Business Adaptive Strategies in Crisis: The Case of Company Z

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Abstract

The COVID-19 pandemic had a tremendous impact on companies in all industries worldwide. While some companies were unable to continue business at all, others adapted their business model to the new situation.

The paper is based on a case study of Company Z, a leading technology company, which adapted its business model during the pandemic in several ways. On the one hand, it realigned its resources and focused more on the cloud services it offers to meet the exploding demand for online video conferencing software. On the other hand, it acquired Company A, a metaverse industry expert, to explore the emerging metaverse market and find new business opportunities. Both companies reflect actual businesses that exist in the real world. However, to protect privacy, the names of these companies are anonymized.

The paper is logically organized so that teachers can use it for teaching strategic management, for example. At the beginning, the latest relevant literature and course concepts are introduced. The next chapter presents some general information about Company Z and its performance during COVID-19. Then the presented teaching concepts are applied to the case and instructions are given for teachers on how to use the given case study in the classroom.

It will be seen that Company Z handled the pandemic very well by quickly reallocating its resources as environmental conditions changed and by entering new markets to remain successful under the new conditions. Finally, some limitations of the study are pointed out and suggestions for future research are made.

Resumo

A pandemia de COVID-19 teve um impacto tremendo em todas as indústrias em todo o mundo. Enquanto algumas empresas não conseguiram prosseguir os seus negócios, outras adaptaram o seu modelo de negócios à nova situação.

Esta dissertação baseia-se num estudo de caso da Empresa Z, uma empresa líder em tecnologia, que adaptou o seu modelo de negócios durante a pandemia de diferentes formas. Por um lado, realinhou os seus recursos e concentrou-se nos serviços cloud para satisfazer a procura explosiva de software de videoconferência. Por outro lado, adquiriu a Empresa A, um especialista da indústria metaverse, para explorar este emergente mercado e encontrar novas oportunidades de negócio. Ambas as empresas refletem negócios reais que existem no mundo real. No entanto, para proteger a privacidade, os nomes destas empresas são anónimos.

Esta documento está organizado de forma que os professores possam utilizá-la, por exemplo, para ensinar gestão estratégica. No início, são introduzidas as últimas literaturas e conceitos de cursos relevantes. Seguidamente, informações gerais sobre a Empresa Z e o seu desempenho durante a pandemia são apresentadas. Posteriormente, os conceitos de ensino apresentados são aplicados ao caso e são dadas instruções aos professores sobre como utilizar o estudo de caso na sala de aula.

Verificar-se-á que a Empresa Z enfrentou perfeitamente a pandemia, redistribuindo rapidamente os seus recursos à medida que as condições mudavam e entrando em novos mercados para continuar a ter sucesso sob as novas condições. Finalmente, são apontadas algumas limitações do estudo e são feitas sugestões para investigação futura.

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List of Abbreviations

aR - assisted Reality

AR - Augmented Reality

DC - Dynamic Capabilities

MR - Mixed Reality

RBV - Resource-based View

TMT - technology, media, and telecommunications

TSR - total shareholder return (TSR)

VR - Virtual Reality

VRIN - valuable, rare, inimitable, and non-substitutable

VRIO - valuable, rare, inimitable, and organization

XR - Extended Reality

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1. Introduction

1.1 Problem Definition and Relevance

There is no doubt that the COVID-19 pandemic had a huge negative impact on the global economy. Billions of people lost their jobs or had to switch to short-time work. Many employees had to work from home, and as a result, demand for video conferencing platforms, collaboration tools, cloud services and cybersecurity solutions increased rapidly. Companies that were able to offer such services were some of the winners of the pandemic. Virtual meetings became the 'new normal' and opened the door to new ways of communicating. Several companies have recognized this change as an opportunity and have already taken a first step into the next generation of communication: the metaverse. Tech giants such as Sony, Embracer, and Take-Two Interactive adapted their previous strategies by buying companies specializing in the metaverse, opening a new market (Bamberger, 2022).

1.2 Objectives

The main objective of the case study is to examine why it can be useful and important for companies to adapt their strategies in crisis situations. The analysis focuses first on the ability of companies to adapt to a rapidly changing environment. This ability depends on their dynamic capabilities, which are explained below. The next step is to illustrate which parameters determine the level of competitiveness within an industry. This helps to understand why companies are under constant pressure to launch new products or enter new markets. This thesis focuses on the decision to enter the emerging metaverse market. For this reason, it analyzes the decisions that a company's top management must make before entering a new market. In a final step, the acquisition decision of a company focused on the metaverse is evaluated.

2. Research Note

2.1 Dynamic Capabilities

Before turning to the definition of dynamic capabilities, it is useful to understand the concept of the resource-based view.

2.1.1 Resource-based View

Companies develop value-added strategies to gain a competitive advantage in the market. However, such strategies only lead to a competitive advantage if they are not implemented simultaneously by other current or potential competitors. When this is the case and, moreover, competitors have not had the opportunity to duplicate the benefits of the strategy, the strategy is said to provide a sustainable competitive advantage. Professor Jay Barney argues that a company's sustained competitive advantage is due to the resources that the company uses. This concept is referred to as the resource-based view (RBV) (Barney, 1991). Barney (2001, p. 54) defines these corporate resources as: '*tangible and intangible assets a firm uses to choose and implement its strategies*'.

To have the potential for a sustained competitive advantage, the resource must have four distinct characteristics. First, it must be valuable, meaning that it contributes to the implementation of strategies that improve the company's efficiency and effectiveness. Second, it must be rare enough that other companies have difficulty copying the strategy because of the uniqueness of the resource used. Third, the resource must be imperfectly imitable. Resources can be imperfectly imitable for a variety of reasons. For example, one reason may be the unique historical circumstances of the firm's founding. Such unique space- and time-dependent generated resources are difficult or impossible for competitors to imitate. Sometimes it is also difficult for competitors to understand how a firm's resources have contributed to its sustained competitive advantage. Such causal ambiguity is another example of an imperfect imitable resource (Barney, 1991). Some resources, such as corporate culture (Barney, 1986) or the firm's reputation among suppliers (Porter 1980), are socially complex and therefore difficult to imitate. The final characteristic of a resource that has the potential for a sustained competitive advantage is the non-substitutability. Even if a firm has several unique resources, a competitor could copy its strategy by using similar resources that substitute for the unique resources. Thus, it must be ensured that there is no equivalent valuable resource in the market (Barney, 1991). However, this concept of '*valuable, rare, inimitable, and non-substitutable*' (VRIN) resources has been slightly adapted in the past by Barney in 1995 (Barney, 1991, p. 99). He argues that a

firm will not be able to transform its resources into a competitive advantage unless it is well organized. While VRIN focuses on the resource level, the adapted concept focuses on how useful and/or functional a resource is. A resource is only useful and/or functional if they are managed by skilled people, which reflects the importance of the firm's internal organization (Barney, 1995). Thus, the adapted concept 'VRIO' ('*valuable, rare, inimitable, organization*') focuses on a firm's approach to organizing a set of resources (Cardeal, N., António N., 2012, p. 10159).

Finally, it is important to mention that there are some limitations in the corporate resources that lead to a sustained competitive advantage. A sustained competitive advantage does not necessarily mean that it lasts forever. Rumelt and Wensley (1981) noted that the relevance of certain corporate resources can change due to so-called Schumpeterian Shocks, i.e., structural revolutions within industries. In this way, firms in an old industry structure may benefit from some resources, but these resources no longer provide a competitive advantage in a new industry structure.

2.1.2 Definition of Dynamic Capabilities

Dynamic capabilities (DC) can be seen as an extension of RBV. It examines the ability of an organization to adapt to a rapidly changing environment (Teece et al., 1997). In his article: '*dynamic capabilities a review of past research and an agenda for the future*', Barreto (2010, p. 271) summarizes past research on DC and proposes a holistic definition of DC:

'*A dynamic capability is the firm's potential to systematically solve problems, formed by its propensity to sense opportunities and threats, to make timely and market-oriented decisions, and to change its resource base*'.

This definition presents four dimensions of DC. The first dimension is the propensity of a company to change its resource base, i.e., to expand and restructure its resources. This change in resource base is a necessary decision that managers must make when environmental conditions change. Thus, an important competence of the manager is the ability to recognize opportunities and threats, which is the second dimension of DC. Managers need to constantly monitor the market (third dimension) to make the change of resource base at the right moment (fourth dimension). These dimensions show that DC is about being faster than the competition when market conditions change.

2.3 Porter's 5 Forces

To determine the profitability and attractiveness of an industry, it is useful to assess the degree of competition within the target sector. Michael E. Porter has developed a framework to make this assessment:

Figure 1: Forces Governing Competition in an Industry (Porter, 1979, p.3)
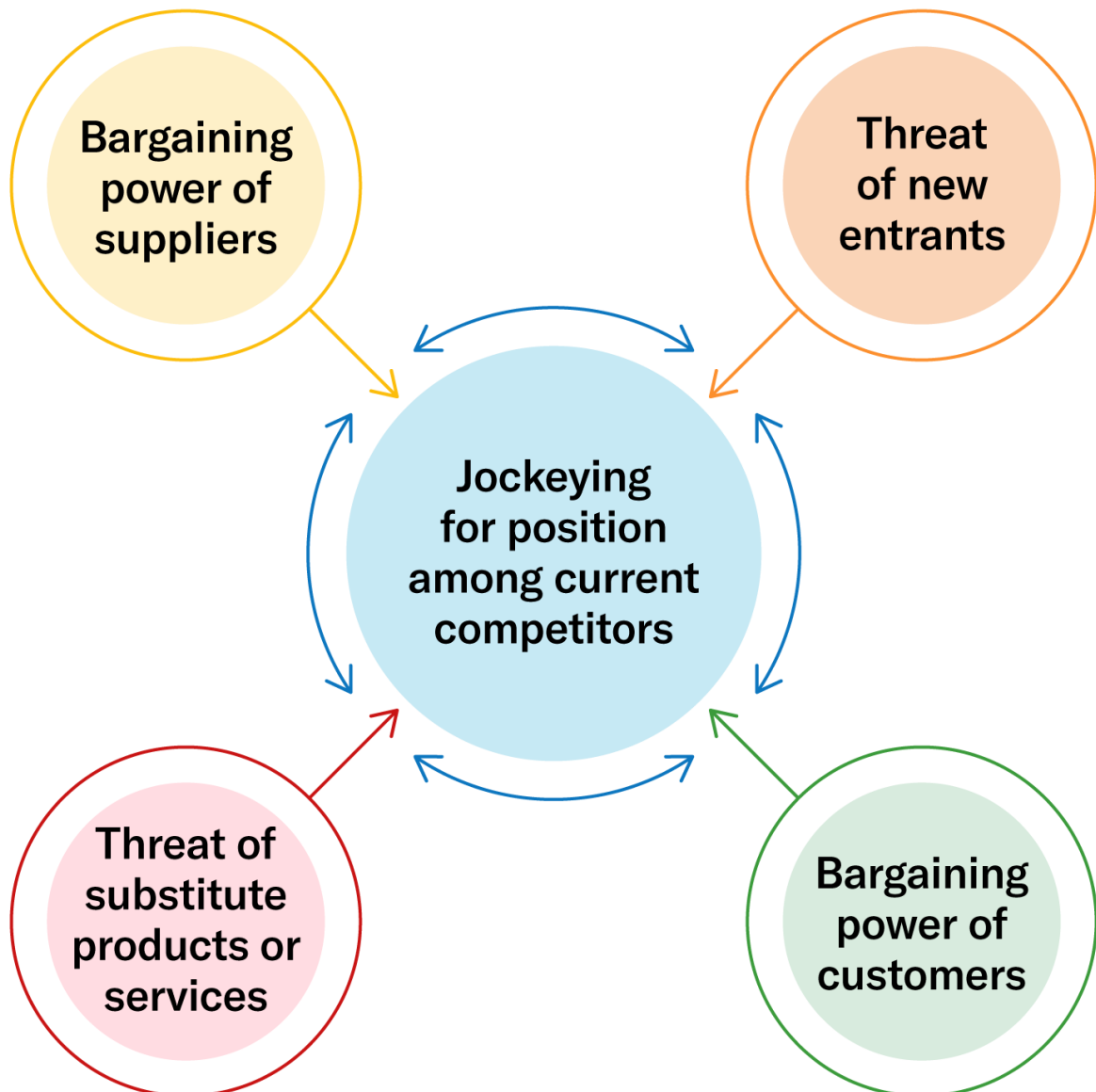
As can be seen in Figure 1, there are five forces that influence the intensity of competition.

