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Group Part

Beyond the Pill: A Case Study on Pfizer's Corporate Strategy

Individual Part

Navigating Transformative Technology: How Pfizer and Biontech's Alliance Reflects the Build, Borrow, Buy Strategy

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Abstract

This paper presents a case study on Pfizer from 2013 to 2023, examining the restructurings under the CEOs Ian Read and Albert Bourla, including Bourla's focus on innovative pharmaceuticals and the debate of the costs and benefits of streamlining operations against those of diversification, within the pharmaceutical industry's dynamic competitive landscape. It also analyses Pfizer's strategic shift to mRNA technology through its BioNTech partnership, specifically in developing the first COVID-19 vaccine, using the Resource Pathways framework.

Keywords:

BioNTech; Build, Borrow, Buy; Corporate Divestiture; Corporate Strategy; Divestment; Innovator's Dilemma; Pfizer; Pharmaceutical Ethics; Pharmaceutical Industry; Pharmaceutical Pipeline; Restructuring; Strategic Alliance

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Case Study and Teaching Note

Introduction

In 2010, Pfizer, one the largest pharmaceutical companies in the world, faced an imminent loss of revenue generated by Lipitor, a drug that is used to lower cholesterol. Up to this point it was the most successful drug in history, representing approximately 20.0% of Pfizer's total revenue. In the same year, Ian Read, a company veteran with a pharmaceutical background, stepped up as Pfizer's CEO. At the time, the company had no established strategy that would offset this drop in revenue or brought forward any new, successful drugs. This underscored the need for transformative change. Read structured the company into two main business units, comprising "Innovative Health" ("IH"), which developed new drugs that could be patented, and "Essential Health" ("EH"), which distributed generics and drugs that lost their patent protection [Appendix 1]. This restructuring was also aimed at simplifying potential divestitures of segments that did not align with Pfizer's core competencies. By 2016, after three years of extensive assessments, Read concluded that no divestitures were to be made. However, as 2018 ended, leadership was set to transition to Albert Bourla. While Read opted for continuity, Bourla pursued streamlining. Shortly before Albert Bourla became CEO, Pfizer already announced its decision to divest its "Consumer Healthcare" ("CH") business, which was formerly a part of IH. A year later, it was announced that Upjohn, the rebranded EH unit, will also be divested. This left Pfizer focusing on its largest business unit, the IH unit. In face of such drastic changes under Bourla, doubts persisted on whether it had been the right call for Pfizer to divest two units that brought reliable cash flows. These doubts became ever so relevant in the context of the pharmaceutical industry's ever evolving and unstable landscape, with industry observers wondering if Pfizer would go back to diversification soon thereafter.

Pfizer's History

Pfizer was founded in 1849 by Charles Pfizer and Charles Erhart in New York. Early on, Pfizer

achieved its first successes by selling flavoured santonin, which is used to treat intestinal worms and by supplying disinfectants, preservatives, as well as painkillers during the American Civil War (1861-1865) (Nolen 2023). In the late 19th century, Pfizer profited from the trend in cola drinks by the subsequent production and sale of citric acids (Nolen 2023). In 1941, Pfizer solidified its position as the sole company capable of mass-producing the life-saving drug Penicillin by utilising fermentation techniques (Pfizer Inc. 2023a). After World War 2, notably in 1951 and 1952, Pfizer began international expansion and further growth initiatives. This included the creation of agriculture, animal health, nutritional divisions, and a pharmaceutical sales team (Pfizer Inc. 2023a). Further transformation happened in the 1970s and marked a turning point in becoming a productive research organisation. In creating the central research division in Connecticut, Pfizer improved the efficiency of its research efforts and expanded research spending to 15-20.0% of revenue (Lombardino 2000, 13). This focus paid off in the 1980s and 1990s with several "blockbuster" drugs (drugs that generate more than $1.0 billion annual revenue) (Lombardino 2000, 13). Up until the 2000s, Pfizer, grew further by international expansion and by acquiring various pharmaceutical and chemical enterprises (Nolen 2023).

The Pharmaceutical Industry

Types of Pharmaceuticals

Pharmaceuticals can be divided into two categories, prescription, and non-prescription drugs. Non-prescription drugs are called over-the-counter ("OTC") drugs and consumers do not need a medical prescription to purchase them (Sumitomo Dainippon Pharma Co. Ltd. 2021). They fall into the category of consumer healthcare and are used for self-care or to treat less critical illnesses (U.S. Food and Drug Administration 2017a). Examples include vitamins, dietary supplements, cough medicine, and pain relievers.

Prescription drugs treat more severe illnesses and can only be purchased with doctor's

permission. They encompass two main categories which refer to their development process: chemical drugs made of small molecules and biological drugs made of living cells (American Cancer Society 2018). All pharmaceuticals are formulated using "Active Pharmaceutical Ingredients" ("API"), which serve as the base component in drug manufacturing (Pharmaceutical Technology 2023).

Generics and Biosimilars

Generic drugs are copies of chemical pharmaceuticals, produced, and distributed after the originators drug's patent, typically lasting 20 years, has expired (U.S. Food and Drug Administration 2017b). These drugs may have minor chemical differences but need to demonstrate the same function, efficacy and safety compared to the originator (U.S. Food and Drug Administration 2017b). They are mostly sold without the use of a brand name and are just described by their active ingredient (Latwal and Chandra 2020). An example of this is the by Pfizer developed originator drug Viagra, whose patent expired in 2017 (Johnson 2017). While Pfizer continued to sell the brand-name drug Viagra, the company also introduced a generic version, priced at half the cost of the originator (Johnson 2017).

Biosimilars are generic versions of biologic drugs, which can be produced after the originator drug's patent has expired (American Cancer Society 2018). Due to its molecular complexity a biosimilar is not an exact copy to the originator product but it must show an equivalent efficacy and safety (Latwal and Chandra 2020).

Research and Development Process of Drugs

The research and development ("R&D") process of innovative chemical and biological pharmaceuticals is intense. From discovering a new compound, it takes on average 12 years to launch a new drug (Agrawal et al. 2023). The median cost of this development process is approximately $1.1 billion (Wouters, McKee, and Luyten 2020). The cost of R&D has been significantly growing from 2010-2017, while the average return on investment has been

decreasing from 10.1% in 2010 to 3.2% in 2018 (The Economist 2018). To incentivise companies to undertake this procedure, exclusivity is granted for 20 years after the initial discovery. (U.S. Food and Drug Administration 2020). Due to the potential for minor extensions of patents, pharmaceutical companies typically enjoy exclusivity for an average of 12 to 16 years from the time their product enters the market (B. Brown 2020).

Initially, scientists identify potential drug targets and compounds in the discovery and pre-clinical trial phase (U.S. Food and Drug Administration 2018). After initial discovery of a promising compound, the drug proceeds through a series of clinical trials. Phase 1 trials involve a small number of healthy volunteers to assess the drug's safety and dosage, followed by the phase 2 trials which are conducted on a larger group of people who have the condition the compound aims to treat (U.S. Food and Drug Administration 2018). Phase 3 trials involve the largest number of participants and aim to confirm the compound's efficacy, monitor side effects, and compare it to commonly used treatments (U.S. Food and Drug Administration 2018). When a compound successfully passes phase 3, a dossier is submitted to regulatory authorities for review and approval. If a new compound is discovered and enters Phase 1, the chances of it receiving regulatory approval are 9.6%, with the chances of approval increasing to 49.6% when entering phase 3 and to 85.3% in the approval process (Van Norman 2019).

When comparing generics and biosimilars, their development processes are relatively less complex than that of innovative drugs. Developing a biosimilar can span five to nine years and can costs upwards of $100.0 million, excluding regulatory charges. In contrast, a generic drug typically requires a budget of $1-2.0 million and two years of development (Pfizer Inc. 2019a).

Pricing of Pharmaceuticals

The pricing of innovative medicine differs in the world. In the United States, pharmaceutical companies predominantly set drug prices. This makes the USA to the by far largest pharmaceutical market as it accounts for 42.6% of the world's pharmaceutical spending (IQVIA

2022). Europe presents a diverse landscape, where each country has unique pharmaceutical pricing and reimbursement policies. Germany, the largest European pharmaceutical market, operates under stringent government-regulated price negotiations (Sarnak et al. 2017). Its portion of the worldwide drug market expenditure is 4.0% (IQVIA 2022). Japan stands out with a government-led drug pricing model, ensuring affordability and accessibility by adjusting drug prices every two years (Lumley 2022). The Japanese market constitutes 4.5% of global expenditures on medications (IQVIA 2022). In China, the government actively negotiates prices and centralises procurement to enhance affordability and accessibility, demonstrating a commitment to balance innovation and costs (Cortez and Hong 2023). Being second in global pharmaceutical expenditure, China composes 7.6% of global drug spending (IQVIA 2022).

When a patent expires, the originator drug often maintains a higher price than its generic alternatives due to enduring brand recognition and reputation (Vondeling et al. 2018). In the USA, unlike other countries, originator drug prices predominantly remain stable or even increase after the patent expires (Vondeling et al. 2018). Nonetheless, originator drugs often experience a substantial decline in sales. For instance, Pfizer's best-selling drug, Lipitor, saw its revenue decline by more than 80.0% from its peak after the patent expired (Mikulic 2022).

Companies specialising in generic drugs, offer medications at significantly lower prices, ranging from 6.6% to 66.0% of the cost of an originator drug, compared to the price before its patent expired (Vondeling et al. 2018). Biosimilars are on average sold with a discount of 50.0% compared to the originator biological drug (Association for Accessible Medicines 2022, 10).

Distribution of Pharmaceuticals

The distribution of pharmaceuticals differs between prescription drugs and OTC drugs. The primary reason for this is that marketing for prescription drugs is highly regulated in almost all regions of the world due to its potential harmfulness when used incorrectly (So and Kim 2022). Healthcare professionals ("HCPs") prescribe medications tailored to their patients' needs

[Appendix 2]. When a pharmaceutical is under patent protection, it is typically the sole option available for prescription. Conversely, if a patent expired, generic versions become available. To navigate this increased selection, countries have established guidelines for selecting among these equivalent drug options. To ensure broad distribution, pharmaceutical companies commonly maintain a large sales force dedicated to promoting their patented drugs and educating HPCs about the advantages of these medications.

In Japan and China, HCPs make decisions about the drugs their patients will take (Mylan Inc. 2019, 8). If someone requires a drug in Germany, the patient will receive the medicine which secured a contract through a tendering process with a health insurance entity. This contract is generally awarded to the pharmaceutical offering that presents the most cost-effective option (Mylan Inc. 2019, 8). In the US, patients decide themselves what generic or originator drug to buy. HCPs consult their patients and influence buying decisions (Mylan Inc. 2019, 8).

OTC drugs can utilise diverse marketing channels, benefiting from less stringent marketing regulations (So and Kim 2022). Firms capitalise on the direct influence patients have over their purchasing decisions. Therefore, OTC drugs closely resemble consumer goods, making the success of OTC drugs largely dependent on its public perception (Sakai Michiyo 2019).

Pfizer's Business Model

Pfizer operates a business model that focuses on R&D, manufacturing, and marketing of a wide range of pharmaceutical products (Johnston 2023) [Appendix 3]. This includes the operation of worldwide R&D facilities and collaboration with external researchers and institutions (Pfizer Inc. 2023e). Typically, Pfizer's discovery of new compounds to create innovative drugs hinges on its R&D activities. Following R&D, the next phase in Pfizer's value chain is manufacturing. Generally, the pharmaceutical industry has a high level of vertical integration, and Pfizer owns and operates manufacturing facilities globally, where they produce pharmaceuticals and high-quality APIs out of chemicals, which are purchased from chemical manufacturers such as BASF

(Pfizer Inc. 2023d). Once the products are developed and manufactured, they move into the marketing and sales stage. Pfizer has a strong global presence and a broad product portfolio, which they promote through a combination of direct sales and marketing efforts (Pfizer Inc. 2011, 22). Pfizer's drugs are typically delivered by wholesalers, who physically distribute the drugs to hospitals and pharmacies, with some country specific exceptions (Pfizer Inc. 2023c). Like competitors' business models, this structure has historically been reliant on blockbuster drugs to succeed, requiring large investments into R&D (The Lancet 2011). Pfizer additionally employs aggressive marketing strategies that are central to their business approach (The Lancet 2011). From 2010 to 2022, the company spent on average $8.6 billion per year on R&D and employed an estimated average sales force of around 10'000 people (c. 11.1% of all employees) [Appendix 4]. These two expenses represent two large spending points in Pfizer's income statement. In comparison, over the span from 2010 to 2022, Pfizer recorded an average annual adjusted revenue of $51.5 billion, excluding revenue from Covid-19 related revenue. During this period, the bulk of Pfizer's revenue came from the United States, contributing 43.9% of the revenue. Emerging markets and developed Europe followed closely, accounting for 21.2% and 20.7% respectively, while the rest of the world contributed 14.2% (Pfizer Inc. 2023b, 98).

Pfizer's Inorganic "Megamerger" Growth Strategy

At the beginning of the millennium, Pfizer was already a major, global pharmaceutical company with around 50'000 employees (Lombardino 2000, 15). This formidable status was fuelled by the success of drugs like Viagra, a blockbuster that amassed a staggering 79.0% market share of the erectile dysfunction market within two weeks of its debut in 1998 (L.A. Times 1998). In addition to Pfizer's success with Viagra, Lipitor emerged as a critical factor in shaping the company's strategic direction. As Lipitor transitioned into becoming Pfizer's largest revenue source, it forced a decade-long search for strategic alternatives, aiming to find new revenue streams that could reduce the financial reliance on Lipitor ahead of its patent expiration in 2011.

Despite these successes, Pfizer, along with several other prominent pharmaceutical giants, grappled with challenges in their "drug pipeline" (potential drugs that have entered clinical trials and could enter the market) (Rebecca 2020). These challenges were mainly related to the series of high-profile failures in drug development, such as the anti-cholesterol drug torcetrapib, that caused a reported an increase in deaths within the clinical control group (Rebecca 2020).

Warner-Lambert Merger

In 1996, Pfizer entered into a co-marketing agreement with Warner-Lambert to distribute Lipitor [Appendix 1]. In the following years, Lipitor's market share in the "Atorvastatin" market grew rapidly, netting Pfizer approximately $3.8 billion in 1999, representing 18.8% of revenue (Pfizer Inc. 2001, 20). Atorvastatin is a type of drug primarily prescribed for preventing cardiovascular diseases in high-risk individuals and managing abnormal levels of lipids in the blood (Drugs.com 2023). After this initial success, Pfizer's corporate shifted in 1999 when Warner-Lambert unveiled plans to merge with American Home Products (DePalma 1999). Sensing the risk of losing Lipitor, Pfizer made a countermove with a takeover proposition. This strategic gamble culminated in a over $90.0 billion merger by January 2000 (Dugan 2000). This allowed Pfizer to gain control over Lipitor's impressive $163.0 billion lifetime revenue stream (1996-2021, patent expired in 2011), making it the second most financially successful drug ever (A. Brown and Elmhirst 2022). Beyond pharmaceuticals, Warner-Lambert also brought a diversified portfolio, including OTC products, to the table (Dugan 2000). This expanded Pfizer's business portfolio, offering a balanced revenue stream and providing an opportunity for the company to grow in the consumer healthcare sector. On the downside, Warner-Lambert's drug discovery pipeline was less attractive, with no new promising developments (DePalma 1999).

Pharmacia Merger

In 2003, Pfizer made a decisive move to reinforce its growth trajectory by merging with

Pharmacia Corporation for $60.0 billion (Frank and Hensley 2022) [Appendix 1]. This merger was a calculated strategic step, expanding Pfizer's portfolio in the oncology and arthritis sectors. Pfizer's pipeline was also significantly enhanced by in-development drugs in new as well as in established research areas. As a result, Pfizer's global share in total pharmaceutical revenue witnessed a jump from 8.0% to slightly over 11.0% in that year alone (Frank and Hensley 2022). The deal functioned as a continuation of the company's earlier growth strategy, initiated by its merger with Warner-Lambert.

Strategic Pivots and Challenges under CEO Jeffrey Kindler

2006 heralded the arrival of Jeffrey B. Kindler at Pfizer's helm [Appendix 1]. Despite a 27.0% dip in share price during Kindler's tenure, his long-term vision for Pfizer, particularly concerning its R&D roadmap, was the foundation of important decisions that markedly shaped Pfizer's direction beyond his tenure (Pierson 2010). Kindler was under the impression, that the company needed to be refocused on just innovative pharmaceuticals to achieve successful drug development.

