaborators, is crucial to staying ahead in the regulatory landscape and ensuring that we collectively meet industry standards.</p>
<p>How do you stay updated with REACH?</p>	<p>I rely heavily on newsletters from ECHA and updates from industry associations. They keep</p>

	<p>us informed about legislative changes and new regulatory requirements. This ongoing information flow is important to ensure that we adapt our compliance strategies in a timely and efficient manner.</p>
<p>How does REACH affect your business relationships?</p>	<p>Our comprehensive approach to REACH compliance has become a cornerstone of our business relationships. Trust and confidence among our clients, particularly those who are large-scale operators and place a premium on the registration of substances, became more and more important. Our broad portfolio of registered substances has proved to be a strategic advantage in our sales and marketing initiatives.</p>

*Table 4: Managing Director Interview Guide:*

Hello and welcome to the interview!

Thank you for taking your time to talk to me. The interview will take roughly 45 minutes. In the course of my Master Studies at Católica Lisbon University I am writing my thesis on how a niche wholesaler adapted its strategy in response to the REACH regulation. The case study will be set in a strategic management framework based on my master course: Management with specialization in strategy, entrepreneurship, and impact.

Questions:

1. How has your role as Managing Director and shareholder at WFF shaped your experiences and perspectives regarding the introduction and adaptation to the REACH regulation?
2. How did the introduction of REACH regulations initially impact WFF, especially regarding the categorization of essential oils?
3. What strategic shifts and adaptations were necessary for WFF to comply with REACH?
4. How did hiring a specialized REACH officer contribute to WFF's strategy in handling REACH regulation?
5. In what ways did the implementation of REACH regulation change WFF's business model and value proposition to customers?
6. How did the need for collaboration with other businesses, including competitors, shape WFF's approach to REACH compliance?
7. What challenges and benefits did WFF encounter in the consortia, especially in terms of information sharing and maintaining competitive advantage? How did the strategic realignment within consortia impact WFF's internal processes and communication strategies?
8. What specific improvements were made to WFF's IT infrastructure to comply with REACH, and how did these changes impact the company's operations?
9. How has investing in an agile IT strategy given WFF a competitive edge in the industry?
10. In what ways has the IT transformation influenced customer satisfaction and the company's brand?

Table 5: Outline Answers Management Interview

Question	Overview Answers (summarized)
<p>How did the introduction of REACH regulations initially impact WFF, especially regarding the categorization of essential oils?</p>	<p>Initially, there was significant uncertainty about the implications of REACH, especially concerning the categorization of essential oils. We had to develop a deep understanding of these regulations and their industry-wide impact, which fundamentally altered our approach to product safety and regulation</p>
<p>What strategic shifts and adaptations were necessary for WFF to comply with REACH?</p>	<p>We have realized that revising our business model from traditional trading to a more service-oriented approach could be beneficial and seemed to be necessary. This change was crucial for ensuring compliance with the new safety and quality requirements, both from regulators and customers. The adaptation involved restructuring our Regulatory Affairs department and hiring a REACH officer to navigate these complex requirements.</p>
<p>How did hiring a specialized REACH officer contribute to WFF's strategy in handling REACH regulation?</p>	<p>Hiring a specialist with a strong background in chemistry helped us demystify the complexities of REACH. This step was important in developing a proactive strategy to assess the impact of REACH on our product portfolio and to create a sustainable long-term strategy for compliance and operational efficiency.</p>
<p>In what ways did the implementation of REACH regulation change WFF's business model and value proposition to customers?</p>	<p>The implementation of REACH led us to transition from merely distributing essential oils to ensuring their safety and compliance. This shift included providing detailed documentation, quality assurance, and adhering to relevant standards, thus differentiating us from suppliers in non-EU countries. Quality</p>

	assurance became a crucial part of our value proposition, as European manufacturers were willing to pay more for tested and certified products.
How did the need for collaboration with other businesses, including competitors, shape WFF's approach to REACH compliance?	The shift towards collaboration was a significant change. Forming consortia became central, enabling us to share costs and tasks for extensive testing and data collection required for REACH compliance. This collaboration led to enhanced knowledge sharing, cost savings, and efficiency in the registration process.
What challenges and benefits did WFF encounter in the consortia, especially in terms of information sharing and maintaining competitive advantage?	While consortia provided a platform for collaboration, they also brought challenges. We had to balance transparency with protecting competitive intelligence. This meant sharing enough information for compliance while safeguarding specific product quantities. This strategic balancing act was crucial for maintaining trust and cooperation within the consortia.
How did the strategic realignment within consortia impact WFF's internal processes and communication strategies?	The strategic realignment required us to reorganize our internal processes, particularly in communication. We had to engage more openly with both customers and competitors, leading to a more cooperative industry environment. This shift towards collective responsibility improved compliance and set new standards for industry operation
How did the implementation of REACH regulations drive the strategic IT changes at WFF?	The implementation of REACH regulations necessitated significant IT changes. We focused on developing systems that could process imports from non-EU regions efficiently and manage REACH registration numbers

	accurately. These changes were essential to meet the new legal requirements and ensure smooth registration processes
What specific improvements were made to WFF's IT infrastructure to comply with REACH, and how did these changes impact the company's operations?	We upgraded our IT infrastructure to handle complex data setups and provide clear evidence of compliance with REACH regulations. This included systems for sharing and storing information, tracking temporary registration numbers, and improving data management procedures. These enhancements were crucial in maintaining regulatory compliance transparency and enabled us to respond more promptly to client inquiries.
How has investing in an agile IT strategy given WFF a competitive edge in the industry?	Our investment in an agile IT strategy has given us a distinct competitive advantage. Unlike some competitors, our IT systems are not just about keeping up with industry trends; they're designed to quickly adapt to changing regulatory requirements and meet unique customer needs. This agility makes our organization more resilient and adaptable, which is crucial in a constantly changing compliance environment
In what ways has the IT transformation influenced customer satisfaction and the company's brand?	The IT transformation has had a positive impact on customer satisfaction and our brand. By providing efficient compliance documents and maintaining a high level of regulatory compliance transparency, we have strengthened our brand reputation. Our advanced IT capabilities have also enhanced customer trust and satisfaction by ensuring that we can address their needs and inquiries effectively.