The first is called the '*threat of new entrants*'. Competition within an industry increases when new firms enter the market. However, before a potential new competitor can enter a new market, it must overcome certain barriers to entry. These include: '*economies of scale*', '*product differentiation*', '*capital requirements*', '*cost disadvantages independent of size*', '*access to distribution channels*' and '*government policy*' (Porter, 1979, p.138-140). Depending on how well the new potential competitor succeeds in overcoming these barriers, the threat for the established companies is either high or low. The second force describes the threat from consumers buying substitute products or services from other industries because they offer them similar benefits but cost less or are of better quality. Another force defined by Porter is the bargaining power of suppliers. Suppliers can put pressure on companies by raising prices or lowering product quality. Another group that can put pressure on companies is buyers. They can be defined as either individual consumers or more powerful industrial and commercial buyers. Buyers have strong bargaining power because they can easily switch suppliers if they are not satisfied with the price or quality. In this way, buyers can play companies off against each other. Finally, there is one last force, which is the rivalry between existing competitors. The intensity of competition within an industry depends heavily on the tactics that already established companies pursue. Introducing new products or marketing campaigns, significantly lowering product prices, or acquiring other companies are just a few of several techniques, companies can use to put pressure on their competitors (Porter, 1979).

2.4 Porter's Three Tests

According to Michael E. Porter, there are four key concepts of corporate strategy that create value for shareholders: Portfolio management, restructuring, transfer of capabilities, and joint activities. The first concept is the most used one. The core idea is to diversify a company by acquiring other companies. The decision of an acquisition depends on three essential tests. If they are all passed, an acquisition makes sense.

The first test, known as the attractiveness test, determines whether the business unit potentially to be acquired operates in an attractive industry. At first glance, a business unit in a new market that is different from the industry in which the existing business units operate could be a lucrative acquisition. However, if the top management that would have to run this new business unit does not have the required industry-specific knowledge, the acquisition may not be the best choice. There is also the cost-of-entry test. According to this test, the cost of entry into the new industry should be lower than the future profits generated by acquiring the business unit. Finally, the better-off test evaluates the competitive advantages created by the acquisition.

Specifically, it analyzes whether there are synergies between the acquired and the existing business unit (Porter, 1987).

2.5 The Ashridge Matrix

When analyzing a company's business portfolio, the BCG growth share matrix has long been the best-known framework. The basic concept is that a company's portfolio should consist of businesses with different growth rates and different market shares to remain competitive and successful in the market (Henderson, 1970). However, over time, more and more scholars began to criticize this concept. Campbell, Goold, and Alexander (1995) argue that this concept is outdated, as many companies have suffered significant losses by applying this portfolio management technique.

According to the three scientists, a company should rather focus on its core competencies instead of diversifying in too many directions at the same time. Specifically, this means that companies should add businesses to their portfolio that can leverage the company's technical and operational competencies (Prahalad, C.K., Hamel, G., 1990). A critical factor in a company's ability to benefit from potentially shared technical and operational competencies is how the business fits the company. When a company creates more value in a business it owns than a competitor who would own it, it is said to have a '*parenting advantage*' (Campbell et. al, 1995, p. 3). To assess a company's fit with a parent company, it is important to understand the critical success factors of the company. In this way, the strengths and weaknesses of the company can be identified. This helps the company define the areas in which it could add value to the company. However, acquiring a company in this way only makes sense for a company if it also benefits from it itself. By applying a special type of portfolio analysis, companies can determine whether there is a so-called '*parenting opportunity*' in the acquisition of a company (Campbell et. al, 1995, p. 9).

This analysis follows a three-step approach. First, the parent company analyzes the biggest challenges facing each business unit and identifies opportunities where it could provide support. Second, it identifies the areas in which it could help the businesses the most. If there are specific areas that were not identified in the first step, there is another opportunity for the parent company. Finally, looking at competitors can be helpful. This can be used to examine how other companies have been able to add value to similar businesses.

The next step in assessing fit should be to identify the characteristics of the parent company and compare them to each company's critical success factors and parenting opportunities.

These characteristics are defined as:

'*the mental maps that guide the parent company's managers; the corporate structure, management systems, and processes; the core functions, services, and resources; the nature, experience, and skills of the parent company's managers; and the extent to which the companies have decentralized by delegating responsibilities and authority to business unit managers*' (Campbell et. al, 1995, p.12).

To assess the suitability of companies for each business unit, a '*success and failure analysis*' can also provide valuable insights (Campbell et. al, 1995, p. 15). This analysis lists all the major decisions a company has made in the past and classifies them as '*success*', '*neutral*' or '*failure*' (Campbell et. al, 1995, p. 15). In this way, patterns can be formed that show what type of business the company has done best with in the past. These assessments of parenting suitability can be summarized in an '*Ashridge Matrix*' (Grünig, 2015, p. 161). It illustrates the fit between parenting opportunities and parenting characteristics relative to the non-fit between critical success factors and parenting characteristics:

Figure 2: Ashridge Matrix for assessing the synergy potentials of a business portfolio (Grünig, 2015, p. 161)

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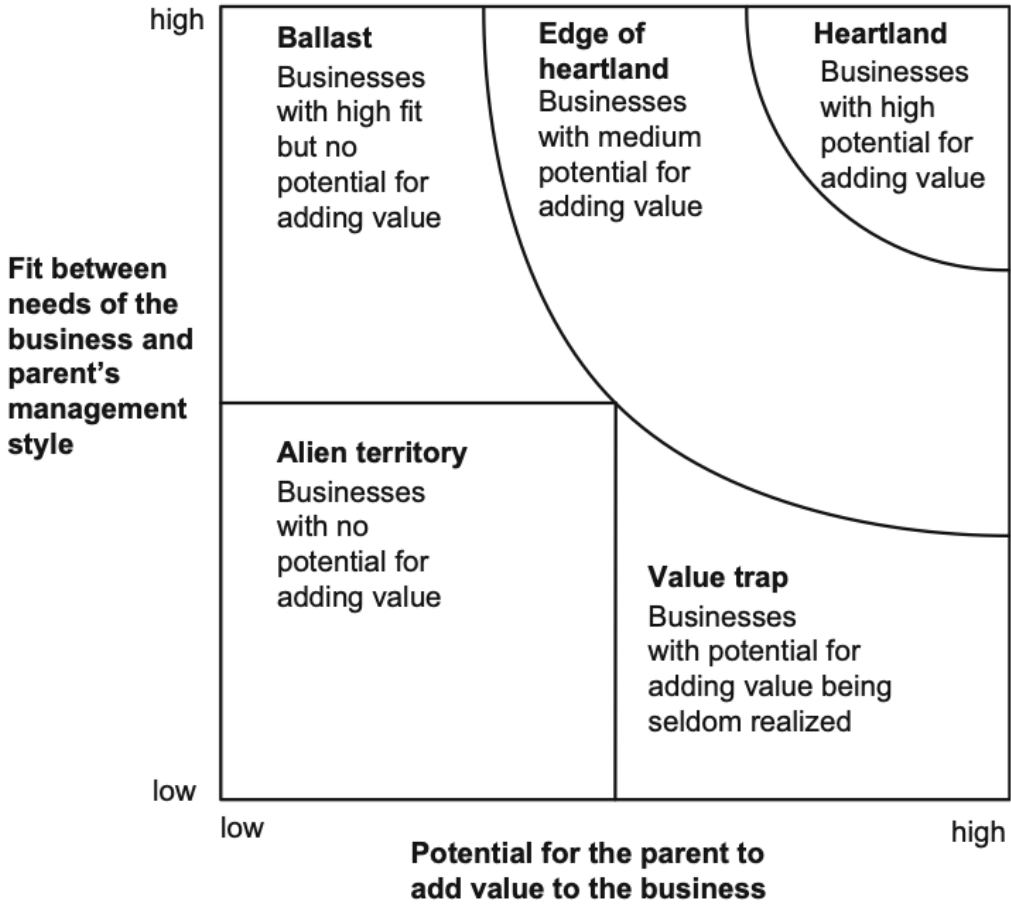
The matrix can be interpreted as follows.

Heartland Businesses: There is a high potential for the parent to help the business with the problems it faces. At the same time, the parent knows the critical success factors of the business and, in the best case, has no characteristics that stand in the way of them.

Edge-of-Heartland Businesses: In this case, some characteristics of the parent do not perfectly match the critical success factors of the business. Thus, the parent can simultaneously create and destroy value for the business. Over time, the parent can learn more about the business' critical success factors, moving it closer to the heartland on the matrix.

Ballast Businesses: This type of business fits perfectly with the parent companies' approach. However, the potential for the business to add value to the business in the future is low. These are businesses that are usually well known to the parent company but should still be monitored in case environmental changes affect them and push them into the alien territory. It is the manager's responsibility to re-evaluate the opportunities for these businesses at any given time. If an internal acquisition opportunity arises, he/she should try to move the business to the edge of the heartland / heartland, and if an external acquisition opportunity arises, it might make sense to divest and sell the business to a competitor.