Besides the financial crisis in 2008/2009, Pfizer faced many difficulties with multiple "patent cliffs" over the next 5 years, setting to lose approximately $20.0 billion of annual revenue, represented by four blockbuster drugs, including Lipitor, which was responsible for up to 50.0% of the lost revenue. The "patent cliff" is a common pitfall in the pharmaceutical industry, referring to the drop in revenue when a product patent expires. Additionally, Pfizer was also grappling with other internal inefficiencies. Notably, during the period between 2000-2008, the company invested $60.0 billion into research, yet this investment only culminated in the approval of nine drugs, and thus in an average of $6.7 billion per approved drug (Elkind, Reingold, and Burke 2011, 85). This meant that Pfizer spent more than six times the median development cost of $1.1 billion for a new drug. Bernando Munes, a former strategist at Eli Lilly, a competitor of Pfizer, determined that at this rate, Pfizer's pipeline will not be sufficient

to maintain profits (Elkind, Reingold, and Burke 2011, 85).

In 2006, Pfizer sold their CH unit to its competitor, Johnson & Johnson, for $16.6 billion (Industry Week 2006). Kindler aimed to address the struggling pipeline by streamlining and reallocating resources towards R&D and future M&A activity in the core innovative pharmaceutical segment (Elkind, Reingold, and Burke 2011, 85). The significance of Pfizer's divestiture of its CH unit and its worth to the company is underscored by remarks from Johnson & Johnson's CEO William C. Weldon, who stated,

> *"Very, very rarely do you see the type of brands and the iconic brands that became available in all of this"* (Saul 2006).

In contrast to Kindler's initial strategy, and under pressure to solve the looming Lipitor patent cliff and pipeline challenges, Pfizer orchestrated another "megamerger" by merging with Wyeth (formerly American Home Products) in 2009 for $68.0 billion (Elkind, Reingold, and Burke 2011, 85). Kindler stated,

> *"The combination of Pfizer and Wyeth provides a powerful opportunity to transform our industry. It will produce the world's premier biopharmaceutical company whose distinct blend of diversification, flexibility, and scale positions it for success in a dynamic global health care environment. The new company will be an industry leader in human, animal and consumer health"* (Pfizer Inc. 2009).

Wyeth, with its robust presence in vaccines and biologics, provided Pfizer an avenue to venture into high-margin areas it had previously not been dominant in. Furthermore, the merger reinstated Pfizer's CH unit.

Organic vs. Inorganic Growth

Pfizer's M&A strategy has been a key driver in accelerating the company's financial growth and diversifying its business operations across various segments. A notable instance of this

approach is the acquisition and extensive marketing of Lipitor. This move showcased the efficiency of Pfizer's sales force, accelerating Lipitor's annual revenue, which was estimated at $5.0 billion per year under Warner-Lambert to a high of $13.0 billion per year under Pfizer (Raju and Danzon 2009). This strategic move was not merely a financial success but a demonstration of how Pfizer could leverage others' innovations through mergers and acquisitions (Rugman 2005, 133). This strategy allowed the company to somewhat offset its lagging R&D success (Rugman 2005, 133). However, it also forced the integration of many business units outside of Pfizer's core segment of innovative pharmaceuticals.

Post-merger, Pfizer often found itself streamlining operations to achieve projected synergies. For instance, it sold off brands inherited from Warner-Lambert and shuttered its cancer drug manufacturing facility three years post the Pharmacia acquisition. The subsequent cost-cutting measures were essential steps toward integration but led to declining R&D spending. While declining R&D spending after integration was not generally negative when eliminating redundancies, Pfizer's pattern suggests that following its major acquisitions, the reduced R&D investments potentially accounted for the limited pipeline output (Quiroz 2016).

Notwithstanding its successes, Pfizer's growth strategy through acquisitions versus organic innovation was garnering mixed reactions from industry analysts. Catherine J. Arnold, an analyst at Credit Suisse, along with others, has expressed concerns over the clarity of Pfizer's diversification path and the uncertainty surrounding their direction (Wilson 2010). The emphasis from analysts was clear: despite the growth achieved through acquiring competitors and their product lines, Pfizer's success should have been based on its ability to deliver innovative new drugs, stepping beyond its established strategy of growth through mergers and acquisitions (Wilson 2010).

Pfizer under Ian Read

In December of 2010, Read was placed as CEO, succeeding Jeffrey Kindler. Before being

appointed as CEO, Read led Pfizer's global innovative pharmaceutical business, which accounted for approximately 85.0% of Pfizer's revenue (Pfizer Inc. 2010). This leadership shift caught many off guard, as Read's promotion signalled a potential recalibration of Pfizer's strategic compass. Many analysts viewed Read's promotion with optimism, citing his in-depth industry knowledge as a potential game-changer (Krauskopf and Pierson 2010). As Goldman Sachs analysts highlighted, there was hope that under Read, Pfizer would embark on more aggressive restructuring and possibly divestitures of business units to streamline its operations and enhance shareholder value (Krauskopf and Pierson 2010).

Upon becoming CEO, Read started reevaluating Pfizer's business units, concluding:

> *"During 2011, we also embarked upon a rigorous process to look at the long-term value-creation potential of all of our businesses. After completing this process, we determined that our Animal Health and Nutrition businesses are distinct enough from our core businesses that their value may not be fully realized within Pfizer and, therefore, may best be optimized outside"* (Pfizer Inc. 2012, 4).

For this, Read engaged in divestitures in non-core areas. Read's goal was to bring back Pfizer's productive and innovative R&D engine (Pfizer Inc. 2013a, 12). This underscored his commitment to revamp Pfizer's less-than-stellar track record in product development.

Nutrition and Animal Health Business Units

In 2012 and 2013 Pfizer started to decouple two of its business units, as Read mentioned in the 2011 shareholder letter. In 2012, Pfizer sold its Nutrition business unit to Nestle for $11.9 billion (Rappeport 2013). One year later it started splitting-off its animal health business unit "Zoetis" through an IPO, netting Pfizer over $17.0 billion in total (Pfizer Inc. 2014b, 4).

New Organisational Structure

In 2013 Read announced plans to internally separate its commercial operations into a new

commercial structure with three segments [Appendix 1]. In line with this strategic transformation plan, Frank D'Amelio (CFO) also noted the possibility of a more aggressive split which could occur in 2016 (Armstrong 2013). The IH was comprised of the "Global Innovative Pharmaceuticals" ("GIP") segment and "Global Vaccines, Oncology and Consumer Healthcare" ("VOC") segment, while the established products business unit was run under the name "Global Established Pharmaceuticals" ("GEP"). The GEP unit was responsible for Pfizer's established brands, generics, and biosimilars. This segment ensured a balanced product life cycle, containing drugs which would lose market exclusivity through 2015 (Pfizer Inc. 2014b, 46). The GEP unit was later rebranded to EH. Each unit served as more than a structural division, functioning as a strategic entity that leveraged its distinct capabilities to create operational and financial synergies. The GIP and VOC units focused on the discovery of innovative drugs. They increased cash flow and directed more resources towards R&D projects. Conversely, the GEP unit maintained a steady cash flow and financial stability, which was important in offsetting the costs and risks involved in R&D projects.

In financial terms, the IH unit exhibited consistent growth since 2013, contrasting with the overall stagnation in its market segment [Appendix 5]. Its EBITDA margins remained stable. In contrast, the EH unit, despite a significant revenue contribution, faced a decline in the same period. This decline was accompanied by a noticeable reduction in its EBITDA margins.

During this period, prices of generic drugs continued to rise significantly, at some time at a double-digit rate (Ural et al. 2020, 2). The competitive landscape was not particularly aggressive, yet it saw a moderate uptick in 2015, fuelled by a surge in FDA generic approvals that paved the way for an influx of generics manufactured abroad, to combat rising prices. Therefore, prices of established pharmaceuticals remained stable (Ural et al. 2020, 5).

Ongoing M&A Activity

Under Read, the "megamerger strategy", that was employed for more than 10 years, was also

used, against Read's initial strategy of refocusing on Pfizer's core (Staton 2015). The two main topics which influenced this strategy under Read's leadership were: tax inversion and biosimilars. Tax inversion is a M&A strategy used by corporations to reduce their tax bill by relocating their legal domicile to a country with lower tax rates, while maintaining their operational activities in their original country (Riet and Lejour 2015). Pfizer's initial tax inversion move was a $100.0 billion bid for a merger with AstraZeneca (UK) (Carroll 2014). The anticipated deal did not materialise, attracting scrutiny from lawmakers. A further proposition was the $160.0 billion merger proposition with Allergan (Ireland) (Humer and Banerjee 2016). Regulatory interventions led to the merger's cancellation.

The second development area where biosimilars. In March 2010, Barack Obama signed the Biologics Price Competition and Innovation Act, clearing the pathway for the approval of biosimilars (Generics and Biosimilars Initiative 2015). In 2015, the first biosimilar was approved in the US. Following this, Pfizer orchestrated the acquisition of Hospira in the same year for $17.0 billion, acquiring its biosimilar portfolio (Welch and Koons 2015). This acquisition significantly bolstered Pfizer's EH unit, indicating an emphasis on balanced reinforcement of both the IH and EH units.

The Dilemma of Divestment

Leading up to 2016, Pfizer had already spent $600.0 million on preparatory work for potential divestments and further structural optimisations (Staton 2016). Historically, pharmaceutical divestitures have been welcomed for releasing trapped value for shareholders (Staton 2016). Such moves often lead to enhanced investment opportunities and greater management focus on the newly independent units. Several analysts had previously championed the idea of Pfizer divesting its EH division, drawing parallels to its earlier divestment of the nutritional products and animal health units (Staton 2016). By doing so, the company could potentially sharpen its focus on its innovative pharmaceuticals segment, which offered notably stronger growth. On

the contrary, market conditions during the period were unpredictable. The S&P Pharmaceuticals Select Industry Index fell 18.2% from its annual peak in 2015, influenced by China's struggling market and political discussions on drug pricing control (Light 2016) [Appendix 6]. This led to reduced market valuations.

The acquisition of Hospira added a fresh perspective to the consideration. By securing Hospira, Pfizer not only obtained an asset that aligned well with its EH unit, but it also paved the way for a more logical divestment (Welch and Koons 2015). The $17.0 billion purchase was widely interpreted as a strategic move to improve the attractiveness of its EH unit in preparation for a potential divestment. Beyond the monetary considerations, operational challenges emerged, prompting uncertainty about the synergies between the units. These synergies offered a balanced portfolio and operational resilience as well as protection against risks from fluctuating market conditions and industry dynamics.

Further considerations included Pfizer's drug pipeline. In the period leading up to 2016, analysts considered Pfizer's lineup of drugs in development weak and lacking any potential hits (Pierson 2014). Moreover, this scrutiny had intensified because a few of Pfizer's newly launched drugs had not achieved the high sales and success that were anticipated (Pierson 2014). These complexities, led to the conclusion that a divestment could be value destructive.

The New Strategic Path

From 2016 to 2020, Pfizer experienced major shifts in its organisational and strategic dynamics [Appendix 1]. During this period, Pfizer's aim to recalibrate its business objectives was often overshadowed by Read's decision against divesting business units in 2016, which drew attention from analysts and shareholders. While Read was initially praised for his transformative leadership at the beginning of his tenure, towards the end doubts surfaced about his ability to bring a significant transformative change (Mathias and Banerjee 2018). This led many to question his ongoing suitability at the company's helm.

In 2018, Albert Bourla became COO of Pfizer and consequently an important decision maker besides Read (Pfizer Inc. 2018a). He was also the one to become Read's successor, stepping up in January 2019 (Pfizer Inc. 2018a). Subsequently, in late 2018, Pfizer unveiled the plan to restructure its business units again. Beginning of 2019, the units were restructured as IH, CH and Upjohn, which was a rebranded EH unit (Pfizer Inc. 2018c). The most significant changes were the separation of the CH unit from the IH unit, and the switch of biosimilars from EH to IH. The strategic intent of these decisions was mostly based on the possible divestitures of these units, coupled with differences in growth profiles and consumer segments.

In contrast to Read's strategy, Bourla also announced that Pfizer will refer from doing any "megamergers", as they diverted their efforts in returning to their innovative core, launching innovative drugs. As Bourla stated in the 2018 third quarter earnings call:

> *"Pfizer is entering an era of sustained growth. In this context, I would reiterate that we continue not to see the need for any large-scale M&A activity at this time"* (Liu 2018).

The Innovative Health Business Unit

The innovative health unit remained the core pillar of Pfizer after the restructuring. In this segment, Bourla set the goal to deliver 25 new pharmaceuticals until 2025 (Bourla 2020). This goal was closely related to Pizer's pipeline of the last 6 years, which displayed an encouraging trend in R&D activities. In 2014, there were 27 drugs in Phase 3 trials and registration [Appendix 7]. This number grew to 39 by 2018, illustrating a 44.0% surge. Bourla described it as "the best pipeline in our history" (Liu 2018).

Besides the innovative medicines, the biosimilars segment, which was now part of the IH unit, expanded by 66.0% in 2017 (Pfizer Inc. 2018b, 141). Before the restructuring, the old IH unit stood out displaying a CAGR of 4.6% from 2016 to 2018, growing faster than the respective market segment [Appendix 8].

The Consumer Healthcare Business Unit

During the restructuring, the CH unit was separated from the IH unit (Reuters Staff 2018). It included all pharmaceutical products which could be bought without a prescription. The separation insured independent operation, with dedicated manufacturing and regulatory capabilities (Pfizer Inc. 2018c). In 2018, the unit contributed for 7.0% of the company's earnings (Pfizer Inc. 2019b, 140). Leading up to 2018, the CH business did not outperform the overall segment growth [Appendix 8].

The Upjohn Business Unit

The Upjohn unit, the successor of the EH unit, accounted for 19.8% of the total revenue in 2019 (Pfizer Inc. 2020b, 19). Between 2017 and 2018 it displayed higher negative growth, than the overall segment [Appendix 8 & 9]. Generic drug prices decreased heavily between 2017 and 2019, peaking in mid-2017 with a double-digit monthly decline (Ural et al. 2020, 2). This was related mainly due to the number of generic approvals, which increased by 15.3% over the period (Ural et al. 2020, 5). Moreover, higher quality and lower prices from emerging market players have introduced more alternatives to western markets (Brouwers et al. 2020).

The Consumer Healthcare/GSK Joint Venture

In December 2018, it was announced that GlaxoSmithKline's ("GSK") and Pfizer's CH units would form a new company under the brand name of GSK Consumer Healthcare (Hirschler 2018) [Appendix 1]. This strategic move was aimed at both cost efficiency and market leadership. The joint venture ("JV") was predicted to generate savings of around $631.0 million annually by 2022 due to streamlined operations and reduced redundancies (Hirschler 2018). Further, the merger was set to consolidate the landscape of OTC products. The JV would command a global market share of 7.3%, overshadowing their nearest competitor at around 4.0% (Hirschler 2018). This dominant position was particularly evident in key markets like the US and China, where the largest market shares were anticipated.

The Upjohn/Mylan Merger

In July 2019, Bourla announced the merger of its Upjohn business unit with the generic pharmaceutical firm, Mylan (Erman and Banerjee 2019) [Appendix 1]. This union gave rise to a new company, Viatris (Erman and Banerjee 2019). The merger was completed in November 2020 (Pfizer Inc. 2020a). Per the agreement, Pfizer shareholders would own 57.0% of Viatris, with Mylan shareholders holding the other 43.0% (Erman and Banerjee 2019).

In 2015, Mylan successfully fended off a takeover attempt valuing the company at $40.0 billion (Erman and Banerjee 2019). However, by the time of the merger, Mylan's market value was only $11.0 billion, due to a weak company management (Erman and Banerjee 2019). With the merger, leadership changed, with Upjohn's head taking the reins. The merged entity planned to take on $12.0 billion in debt, which would directly benefit Pfizer (Erman and Banerjee 2019).

Rational of the Divestitures

The divestitures of the CH unit and Upjohn were aimed to bring the company back to its innovative and fast-growing core business. With the market conditions being less volatile and overall market valuations being lower, the market's reaction was mixed to these changes [Appendix 6]. Pfizer's stock experienced a decline following the announcement of the Upjohn merger and traded marginally lower after the CH JV announcement, reflecting concerns about the future and the impact of upcoming challenges (Nathan-Kazis 2019).

The specific goal of Upjohn's divestiture was to unburden Pfizer from a segment that was a drag on its financial performance (Speights 2020). Despite the high profitability of Upjohn and its function as a repository for innovative drugs that were no longer under patent protection, its declining revenue, particularly due to the generic competition, contrasted sharply with the growth exhibited by Pfizer's innovative segment. The deal provided Pfizer with a substantial cash influx, enabling it to reduce its considerable long-term debt and lowering interest payments and enhancing financial flexibility for further investments and acquisitions (Speights 2020).