Table 6: Interview Guide Industry Expert

<p>Hello and welcome to the interview!</p> <p>Thank you for taking your time to talk to me. The interview will take roughly 20 minutes. In the course of my Master Studies at Católica Lisbon University I am writing my thesis on how a niche wholesaler adapted its strategy in response to the REACH regulation. The case study will be set in a strategic management framework based on my master course: Management with specialization in strategy, entrepreneurship, and impact.</p> <p>Questions:</p> <ol style="list-style-type: none"> <li>1. Having spent 35 years in the industry and now working as a consultant, can you summarize how in your experience the industry’s adaption to REACH was?</li> <li>2. In a broad sense, what has been the overarching effect of REACH regulations on the industry's operational and strategic approaches?</li> <li>3. How have different companies approached the management of REACH obligations, particularly regarding outsourcing versus developing in-house capabilities?</li> <li>4. What strategic shifts have occurred in product management as a direct response to REACH, particularly for smaller players versus larger corporations?</li> <li>5. What trends have you observed in the adoption of IT systems to facilitate REACH compliance, and how have these systems affected internal processes?</li> </ol>
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Table 7: Outline Answers Industry Expert Interview

Question	Overview Answers (summarized)
How have different companies approached the management of REACH obligations, particularly regarding outsourcing versus developing in-house capabilities?	Initially, some companies outsourced REACH management to external consultants to minimize costs, which later resulted in a lack of in-house regulatory expertise and operational inefficiencies
What strategic shifts have occurred in product management as a direct response to REACH, particularly for smaller players versus larger corporations?	To enhance responsiveness and agility, companies gradually built up internal regulatory teams, recognizing the value of in-house expertise for strategic flexibility.

<p>What strategic shifts have occurred in product management as a direct response to REACH, particularly for smaller players versus larger corporations?</p>	<p>Smaller companies often ceased handling products subject to REACH due to the high costs relative to their sales volumes, which inadvertently benefited larger players who could afford to invest in compliance</p>
<p>What trends have you observed in the adoption of IT systems to facilitate REACH compliance, and how have these systems affected internal processes?</p>	<p>A common strategy was to adopt off-the-shelf software solutions for REACH compliance, which were cost-effective and minimized disruption to core business processes</p>

## Appendix B: Teaching Material

### Quiz Questions:

1. What industry does the company (WFF) operate in?
  - a) Automotive
  - b) Pharmaceuticals
  - c) Flavor and Fragrance
  - d) Textiles
  
2. What was the primary method used for data collection in the case study of WFF?
  - a) Surveys
  - b) Semi-structured interviews
  - c) Observational studies
  - d) Experimental research
  
3. What is the primary focus of the EU REACH regulation, enacted in 2007?
  - a) Promoting global trade
  - b) Protecting human health and the environment from chemical risks
  - c) Increasing the profitability of chemical companies
  - d) Streamlining the supply chain for chemical products

4. Before the enforcement of REACH regulations, what was WFF's primary strategic focus?
- a) Environment-focused
  - b) Trade-focused
  - c) Technology-focused
  - d) Marketing-focused
5. What significant challenge did WFF face due to REACH regulation?
- a) Reducing production costs
  - b) Complying with complex legal mandates
  - c) Expanding its market reach
  - d) Developing new products
6. How has the EU REACH regulation specifically influenced the strategic decisions and operations of WFF?"
- a) It has led WFF to focus exclusively on non-EU markets to avoid compliance.
  - b) WFF has had to significantly rethink and adapt its business model to ensure compliance.
  - c) The regulation has had minimal impact, allowing WFF to continue its operations as before.
  - d) WFF chose to exit the EU market entirely due to the complexities of the regulation.
7. How did WFF's strategy change in response to the REACH regulations?
- a) Shifted from service-oriented to production-oriented
  - b) Focused more on international trade
  - c) Transitioned from a traditional trading model to a service-oriented approach
  - d) Decreased emphasis on quality assurance
8. What role did IT transformation play in WFF's adaptation to REACH regulations?
- a) Decreased operational costs
  - b) Enhanced customer engagement and compliance tracking
  - c) Focused only on marketing
  - d) Reduced product variety
9. What was one of the major operational changes WFF had to adapt due to the REACH regulation?
- a) Transition to a fully automated production system
  - b) Implementation of a new marketing strategy

c) Adoption of cooperative strategies including consortia

d) Complete overhaul of its product portfolio

10. Which of the following is NOT identified as a crucial factor for companies in the flavor and fragrance industry to secure a competitive edge in the future?

a) Anticipating market trends and investing in emerging technologies

b) Fostering transparent and collaborative supply chain relationships

c) Prioritizing traditional manufacturing paradigms over environmental considerations

d) Embracing integrated approaches combining product innovation with environmental and health considerations

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