Alien-Territory Businesses: These businesses do not fit the characteristics of the company and the company is struggling to find ways to increase the value of the business. In most of these cases, it makes the most sense to divest from these businesses. However, there may be a few reasons not to divest. For example, some businesses may be at a turning point such that they are only temporarily unacceptable and could change in the future. In this case, the manager's goal would be to move the business to the edge of the heartland.

Value-Trap Businesses: These are the businesses where managers might make their biggest misjudgments. Parents have a high potential to add value to the business, even though they do not fit the company's approach. Again, the goal is to take the business to the edge of the heartland, but the manager should be careful not to let the business fall into an alien territory (Campbell et. al, 1995).

2.6 SWOT Analysis

The SWOT analysis originated in the early 1950s when Harvard professors George Albert Smith Jr. and C. Roland Christensen first used it for case study analysis. The basic idea of this framework is to obtain an overview of the strengths and weaknesses of a company and to derive possible future consequences:

Figure 3: The SWOT Matrix (Benzaghta, 2021, p. 58)

As can be seen in the 2x2 matrix in Figure 3, a company's strengths and weaknesses are contrasted with the opportunities and threats that may arise from them. In this context, strengths and weaknesses of a company are the internal factors that can be controlled by the company, while external factors provide opportunities and threats and cannot be controlled by the company (Benzaghta et. al, 2021). More specifically, strengths describe a superior competence of the company over its competitors, such as positive reputation among customers. Weaknesses could be a lack of certain capabilities or resources that affect a company's performance. When competition changes or a new market segment emerges, it is an opportunity for the company. Conversely, a rapid change in the external environment, such as technological change or a change in the bargaining power of key buyers and suppliers, represents a threat. For each possible match of the internal and external factors, there are different strategies that can be derived. The quadrant in the upper left corner of the 2x2 matrix represents SO (strengths-opportunities) strategies. This strategy is about leveraging internal strengths to make the most of external opportunities. ST (strengths-threats) strategies describe how strengths can be used to reduce or eliminate external threats. The impact of external threats can also be reduced or eliminated by reducing internal weaknesses. This is referred to as a WT (weakness-threats) strategy. WO Finally, (weakness-opportunity) strategies describe how weaknesses can be transformed into strengths to take advantage of opportunities (Ghrachorlooa et. al, 2021).

3. Case Study

3.1 Company Z

Company Z is a highly dynamic, world-leading technology company with revenues of over $100 billion and over 100000 employees. The company's core business is selling software, cloud services, cybersecurity solutions, and innovative hardware products to consumers and other businesses. Some of the software products offered are online collaboration and video conferencing tools. As for hardware, they have a wide range of laptops, tablets, gaming consoles, cell phones and AR headsets. Recently they have also started working on platforms designed for implementation in the metaverse. Not only do customers benefit from these technologies, but so do Company Z's employees. Self-developed collaboration tools and online conferencing platforms allow employees to work from anywhere, at any time. To stay competitive, Company Z is constantly trying to bring new innovative products and services to market and even regularly acquires startups with innovative technologies. Some of these technologies have been quite successful in the past and others that did not continue have been reused to develop other innovative products. Company Z's employees are closely involved in management decisions. A staff meeting is held in the middle of each fiscal year, resulting in a reassessment of the company's key priorities and goals. Connected to these goals, annual quotas are set for Company Z's sales staff to meet. Company Z also has some experience in the gaming industry. They make game consoles, sell online gaming passes, and even have their own game publishing division. All of this is possible because Company Z benefits from large data centers that provide the computing capacity to scale quickly.

3.2 Company Z's Performance under COVID-19

The COVID-19 pandemic caused enormous bottlenecks in the supply chain worldwide due to flight and port restrictions, but also since employees could not go to work because they had to be quarantined for several days. One of the consequences was a global chip shortage, which extremely affected the automotive industry, for example (Wu et. al, 2021). One of the reasons why Company Z performed so well under COVID-19 is that there were no serious shortages in the supply chain. The reason was that Company Z operates with digital services, which are by nature relatively independent of production downtimes. As more employees began to work from home, demand for online conferencing platforms increased a lot. Company Z was well positioned to take advantage of this, and quickly realigned its resources and priorities to meet the growing demand and help companies modernize their communication channels. One reason

Company Z was able to respond so quickly is that it was already well prepared for such a situation. Company Z's employees were already working from home before the pandemic broke out, and all the necessary technology was already in place. Another important reason for this success was the management culture. Company Z was able to adapt very quickly to the pandemic by constantly rethinking its priorities, assessing the market situation, and shortening planning processes. Sales managers were no longer given annual quotas, but rather semi-annual quotas, because no one knew how the market would develop. The exploding demand for online meeting software and other cloud services took Company Z by such surprise that for a while it was unable to meet all the demand. However, this problem was resolved very quickly as additional resources were made available in the relevant departments. Company Z became a global provider of video conferencing software and is now more than 50% a cloud company. In addition, Company Z has begun exploring new business opportunities in the metaverse market by researching the use of tokens and NFTs, developing AR headsets and eventually acquiring a video game company, Company A, which is also an expert in the metaverse.

3.3 Company A

Company A is a large, global video game producer that distributes a variety of well-known video games for various platforms. Many of these games are produced by franchises, and about one-third of Company A's revenue comes from sales of consoles by business partners. Company A has offerings in several growing markets, the mobile game market, the online game market, and the metaverse market. An important success factor for Company A is its employees. The highly talented 3D artists and graphic designers enable Company A to produce unique video games. However, although Company A is quite successful, it faces several problems. Illegal replicas and copies of its games are cutting into revenues, and since video games have short life cycles, the company is under constant pressure to bring new products to market. The same is true for Company A's competitors, so competition in the interactive software industry, in which Company A operates, is quite strong. Finally, Company A had bad press as negative rumors circulated about its CEO.

3.4 Technology, Media, and Telecommunications (TMT) Industry

TMT companies played a key role during the COVID-19 pandemic. Due to the pandemic, employees were forced to work from home. Face-to-face meetings were no longer an option, so demand for online conferencing platforms, collaboration tools, cloud services, and cybersecurity solutions grew rapidly. TMT companies are clearly the big winners of the pandemic. In terms of value creation, 70% of the 232 publicly traded TMT companies had a higher total shareholder return (TSR) during the pandemic (March 2020 to November 2021) than in the pre-pandemic period (21 months before the pandemic began). Tech companies led all industries by accounting for 17 of the 20 TMT companies with the highest TSR and a median TSR of 30% from 2016 to 2021. However, in 2022, stock markets became volatile mainly due to the Ukraine crisis. TMT companies are therefore under constant pressure to bring new innovative products and services to market to remain attractive to shareholders. According to the Boston Consulting Group, a key factor for TMT companies to remain competitive in the future is their ability to develop a metaverse strategy, as the metaverse market has a potential of $1 trillion by 2030. Tech giants such as Sony, Embracer, and Take-Two Interactive have already acquired companies that are experts in the metaverse (Bamberger, 2022).

3.5 The Metaverse

The word metaverse is a combination of the words meta and universe. Meta is a Greek prefix meaning '*after*' or '*beyond*', so the metaverse can be considered a post-reality universe (Mystakidis, 2022, p. 486). It merges the physical reality with the digital virtuality by using technologies such as virtual reality (VR), augmented reality (AR) and mixed reality (MR). To better understand the metaverse, it is first useful to explain the different technologies on which it is based. The term VR stands for a completely artificial environment. By using VR headsets, users can enter a completely digitally created world (Mystakidis, 2022). They can see, hear, and feel this synthetic digital environment and use multisensory devices to interact with virtual objects (Pellas et. al, 2021; Pellas et. al, 2020). Unlike VR, AR partially merges this virtual world with the physical world (Klopfer, 2008). AR can be considered an extension of the real world by integrating virtual elements into the physical environment (Ibáñez, 2018). AR Content can be accessed through devices with transparent surfaces such as tablets or smartphones (Mystakidis et. al, 2021). The combination of these two technologies, VR and AR, is known as MR (Milgram et. al, 1995). With VR, users can interact with virtual objects in a virtual environment, with AR, users can see virtual objects in a physical environment, and with MR, users can interact with virtual objects in a physical environment (Speicher et. al, 2019). Like

the VR glasses, there are also the MR glasses. The main difference is that the MR glasses allow users to see the real world while seeing digital objects and thus interact with digital elements in the physical environment. All these mentioned technologies are grouped under the general term XR, which stands for extended reality or cross reality (Mystakidis, 2022).

The metaverse is based on a XR system that can be accessed, for example, with MR glasses. But there are more ways to interact in the metaverse. For example, with devices such as motion controllers, users can grab or touch objects (Maereg et. al, 2017). There are even technologies that can track the user's entire body movement and transfer it to the metaverse (Atsikpasi, P.; Fokides, E., 2021). Finally, research is being conducted on haptic suits that allow the user to feel objects and furthermore it is explored how to digitize or simulate smell (Maereg et. al, 2017; Cheok, A.D.; Karunanayaka, K, 2018).

Several existing use cases demonstrate the relevance of the metaverse. The most well-known use case is gaming, but there are many other useful use cases. In pilot training, students can practice flying without any danger. Medical students getting their first experience with surgery can virtually view body organs and perform virtual surgeries without risk of hurting anyone (Bailenson, 2018). Aside from these educational use cases, the metaverse also offers new opportunities for social interaction. Virtual social networks are immersive 3D environments where users are represented by avatars. In this virtual world, users can travel through different locations, meet friends, participate in events, and even trade real money (Ning et. al, 2021). These opportunities finally help to reduce business travels which saves costs for companies but also reduces carbon emissions (Ong, 2014).

3.6 Competition within the Metaverse Market

Because the metaverse is such a new market, its full potential business opportunity has not yet been fully explored. The two main sources with the highest value creation potential are, on the hardware side, AR/VR headsets needed to enter the metaverse, and on the software side, platforms within the metaverse where users can play games, meet friends, buy virtual real estate, trade real money, or attend virtual concerts. Large technology companies such as Meta, Google, Amazon, and NVIDIA are already exploring different business opportunities within the metaverse and developing different platforms and AR/VR headsets to be the first to benefit from the new revenue potential. A common strategy for major technology companies to enter the market is to acquire companies that are experts in the metaverse industry. However, each of them also has their own projects. Meta, formerly known as Facebook, has decided to align its entire corporate strategy with the metaverse, and to signal this publicly, it has changed its

company name to Meta. Meta is working on high-quality but low-cost VR headsets and various collaboration platforms within the metaverse. Other competitors in the market include TeamViewer and RealWear. RealWear works mainly on hardware products. Their devices are based on assisted Reality (aR) technology. This technology projects 2D images through a small screen into the real world. Although the experience is less immersive than AR/VR headsets, there are several use cases as the devices are water, heat, and explosion resistant. In addition to these large technology companies, there are also many startups in the metaverse market that are coming up with innovative ideas. Kickstarter-funded startup Lynx offers lightweight MR headsets. Other smaller companies, many of them from China, also offer AR/VR headsets. In addition, there are several startups offering various types of VR platforms, such as Decentraland, which offers a place to buy and sell virtual real estate. One of the main reasons that many startups are entering the metaverse market is that the software side does not require many resources to develop a platform. Individuals who are talented in programming can develop such platforms without a large initial investment. Although the hardware components to build AR/VR headsets are easily available in the market as there are many suppliers of screens, chips and other required parts, there are few startups entering this part of the metaverse market as the cost of these parts and the production costs for such headsets are high.