In contrast, the CH unit was still growing, but was seen better of as a standalone unit. The divestiture of the CH unit initiated broader industry debates. Some companies viewed these units as providing stability in an industry faced with patent expirations and unpredictable drug development schedules (Crow 2017). Others, however, argued that such units divert capital and attention from the more critical task of discovering new, lucrative drugs (Crow 2017). For example, J.P. Morgan analyst Chris Schott noted, while the restructuring into a smaller, innovation-focused company is likely to boost near-term growth, there are concerns about the sustainability of this growth (Nathan-Kazis 2019).

Covid-19 and the Future Strategic Path of Pfizer

In 2020, Pfizer has emerged as a critical organisation in tackling the Covid-19 pandemic. The company developed a Covid-19 vaccine in collaboration with BioNTech to address an unprecedented global health emergency. The collaboration started in 2020, with the roots of the partnership dating back to 2018, aiming at exploring mRNA vaccines (Brigham 2021). The financial success of the Covid-19 vaccine was evident, increasing Pfizer's revenue to $100.3 billion in 2022 (Pfizer Inc. 2023b, 47). Additionally, Pfizer had developed the Covid-19 treatment Paxlovid, contributing to its record revenue. In May 2023, the WHO declared an end of the Covid-19 pandemic (Pfizer Inc. 2023f). Pfizer stated in its 2023 Q3 earnings report, that it expects revenue between $58.0 billion and $61.0 billion, down from its prior forecast of $67.0 billion to $70.0 billion (Erman 2023). The reduction was solely due to lowered expectations for its Covid-19 products. Following this revised forecast, a cost-cutting program was announced.

In a somewhat contrasting fashion to Pfizer's windfall during the Covid-19, the company was again at a turning point, facing a substantial patent cliff. Six blockbusters were set to lose exclusivity until 2028 (Gibney 2022). These products constituted a significant portion of revenue, nearly 40.0% (excluding Covid-19 products) (Ribbink 2022). Further risk included that the average peak revenue of a drug has declined notably since 2013 (May et al. 2023, 14).

Innovation, Mergers, Diversification

The pharmaceutical industry was seen as being at a crossroads, with many leading companies focusing purely on innovative pharmaceuticals. This trend was driven by changes in investor risk profiles and the recognition of the distinct management requirements for the various segments (Borden 2022). However, there were predictions that the industry might shift back to more stable business models in response to R&D setbacks or impending patent cliffs (Borden 2022).

In a way, these conditions brought Pfizer to a situation similar to the one lived by the company in the 2010s. As such, doubts lurked in the background on whether Bourla had made the right choice in divesting the CH and EH units and reverting to a streamlined research organisation or if Pfizer would eventually turn back to pursuing inorganic growth and diversification as strategies to expand and stabilise its business.

Despite these doubts, Bourla reinforced Pfizer's commitment to its strategy in late 2022. Pfizer has announced to launch 19 new products, including the repurpose of existing drugs for alternative uses, all within an 18-month timeframe starting 2023 (Cimino 2023). It was expected that these products would deliver $20.0 billion in revenue by 2030 (Cimino 2023). Further, Bourla revealed that Pfizer planned to increase revenue by $25.0 billion by 2030 through M&A activities, which were anticipated to strengthen Pfizer's pipeline, with no emphasis on diversification (Kimball 2022).

Case Appendix

Appendix 1

Figure 1: Selected timeline of Pfizer's history (1996 – 2019)

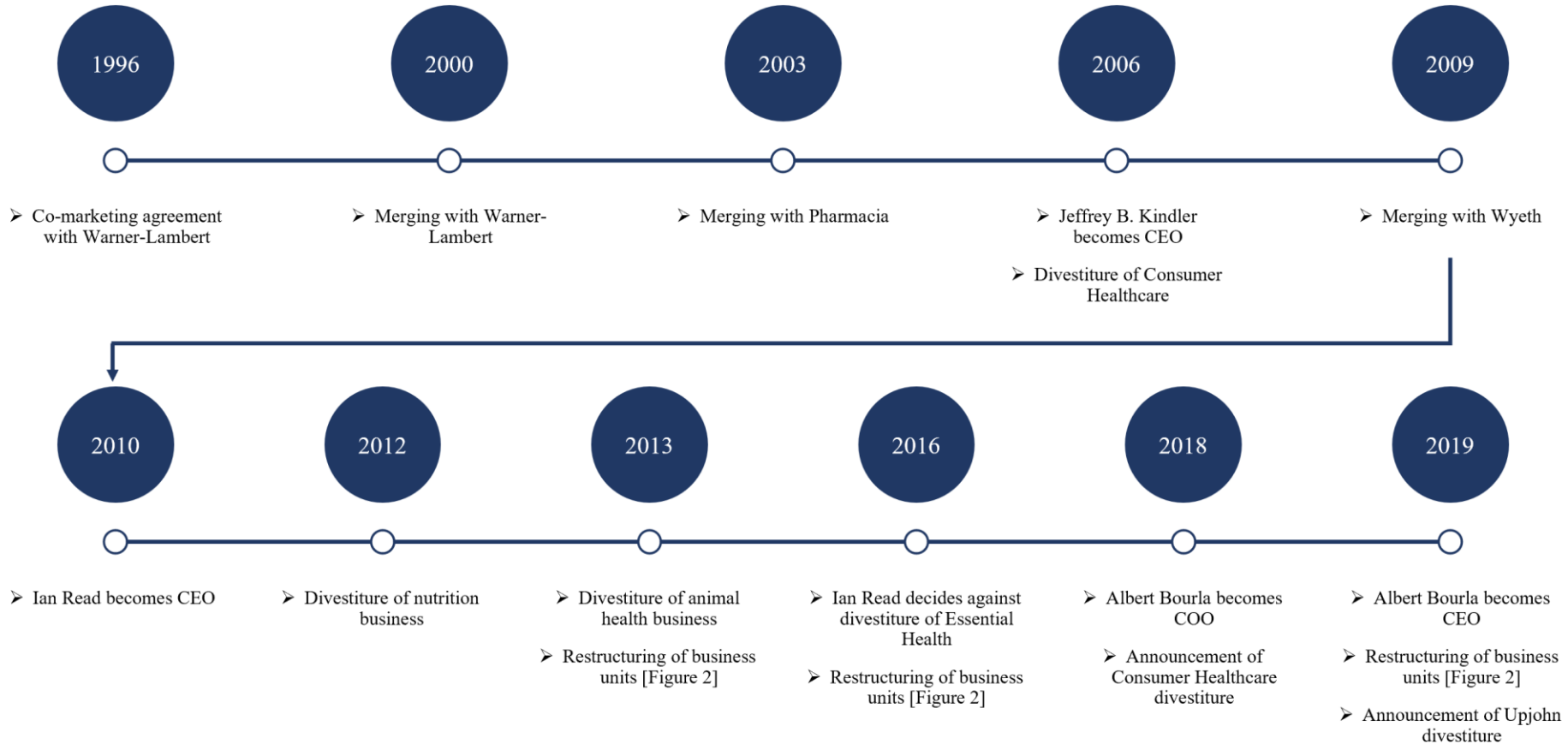
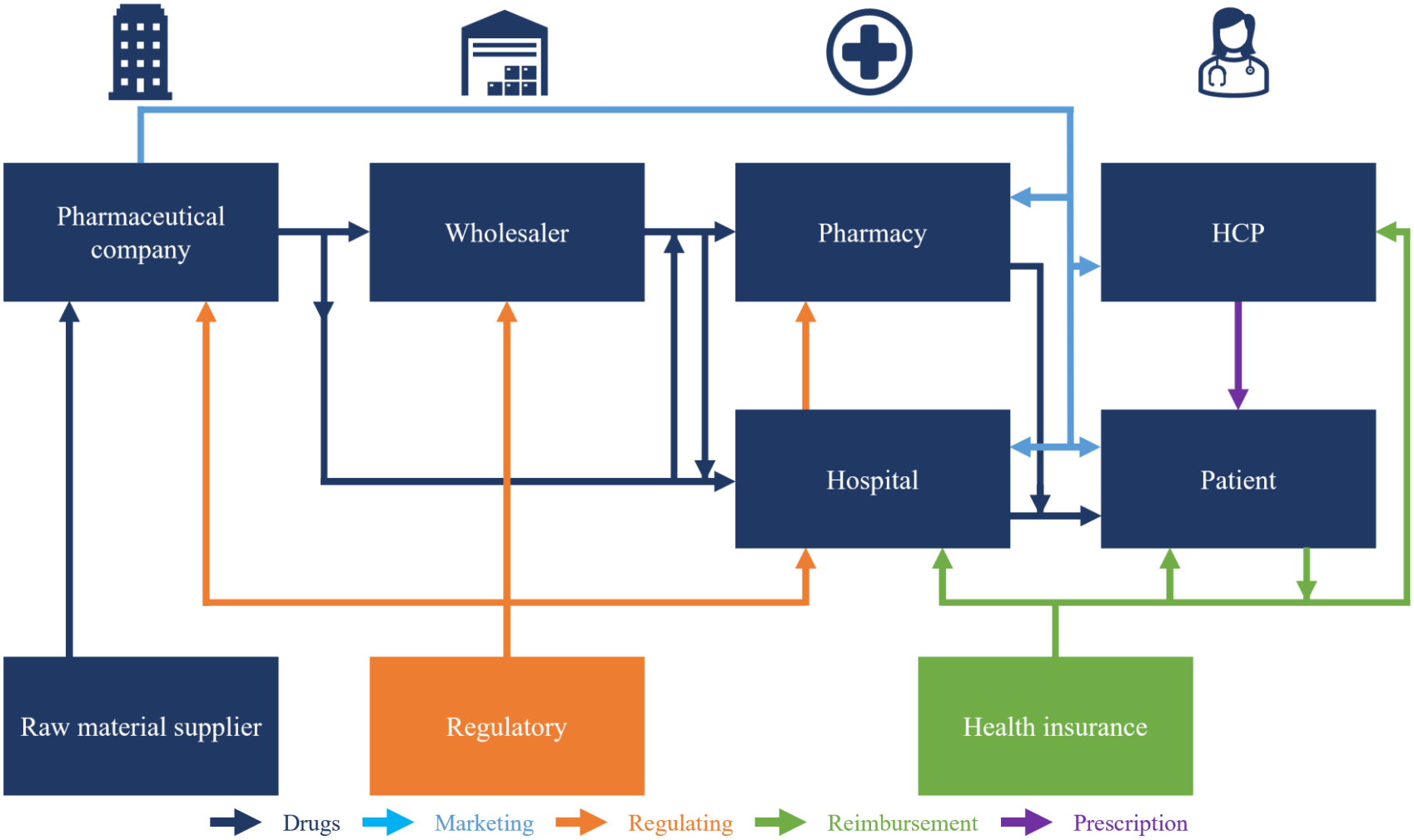


Figure 2: Visualisation of Pfizer's business units (2013 – 2020)

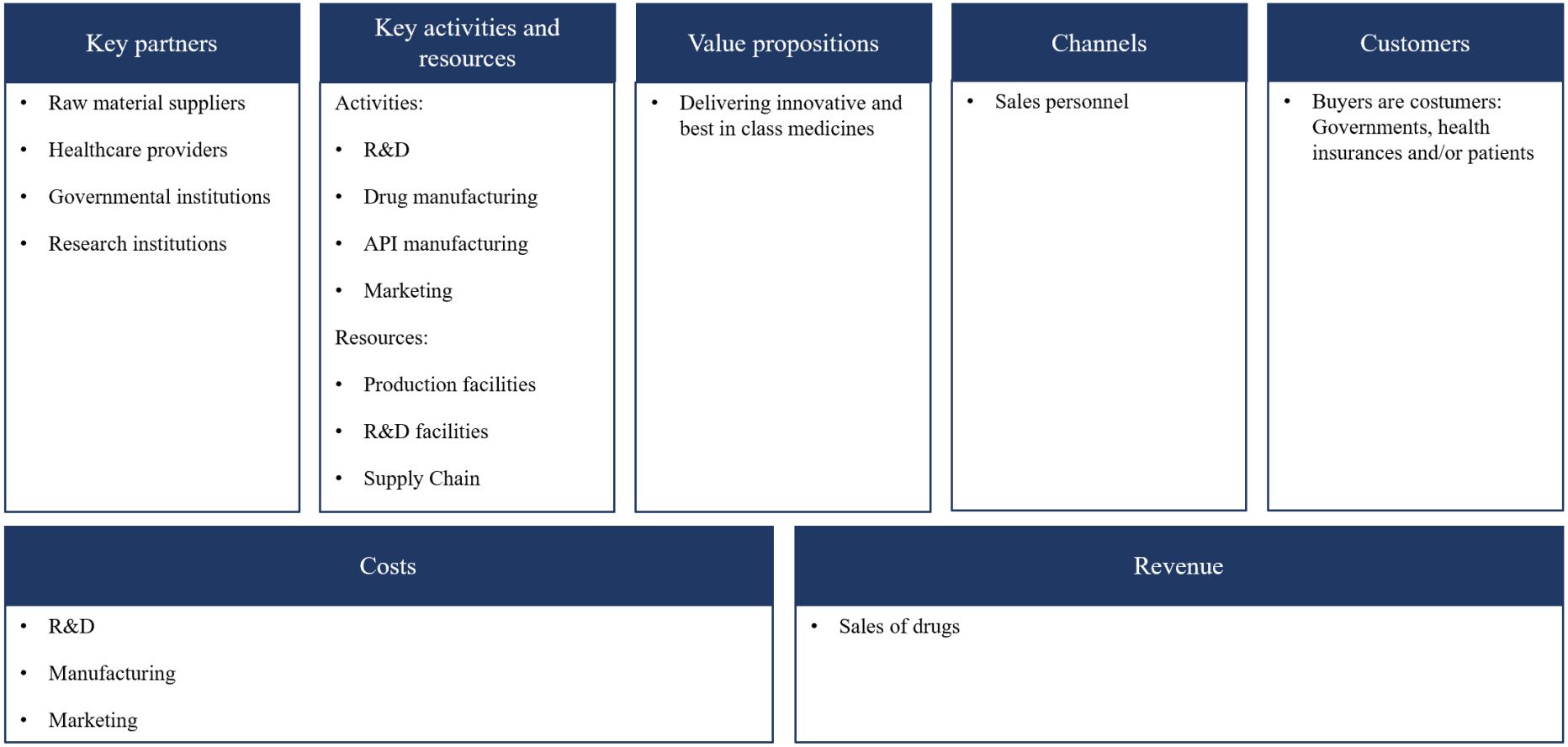
Appendix 2

Figure 3: Stakeholder overview in the pharmaceutical industry



Appendix 3

Figure 4: Pfizer's business model



Appendix 4

Table 1: Overview of Pfizer's R&D spending and sales team headcount (2010 – 2022)

Pfizer		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
R&D in $m	$	9,483.00	$ 9,074.00	$ 7,870.00	$ 6,678.00	$ 8,393.00	$ 7,690.00	$ 7,892.00	$ 7,683.00	$ 7,760.00	$ 8,385.00	$ 8,709.00	$ 10,360.00	$ 11,428.00
Average	$	8,569.62												
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Headcount		110,600	103,700	91,500	77,700	78,300	97,900	96,500	90,200	92,400	88,300	78,500	79,000	83,000
Sales Force		12,277	11,511	10,157	8,625	8,691	10,867	10,712	10,012	10,256	9,801	8,714	8,769	9,213
Average		9,970												

Source: (Farr 2020; Statista 2023b; 2023c)

Appendix 5

Table 2: Cost structure and business unit growth (2013 – 2018)

Margin in calculation in $m							
IH[1]	2013	2014	2015	2016	2017	2018	Average
Revenue	23,602	24,005	26,758	29,197	31,422	33,426	
COGS	3,676	3,848	3,651	4,049	4,091	4,140	
SG&A	5,520	6,162	6,807	6,957	7,158	6,961	
R&D	2,154	2,549	2,712	2,921	2,566	2,866	
Other[2]	5,539	6,304	6,116	6,918	6,577	6,792	
EBITDA	6,713	5,142	7,472	8,352	11,030	12,667	
EBIDTA %	*28.4%*	*21.4%*	*27.9%*	*28.6%*	*35.1%*	*37.9%*	*29.9%*
EH	2013	2014	2015	2016	2017	2018	Average
Revenue	27,619	25,149	22,094	23,627	21,124	20,221	
COGS	4,732	4,570	4,891	6,272	5,938	6,056	
SG&A	4,714	3,903	3,573	3,296	3,067	2,612	
R&D	737	657	1,032	1,237	1,046	937	
Other[2]	3,184	3,623	3,366	3,407	3,239	3,345	
EBITDA	14,252	12,396	9,232	9,415	7,834	7,271	
EBIDTA %	*51.6%*	*49.3%*	*41.8%*	*39.8%*	*37.1%*	*36.0%*	*42.6%*