4. Teaching Note

4.1 Introduction/Synopsis

The ability of companies to adapt to a rapidly changing environment is an important topic for students to understand how and why companies make certain decisions in crisis situations. By analyzing Company Z's acquisition decision during the COVID-19 pandemic, students will learn concepts for evaluating strategic management decisions in crisis situations and why some acquisition decisions are more successful than others. Finally, they will be able to understand in which situations companies should adjust their strategies in crisis situations and in which situations it makes sense to stick to the old strategy.

4.2 Pedagogical Objectives

The purpose of the case study is for students to develop an understanding of strategic decision making in crisis situations. Therefore, this case study is intended for students taking an advanced strategic management course. Since no background knowledge is required for this case study, it can be used not only in the master's program in management, but also in the

bachelor's program. The final objective is to understand the concepts of DC, Porter's 5 forces, Porter's three tests, the SWOT analysis, and the Ashridge matrix, and to apply these concepts to a real-world scenario. Most importantly, it should be mentioned that the case should motivate students to critically discuss the results and that there is not just one correct solution to each question. The case can be easily integrated into a strategic management course by adding two 90-minute sessions. The first 90-minute session is a lecture by the professor explaining the core concepts used in the case study. This can be manually adjusted if some of the concepts have already been explained to students in previous sessions. The explanation of the framework concepts takes about 60 minutes. In the next 30 minutes, the professor will explain the metaverse to the students so that each student is familiar with this new topic. After the first session, students have a week to study the concepts themselves and understand the mechanisms behind them. Generally, this is sufficient preparation for the second lesson. However, if students are particularly motivated, they can search online for test case studies to apply these framework concepts and surf the web to gain more knowledge about the metaverse. In the first ten minutes of the second session, the professor will introduce the case of Company Z to the students. He will give them a brief introduction of Company Z and A, and provide relevant information about the TMT industry and the metaverse market. After that, students must form groups of five people. They will have 10 minutes to do this. Once the groups are formed, students have 40 minutes to read all the material about Companies A and Z, the TMT industry, the metaverse, and the competitive environment, and prepare answers to the assignment questions. In the last 30 minutes of the lesson, each group has 5 minutes to present their findings. As each group presents their findings, students can take notes on the answers and use these findings to prepare for the final exam of the course.

4.3 Assignment Questions

RQ1: *How does Company Z use its dynamic capabilities to respond to the COVID-19 crisis?*

RQ2: *Discuss Company Zs competitive environment.*

RQ3: *How do you assess the metaverse-market entry decision of Company Z?*

RQ4: *How do you assess the acquisition of Company A?*

4.4 Analysis and Discussion

RQ1: How does Company Z use its dynamic capabilities to respond to the COVID-19 crisis?

The student should refer to the course concept of DC. He/she should elaborate the four dimensions of DC and in this way analyze the ability of Company Z to adapt to rapidly changing environments.

Teece argues that DC are the ability of an organization to adapt to a rapidly changing environment (Teece et al., 1997). In this case, Company Z is adapting to the consequences of the COVID-19 pandemic. To assess this ability, it is useful to look at the four dimensions of DC. Company Z was very good at recognizing the opportunities and threats of the pandemic and expanding and restructuring its resource base accordingly. Because Company Z's employees were used to working from home, the transition to the home office was not a big deal at the beginning of the pandemic. Company Z's managers quickly recognized the opportunities and threats which emerged from the crisis. To help other companies continue their operations during the crisis, Company Z quickly realigned its priorities. Company Z began to invest resources in the appropriate departments that could provide video conferencing software and other cloud solutions. Demand for these technologies exploded, so Company Z's ability to meet that demand depended heavily on its managers' ability to react quickly to avoid a bottleneck in the relevant departments. In Company Z's case, some minor bottlenecks occurred, but they were resolved very quickly. In terms of the fourth dimension of DC, it could be argued that the managers missed the right moment to put more resources into the corresponding department and thus could have avoided the bottleneck. One possible reason could be that managers have failed to keep a constant close eye on the market, which is a core DC. Once the bottleneck was resolved, however, Company Z did very well as it scaled its cloud business globally to meet the exploding demand for video conferencing software.

In summary, Company Z's DC can be rated as medium to high. Company Z was successful in expanding and restructuring its resource base according to the new circumstances caused by the pandemic. However, it missed the right time to adapt to the increasing demand for cloud solutions, causing a bottleneck in the corresponding department. Since Company Z scaled its cloud business as quickly as it resolved the bottleneck, its DC can still be considered quite high.

RQ2: Discuss Company Zs competitive environment.

The student should apply the concept of Porter's 5 forces. He/she should list the major existing competitors and differentiate at what levels they compete. The student should also assess the extent to which the bargaining power of buyers and suppliers affects the level of competitiveness within the industry. There are two approaches to buyer bargaining power in this case. Either students consider the buyers as the customers who buy AR/VR headsets and use the VR platforms, or they consider the buyers as the companies that offer these products. These companies could also be considered buyers, since they must buy components such as screens, processors, or chips to develop such technologies, and thus have bargaining power as well.

Threat of new entrants: High

With the acquisition of Company A, Company Z enters the metaverse market. This emerging market is attracting many startups that were previously unknown. One of these new entrants is Lynx. Lynx is a startup funded through Kickstarter that poses a threat to Company Z by offering a MR headset which is capable of both AR and VR. At the same time, it is very lightweight. In addition to Lynx, there are several other small companies, many from China, experimenting with AR and VR headsets. In addition to the hardware side, there is a lot of competition on the software side as well. Startups like Decentraland offer VR platforms where users can buy and sell virtual real estate. Competition on the software side is a major threat to Company Z because it is very easy for competitors to enter the market at low cost. The only capital they need to enter the market is the ability to develop software programs. This shows that the barriers to entry on the software side are quite low, while the barriers on the hardware side are high because the production costs of AR or VR headsets are high. Considering that the full potential of the metaverse is still unknown, policy standards are not yet fully defined and therefore it is not known how many startups with new innovative ideas might enter the market, the threat from new entrants can be considered high.

Rivalry between existing competitors: High

Like Company Z, there are several other large companies such as Meta, Google, Amazon, and NVIDIA that have purchased small startups to enter the metaverse market and accelerate their innovation. Again, there is competition on both the hardware and software sides. Facebook, for example, has changed its company name to Meta to represent its changing business strategy. Meta offers high-quality but inexpensive VR headsets and is also working on platforms within

the metaverse. In terms of hardware, Meta cannot be considered a competitor to Company Z as they do not offer AR headsets, but in terms of software, Meta is one of the biggest competitors. In terms of hardware, Company Z's main competitors are TeamViewer and RealWear. They all have different AR solutions. What RealWear does, however, is a little different from the traditional AR. It's called assisted Reality and projects 2D images through a small screen into the real world. The advantage of this device is that it is water, heat and even explosion resistant, so it has many use cases, such as in construction.

All in all, competition in the metaverse is already very strong and most of the major tech companies have already entered the market. So, the rivalry between the existing competitors can be said to be high.

Bargaining power of buyers: Medium

In this case, there are two different groups that can be identified as buyers. On the one hand, there are the customers, i.e., people interested in buying hardware to gain access to the metaverse or paying for the use of software to collaborate in the metaverse. On the other hand, hardware/software vendors can be identified as buyers, since they need to purchase the components needed to develop the hardware/software. On the software side, there are countless platforms from which individual customers can choose. If they do not like the pricing or offerings of one platform, they can simply switch to another. On the hardware side, most AR and VR headset manufacturers agree on price, so customers either buy or do not buy a headset. They can choose to experience the metaverse on a tablet or the VR headset but have little power to put pressure on the manufacturers because these headsets are not commoditized yet. For this reason, the bargaining power of buyers on the hardware side is rather low. However, this could change in the future as more companies enter the market and offer more affordable headsets. If you identify software/hardware developers as buyers, the bargaining power is high. If they want to buy processors for metaverse platform development or screens for AR/VR glasses, they can choose among several vendors and easily switch from one to another if they cannot agree on a price or quality. Summarizing the bargaining power of the different possible definitions of buyers, the overall bargaining power of buyers is classified as medium.

Bargaining power of suppliers: Low

AR and VR headsets and the equipment needed to develop metaverse platforms consist of various components such as displays, sensors, chips and so on. Very few of these components can be manufactured exclusively by a single company. So, if a company raises the price of a

display, for example, the customer can easily switch to another supplier. So, unless it is a rare component that can only be manufactured by a particular company, the bargaining power of suppliers is rather low.

Threat of substitute products or services: High

There are several ways to access the metaverse. Users can use their phones or tablets to join a 3D meeting, but the immersive experience can only be guaranteed with an AR or VR headset. As the market grows, new headsets with better graphics or lighter weight regularly enter the market. As for software, there is a big threat that Company Z's platform in the metaverse will be replaced in the future by other similar services offered by, for example, Decentraland, Apple or Google.

All in all, the threat of substitute products or services is high. Existing competitors offer similar, very good AR headsets and new products are constantly being launched. The same is true for the platform within the metaverse, which can easily be replaced by new players who can easily and cheaply build a platform within the metaverse as long as they have relevant software development skills.

RQ3: How do you assess the metaverse-market entry decision of Company Z?

The student should apply the concept of Porter's three tests. He/she should first perform the attractiveness test and give examples of why the metaverse is an attractive industry. He/she can also conduct online research to answer this question. He/she should then critically examine the cost of entering the metaverse and break it down as accurately as possible. He/she should consider the specific case of acquiring Company Z and may also conduct his/her own research on the costs associated with acquisitions. This further research will also help him/her assess whether Company Z has successfully passed the better-off test.

The attractiveness test

Company A operates in the metaverse market, a highly innovative, emerging industry. The metaverse is very interesting for users, they are curious to use it, because normally they only know this technology from science fiction movies. Since the metaverse provides a platform for online meetings, face-to-face meetings can be replaced, reducing carbon emissions caused by business travel. It also saves companies a lot of money when they have to spend less on business travel. There is even the option to attend virtual concerts or trade fairs, creating a whole new

way of communicating and entertaining. In addition, the metaverse offers entirely new markets, such as the sale of NFTs. For example, users can buy virtual Tommy Hilfiger shirts that are converted into an NFT. Companies like Facebook, now called Meta, have already made big bets on the metaverse by focusing their entire business strategy on this industry. All these aspects show that the acquisition of Company A is a reasonable step to participate in the metaverse business.

The cost-of-entry test

The cost of entering the metaverse market generally depends on which part of the metaverse a company wants to enter. If it is the software part, the cost is quite low. The only resource needed is a laptop and a person who knows software development and can design an appropriate solution. However, if a company wants to get into the hardware part, the costs can become very high. In Company Z's case, the cost was high because it purchased Company A for a large amount. But it's not just about the cost of the acquisition itself, but also the follow-on costs of onboarding and training employees. In addition, large amounts of computer capacity and storage space are needed to get started with the metaverse. Along with network costs, these primary costs are only part of a bundle of costs that will be incurred, such as marketing, content, or hardware costs. All in all, it is difficult to say whether the acquisition is worthwhile, because the future potential of the market is difficult to assess. In general, despite these acquisition costs, the cost of entry into the metaverse is medium, as it depends on which side an organization wants to enter the metaverse. On the hardware side, the costs are high, but on the software side, they tend to be low.

The better-off test

By acquiring Company A, Company Z will benefit greatly from the knowledge that Company A's employees bring to the company. These talents who develop, design and program the platforms are a rare asset and provide a competitive advantage over other companies in the market. In addition, by sharing their knowledge and skills, these employees will help improve the technologies already in place at Company Z. Since Company A is a large game manufacturer, Company Z will significantly expand its customer base. In summary, the acquisition is worthwhile as Company Z enters a new market, increases its customer base, and gains more talented employees.

RQ4: *How do you assess the acquisition of Company A?*

The student should identify the key success factors of Company A based on a SWOT analysis. Based on this analysis, the student should identify areas where Company Z could add value to Company A through the acquisition. Finally, the student should also examine the ways in which Company Z would benefit from the acquisition and in which area of the Ashridge Matrix Company A could be located. In this case the SWOT analysis replaces the success and failure analysis as it is more reasonable with the information given.

To assess the acquisition decision, it is useful to evaluate the fit of Company A to Company Z. If Company Z and Company A can benefit from each other and help each other in certain areas, there is a good fit, and an acquisition makes sense. To do so it is firstly important to understand the critical success factors of Company A. A SWOT analysis helps to get an overview of the strengths and weaknesses of Company A and thus it can be evaluated in which area Company Z could add value to Company A. Company A operates globally and at large scale therefore it can easily withdraw from certain regions in case of management risks. Their offered games support multiple platforms. So, for example, if a partner goes bankrupt, the games can continue to be offered on other platforms. Company A does not manufacture game consoles itself, but a significant portion of its revenue is generated through the sale of consoles by its affiliates. Therefore, Company A is highly dependent on the performance of its partner companies. In addition, the Company's performance is highly dependent on the performance of some popular franchises, as these produce products which account for a large portion of Company A's revenues. There are three key growth markets where Company A could succeed. First, the mobile gaming market is growing rapidly. Company A has many offerings in this market, so it has great potential to generate additional revenue. The same goes for the online games market, where Company A is already well positioned with some games. Finally, the emerging metaverse market, which is somewhat related to the online gaming market, offers several great opportunities for Company A to generate additional revenue. One of the biggest threats to Company A is product piracy. Illegal copies and replications of Company A's games greatly impact Company A's revenues. In addition, the video game market is known for the short life cycles of games, which forces Company A to constantly launch new products. In addition, rumors about the CEO of Company A have a negative impact on the image of Company A. Finally, Company A operates in the interactive software industry, which is very competitive. New innovative startups are constantly appearing, and the existing competition is also very

large and strong. So, there is a constant risk that customers will switch to the competition's products. Based on these findings the following SWOT matrix can be derived (Zhang, 2020):

Figure 4: SWOT Analysis (Own Figure)

	Strengths	Weaknesses	
Opportunities	**SO:** • Put more resources into mobile and online game development as both markets are growing • Explore further value creation potential within metaverse and hire experts in this area to be more competitive in this industry	**WO:** • The high dependence on partner companies and franchises could be avoided by producing more high-quality games in-house. At the same time, the company's image could improve because the brand would become better known	External Factors
Threats	**ST:** • In the event of management risks in certain geographical areas, Company A can easily withdraw due to its large scalability • If a partner goes bankrupt, the games can continue to be offered on other platforms	**WT:** • Invest more in cybersecurity technologies and hire experts to avoid problems with product piracy • Rumors about the CEO could have a negative impact on the image, so Company A should work on its public image	
	Internal Factors		

After identifying the strengths and weaknesses of Company A, now it can be explored in which areas Company Z could add value to Company A and how Company Z itself will benefit from it. One of the major weaknesses of Company A is that it has major problems with product piracy. Company Z is known for its cybersecurity solutions, so Company A could benefit from Company Z's expertise and fix the problem through the acquisition. In addition, Company A is looking to expand its position in the online gaming market. Since Company Z is already well positioned in the gaming industry with its gaming consoles, online gaming passes and cloud services, Company A will quickly expand its customer base. In addition, Company A will have free access to software developed by Company Z and can use it to improve internal workflows, for example. Moreover, Company Z could help Company A improve its damaged public image. Company Z is a popular brand, and therefore people will associate Company A's products with Company Z in the future. If the rumors about the CEO worsen, Company Z might also consider changes in responsibilities within the management team. Finally, Company A will benefit from the high computing capacity Company Z can provide with its large data center network to scale faster. Company Z also has its own video game publishing division and therefore could help Company A develop more high-quality video games in-house. Because Company Z can help Company A in so many different areas, there are little to no other companies that could provide similar support to Company A. Therefore, it can be said that there is a parenting advantage. The

acquisition of AB also offers many advantages to Company Z. Company A produces some of the most famous video games, so Company Z's customer base and brand reputation will increase greatly. In addition, Company A has many talented graphic designers who design landscapes and virtual locations for immersive games. As Company Z looks to enter the metaverse market, it would benefit greatly by being able to reuse these already designed virtual places for its online meeting offerings within the metaverse. Through this acquisition, Company Z not only acquires a video game company, but also a huge talent pool of 3D artists. These experts are currently a rare resource, so hiring them from other companies would be very costly. All in all, there is great potential for Company Z to help Company A with the various problems it faces. Both companies benefit from each other to a great extent and there are no serious problems that could stand between the two companies. Therefore, Company A can be evaluated as a Heartland Business and thus the acquisition is a reasonable strategic decision.

5. Conclusions and Implications

The Company Z case study provides students with the opportunity to apply the concepts of the strategic management courses to a real-life case study. Students gain important knowledge about the emerging metaverse market, learn how to evaluate the competitive environment in this new industry, and finally learn how to evaluate a company's acquisition decision.

The case study shows that Company Z adapted very well to the COVID -19 pandemic. The reason was their high level of DC. Company Z did a good job of recognizing the opportunities and threats of the pandemic and adjusted its resources accordingly, not only to get through the pandemic well itself, but also to help other companies continue their operations during the crisis. Company Z was fortunate to be a provider of a product whose demand grew rapidly during the pandemic. The explosion in demand for video conferencing software came as a surprise to Company Z. This led to a short-term bottleneck in the relevant department. One possible reason for this could be a lack of DC in terms of managers' ability to constantly monitor the market and anticipate such trends. However, once the bottleneck was removed, Company Z performed well and was able to expand its cloud business globally, ending up with a fundamental change in its business model as it became a cloud company.

In addition, the case study examines the emerging metaverse market. Company Z enters this new industry during the pandemic by acquiring Company A. To assess the risk of this decision, the study examines how competitive this industry is. The analysis shows that there is a high threat of new entrants in the metaverse market. Although the barriers to entry for AR and VR headsets are high because they are very expensive, there are already several successful startups

such as Lynx and other smaller companies from China and other countries. On the software side, the barriers to entry are very low, as anyone with programming skills can enter the market. For this reason, the competition among the providers of the VR platforms is very high. A shining star among the VR platform providers is Decentraland, which offers a virtual environment for buying and selling real estate. In addition to these new entrants, there is also strong rivalry among existing competitors in the metaverse industry. Company Z is not the only company that has entered the market by acquiring a metaverse industry expert. Tech giants such as Meta, Google, Amazon, and NVIDIA have done the same and are already well established in this emerging market. The representation of such large companies and the fact that Facebook has rebranded itself as Meta shows the importance and potential of this new industry.

Another interesting aspect of the metaverse is that there is competition at different levels. On the one hand, there are the VR platform providers and VR/AR headset manufacturers, but on the other hand, there are a lot of startups exploring new, different business opportunities. RealWear, for example, is building its own headsets based on aR technology. Although aR technology is less technologically advanced than AR technology, RealWear's products are still very competitive because they are water, heat, and explosion resistant, which makes them very useful for many use cases, such as construction. All these different VR platforms offered on the software side create a lot of bargaining power for buyers. If they do not like what one vendor offers, they can easily switch to a competitor. The situation is different for the hardware products offered, as there are not yet many on the market. Most hardware manufacturers have agreed on selling prices, which reduces the bargaining power of buyers. Since the bargaining power on the software side is high, but low on the hardware side, the overall bargaining power of the buyers can be classified as medium. To develop the necessary hardware and software for competition in the metaverse, various hardware components are required. However, these components are basic components such as displays, sensors or chips for instance. Since these components are offered by many different companies in similar quality, buyers can easily switch suppliers if they are not satisfied with the product quality or price. This significantly reduces the bargaining power of suppliers and can therefore be classified as low. When determining the threat posed by substitute products or services, it is important to consider which offerings can be regarded as substitutes. Phones or tablets allow users to access the metaverse, but the experience is not as intense as with AR and VR headsets. In any case, there are quite a few companies offering high-quality AR headsets, so the risk of Company Z's products being replaced by others is very high. There are countless offers on VR, and more are added every day. Therefore, the threat of substitute products or services is high.