1) IH revenue does include CH (Consumer Healthcare)

2) Other refers to costs, that have been allocated to corporate and have been allocated to specific business units (e.g., centralised research)

Table 3: Cost adjustments (2013 – 2018)

Adjustment for Other and Reconciling Cost in $m						
Other	2013	2014	2015	2016	2017	2018
Revenues	$ 232.00	$ 253.00	-	-	-	-
COGS	$ 866.00	$ 716.00	$ 479.00	$ 1,301.00	$ 762.00	$ 934.00
SG&A	$ 3,938.00	$ 3,655.00	$ 3,945.00	$ 4,499.00	$ 4,244.00	$ 4,659.00
R&D	$ 3,663.00	$ 3,946.00	$ 3,909.00	$ 3,703.00	$ 4,014.00	$ 4,160.00
Reconciling	2013	2014	2015	2016	2017	2018
Revenues	$ 132.00	$ 198.00	-	-	-	-
COGS	$ 313.00	$ 443.00	$ 627.00	$ 699.00	$ 449.00	$ 118.00
SG&A	$ 183.00	$ 377.00	$ 485.00	$ 92.00	$ 316.00	$ 223.00
R&D	$ 124.00	$ 1,241.00	$ 37.00	$ 31.00	$ 31.00	$ 43.00
Total	$ 8,723.00	$ 9,927.00	$ 9,482.00	$ 10,325.00	$ 9,816.00	$ 10,137.00

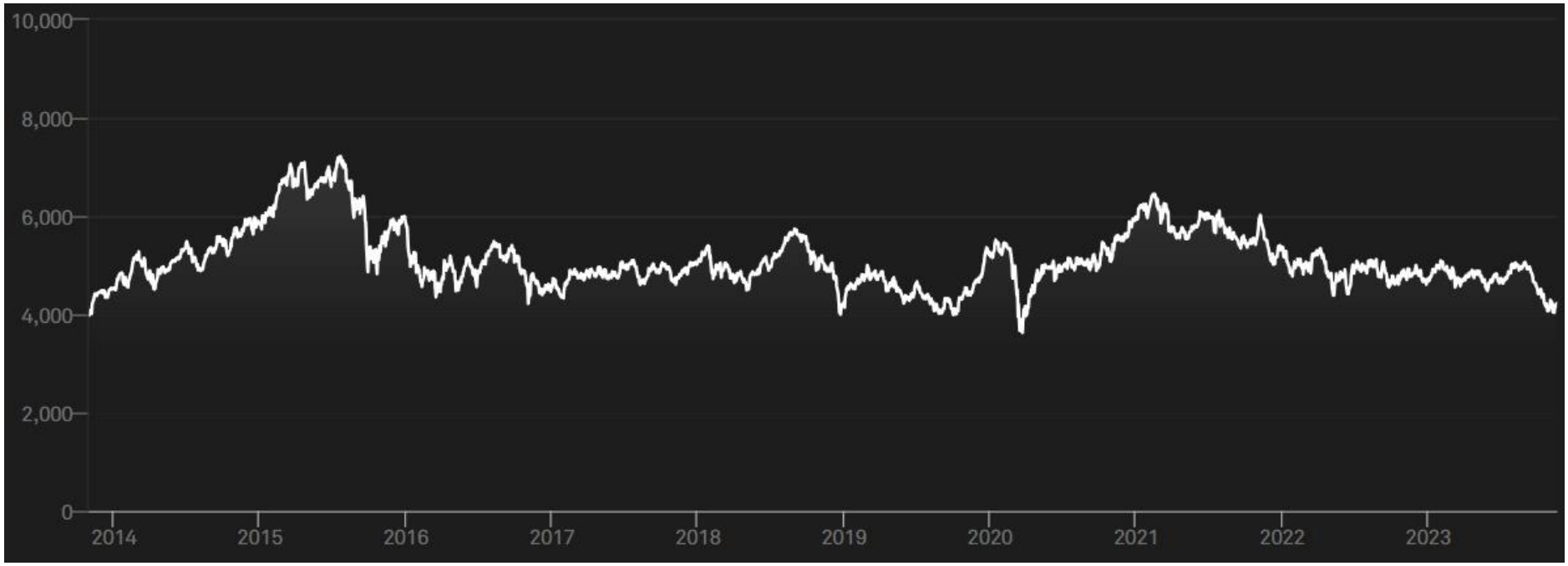
Table 4: Weighting factors for cost adjustment in business units (2013 – 2018)

--- Allocation disclaimer						
GIP	36.5%	36.5%	35.5%	34%	34%	34%
VOC	27.0%	27.0%	29.0%	34%	34%	34%
IH Total	63.5%	63.5%	64.5%	67.0%	67.0%	67.0%
GEP	36.5%	36.5%	35.5%	33%	33%	33%
Check	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: (Pfizer Inc. 2015b, 36–38; 2016b, 42–44; 2017b, 44–47; 2018b, 44–47; 2019b, 43–45)

Appendix 6

Figure 5: S&P Pharmaceuticals Select Industry Index (2014 – 2023)



Source: (S&P Dow Jones Indices 2023)

Appendix 7

Table 5: Information on Pfizer's drug pipeline development (2013 – 2019)

Pfizer's drug pipeline between 2013 and 2019, quantity of drugs in different stages							
	2013	2014	2015	2016	2017	2018	2019
Total Pipeline	78	82	90	90	96	87	100
Registration	7	7	7	8	7	10	11
Phase 3	17	20	22	30	34	29	26
Registration + Phase 3	24	27	29	38	41	39	37

Source: (Pfizer Inc. 2013b, 4; 2014a, 18; 2015a, 45; 2016a, 43; 2017a; 2018a; 2019c, 4)

Appendix 8

Table 6: Overview of market segment growth in comparison to Pfizer's business unit growth (2013 – 2018)

Golbal market sizes of certain medications; calculated in $bn									
	2013	2014	2015	CAGR	2016	2017	2018	CAGR
Total size[1]	$ 891.27	$ 921.37	$ 916.58	**0.9%**	$ 948.80	$ 976.10	$ 1,022.00	**2.5%**
Prescription drugs w/o Orphan & Generic drugs	$ 598.00	$ 613.00	$ 598.00	**0.0%**	$ 614.00	$ 624.00	$ 659.00	**2.4%**
Orphan drugs	$ 91.00	$ 96.00	$ 100.00	**3.2%**	$ 109.00	$ 118.00	$ 131.00	**6.3%**
Innovative drugs[2]	$ 689.00	$ 709.00	$ 698.00	**0.4%**	$ 723.00	$ 742.00	$ 790.00	**3.0%**
Pfizer Innovative Health	$ 23.60	$ 24.01	$ 26.76	**4.3%**	$ 29.20	$ 31.42	$ 33.43	**4.6%**
Generic drugs	$ 70.00	$ 76.00	$ 78.00	**3.7%**	$ 81.00	$ 82.00	$ 74.00	**-3.0%**
Pfizer Essential Health	$ 27.62	$ 25.15	$ 22.09	**-7.2%**	$ 23.63	$ 21.12	$ 20.22	**-5.1%**
OTC drugs[3]	$ 132.27	$ 136.37	$ 140.58	**2.1%**	$ 144.80	$ 152.10	$ 158.00	**3.0%**
Pfizer Consumer Healthcare	$ 3.34	$ 3.45	$ 3.40	**0.5%**	$ 3.41	$ 3.47	$ 3.61	**1.9%**
1) Calculated by adding innovative drugs, generic drugs and OTC drugs								
2) Calculated by adding Orphan drugs to Prescription drugs w/o Orphan & Generic drugs								
3) Data 2013-2016 is calculated by assuming a 3% yearly growth of the OTC market; calculated backwords from 2016 (no earlier data available)								

Source: (EvaluatePharma 2019, 9; 2021, 17; Statista 2023a; Statista Market Insights 2023)

Table 7: Revenue of Pfizer's largest competitors in each segment (2015 and 2018)

Pfizer's lagest competitors: Revenue per segment in $bn			
Category	Company	2015	2018
Innovative pharmaceuticals	Roche	$ 37.33	$ 43.74
Generics	Teva	$ 19.65	n.a.
	Mylan	n.a.	$ 11.43
Consumer Healthcare	Johnson & Johnson	$ 13.51	$ 13.85

Source: (Roche 2016, 10; 2019, 10; Johnson & Johnson 2016, 11; 2019, 18; Teva 2018, 56; Mylan Inc. 2019, 40)

Appendix 9

Table 8: Cost structure and business unit growth in $m (backdated from 1st of January 2019)

IH		2017		2018		2019	CAGR
Revenue	$	35,530.00	$	37,558.00	$	39,419.00	3.5%
COGS	$	7,012.00	$	7,147.00	-		
SG&A	$	6,487.00	$	6,678.00	-		
R&D	$	847.00	$	907.00	-		
Other	$	10,254.79	$	10,578.44	-		
EBITDA	$	10,929.21	$	12,247.56	-		
EBIDTA %		*30.8%*		*32.6%*	-		
Upjohn		2017		2018			
Revenue	$	13,447.00	$	12,484.00	$	10,233.00	-8.7%
COGS	$	1,919.00	$	1,964.00	-		
SG&A	$	1,913.00	$	1,668.00	-		
R&D	$	275.00	$	233.00	-		
Other	$	3,881.12	$	3,516.19	-		
EBITDA	$	5,458.88	$	5,102.81	-		
EBIDTA %		*40.6%*		*40.9%*	-		
*CH		2017		2018			
Revenue	$	3,472.00	$	3,605.00	-		
Other	$	1,002.10	$	1,015.37	-		
EBITDA	$	2,469.90	$	2,589.63	-		
EBITDA %		*71.1%*		*71.8%*	-		

*Limitations: Pfizer does not disclose the exact cost structure for CH; therefore, an approximation was done. This dilutes the overall cost structure. Another approach would be to approximate the EBIDTA % with the GSK Consumer Healthcare Joint Venture, Shareholder Information, p.15. Contrary, this approach would violate the EBITDA % of IH and Upjohn. The chosen approach leads to a larger EBITDA multiple valuation for CH but allows for better EBITDA multiple valuation for IH and Upjohn.

Table 9: Cost incurred in corporate in $m (2017 and 2018)

Other		2017		2018
*Revenues	$	97.00		
COGS	$	1,847.00	$	2,018.00
SG&A	$	6,089.00	$	5,886.00
R&D	$	6,531.00	$	6,822.00
Reconciling		2017		2018
Revenues				
COGS	$	449.00	$	118.00
SG&A	$	316.00	$	223.00
R&D	$	31.00	$	43.00
Total	$	15,166.00	$	15,110.00
*Only includes Other unallocated, deducting CH revenues				

Table 10: Weighting factors for cost adjustment in business units (2017 and 2018)

Check		2017		2018
Pfizer EBITDA	$	18,831.00	$	19,938.00
Unit SUM	$	18,858.00	$	19,940.00
Check		99.9%		100.0%

Cost Allocation	2017	2018
IH/Pfizer Revenue	67.6%	70.0%
Upjohn/Pfizer Revenue	25.6%	23.3%
CH/Pfizer Revenue	6.6%	6.7%
Check	99.815%	100.0%

Source: (Pfizer Inc. 2020b, 36–43)

Teaching Note

Case Summary

The Pfizer case study revolves around two different CEOs and the decisions they made between 2013-2018, followed by a forward-looking perspective extending to 2028. It particularly focuses on the topic of the costs and benefits associated with streamlining operations against those of diversification. To thoroughly comprehend and critically assess these trade-offs, the case presents a detailed history of Pfizer, highlighting its various restructurings and mergers, alongside an exploration of the broader pharmaceutical industry's dynamics.

Target Audience and Learning Objectives

This case teaches students how to analyse, discuss, and make fact-based, strategic decisions in an uncertain and highly regulated environment. It is designed for graduate-level business or MBA programs, specifically focusing on strategy. Based on the proposed frameworks, this case allows for a wide range of discussion points, including:

- Evaluation of industry drivers and competitiveness in the pharmaceutical industry, focusing on innovative pharmaceuticals, generics, and consumer healthcare segments, using an industry value chain analysis ("IVC") and Porter's Five Forces ("5F").
- Discussion of Pfizer's strategic position within the pharmaceutical industry, by evaluating Pfizer's business model ("BM") with the VRIO framework.
- Utilising the Growth-Share-Matrix ("BCG Matrix"), to analyse the strategic value of Pfizer's business units ("BU"), to identify promising businesses and effectively allocate resources within them.
- Optional: Financial valuation analysis ("Sum of the Parts" analysis, "SOTP") in corporate strategy, and how strategic decisions are influenced by their outcomes.

Teaching Plan

The teaching plan outlines the preparation period and the 120-minute live session in a classroom

setting [Appendix 1]. To ensure a comprehensive discussion, students should be familiar with 5F and VRIO before the session. The lecturer should first outline the agenda to ensure mutual understanding. Following this there will be an exploration of external and internal factors, to synthesise foundational understanding of the pharmaceutical industry and Pfizer's BM as well as its competitive position (30 min.) [Appendix 2 & 3]. The lecturer should then give students a short overview of the BCG matrix and students will subsequently spend 15 minutes working in small teams to apply the BCG matrix to Pfizer's BUs for the years 2015 and 2018 [Appendix 4]. During the discussion of the classification outcomes in the BCG matrix, the lecturer should also focus on additional factors (15 min). Tying together all factors that should be considered, the session will also include qualitative review of Read's and Bourla's decisions (15 min. each). Optionally, the lecturer can also include the SOTP in the analysis by providing students with the data in Appendix 5 [Appendix 5 & 6]. Finally, students should analyse and rate Pfizer's prospects (15 min).

Q1: External analysis – explain the external environment in the pharmaceutical industry:

This question is designed to build foundational understanding of the pharmaceutical IVC and its competitive landscape, particularly in the areas of innovative pharmaceuticals, generics, and consumer healthcare. Through an IVC analysis, students will identify and understand the key factors that drive value in each segment. This analysis will help students to examine the segment dynamics when applying the 5F framework.

Q1.1: Describe the pharmaceutical industry's value chain:

The IVC encompasses raw material suppliers, pharmaceutical companies, wholesalers and distributors, healthcare professionals ("HCP"), buyers, and consumers. For comprehensive insights of each industry stakeholder, students can refer to the second appendix in the case.

Suppliers deliver raw materials to pharmaceutical companies. The pharmaceutical companies usually manage the entire R&D, manufacturing, and marketing process, but they might not

distribute all their products directly. In many instances, wholesalers function as intermediaries between the pharmaceutical companies and hospitals as well as pharmacies. Another important aspect to realise is, that patients do not select the drugs they take, as HCPs are responsible for these decisions. Further, buyers and consumers are not always the same entity, as consumers do not always pay for drugs themselves. Varying by country, health insurance or governments often pay for healthcare costs. Therefore, depending on country regulation, the buyer may be responsible for making the purchasing decisions. Examples for this are health insurances that have contracts with pharmaceutical companies.

Q1.2: Explain the external forces in the pharmaceutical industry:

Threat of new entrants: The innovative pharmaceuticals sector faces low threat of entry, primarily because of regulations and the need for significant capital and extended development time for new drugs, coupled with a declining return on investment. The generics sector faces a moderate entry threat, with lower barriers due to no new drug discovery needs, lower development costs ($1-2.0 million), and shorter market entry times, although regulatory challenges remain significant. The consumer healthcare sector experiences a high threat of new entrants, primarily because over-the-counter ("OTC") drug regulations are less extensive, therefore lowering barriers and easing market access [Appendix 2].

Bargaining power of customers: To assess the buyer power, it is important for students to understand, that there are several buyers in the innovative pharmaceuticals and generics sector. Generally, there are great distinctions between countries. In both sectors, governments and healthcare insurances, display influence trough ensuring patent protection and setting prices. The patient usually has little to no power, as they rely on HCPs to describe the medication. Therefore, depending on country, the buyer power is moderate to high. In consumer healthcare, the dynamic is different, with a high buyer power for customers, as they can freely choose from a wide range of OTC products without prescription constraints [Appendix 2].

Threat of substitutes: The threat of substitutes is low in both the innovative pharmaceuticals and generics sectors, as there are no scientific alternatives. In consumer healthcare, the threat is moderate as OTC drugs can be partly substituted by a healthy lifestyle [Appendix 2].

Competitive rivalry: The competitive rivalry in the innovative pharmaceutical and generics sectors are high. Firstly, innovative pharmaceutical companies are competing to treat specific conditions. This also applies for the generics sector. Secondly, after a patent has expired, the two sectors become increasingly entangled. Generally, in both sectors, there are large companies concentrating the industry power, mainly through M&A activity. For innovative pharmaceutical companies, there is a constant need for new innovations, as for generics companies, there is the need for large scale manufacturing to ensure low prices. The high industry regulation also leads to increased rivalry through limited variations in the business procedure. Consumer healthcare also sees high rivalry as products often lack differentiation beyond branding and marketing efforts [Appendix 2].

Q2: Internal analysis – describe the core strengths of Pfizer's business:

Analysing and understanding Pfizer's most critical capabilities with the VRIO framework will help in the further progression of the case by discussing resource allocation, relative strategic industry standing and critical long-term success factors. It is essential for students to understand that Pfizer's strengths lie more in external business development and marketing strategies than in its R&D performance. The lecturer may opt to provide inputs to direct discussion to the outlined areas [Appendix 3].

Ability to manufacture high quality drugs: Vital due to strict industry regulations. Pfizer's control over production ensures top-quality products. This capability is valuable in being able to produce sellable products within regulatory requirements, common and replicable due to the amount of manufacturing companies and mostly standardises processes, but well-organised in hindsight of Pfizer's global manufacturing network (EIB 2021).

Innovative R&D: Pfizer invests heavily in R&D to discover new drugs and secure patents, essential to their BM. While valuable and common, their research is hard to imitate due to patent protection, capital requirements, and knowledge. However, recent R&D outcomes suggest a lack of organisation.

Effective marketing & sales strategy: Pfizer's robust marketing strategy facilitates broad administration, a fact underscored by the success of both their proprietary drugs and externally sourced inventions. The extensive network of sales employees is a testament to their operational efficiency, making it a rare asset that is challenging for competitors to replicate.

Business development: Pfizer actively pursues M&A and collaborations to acquire new drugs and expand into new segments and therapeutical areas. Many of Pfizer's top drugs were acquired through such deals, making this approach valuable, rare, hard to imitate and well-organised. Pfizer's approach to dealmaking aligns with their strategic focus on acquiring new capabilities and knowledge.

Q3. Corporate strategy – assess Read's and Bourla's decision making:

To assess the BU attractiveness, it is suggested to use the BCG matrix, which is used as a portfolio management framework to prioritise BUs' attractiveness. This analysis aids students in understanding the strategic reasoning behind Pfizer's restructuring decisions, highlighting how each BU's respective segment growth and share influenced Read's and Bourla's decisions in 2015, respectively 2018. When advancing through the framework, students are encouraged to thoughtfully consider factors beyond the BUs' classification. This suggests the necessity for additional analysis extending past the scope of the BCG matrix [Appendix 4].

Q3.1: Analyse the attractiveness of Pfizer's three segments IH, EH, and CH during the periods of 2013-2015 and 2016-2018:

IH: When assessing the Innovative Health ("IH") unit for 2015 and 2018, only minor change can be noted, even though the classification is different, with 2015 the IH unit being classified

as “Pet” and in 2018 as “Question Mark”. Usually, the approach for this classification is to abandon the BU, especially when being considered as a “Pet”. An important consideration for students should be that the BCG matrix suggests that “Pets” or “Questions marks”, normally have low or negative cash flows. In contrast to Pfizer’s cost structure, IH is generating highly positive cash flows, displaying growing margins, presenting a scenario in which students should note a divergence from the typical recommendations of the BCG matrix. Furthermore, despite Pfizer’s low relative market share in the segment, its IH unit’s growth is catching up with the segment growth, signalling a potential increase in future market share. Due to the advantages of patent protections, it is not common to see a lot of growth or decline in market share, only if there is consolidation between competitors or the launch of a new blockbuster. As a result, the primary objective for Pfizer should be to maintain and substantially invest in the IH unit.

EH: When analysing the Essential Health (“EH”) unit at different points in time, contrasts emerge between the classifications. In 2015, the EH unit was regarded as a “Star” in the BCG matrix primarily due to Pfizer’s dominant position in the market. During both periods, the unit generated strong positive cash flows but faced declining margins. It is vital for students to recognise that maintaining the unit did not necessarily imply significant investments as the BCG matrix suggests. This is because the established brands in Pfizer’s EH portfolio had different fundamentals compared to generics, which require market penetration. By 2018, the scenario had shifted, with the EH unit’s classification changing to a “Cash Cow”, reflecting a slowdown in segment growth. This change was largely attributed to increased competition and price reductions from foreign manufacturers. Furthermore, the impact of biosimilars is also highly relevant. Their removal from EH (Upjohn) shifts the trend heavily towards “Pets”.

CH: The Consumer Healthcare (“CH”) unit has been a part of IH for an extended period, limiting argumentation outside of the classification in the BCG matrix. For both years CH is categorised as a “Question Mark”. CH was not exceeding segment growth or commanding a

significant market share. Furthermore, the CH division showed a trajectory towards “Pets”.

Q3.2 Evaluate Read’s decisions to keep EH by the end of 2015 looking at synergies, market conditions, and financial implications:

In assessing whether Read’s decision against divesting the EH unit, a qualitative discussion should be formed around all previously discussed frameworks. To facilitate a discussion, three areas are outlined below, including a conclusion. It should be mentioned that there is no conclusive correct answer, but rather a general direction of arguments.

Analysis of synergies: Pfizer’s strategic operations were effectively striking a balance between innovation-driven growth (IH) and the steady cash flow of EH. IH’s drug development was financially supported by the steady revenue stream from EH. Specifically, students should note here that there are stabilising and subsidising effects in cash flows due to the long development time, and low success rates of blockbuster drugs. This dynamic aimed to support Pfizer’s weak, but improving R&D pipeline, which might have been compromised post-divestment. These findings are consistent with the connectedness explained in the BCG matrix. Without this dynamic, Pfizer could have been losing critical internal funding to further accelerate its growth in the IH segment. This suggests that the current structure did not stifle innovation, an argument often used to advocate for splitting large organisations.

Analysis of market conditions: To optimise timing for a divestment, it is ideal to align with positive economic trends. The S&P Pharmaceuticals Select Industry Index (“Pharma Index”) fell 18.2% from its annual peak in 2015, influenced by China’s struggling market and political discussions on drug pricing control in the US. These elements have reduced market valuations, impacting the potential divestiture’s value, making it financially less attractive.

Analysis of financial implications: Pfizer’s internal analysis concluded that a divestment would not notably enhance cash flow or competitive positioning when weighed against the risks and costs of such a significant structural change. The decision also factored in the potential for

operational disruption and the costs of a divestment. Optional: As seen in the SOTP valuation, three of four indicators suggest that Pfizer's BUs would be worth more as standalone units. This is contrary to the other analysis and can mainly be attributed to the market conditions and multiples of generic companies, which were at high levels due to the increase in approvals.

Conclusion: Read's decision to forgo splitting Pfizer was correct under the outlined circumstances. The potential value unlocked by a theoretical divestment did not definitively outweigh the practical benefits of the current structure, especially when factoring in risks. Therefore, maintaining the business portfolio intact was likely the best course of action, enabling Pfizer to continue leveraging the full breadth of its assets and strategic capabilities. The used frameworks suggest the same outcome, except the optional SOTP analysis.

Q3.3 Evaluate Bourla's decisions to divest EH and CH by the end of 2018, looking at synergies, market conditions, and financial implications:

In assessing whether Bourla's decision was advantageous for Pfizer's strategic direction, students should factor in multiple factors, consistent with the discussed frameworks. For a qualitative discussion, three areas are outlined below, including a conclusion. Generally, students should note beforehand that under Bourla, Pfizer shifted its corporate strategy away from "megamergers" to focus on developing innovative drugs. Overall, the analysis of Bourla's decision is complex because Pfizer's trajectory was affected by the Covid-19 pandemic.

Analysis of synergies: Bourla's decision to divest Upjohn (EH without biosimilars) and CH, shows that the beforehand analysed synergies, did not fit, or were not as strong anymore as thought. Evidence of this are the dedicated manufacturing and regulatory capabilities that the CH unit received, aligning OTC drugs with consumer behaviour and market cycles like consumer goods. With IH becoming the central focus, students should be able to mention the key factors that are influencing the success of the IH unit. Main factors include successful R&D, future patent cliffs and the integration of biosimilars. In terms of R&D, Bourla set a goal to

launch 25 new pharmaceuticals by 2025, demonstrating a robust commitment to R&D, which is supported by pipeline data, showing a significant shift from Read's decision baseline. Therefore, it must be assumed that Bourla did not value the financial synergies that the EH and CH units brought as much as Read did. While streamlining strengthens Pfizer's commitment to innovation and growth in high-potential segments, it can be argued that the low chance of developing a highly successful drug can be riskier without subsidising cash flows from the other BUs. Furthermore, it is whether a more focused Pfizer will create more innovative drugs. If students look at the underlying classification of the used frameworks, it seems that Bourla did make the right decisions in divesting less attractive segments, but in contrast to Pfizer's history, R&D has not been fully successful in growing and stabilising the business without "megamergers", making it a riskier and uncertain bet.

Analysis of market conditions: The pharma index's overall value was lower when compared to 2015. However, this period also saw significantly reduced volatility, leading to increased predictability and certainty regarding future market trends. Factors to consider include the ongoing debate over drug pricing, which may constrain the growth potential of the sector. This situation is likely to encourage consolidation within the sector as a strategy to boost volume.

Analysis of financial implications: When analysing the BCG matrix classification, the removal of biosimilars from EH shifted the unit towards "Pets". Whit decreasing unit growth, this could have been a last chance to receive a fair residual value. Additionally, the transaction involving EH generated substantial proceeds of $12.0 billion for Pfizer, significantly aiding in the reduction of its debt. Furthermore, students might argue that the long-term impact of declining generic drug prices and a surge in approvals will likely lead to a gradual decrease in cash flows. Optional: The SOTP reveals diverse valuations ranges, with revenue multiples discouraging divestment, due to synergies worth >$75.0 billion, while EBITDA multiples suggest possible benefits from a divestiture due to a "conglomerate discount". However,

excluding outliers like TEVA Pharmaceutical, the overall recommendation is against splitting the company. In contrast, Pfizer's valuation is now primarily influenced by the IH segment, unlike in 2015 when EH led. This shift suggests IH's strength as an independent unit, potentially supporting a divestment.

Conclusion: For students to determine the accuracy of Bourla's decision, their primary focus should be on evaluating Pfizer's pipeline. This is crucial as it serves as the key indicator of whether Pfizer's strategy can drive sustainable growth, particularly in the absence of stabilising factors. Pfizer's pipeline appears robust, and Bourla's goal to deliver 25 new drugs by 2025 is ambitious. While this target remains to be achieved, an analysis based solely on financial and market indicators might suggest that Bourla's decision was strategically correct to maximise value, despite numerous uncertainties. However, students may weigh different factors and potentially reach an opposite conclusion.

Q4: Outlook – assess if Pfizer might diversify its business again in the future:

When analysing Pfizer's history, particularly during times when Pfizer faced substantial patent cliffs, a pattern emerges. During these periods, Pfizer consistently turned to "megamergers" to diversify its business, enhance its pipeline or to improve its product portfolio. This trend is evident by the company's acquisitions between 2000 and 2015 amounting to $235.0. In line with Pfizer's pattern of diversification through M&A, these efforts are typically followed by a phase of streamlining operations. This trend is evident in Pfizer's strategic choices, such as selling inherited brands and divesting its CH, nutrition, and animal health unit.

Pfizer recently streamlined operations by divesting the EH and CH unit and faces a patent cliff threatening a 40.0% revenue decline by 2028 (excluding Covid-19 revenue). Considering Pfizer's history and cash reserves, Bourla will probably opt to choose to diversify the business portfolio again through M&A, against his initial strategy. This is supported by the fact that historically Pfizer's strength has been in business development and marketing rather than R&D.

Teaching Note Appendix

Appendix 1

Table 1: Teaching approach

Part	Plan	Duration	
Preparation	Students are provided with the case one week before the case discussion for reading and preparation	1week	
Discussion	The lecturer starts the session by outlining the session schedule	10min	120min
	The lecturer initiates exploration and disucssion of the external factors (Questions 1.1 and 1.2)	20min	
	The lecturer initiates exploration and discussion of the internal factors (Question 2)	10min	
	The lecturer introduces the BCG model for strategic analysis	5min	
	Students work in small teams to classify Pifzer's business units in the BCG matrix for the years 2015 and 2018 (Question 3.1)	10min	
	Results from applying the BCG matrix are discussed and the lecturer incentivises to discuss additional factors to consider (Question 3.1)	10min	
	Read's decision is discussed (Question 3.2)	15min	
	Bourla's decision is discussed (Question 3.3)	15min	
	Sum of the parts analysis is conducted and discussed in the context of Read's and Bourla's decision (Optional)	10min	
	Students tie togehter the decision outcomes and analyse the outlook for Pfizer (Question 4)	15min	

Table 2: Teaching plan

Section	Questions
1. External analysis	**Q1:** External analysis – explain the external environment in the pharmaceutical industry
	Q1.1: Describe the pharmaceutical industry's value chain and the role of pharmaceutical companies
	Q1.2: Explain the external forces in the pharmaceutical industry
2. Internal analysis	**Q2:** Internal analysis – describe the core strengths of Pfizer's business
3. Corporate strategy	**Q3:** Corporate strategy – Assess Read's and Bourla's decision making
	Q3.1: Analyse the attractiveness of Pfizer's three segments IH, EH, and CH during the periods of 2013-2015 and 2016-2018
	Q3.2: Evaluate Read's decisions to keep EH by the end of 2015 looking at synergies, market conditions, and financial implications
	Q3.3: Evaluate Bourla's decisions to divest EH and CH by the end of 2018, looking at synergies, market conditions, and financial implications
4. Future outlook	**Q4:** Outlook – assess if Pfizer might diversify its business again in the future