To evaluate Company Z's decision to enter the metaverse market, the Porter's three tests are applied. The attractiveness test shows that the metaverse is a highly attractive market because users are curious to use it, it replaces face-to-face meetings, which is good for the environment and saves costs because business travel can be reduced, and finally, it offers new business opportunities such as virtual concerts or trading NFTs. In general, the cost of entry into the metaverse market can be classified as medium. On the hardware side, it is quite expensive to produce AR or VR glasses, but on the software side, the cost is very low, as anyone with software programming skills can enter the market. In the specific case of Company Z, the cost is quite high because the company enters the market by acquiring a metaverse industry expert for a very high cost. By acquiring Company A, Company Z enters a new market, significantly increases its customer base by adding to Company A 's existing customer base and gains a lot of talented graphic designers. Whether the cost of the acquisition can be covered by these benefits depends on the actual future potential of the metaverse.

Finally, the case study evaluates the acquisition of Company A by examining the fit between the two companies. A SWOT analysis shows that Company A has several weaknesses where Company Z could assist. There is a good fit between the parents as there are some issues where Company Z could support Company A but also benefit from it. Company A has problems with product piracy, but since Company Z is an expert in cybersecurity solutions, it could help it solve this problem. In addition, Company A relies heavily on partner companies and franchises to produce video games. With the help of Company Z's own video game publishing division, they could produce such games themselves, reducing their dependence. In addition, Company Z will help improve Company A's damaged public image. Company Z's large data centers will help Company A scale faster and improve their positioning in the mobile, online, and metaverse game markets. There are also several reasons why Company Z will benefit greatly from the acquisition. Company Z will gain access to a vast talent pool of 3D artists who are a rare resource, and it will expand its customer base to include Company A's existing customers.

In summary, the case study shows, first, that the metaverse is an extremely attractive but competitive industry and, second, that entering this new market by acquiring a metaverse industry expert is a costly but sensible approach because the acquirer benefits from the knowledge and expertise already available in the acquired company. Especially in uncertain times like the COVID-19 pandemic, companies need to adapt their strategies to new demands. Company Z is a good example of how companies can realign their resources to take their business in different directions and even explore new business opportunities in emerging markets.

6. Limitations and Future Research

The case study of Company Z is a representative example for several companies who acquired metaverse industry experts to enter the metaverse market. However, the analysis of the acquisition deal of Company A was only conducted from a management but not from a finance perspective yet. The better-off-test within the Porter's Three Tests analysis could be evaluated better if there were specific numbers of the acquisition costs available. Unfortunately, since this topic was quite current it was considered as strictly confidential, that's why it was not possible to get interviews about these details. Usually, those numbers will be officially published at certain time so more detailed examinations can be conducted at this part. In this case, the case study could also be adapted to finance classes so that students could use the case in an M&A course, for example. The business opportunities within the metaverse are constantly growing and so do the topics which can be investigated. This case study highlights on the hardware side VR and AR headsets and on the software side VR platforms. However, there are lots of other topics within the metaverse which can be analyzed in future research. The thesis didn't cover the topic of blockchains and cryptocurrencies at all for instance, but this is something which plays a key role as well. For instance, it could be analyzed what the intention of companies was who started investing into the NFT business during the pandemic.

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8. Appendices

Appendix 1: Transcript of Interviews

The following interviews were edited to preserve anonymity and to better understand the communicated content.

<u>Interview 1: Mixed Reality Product Marketing Manager (Employee A)</u>

Question 1: Dynamic capabilities describe the ability of an organisation to adapt to rapidly changing environments. How would you describe did Company Z adapt its strategy / resources to the COVID-19 pandemic?	Employee A: *'So basically, I think that Company Z did a fantastic job at navigating this pandemic, one of the main reasons is that we were already really well positioned to do it. Before the pandemic, we had a really open work from anywhere policy. We have systems and we have processes that are designed already to give people that flexibility to work from different places at different times, different time zones, part-time, full-time, whatever. So, I think that for us was actually a really good test of our capabilities and we as a company we went through really, really well I think. But also it allowed us to pivot bit stronger on some of the technologies that we are selling, some of our products. So one of the very few good things about the pandemic is that it really forced a lot of companies to really move forward and think things differently. And with that, you know our offerings for cloud solutions and remote assistance and all the flexibility that our platform offers was perfectly positioned to take advantage of that. We don't like to take advantage of unfortunate situations like this, but at the end of the day we were lucky that this pandemic actually drove a lot of needs that our products fulfill really nicely. So, it was really good to see Company Z quite rapidly realigning resources, realigning priorities to not only capitalize on the opportunity, but also help a lot of companies and a lot of resources that actually needed help moving to a place that they could still operate. And I'm thinking mostly, like a lot of public sector entities that are really typically very slow to adapt with the pandemic, they had no option and then we had the opportunity to help them modernize a bit.'*
Question 2: When looking at the emerging metaverse-market. What would you say who are the main competitors for Company Z?	Employee A: *'So, let's start with the new entrants, which I think is a really interesting scenario right at the moment. So, this is relatively new technology still, even though some companies like us have been around for many years with this. Our first AR Glasses were launched more than six years ago already. But headsets have been around for more than 10-15 years already. What happened is that again partially thanks to the pandemic that people had to work remotely, a lot of people couldn't get together. Couldn't go out, have drinks and all type of thing. That came together with the fact that companies like Meta or Facebook actually had a big investment in this technology and made really cheap headsets. Good and cheap, by the way. That basically allowed a lot of people to really jump into it and say, hey, you know what? It doesn't cost thousands of euros anymore to have cameras in the room and all that type of thing. You know, like with 400 bucks, I can get into it and start playing and be friends and all the type of thing which is very accessible for a lot of people. Especially in our country. With that explosion of the market and with the sheer amount of potential that got created with this, a lot of really normative companies started to build new stuff. There are companies like Lynx for example, that are building these lenses that are both VR and AR already that are super light, super interesting. The demand for people working on the optics engineering has grown through the roof. And pretty much everybody at the moment is trying new things and coming up with new things. Lynx is a perfect example. I love the company. It's a French company. They still now operate in a garage. They*

did a Kickstarter. Yeah, they got funded through Kickstarter. They have a couple of products that are really, really interesting, right? There is a bunch of companies coming from China, we don't know very much in Europe of. But there's a huge scene of companies that are trying new things. They're trying VR headsets. They are trying AR headsets. They are trying mix of both. They're trying new things with tablets, with lighters, for example. There are companies that are building these like Star Wars thing that you have this platform and then the hologram comes without the need of glasses and stuff like that. That is already existing. Of course, it's small, it doesn't scale. You cannot have a 2-meter by 2-meter hologram. But there's an incredible amount of innovation going on at the moment. That takes us to the big guys. Company Z, Meta, Amazon, even companies like NVIDIA, are buying left, right and center small. A lot of these small startup companies do basically accelerate their innovation. When you look back, our AR glasses, for example, had a volumetric camera in the front. That volumetric camera is a direct result of the sensor that we had in another device many years ago. And that was basically an acquisition that we did. We acquired the company that developed this sensor. It was a success at the time. But then you know, it kind of died out, but then we reused that technology, we miniaturized the technology in a way that we can now fit it in these headsets, right. So, there's a lot of these new things coming up that companies are buying that might not come to life in 1 or 2 years, but will definitely come to light in 10-15 years from now. That would make a huge difference. So, at the moment the main competitors that we would have aren't two fronts on. On the one hand you have the hardware competitors. So, we don't have a VR headset ourselves. We have only augmented reality headsets and the main competitor that we have in the market at the moment for AR is a company called RealWear. They do something very different. So, you have a band and a tiny screen where you can project Images so it's still 2D. One of the advantages of this device is that it's ruggedized, it takes water, it takes heat, it takes explosions save and all that type of thing. So, for construction and a lot of scenarios, it's a really good solution. But mixed reality is a big spectrum. That includes a lot of different things. So, there's virtual reality on one extreme right, but then in the middle there's augmented reality, and there's what a lot of people call assisted reality, which basically projects digital assets in the real world. It brings you a little screen on the real world that you can see through that you can have a team call. You can have manuals, you can have a bunch of things. It's small, it's not the same. So, this is what they call assisted reality. Which they write normally with a small A and then the big R. But then you get augmented reality, which is ours, that you can literally see the real world, but then just get digital assets embedded into it. As if they would be there. Actually, one of the most basic examples of augmented reality is the cameras of the mobile phones, so you can take those pictures and they add like funny decorations and stuff like that. That's a perfect example because this is the real world, but it adds digital assets to it. The equivalent of these RealWear devices would be having the real picture as is and then a small screen on the side with some annotations or some funny things.

So not the same but then you know that's the hardware side of things. But then at the moment Meta and HP and a bunch of other companies like Lynx are doing fantastic VR headsets that we at the moment we are not doing. So, we wouldn't consider them competition at the moment because we have no product to compete with. But then the big battlefront is really the platform. So, in the platform, there's at the moment two big rivals, which is Meta with their offerings and then Company Z with Mesh for teams, which is launching in a few months from now. That would allow people to have this immersive experiences and collaborate in an immersive experience with headsets like

the Oculus or HP or anything else. But at the same time Google, Amazon, and a bunch of other companies, even in media and a bunch of other companies, are creating their own platforms and their own solutions as well. Even companies like Teamviewer which is a German company that have products for connectivity and all that. They have their own AR solutions. Netcetera is another competitor in many specific solutions. So, we have competitors on the hardware side, we have competitors on the platform itself and then we have competitors on specific solutions, right. But that's the three horizons that we look at.'

Julius Giesen:
'Very good. I think we answered the question with the threat of new entrants now really good with all the startups and maybe even the middle part of this picture like rivalry among existing competitors. I would say it's a high level of competition here.'

Employee A:
'Super, Super strong and sometimes a bit dirty I must say.'

Julius Giesen:
'OK, so let's come to the last two or three parts like the bargaining power of suppliers and buyers. How would you describe the level of bargaining power?'