Appendix 2

Figure 2: Five forces - Innovative pharmaceuticals

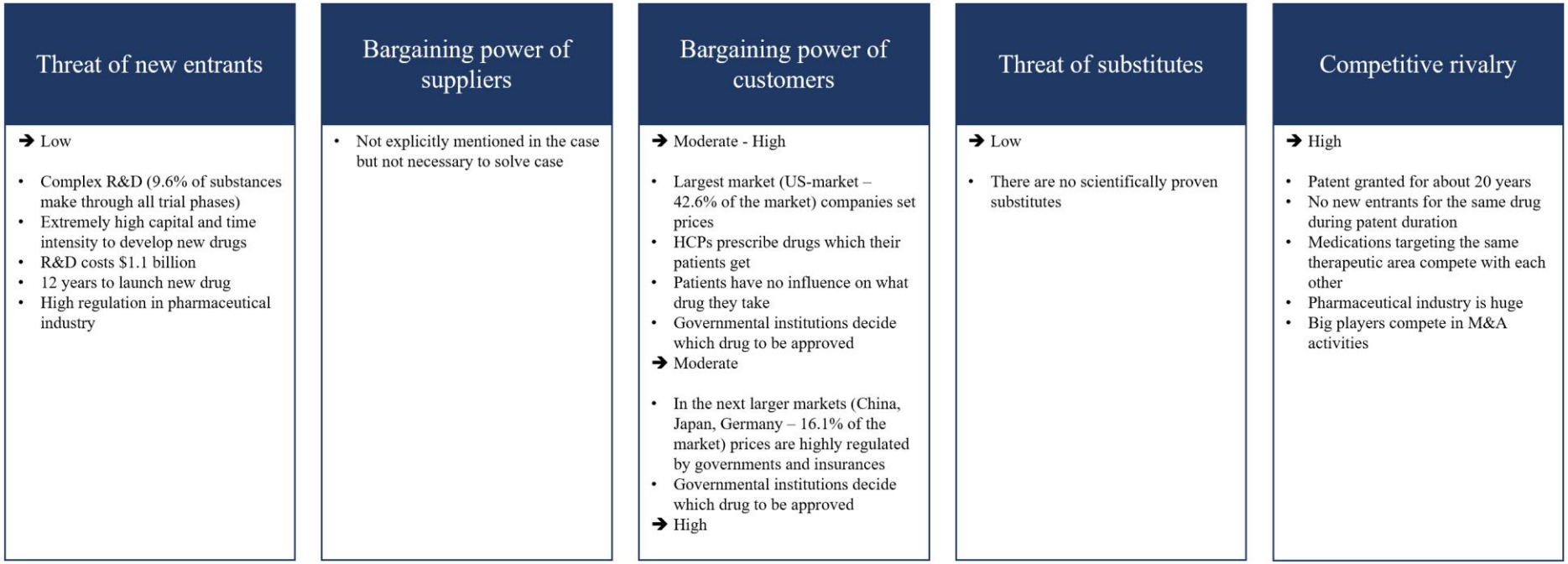


Figure 3: Five forces – Generics

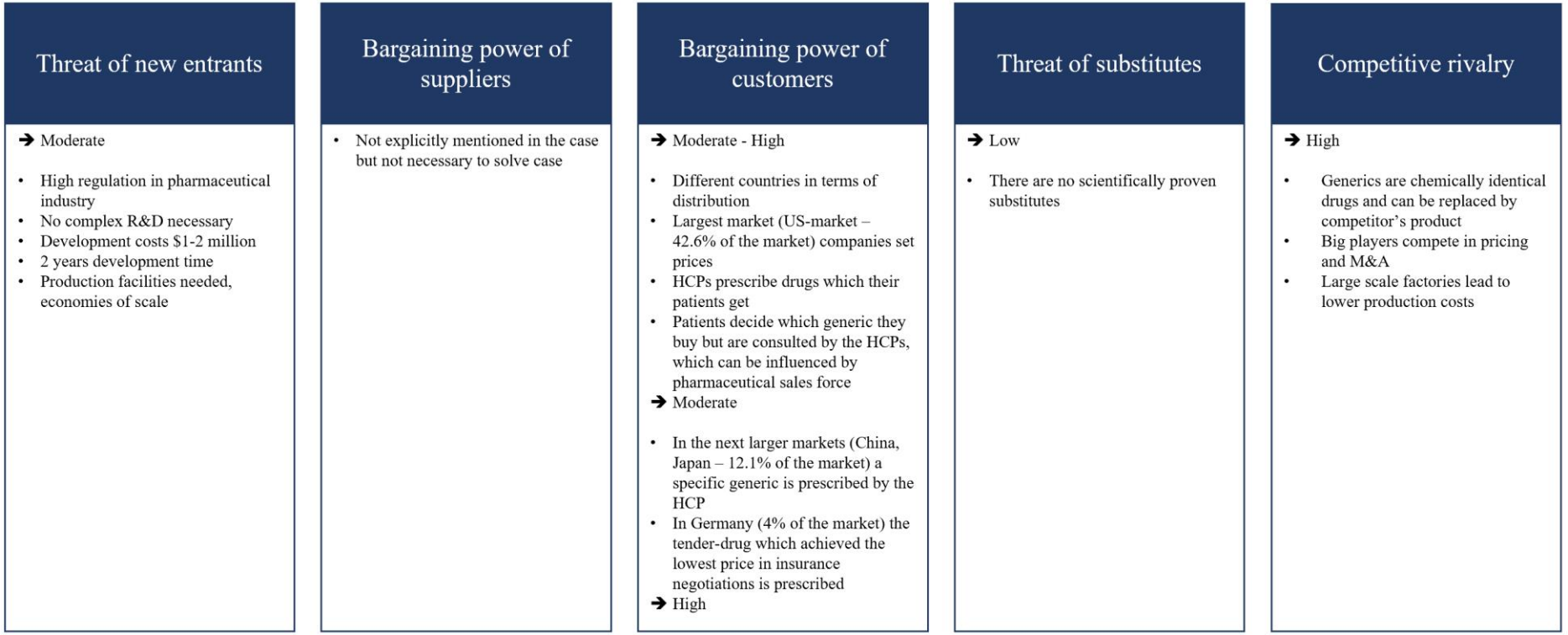
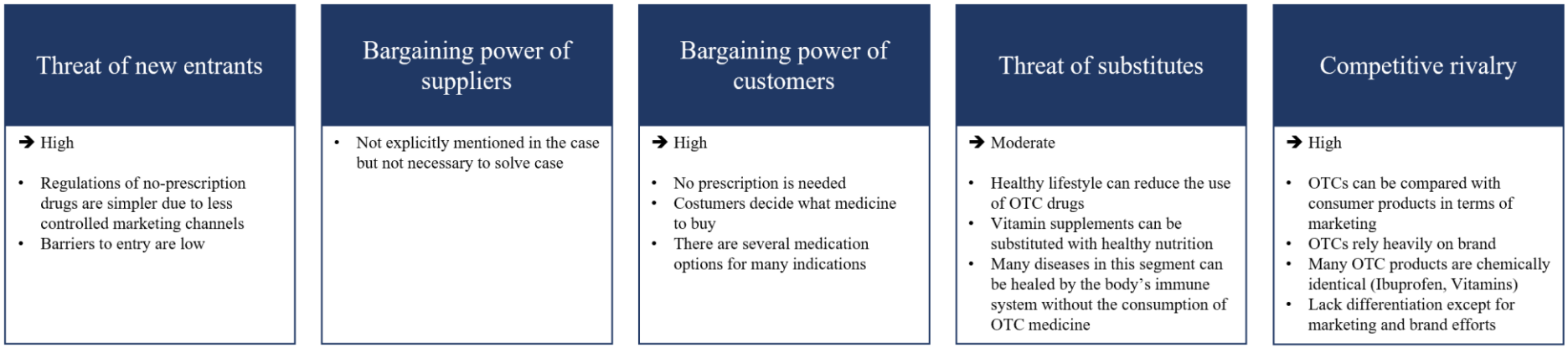
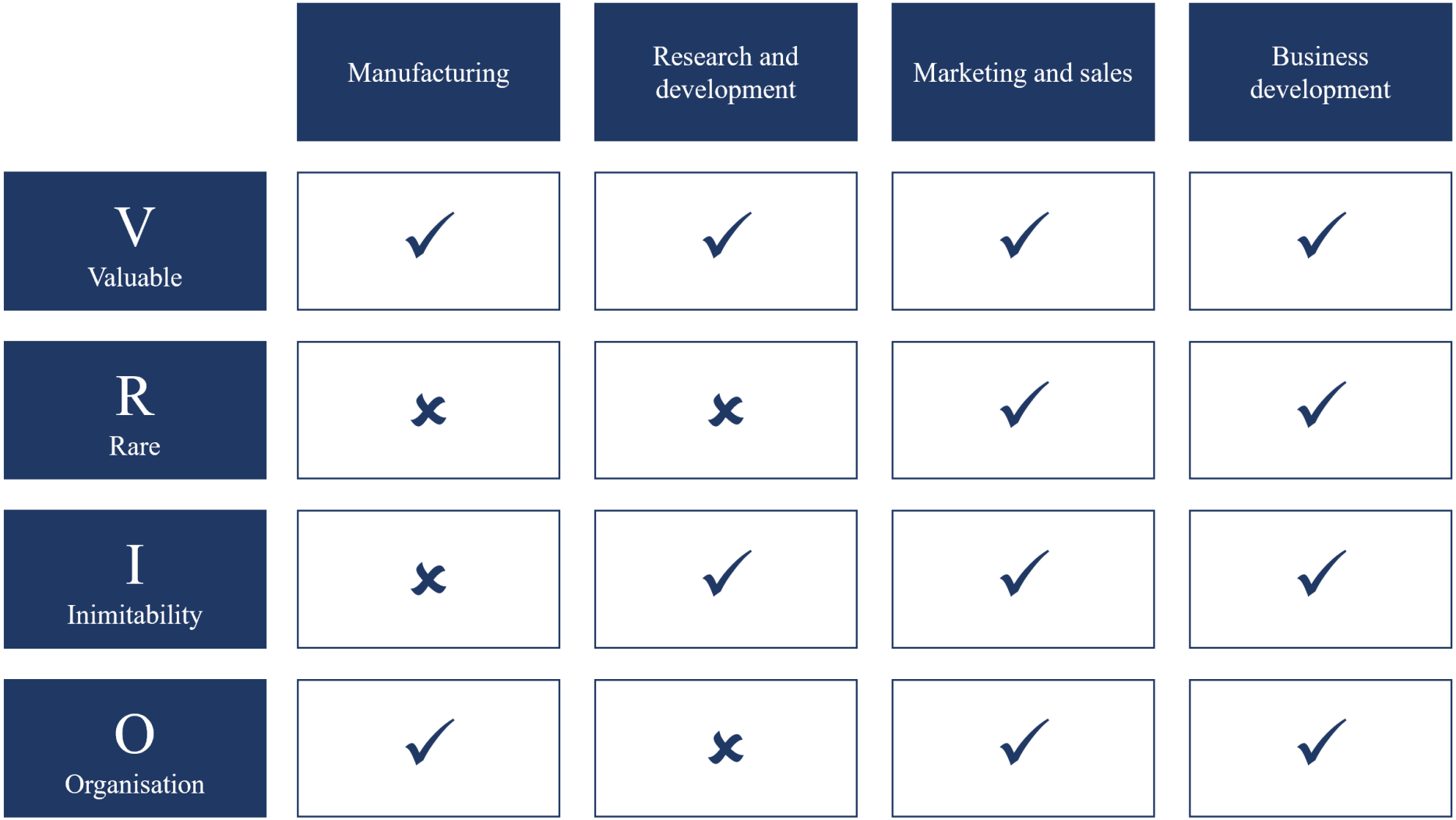


Figure 3: Five forces - OTC drugs



Appendix 3

Figure 6: VRIO analysis Pfizer



Appendix 4

Figure 4: Classifications of Pfizer's business units in the BCG matrix

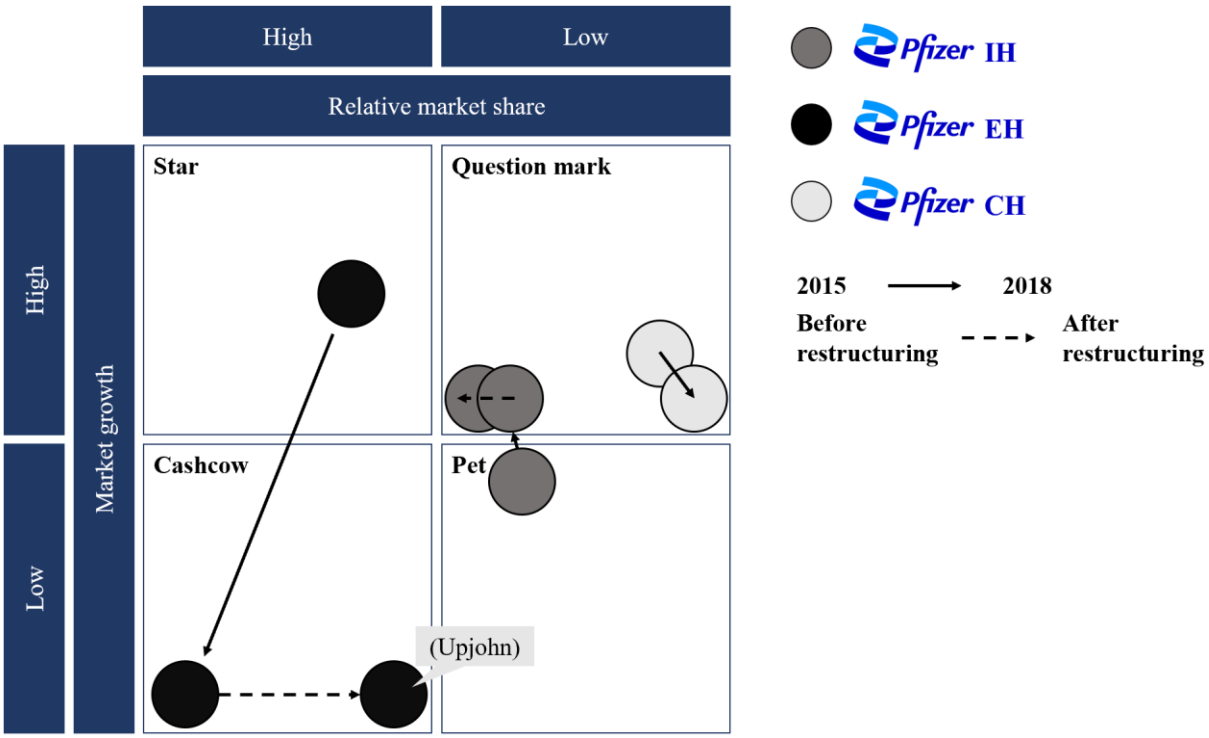


Table 3: Calculation and solution of the BCG matrix

Innovative Health	2015	2018	
		Before resturcturing	After restructuring[2]
Relative market share	0.72	0.76	0.86
Market growth	-0.50%	0.50%	0.50%
Pfizer revenue ($bn)	26.76	33.43	37.56
Largest competitor revenue ($bn)[1]	37.33	43.74	43.74
IH market growth	0.40%	3.00%	3.00%
Pharmaceutical market growth	0.90%	2.50%	2.50%
1) Roche is the largest competitor in 2015 and 2018			
2) Excludes Consumer Healthcare but includes Biosimilars			

Essential Health	2015	2018	
		Before resturcturing	After restructuring[2]
Relative market share	1.12	1.77	1.09
Market growth	2.80%	-5.50%	-5.50%
Pfizer revenue ($bn)	22.10	20.22	12.48
Largest competitor revenue ($bn)[1]	19.65	11.43	11.43
EH market growth	3.70%	-3.00%	-3.00%
Pharmaceutical market growth	0.90%	2.50%	2.50%
1) Teva is the largest competitor in 2015 and Mylan in 2018			
2) Excludes biosimilars			

Consumer Health	2015	2018	
		Before resturcturing	After restructuring
Relative market share	0.25	-	0.26
Market growth	1.20%	-	0.50%
Pfizer revenue ($bn)	3.40	-	3.61
Largest competitor revenue ($bn)[1]	13.51	-	13.85
CH market growth	2.10%	-	3.00%
Pharmaceutical market growth	0.90%	-	2.50%
1) Johnson & Johnson is the largest competitor in 2015 and 2018			

Source: Case Appendix 8

Appendix 5

Table 11: Financial information on Pfizer and selected peers (31.12.2015)

	12/31/2015	Enterprise Value	Revenue	EBITDA	EV/Revenue	EV/EBITDA
Valuation	**PFIZER INC**	$ 214,873,501,696.00	$ 48,851,000,000.00	$ 16,704,000,000.00	4.4	12.9
	Innovative Health	-	$ 26,758,000,000.00	$ 7,472,000,000.00		
	Essential Health	-	$ 22,094,000,000.00	$ 9,232,000,000.00		
	IH	Enterprise Value	Revenue	EBITDA	EV/Revenue	EV/EBITDA
Selected Peers	JOHNSON & JOHNSON	$ 269,891,457,024.00	$ 74,330,996,736.00	$ 24,853,999,616.00	3.6	10.9
	BAYER AG-REG	$ 122,544,087,145.87	$ 51,154,739,805.71	$ 10,626,110,905.08	2.4	11.5
	NOVARTIS AG-REG	$ 248,886,703,502.48	$ 50,387,001,344.00	$ 14,202,000,384.00	4.9	17.5
	GSK PLC	$ 114,263,352,841.01	$ 36,562,564,736.69	$ 18,338,595,109.55	3.1	6.2
	NOVO NORDISK A/S-B	$ 148,559,022,496.38	$ 16,061,840,632.28	$ 7,755,377,229.62	9.2	19.2
				Median	**3.6**	**11.5**
				Average	**4.7**	**13.1**
	EH	Enterprise Value	Revenue	EBITDA	EV/Revenue	EV/EBITDA
Selected Peers	MYLAN NV	$ 32,726,660,096.00	$ 9,429,300,224.00	$ 2,492,999,936.00	3.5	13.1
	TEVA PHARMACEUTICAL IND LTD	$ 69,382,399,923.31	$ 19,651,999,744.00	$ 4,659,999,744.00	3.5	14.9
	HIKMA PHARMACEUTICALS PLC	$ 6,934,605,003.34	$ 1,440,000,000.00	$ 454,000,000.00	4.8	15.3
	SUN PHARMACEUTICAL INDUS	$ 29,141,859,790.36	$ 4,457,313,878.42	$ 1,302,839,487.77	6.5	22.4
				Median	**4.2**	**15.1**
				Average	**4.6**	**16.4**

Table 12: Financial information on Pfizer and selected peers (31.12.2018)