Employee A:
'So the bargaining power of suppliers in most hardware products, computer hardware products, it's not that large actually and there are very few components that only one company produce or that there is no alternative for. Typical example. You know processors, right? Intel could say, hey, you know what, we have 80% of the market. So, we're gonna increase the price. All they would achieve is a lot of shift to AMD processors, right? And then people would use and would take a much bigger market share and then all of a sudden: That's it. Same thing applies to screens like monitors, displays sensors the same thing applies to pretty much everything. So, at the moment I think that the bargaining power of the suppliers is not that big in my opinion. They do have significant challenges with the pandemic and the supply chain breakage. They have a huge backlog of chips for everything from washing machines to AR headsets. But that's a different story. I think that they're like we see it everywhere, the car industry, with everything but I don't think that they have much bargaining power. It's a commodity at the moment. Meta did a really good job at heating a really attractive price point for the Oculus headsets. For 400 bucks, €400. In the US is like 320 plus VAT depending on which state you are in. The stuff like that, but that gives them a huge growth, a huge momentum and they took the moment they have like 90% of the market share. The thing is that they lose money with each headset. So, companies like Amazon, companies like Company Z, Google can afford to loose few billion dollars on that type of thing, but it has a limit. So I think that as the technology gets more into mass production into mass adoption, we will see prices dropping, but I don't know if we're gonna see prices dropping all the time to that degree. On the consumer world, I think that the bargaining power of the consumers is present. Our main market at the moment is the enterprise world, the commercial world. If they need to spend 800 bucks in a VR headset or an AR headset, I think that they would be totally fine with that. And in any case as this is a technology that is being built at the moment the producers are kind of aligned on the price. They are only willing to lose so much money per device. So I think that for the time being, I don't think that there is a huge bargaining power

	from the buyers. People can choose to buy things or not, or have the experience on the tablet or on the VR headset. With time it is just going to get commoditized again like laptops today that you can, if you want, you can buy a laptop for 500 bucks, 400 bucks or Media Market or whatever.' Julius Giesen: *'And in terms of the threat of substitute products and services, how would you evaluate the level of competitiveness there?'* Employee A: *'I mean there are a lot of things that you can do with a tablet today already or with your phone even. But there are things that you cannot like simply cannot do. Get into immersive 3D meeting. I mean, you can use your phone in this cardboard box things but it's a very different experience which you get if you have a 400 bucks headset. So, I think that there are many scenarios that are perfectly covered and totally fine with substitute devices but there are some that are impossible to substitute really.'* Julius Giesen: *'OK, so the threat is rather low.'* Employee A: *'I would say so, yes.'*
Question 3: Why is the metaverse an attractive industry?	Employee A: *'I think there are two main reasons for that. One is that its really cool, it's a technology that is being developed with VR and AR, it really plays to our senses so nicely, is so visually, so immersive you can almost feel it right? So, it is very engaging and because of that it becomes very attractive. And then the second part is that it is just cool technology. You can do a bunch of really cool stuff in there that we were only dreaming of in the past like. You roll back like I don't know how old you are, but I'm like 40 in my 40s. And when I was growing up, the stuff that I'm doing now is my job. Worked like science fiction stuff. We're like in the movies and in the futuristic movies. And this is like, you know, 30 years ago, right? So, from that perspective, I think that for the older guys like us. It's basically like we grew up looking at these things as like the wow thing and now they are there. So, we really want them. We really wanna play with them. We really want to take advantage of them, but also they bring so many opportunities for companies to save money, to reduce carbon to engage customers in different way. To build this experiences, there's no other technology at the moment that can fulfill that, so it's super attractive from a pull factor but it's also super attractive from a financial and business mindset.'*
Question 4: Which costs would you identify with entering the metaverse market?	Employee A: *'It really depends which part you want to enter. So, if you want to enter the hardware part then you need to think with some pretty hefty costs. But if you wanna enter the software part or the solution part, honestly you and I could get into a garage and in 10 days if we like, I don't know about you, but I have no idea about developing. But if I would know how to develop, we could perfectly build a solution. Really. Basically, with no cost and you see that a lot of these startups and a lot of these new entrants that I was mentioning, they are on the solution side of things and they are like tiny companies working not even from the garage. They're working from their own rooms. And they come up with awesome solutions that they get either bought by bigger companies for millions, or they make fortunes selling their solution.'*

Question 5: How would you evaluate the competitive advantage gained through entering the metaverse market? Is it worth the cost of the acquisition?	Employee A: *'So for us, the acquisition of Company A, I think it's fantastic as much as it cost a lot, but it's a slam dunk. They are a clear leader in the market and it would allow us to embed their games into our Game Pass offering that would basically make our solution, our offering so much more compelling than anyone elses. Would be hard for other people to compete with that. And then also a lot of the know-how on building these 3D experiences, these environments, these landscapes, all that, that would definitely be something that we could use for our online collaboration tools we could use for all sorts of solutions. So, I think that for us it makes a ton of sense. I don't think it would have made sense for Google to buy them, for example, or for Sony to buy them, for example. For Sony, you know, it would have made sense from a gaming side of things, but they don't have all this. Metaverse offerings that we do have on the enterprise side of things. So, they could only have partially. Topic capitalized on the acquisition plays on many levels. So, if you ask me, we have the money. We would have had to pay tax on it otherwise makes a ton of sense to invest it in something like that.'*
Question 6: In which way is Company A able to benefit from Company Z's technical and operational expertise?	Employee A: *'I don't know if they would benefit from being owned by Company Z and maybe obviously would give them more scale by being part of our online game pass, for example, and have their games in the hands of a lot of other people, but they were doing pretty well themselves already. So, I don't know to what degree. I think that we as Company Z benefit a lot more from having them, than they benefit from having us to be really honest. But that's just my personal opinion. It's not a company statement. Which is, you know, beyond having their games, which are solid games into our Game Pass, which makes our game pass so much more attractive. On top of that, again, as I said, like these guys are developing games in 3D like immersive games, and for that they create characters. They create landscapes, they create places, virtual places. We could take that and use it for our online collaboration tools. You will be able to get your VR headsets and get into a virtual meeting. Well, you know, you could really meet in a game world. We would have all that expertise of people building these scenes, these places, these assets as we call them. We could reuse for 1000 things. We could really use their expertise in 3D modeling for a lot of our other offerings that we are building at the moment. And that alone would save us a ton of money right today. If you wanna hire, like 3D artists, for example and you're up for some challenge. There's a huge demand for those guys. And with the acquisition, we're not buying only a bunch of games and know-how we're basically acquiring a huge talent pool of a resource that is very scarce at the moment. So, it's very, very valuable for us.'*

Interview 2: Chairman of the Central Works Council (Employee B)

Employee B had no expertise about Metaverse, that's why Interview contains only question 1.

Question 1: Dynamic capabilities describe the ability of an organisation to adapt to	Employee B: *'I've been around for quite a long time and I've always found Company Z to be highly dynamic. To the outside world, Company Z has such a tanker image if you look at it from the outside, but it's not like that. Of course, these are organizations that are not completely turned upside down every month or every year, but Company Z really does it quite extremely. In the past there was always member review. So, within the fiscal year at the middle, you really turned the organization mentally upside down and*

rapidly changing environments. How would you describe did Company Z adapt its strategy / resources to the COVID-19 pandemic?	*checked again and again ok what are our priorities, what do we want, what are the markets, are these the right markets, what do we want to achieve, what are the goals and does our organization fit in or do we have to change it. That's why everyone always is saying nothing is as certain as change. Like the change at Company Z that's really quite strong. So, on the inside, I would like to say that we are still highly dynamic today and right now, for example, we are preparing for the new fiscal year, and it is possible that some things will change again and that some things will happen. I have to say that I have never experienced this dynamism at any other company before, or when I talk to other colleagues or other works councils or something like that, I hardly find anything like it anywhere else, and that is what really sets Company Z apart.'* Julius Giesen: *'And now during the COVID pandemic did you notice anything that you would call a change in strategy?'* Employee B: *'So, change not at all, I think that we are extreme. So, the pandemic has two aspects, one is how we work internally, in a different environment, so with a lot of home office and how with the customer, that is of course first completely different, but not so different, because we have prepared everything before the last 5 or 10 years. We have always been in the home office. Not everyone used the home office option to the same extent, but everything was already there. The culture, the management culture was there, and the technology was there, and these are two very important things, which is why not very much has changed in terms of working during the pandemic. To what extent has our strategy changed? Or I'll stay with internal for a moment. It was interesting that we shortened our planning processes. So very specifically, that we work with quotas here, of course, and normally the quotas were always set annually. For the last 2 years or one and a half, we have been given half-yearly quotas. Also for fairness reasons, because we didn't know at all how the markets would develop. This is something we have never experienced in 29 years, that we have shortened the planning cycles again. That was a significant difference. Otherwise, I have to say that the focus on modern work in particular, which of course plays a huge role in the pandemic, is where we have certainly put extra resources and focus in order to be able to serve customers more quickly. In all areas, not only in terms of licensing, but also in terms of implementation in the service area. We had real bottlenecks there, even in the short term. All of a sudden, demand was there. But we reacted very quickly. In the new cloud data centers, we noticed that things were really taking off, and then we very quickly stepped up our game. We only heard about real bottlenecks for a very short time. Then everything was fixed. So, the bottom line is that we are probably also among the winners of the pandemic, but the way was prepared beforehand. We are now more than 50% a cloud company.'*

Interview 3: Chief Technical Officer for Government Customers (Employee C)

Question 1: Dynamic capabilities describe the	Employee C: *'We have to look at different areas. If you think about how did we change in terms of the dynamic capabilities, there will be changes in the human resources in terms of like how would people work and how do they have access to all the systems and doing*

ability of an organisation to adapt to rapidly changing environments. How would you describe did Company Z adapt its strategy / resources to the COVID-19 pandemic?	*flexible work as we call it our hybrid work for a couple of years already. So that this was not a big change for us. Maybe some changing in supply chains and delivering laptops directly to employees at home instead of picking them up and in the in the regional office, but this was when we least minor changes. But we had big changes in some departments and I think that the department level is the interesting level, here to see what dynamic capabilities are doing. For example, the data Center department, they shipped as many services as they could. And then on the third thing, of course, like the pandemic changed our everyday life and we are now on a global scale. And one of the findings there is that we started to live a lot of digital lives all of a sudden. The video conference within two years became total new normal and if you compare this to like 2017-2018 video conferences all day long with video camera on and so on was not the normal way. So there's of course the pandemic which was a catalyzer to accelerate this move. And I think like one more thing maybe is that we and then the rising use of cryptocurrencies and other stuff that also like increased the speed of development.'* Julius Giesen: *'Is there anything particular you would say that Company Z changed its strategy during the crisis? Even if it's just like a small thing. But you said that they're now kind of working into cryptocurrencies, which probably wasn't the case before the pandemic.'* Employee C: *'We all like using tokens as physical representations as I think it's a new development and then I think there's a lot of hype and stuff within NFT's. But then the hype will go away and then you will still have a technology that is able to represent physical assets as a digital asset.'* Julius Giesen: *'OK. So you would say that Company Z was not working with those tokens, but in the pandemic they started in this kind of area and this business.'* Employee C: *'Yeah. For example. Yeah, yeah.'* Julius Giesen: *'That's an interesting insight. OK, so maybe could you briefly explain what a token is for a third person so he could understand?'* Employee C: *'Single unit that is either fungible or non-fungible. Either if it represents money you can exchange it and $1.00 bill in the Fiat money in real world looks the same and it's the same value then another $1.00 bill and printed on the same paper and so on. And you have for example other identities or take an identity of a person or a physical asset, or a car or whatever, or a certain amount of electricity that can be represented by a token, and then you can exchange a token versus digital money to receive that. For example, you have electron flow over the cable into your battery for example. This is the way the electrons are flowing and the digital currency goes in the other direction. This is like if you look at it in five years or 10 years every frame today, NFT's are mainly used to represent a card for pictures, for example, and there's a lot*