	12/31/2018	Enterprise Value	Revenue	EBITDA	EV/Revenue	EV/EBITDA
Valuation	**PFIZER INC**	$ 275,224,713,216.00	$ 53,647,000,000.00	$ 19,938,000,000.00	5.1	13.8
	Innovative Health	-	$ 37,558,000,000.00	$ 12,247,560,000.00		
	Upjohn	-	$ 12,484,000,000.00	$ 5,102,810,000.00		
	Consumer Health	-	$ 3,605,000,000.00	$ 2,589,630,000.00		
	IH	Enterprise Value	Revenue	EBITDA	EV/Revenue	EV/EBITDA
Selected Peers	ASTRAZENECA PLC	$ 107,430,052,111.18	$ 22,090,000,384.00	$ 7,240,000,000.00	4.9	14.8
	ROCHE HOLDING AG-GENUSSCHEIN	$ 218,721,772,579.05	$ 58,120,520,509.90	$ 18,766,529,054.64	3.8	11.7
	SANOFI	$ 127,465,685,148.70	$ 42,139,047,507.10	$ 10,576,987,014.60	3.0	12.1
	BRISTOL-MYERS SQUIBB CO	$ 82,244,693,248.00	$ 22,560,999,424.00	$ 5,880,999,936.00	3.6	14.0
	MERCK & CO. INC.	$ 214,944,764,928.00	$ 42,294,001,664.00	$ 12,817,999,872.00	5.1	16.8
				Median	**3.8**	**14.0**
				Average	**4.1**	**13.9**
	Upjohn	Enterprise Value	Revenue	EBITDA	EV/Revenue	EV/EBITDA
Selected Peers	MYLAN NV	$ 20,266,203,136.00	$ 11,433,900,000.00	$ 2,492,999,936.00	1.8	8.1
	TEVA PHARMACEUTICAL IND LTD	$ 44,068,786,176.86	$ 18,271,000,576.00	$ 205,000,000.00	2.4	215.0
	HIKMA PHARMACEUTICALS PLC	$ 5,642,145,375.09	$ 2,070,000,000.00	$ 492,000,000.00	2.7	11.5
	SUN PHARMACEUTICAL INDUS	$ 14,269,749,935.55	$ 4,031,732,689.29	$ 869,900,903.47	3.5	16.4
				Median	**2.6**	**13.9**
				Average	**2.6**	**62.7**
	CH	Enterprise Value	Revenue	EBITDA	EV/Revenue	EV/EBITDA
Selected Peers	PROCTER & GAMBLE CO/THE	$ 248,446,259,200.00	$ 66,831,998,976.00	$ 16,197,000,192.00	3.7	15.3
	PERRIGO CO PLC	$ 7,955,740,928.00	$ 4,731,700,224.00	$ 660,099,968.00	1.7	12.1
	RECKITT BENCKISER GROUP PLC	$ 67,908,247,222.13	$ 16,818,023,287.37	$ 4,628,728,024.53	4.0	14.7
	COLGATE-PALMOLIVE CO	$ 57,252,883,456.00	$ 15,544,000,512.00	$ 4,204,999,936.00	3.7	13.6
	CHURCH & DWIGHT CO INC	$ 17,982,663,168.00	$ 4,145,900,032.00	$ 932,800,000.00	4.3	19.3
				Median	**3.7**	**14.7**
				Average	**3.5**	**15.0**

Source: Bloomberg Terminal

Appendix 6

Table 13: SOTP analysis (31.12.2015)

	Analysis			
	Revenue x median multiple	Revenue x average multiple	EBITDA x median multiple	EBITDA x average multiple
Innovative Health	$ 97,156,716,903.68	$ 124,908,144,088.28	$ 86,169,759,315.85	$ 97,588,157,967.41
Essential Health	$ 92,201,018,876.90	$ 101,383,718,755.88	$ 139,234,199,930.64	$ 151,540,436,552.91
Implied SOTP Value	$ 189,357,735,780.58	$ 226,291,862,844.16	$ 225,403,959,246.49	$ 249,128,594,520.32
Pfizer EV	$ 214,873,501,696.00	$ 214,873,501,696.00	$ 214,873,501,696.00	$ 214,873,501,696.00
Implied value difference	$ 25,515,765,915.42	$ (11,418,361,148.16)	$ (10,530,457,550.49)	$ (34,255,092,824.32)

Disclaimer: This analysis was created by the authors of this case and teaching note using Bloomberg Terminal data, and therefore does not display information on which Pfizer's CEO based their decisions.

Table 14: SOTP analysis (31.12.2018)

	Analysis			
	Revenue x median multiple	Revenue x average multiple	EBITDA x median multiple	EBITDA x average multiple
Innovative Health	$ 141,339,964,997.82	$ 153,078,977,561.15	$ 171,279,854,820.33	$ 169,747,049,728.97
Upjohn	$ 32,069,065,426.78	$ 32,612,740,098.56	$ 71,111,880,030.60	$ 320,163,805,329.70
Consumer Health	$ 13,401,495,962.10	$ 12,586,789,970.88	$ 37,992,561,524.90	$ 38,821,651,222.55
Implied SOTP Value	$ 186,810,526,386.70	$ 198,278,507,630.59	$ 280,384,296,375.84	$ 528,732,506,281.22
Pfizer EV	$ 275,224,713,216.00	$ 275,224,713,216.00	$ 275,224,713,216.00	$ 275,224,713,216.00
Implied value difference	$ 88,414,186,829.30	$ 76,946,205,585.41	$ (5,159,583,159.84)	$ (253,507,793,065.22)

Disclaimer: This analysis was created by the authors of this case and teaching note using Bloomberg Terminal data, and therefore does not display information on which Pfizer's CEO based their decisions.

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Individual Part

1. Introduction

Breakthrough technologies demand an unprecedented level of adaptability from companies. From the e-commerce revolution to streaming services transforming entertainment, industries were reshaped continuously by disruptive technologies. These innovations were not just incremental improvements, they were game changers that redefined market boundaries and consumer behaviours (Christensen 1997). Research underscores the threat. Cheng et al. (2017) emphasise the need to recognise potential application areas for these technologies, enabling firms to adjust their innovation strategies in a timely manner. This need for recognition was further underlined by Rafii and Kampas (2002), who detail the significant risks companies may face by ignoring disruptive technologies.

In 2018, Pfizer, a major player in the pharmaceutical industry, faced pressure as the transformative messenger ribonucleic acid ("mRNA") vaccine technology showed remarkable advances (Pardi et al. 2018). Furthermore, Pfizer's competitors already initiated projects to adopt this technology. Consequently, Pfizer perceived a threat in not adapting to it as well [Appendix 4]. Therefore, in 2018, the firm entered a collaboration with BioNTech to develop an mRNA-based influenza vaccine, where BioNTech was responsible for the technology and Pfizer for marketing and clinical trials (BioNTech 2018). Later, the partnership took on new importance with the outbreak of Covid-19, when the collaboration was expanded to develop an mRNA-based vaccine for this virus, leading to the rapid creation of the world's first mRNA immunisation and the first authorised vaccine against Covid-19 (FDA 2021).

Based on this case, the paper investigates how companies can respond to the emergence of disruptive forces, focusing on Pfizer's strategic approach to adopt mRNA, utilising the resource pathways framework by Capron and Mitchell (2012). The underlying research question is: "Should companies use the resource pathways framework to adapt a disruptive technology?".

Initially, this paper will explain the theoretical frameworks used, followed by an overview of the involved companies and the mRNA technology. It will then provide two analyses applying both frameworks to the case example. Subsequently, the paper will discuss the results and conclude with an answer to the research question.

2. Theoretical Background

2.1 Disruptive Technologies

Christensen (1997) characterises disruptive technologies as innovations that initially emerge in low-end niche markets. They are more accessible, less expensive, and directly appeal to overlooked or underserved segments. While they may start off as seemingly inferior to mainstream products, they progressively improve and ascend the market hierarchy. This gradual improvement enables them to eventually attract a significant portion of the mainstream customer base. In assessing whether a technology is disruptive, specific criteria need to be evaluated: it must be more accessible, less expensive, initially inferior, targeting overlooked markets, and offering a simpler solution.

2.2 Resource Pathways Framework

Build, Borrow, or Buy: Solving the Growth Dilemma by Capron and Mitchell (2012) presents the resource pathways framework for managing business growth [Appendix 1]. It guides companies in choosing between three options for resource adoption. The first option, building, involves developing the resource internally. This is the best solution if the new resource is of high internal relevance, which can be determined by its strong knowledge and organisational fit. The second option, borrowing, can be executed either through a contract or an alliance. Borrowing via contract requires high resource tradability, which includes resource clarity and protection. Borrowing through an alliance necessitates a low desired closeness of the firm's businesses, determined by a narrow collaboration scope and compatible partner goals. The third option, buying, entails adopting a resource through M&A. This strategy is suitable when there

is high feasibility for integration of the target firm, which can be assessed through a clear integration map and high employee motivation.

3. Company and Technology Background

3.1 Pfizer

Pfizer was founded 1849 by Charles Pfizer and Charles Erhart in New York, US and became over time one of the world's largest pharmaceutical companies, orchestrating a portfolio of different technologies and therapeutic areas, such as vaccines (Pfizer Inc. 2023b).

3.2 BioNTech

Founded in 2008 in Mainz, Germany by Professors Uğur Şahin and Özlem Türeci, the goal of the company is to develop mRNA-based vaccines (BioNTech 2023). BioNTech represents a small but innovative entity, due to its early but inventive research (ClinicalTrials 2020).

3.3 mRNA Technology

mRNA represents a significant breakthrough in medical science, having evolved since its initial development in the late eighties (Dolgin 2021). In the early nineties the mRNA technology was firstly researched in the context of vaccines, marking an important milestone in the immunisation drug history (Beyrer 2021). mRNA vaccines work by instructing cells to create proteins resembling parts of a virus [Appendix 2]. When the immune system detects these proteins, it activates a defence, producing antibodies and immune cells, preparing the body to combat the actual virus if encountered. mRNA vaccines thus present a promising approach, harnessing the body's natural defences to build immunity against diseases (Pfizer Inc. 2023a).

4. Analyses

4.1 Analysis of mRNA as a Disruptive Technology

This analysis focuses on assessing whether mRNA vaccines fit in the role of a disruptive technology, using the defined criteria by Christensen (1997).

More accessible: mRNA vaccines do not inherently offer easier access for consumers compared

to traditional vaccines. Like other vaccines, they require regulatory approval and must be administered by healthcare professionals. In terms of accessibility, regulatory requirements do not differentiate between innovative technology and existing vaccine options (Vaccines 2023).

Less expensive: Initial studies suggested that mRNA vaccines could be much cheaper in R&D than common vaccines (Dolgin 2021). However, scientists did not find a way to insert the mRNA into the cell, which is key to develop a working vaccine (Duan et al. 2022). This means that extensive research had to be done as well as extensive costs to be paid, without knowing if the technology would work someday (Jackson et al. 2020). Thus, if the methodology of mRNA vaccines had been effective from the beginning, the typical R&D and production costs would have been lower for mRNA than for established technologies (Dolgin 2021). However, since the process of bringing the mRNA vaccine to market incurred significantly higher costs, the technology is more expensive than the established one.

Initially inferior: Assuming a functional methodology, the mRNA technology has shown immense potential since its emergence (Dolgin 2021). However, it was uncertain whether an operational working solution would be found (Duan et al. 2022). Therefore, arguments of initial inferiority can be viewed from both perspectives, and a definitive categorisation remains elusive.

Targeting overlooked markets: The vaccine market was neither overlooked nor underserved at the time of mRNA vaccines' introduction. The first vaccine was invented in 1885 and in the mid-nineties immunisations accounted for yearly sales of about $5 billion. These facts indicate that vaccines were already a focus topic in medical treatments (Vaccines 2023).

Simpler solution: Initially, mRNA vaccines were not simpler because the technique to make them functional had not yet been discovered (Duan et al. 2022). Now, with the discovery of a procedure to introduce mRNA into cells, mRNA vaccines offer simpler designs, in contrast to longer development cycles of traditional drugs (Kowalzik et al. 2021).

Analysis Conclusion: Reflecting on these criteria, mRNA vaccines, while being groundbreaking and promising, do not fully align with the definition of disruptive technologies.

4.2 Analysis of Pfizer Adopting mRNA Utilising the Resource Pathways Framework

mRNA vaccines do not fall within Pfizer's existing skill set, thus, represent a resource gap [Appendix 1]. As of 2018, this analysis focuses on determining approaches for Pfizer to adopt an influenza mRNA vaccine, aiming to fill this resource gap. In the context of borrowing and buying approaches, BioNTech will be considered as source of the vaccine.

Build:

Knowledge fit: Pfizer has experience in drug R&D, as evidenced by its significant R&D investments and a significant role in the immunisation segment, as exemplified by its vaccine market share (Douglas and Samant 2018) [Appendix 3]. However, in the specialised field of mRNA technology, Pfizer's expertise is limited compared to BioNTech, which boasts years of dedicated research in this area. Furthermore, Pfizer might not be able to hire top talent to conduct its own R&D equivalent to BioNTech's, as emerging firms often being more efficient than larger firms in attracting and retaining highly skilled employees (Zenger 1994). Furthermore, smaller firms are typically more innovative per R&D dollar spent, highlighting their R&D efficiency (Plehn-Dujowich 2009). These factors imply that Pfizer may face challenges in developing mRNA vaccines at the same level as BioNTech.

Organisational fit: Conversely, integrating an mRNA vaccine aligns well with Pfizer's existing organisational structure, as it includes a vaccine division (Pfizer Inc. 2018b). Further, the firm's commitment to develop an innovative technology fits its broader strategy of being a pioneer in drug delivery (Pfizer Inc. 2018a, 3). Additionally, the firm has established procedures, which are well suited to support the mRNA vaccine development, meaning that Pfizer could reallocate resources to effectively implement mRNA.

Conclusion: Although Pfizer shows a strong organisational fit for integrating mRNA

technology, it faces challenges in its knowledge fit. This suggests that building may not be the most suitable option if the goal is to be a market leader in the field of mRNA.

Borrow via Contract:

Resource clarity: To gain control of the mRNA vaccine, BioNTech would have needed to trade their intellectual property resources, particularly patents. Patents are separated clearly, making knowledge easier to exchange. However, estimating the future value of these vaccine resources presents challenges. In the initial stages, development costs, efficacy and market penetration of the vaccine are uncertain, making future sales and value difficult to predict (Russell 2016).

Resource protection: Pfizer and BioNTech have their headquarters in the US and EU, where the legal systems provided strong protection in conflicts related to licenses and patents (Pfizer Inc. 2023c). Pfizer can control the information distributed between both parties and could protect its advanced procedural knowledge, demonstrated by numerous previous deals (Pfizer Inc. 2023b). BioNTech, on the other hand, demonstrated the ability to prevent technological knowledge leakage as well, through its partnership history (BioNTech 2023).

Conclusion: For Pfizer, borrowing via contract presents a viable option for adopting the mRNA-based influenza vaccine. This strategy is supported through a clear definition of the necessary resources and a robust resource protection.

Borrow via Alliance:

Narrow collaboration scope: Pfizer and BioNTech can define a narrow scope for collaboration on the influenza vaccine, where both contribute unique strengths. BioNTech includes its expertise in mRNA technology, while Pfizer offers funding, production, and regulatory capabilities. BioNTech can advance the vaccine development to the clinical stage, after which Pfizer utilises its expertise in conducting trials and subsequently marketing the vaccine.

Compatible partner goals: Pfizer and BioNTech each seek what the other lacks. Pfizer desires BioNTech’s technological knowledge, and BioNTech seeks Pfizer’s procedural expertise, all

with the shared aim of successfully marketing an mRNA vaccine.

Conclusion: An alliance for borrowing the mRNA-based influenza vaccine shows a narrowly defined scope of collaboration, with both companies sharing aligned strategic goals.

Buy:

Clear integration map: Pfizer can integrate advanced technologies like mRNA vaccines as demonstrated by previous technology implementations, such as biosimilars (Pfizer Inc. 2015). This background suggests a seamless integration of mRNA technology, enhancing Pfizer's expertise in vaccine development. An acquisition would provide control not just over a single vaccine but also over BioNTech's extensive mRNA knowledge.

High employee motivation: The acquisition of BioNTech's whole knowledge offers Pfizer's employees the chance to engage in a revolutionising technology, which could boost their motivation. However, employees in the traditional vaccine R&D segment might fear job insecurity, concerned about being replaced by mRNA experts. Additionally, if Pfizer's corporate strategy does not prioritise mRNA therapies as heavily as BioNTech, due to the need to manage other segments, this could result in BioNTech's employees feeling undervalued after the acquisition (Cloodt, Hagedoorn, and Van Kranenburg 2006).

Conclusion: A clear potential integration map of an acquisition including a detailed plan to address employee motivation, facilitates the idea of acquiring BioNTech.

Analysis Conclusion:

This analysis determined that borrowing via contract and via alliance, as well as buying were viable strategies for Pfizer to fulfil the mRNA resource gap.

5. Discussion

In the following, the discussion focusses on answering the research question: "Should companies use the resource pathways framework to adapt a disruptive technology?"

According to Christensen (1997) definition, mRNA is not a disruptive technology, which

implies that Pfizer may not need to make substantial adjustments concerning mRNA, as there is no imminent threat of displacement. However, it can still have a significant impact, as indicated by Utterback and Acee (2005), who suggest that technologies, even if not entirely fitting within the disruptive technology definition, can still pose a threat to companies. They present an alternative scenario, where a higher-performing and higher-priced innovation is introduced into a demanding market segment and eventually migrates towards the mass market. They argue that focusing solely on the "attack from below" limits the understanding of discontinuous patterns of change. Even though mRNA is not classified as disruptive, it remains superior to common vaccines (Duan et al. 2022). If Pfizer had not engaged with BioNTech, it might had missed huge profits in the pandemic, as the Covid-19 vaccine's rapid development would not have been possible, as their alliance for the influenza vaccine research was pivotal (Statista Market Insights 2023).

The definition of Christensen's (1997) disruptive technologies is limited as it only focusses on low-cost/low-performance technologies that only cater to low-end niches. It is essential to consider that even non disruptive technologies can be threats (Utterback and Acee 2005). Firms should look beyond underrated technologies to include those, that may not fit the classic definition but are promising, especially in early stages. The relevance of this broader definition is displayed by the Covid-19 pandemic, where the Pfizer/BioNTech vaccine obtained market dominance compared to AstraZeneca's vaccine, based on common technology [Appendix 3].

Further investigation would be needed to determine why Pfizer did not initially, from its emergence, invest heavily in mRNA research and if Utterback and Acee's (2005) broader definition of threatening technologies might be more applicable in understanding what constitutes a threatening technology.

Pfizer's decision to borrow via alliance was consistent with the resource pathways framework. Further, the analysis indicated that borrowing via contract and buying were also viable

strategies for the firm. This suggests that Pfizer had multiple strategic choices, each with different potential outcomes. However, these options were not necessarily evenly weighted and required careful consideration of additional factors.

The pharmaceutical industry is remarked by extremely long development cycles. The mRNA technology, for example, was first mentioned in the late eighties, but the premier mRNA-based vaccine was only approved in 2020 (Kowalzik et al. 2021). Given the lengthy R&D times, companies may choose to wait for the right moment to adopt new technology, aiming to minimise wasted time and resources. Pfizer's decision to opt for 2018 as the ideal time can be attributed to two key factors. In 2018, Pardi et al. reported on recent developments marking transformative advances in mRNA, concluding an imminent market readiness for working vaccines, based on this innovative technology. Further, as of 2018 major competitors of Pfizer already entered collaborations with mRNA specialised companies like BioNTech, Moderna and CureVac [Appendix 4]. Therefore, Pfizer may saw an immediate need to adapt mRNA.

The decision, to borrow through an alliance, allows Pfizer to support BioNTech with its resources, particularly in clinical trials, where the smaller firm has less expertise (Plehn-Dujowich 2009). This approach promises an accelerated outcome. Conversely, borrowing via contract might not leverage Pfizer's full capabilities, as simply receiving a developed and approved vaccine from BioNTech, without supporting with own resources, might be more time consuming. The acquisition of BioNTech, on the one hand, would grant Pfizer complete control over the mRNA technology. It would also offer the benefit of reducing dependence on BioNTech for future projects and the mitigation of the risk of Pfizer's vaccine portfolio being challenged by further vaccinations. On the other hand, a successful post-merger integration is tedious and needs to be carefully planned (Bodner and Capron 2018). In summary, Pfizer likely opted against borrowing via contract and buying, as neither option would yield the quickest results in a time-sensitive environment.

The resource pathways framework is limited as it does not consider the urgence of the adaption. It fails to address the timing of borrowing and buying opportunities, which can arise unpredictably and complicate strategic planning for resource adaptation and speed comparison with in-house development. Additionally, the framework might oversimplify across different industries, failing to account for extremely long development cycles.

Further, this analysis is limited because the exact reasons for Pfizer's choice to build an alliance were not explicitly documented. It is possible that Pfizer may had unsuccessfully attempted to develop mRNA vaccines internally. Moreover, the analysis focusses only on BioNTech, whereas Pfizer could have also partnered with other mRNA firms. Additionally, the specific reasons for entering the deal in 2018 is not disclosed. Pfizer might had considered entering the mRNA market earlier but was unable to secure a suitable M&A or borrowing arrangement.

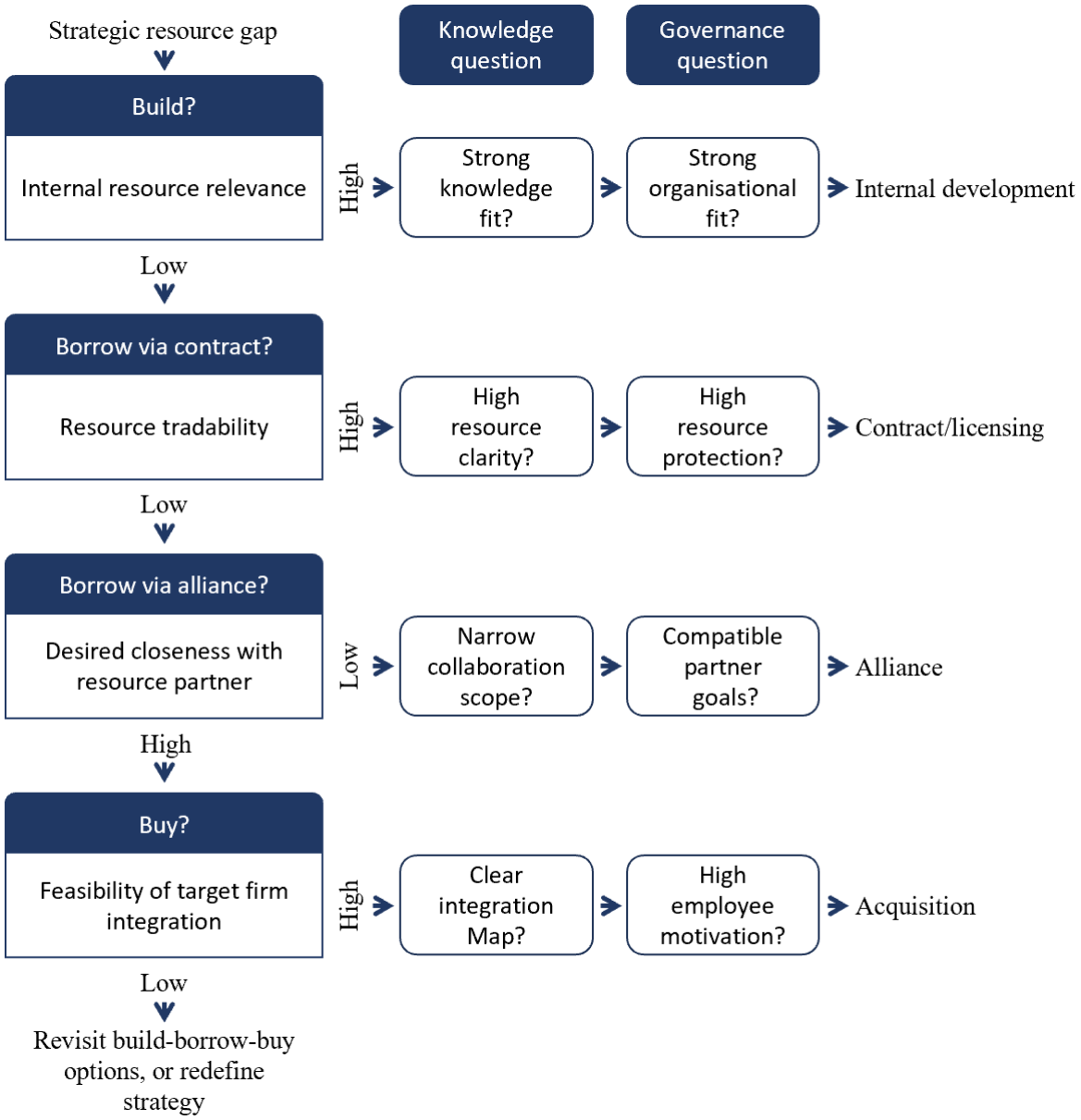
Additional research could explore alternative frameworks like discovery-driven planning by McGrath and MacMillan (1995), which aims on adapting new technologies and might yield more definitive results in similar situations. They could provide a more comprehensive knowledge of the decision-making process in the context of adopting a disruptive technology.

Conclusion: mRNA is not a disruptive technology, therefore, in context of the research question, this paper is not able to answer if the resource pathway framework can help adapting disruptive technologies. However, it pointed out that innovative technologies, even if not classified as a disruptive technology, present a similar thread to an established firm's market position. Moreover, the resource pathway framework helped to adapt this technology, but it should additionally consider industry-specific characteristics and the fact that borrowing and buying opportunities arise unpredictably and are not plannable. To answer the research question, further investigations are necessary to indicate whether the framework would yield equivalent results when true disruptive technologies are involved.

Individual Part Appendix

Appendix 1

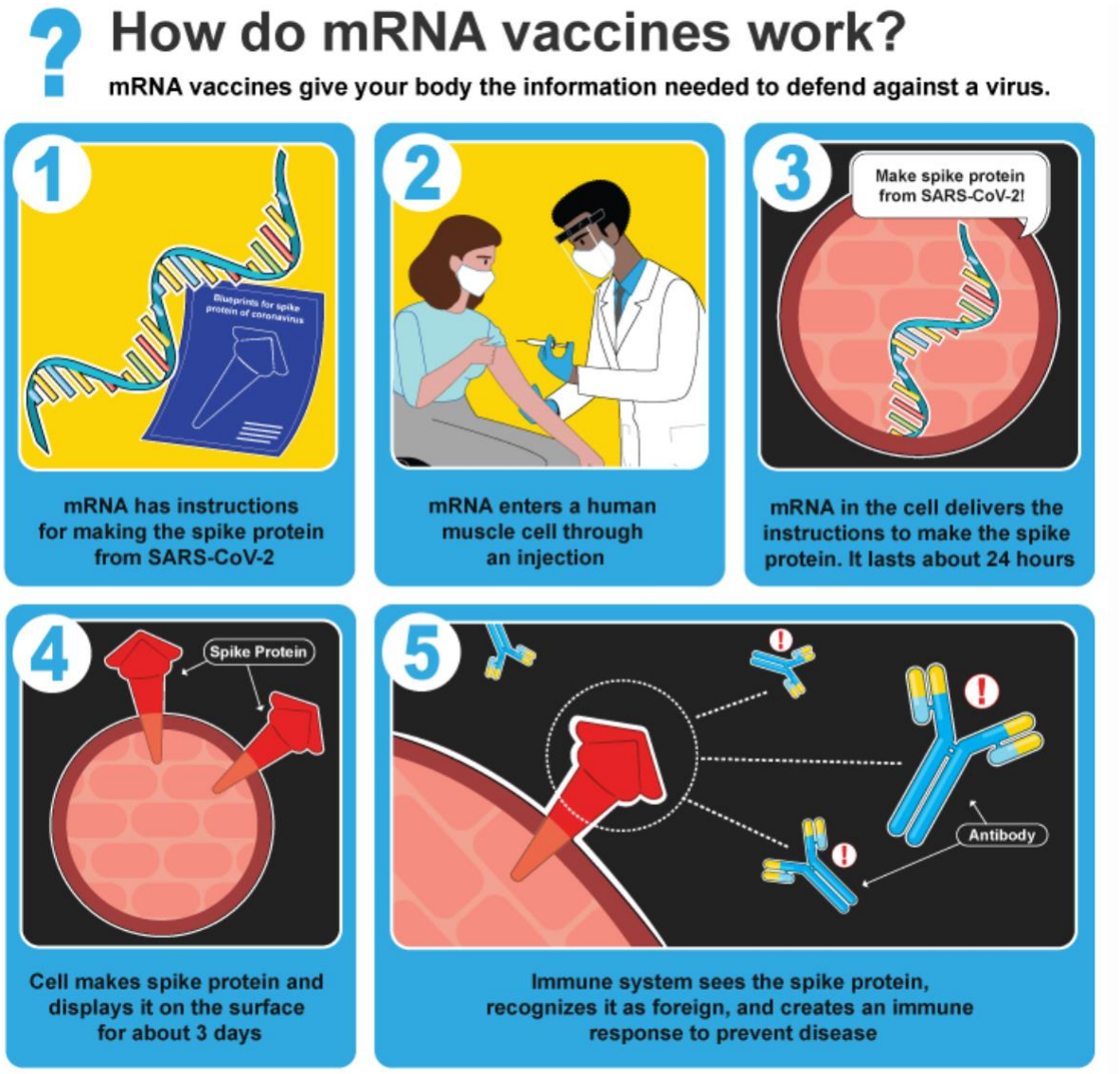
Figure 1: Visualisation of the resource pathways framework



Source: (Capron and Mitchell 2012)

Appendix 2

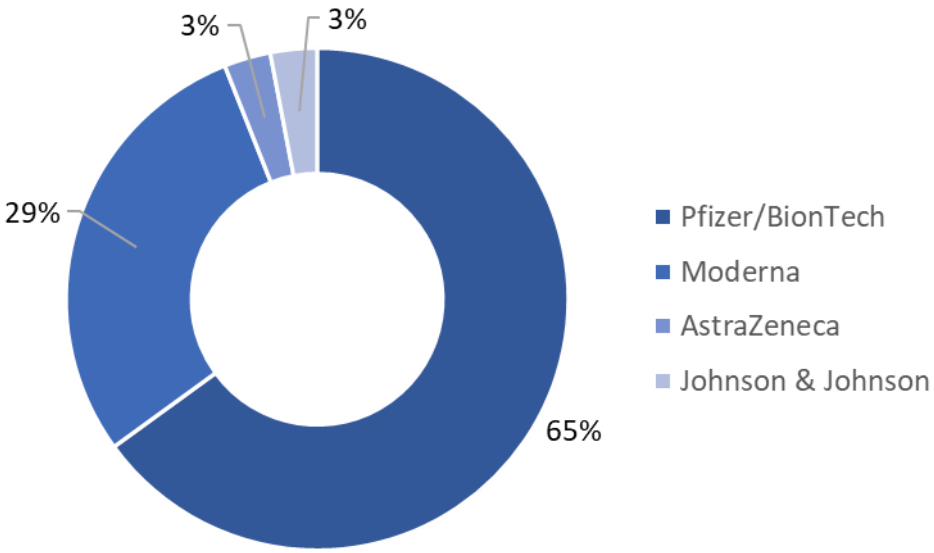
Figure 2: Visualisation of how mRNA vaccines work



Source: (U.S. Department of Health and Human Services 2021)

Appendix 3

Figure 3: Brand share of the worldwide Covid-19 vaccines in 2022



Source: (Statista Market Insights 2023)

Appendix 4

Table 1: Leading mRNA vaccine developers, partners, and indication

Institution	Partner	Indication
Argos Biotechnology	n.a.	Individualized cancer vaccines, HIV-1
BioNTech	Genentech/Roche	Individualized cancer vaccines
	Bayer	Veterinary vaccines
CureVac	Boehringer Ingelheim	Cancer vaccines (lung cancer)
	Johnson & Johnson	Viral vaccines
	Sanofi Pasteur	Infectious disease vaccines
	Bill & Melinda Gates Foundation	Infectious disease vaccines
	International AIDS Vaccine Initiative	HIV vaccines
eTheRNA Immunotherapies	n.a.	Cancer (melanoma, breast), viral vaccines
GlaxoSmithKline/Novartis	n.a.	Infectious disease vaccines
Moderna Therapeutics	Merck & Co.	Individualized cancer vaccines, viral vaccines
	Bill & Melinda Gates Foundation, Defense Advanced Research Projects Agency, Biomedical Advanced Research and Development Authority	Viral vaccines (influenza virus, CMV, HMPV, PIV, chikungunya virus, Zika virus)
University of Pennsylvania	n.a.	Infectious disease vaccines

Source: (Pardi et al. 2018)

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