	of hype in the market of course. But like this will go away and then you will have a possibility to interact between the physical world and the real world. For example, I think about a shirt for example, you want to buy a T shirt by Tommy Hilfiger or whoever, and you are willing to pay $15 for that. So, you get a unique T shirt with a label of Tommy Hilfiger and this is minted into an NFT. NFT is nothing more than a certificate of our authentication. That's a really good short way of describing it. It's a certificate of authentication that is attached to a digital asset.'
Question 2: When looking at the emerging metaverse-market. What would you say who are the main competitors for Company Z?	Employee C: *'There are some of the big ones like Facebook, but thinking about the startups there is a really big community. It's like every company or startup company working in the area of Web 3.0 is part of that universe, of that metaverse. It's a movement from like cryptocurrency to crypto investment to selling digital land and so on. It's the whole bandwidth. It's still an infant phase there, it's a totally unknown immature market. So everybody is like rushing out for a gold running around trying to stick the sticks into the corner to show their claim. I mean everybody's trying to build this world today to get the biggest part of the cake or at least a piece of the cake. And this is the face of market development we are in my point of view.'* Julius Giesen: *'So you would consider the threat of new entrants rather as high than rather low, right?'* Employee C: *'It is rather high because there are no standards yet and they have no idea who's gonna win the race.'* Julius Giesen: *'You already mentioned Facebook, which would be the middle part of this five forces here, like rivalry among existing competitors. What else companies do you have in your mind? And how would you evaluate the level of competitiveness within this industry?'* Employee C: *'I actually don't see that in in terms of like a big competitive. The risk I would see Facebook and then the combination of all that small stuff that is watchable in the market today. It's so diffuse and so many niche players, but like adding up all the nieces or all together, we will see some kind of representation within two or three or five years. But I have no idea who will own that.'* Julius Giesen: *'Do you already have something in your mind how customers and suppliers could influence the level of competitiveness?'* Employee C: *'Well, there will be a big demand for headsets that are affordable and like we will see an increase of standard components used in this. Google being at virtual or augmented like our AR glasses and as of today they are too expensive. You will see very simple devices on the market. And this puts a lot of pressure on the markets and we have to develop the right system. So before cheap easy headsets to cope with all*

	the information and process the information and have a good enough graphic resolution and so on. But being still cheaper than let's say like $100 for example.' Julius Giesen: *'So it's also kind of a high level of bargaining power, right?'* Employee C: *'Yep.'* Julius Giesen: *'How would you describe the threat of substitute products like similar products to your AR glasses for instance?'* Employee C: *'The bargain, therefore, was pretty high, because this is really high end cutting edge research and development and also the very fast way of moving it to industry production when we had a four year innovation cycle within our AR glasses. And if you look at the increase for graphic versions and features and so on and the decrease of weight. This is immense. You need a lot of scientists and people and resources and money to come up with the thing like this.'* Julius Giesen: *'OK, so the thread is rather low because they are kind of high barriers to get into the market.'* Employee C: *'As of today, yes, if you fast forward for two or three years, you will probably find most of this stuff like being open source components and for the glasses itself for the displays, for whatever. And then you will see a market anywhere you can let like in the supermarkets. Access your toolbox and combine all this different stuff and then you will be able to ship this stuff in small numbers and small series.'*
Question 3: Why is the metaverse an attractive industry?	Employee C: *'Because we got forced to leave within the last two years. We got used to this, this little life through all ages and the business opportunity to be part of that digital universe or call it metaverse is really immense one. Move in forecast for the next years of this decade, for example. And we are convinced that you will not spend your whole day within such an universal metaverse, but you will certain times per day, per working hours for meetings and before talking with your parents or whatever, like we do on 2D video today, we will definitely. It's presence in this virtual world.'* Julius Giesen: *'So you would also say that COVID-19 was one of the main reasons why it could be an attactive industry because more people started working from home and there's just a new way of communication.'* Employee C: *'Yeah, we had the solutions for about like 10 years in the market already and we were preaching and evangelizing this for a couple of years. But right now this was really like a catalyst.'*

Question 4: Which costs would you identify with entering the metaverse market?	Employee C: *'I mean it's the whole value channel from Stover from like the people who are architecting a solution like this and programming it to bringing it into a maturity of a product that is sellable worldwide. That's hard to put a number on there, but I think we will need a lot of time. It will cost for sure as well in order to develop interoperability standards for this different metaverse but I'm convinced we will have different metaverse and then going back to our example with your shirt by Tommy Hilfiger, if you want to wear this shirt not only in metaverse A but also in metaverse B and they have to be some certain interaction points or ways of communicating that you can wear your NFT based T shirt in the different metaverse for example.'*
Question 5: How would you evaluate the competitive advantage gained through entering the metaverse market? Is it worth the cost of the acquisition?	Employee C: *'I think this acquisition was a really strategic one and it was a good one because there's a lot of knowledge and expertise in creating real life close to real life world. And I think this is what we need with a next step of development what he wants to have a metaverse where you have pixeled faces or like a graphic lookalike. Minecraft, for example, if you look at the times scale for the next new five to six years. There will be a metaverse with really excellent graphics.'*
Question 6: In which way is Company A able to benefit from Company Z's technical and operational expertise?	Employee C: *'I think there's the win-win situation because we have a large-scale data center network on this planet. And one of the biggest. When using more than two giga Watt of energy it is a perfect foundation for company doing games to scale to be present in all of the geographies and to be able to provide their services.'* Julius Giesen: *'I don't know how deep you're into the topic of Company A, but do you see any problems they might have in in the past where Company Z can actually help them.'* Employee C: *'Not technique wise, I think it's more about all these rumors about the CEO and all that stuff. I think it's more human problems than technology problems.'*

Interview 4: Mixed Reality Consultant / Technical Sales (Employee D)

Question 1: Dynamic capabilities describe the ability of an organisation to adapt to rapidly changing	Employee D: *'I think it's above average. That's certainly also due to the fact that there are technologies that we even provide ourselves, but which we naturally also use ourselves, which then ensure that we can now work together independently of location, space and time. But of course, the entire business model is relatively independent of what is happening in production. In terms of value creation, we are using digital services, which are normally independent of the fact that the Corona pandemic did not result in any major production downtime or anything similar. On the contrary, many people had to use these services in order to be able to work with each*

environments. How would you describe did Company Z adapt its strategy / resources to the COVID-19 pandemic?	*other at all. Many companies, but also private individuals, benefited greatly from this.'* Julius Giesen: *'Would you say that Company Z has changed anything in its strategy due to the Corona pandemic or has adjusted the strategy in any way?'* Employee D: *'I think the basic principles were already there, and we reacted very quickly to them. We also made sure that those who look after the customers, as I have seen for myself, were equipped with the means to address them digitally and so on.* *This means that they no longer have to travel to the customers. But all in all, that was certainly already there in outline.'*
Question 2: When looking at the emerging metaverse-market. What would you say who are the main competitors for Company Z?	Employee D: *'Yes, well, that is certainly exciting that there are now also new platforms, which perhaps also partly count in the open-source area, just for example Decentraland, do not come from large commercial providers, but coming from the community and now perhaps also deal with commercial models. It is certainly the case that there are also new forms of metaverse that are being formed. There were already certainly some and niche providers.* *But since metaverse is not yet a fixed term, I think this danger of competition is very great for Company Z, also because it can go in a fundamentally different direction. With this metaverse, it could be that this is really a kind of world for consumers in which services and various possibilities of meeting are offered, but it could also be that this is really something that can be more in the classic sense of a collaboration platform for companies. So I don't think that's defined yet.'* Julius Giesen: *'If you had to classify the threat potential of new entrants, you would say it's difficult to say whether it's high or low, because you simply don't know in which direction the metaverse will develop. But from that point of view, you can say that the risk of danger is high precisely because there are so many different business possibilities.'* Employee D: *'Yes, exactly, I can sign that.'* Julius Giesen: *'If we focus now on the existing competitors, how would you say the threat is there or how high is the rivalry currently?'* Employee D: *'I would also rate it as very high, especially now the end customer area and also the business area in terms of target group, certainly the Company Meta, i.e. previously Facebook. Because they also see this as their central corporate strategy now, as you can see from the name that they have renamed themselves. And we also know that colleagues of ours have gone to Meta in larger numbers, in the development alone last year, I think, they have created almost 10,000 jobs in the field. Of course, this is already an insane investment. It's a question of the concept and the competition as to whether they have the right solution, whether they can get away with it, but also*

	whether they have the staying power to keep up with the current relatively high losses.' Julius Giesen: '*The next question is about the danger of substitutable products and services. That is what would we offer in the metaverse market and where would be the danger that these products can be substituted?*' Employee D: '*We have different areas, as I said earlier at Company Z. Strategy is also really divided into those for consumers and those for companies. In the area of services, so to speak, for other solutions. I think it's very high in the consumer area, where I see primarily Meta, but also these new shining stars like Decentraland.* *But also, in the area of business customers, which tends to be our core business, there are now also some who are getting involved in this area. So maybe there are also some that you didn't even have on your radar, like Teamviewer, for example.* *They also do a lot in the area of mixed reality, so it's more in the area of augmented reality, where I fade things into the existing world. But I also see a big parallel, or just that this is part of it, to the whole topic of metaverse. And yes, of course the other big tech companies are not far away. Apple and also Google, Alphabet are certainly all in the process of gaining a foothold in this area, so this is a market that is by no means decided, but where the danger that our services will be replaced by other services is relatively great.*' Julius Giesen: 'Okay, very good, then the last thing we have is the bargaining power of buyers and sellers. How would you classify that? To what extent do customers have an influence on what we actually want to offer in the end?' Employee D: 'The customers currently have the power to give their attention to which platforms they use at all, because it is still at the very beginning and no platform, preferences, are there yet. As a buyer, the question is whether the companies that buy, for example their presence in the metaverse, are also to be defined as buyers or as suppliers. An exciting question, but of course they still have a power, whether they are at all willing, for example, then to buy a property in a metaverse or they like to then create a representation there, that is of course something where the power or purchasing power is still very decisive at the moment, also for what, what then happens with the metaverse provider.'
Question 3: Why is the metaverse an attractive industry?	Employee D: '*In my opinion, the metaverse is an attractive industry because it creates markets, new markets for things that exist in the physical world today.* *And that opens up new possibilities that have perhaps become obvious, especially now with the Corona pandemic, that people want to interact with each other regardless of location. If you do that. A pure video conference is not always the right place or the right medium. Because for example you could never hold a trade fair in a video conference, because these individual conversations don't happen at all. This spontaneous talking to someone 1 to 1, these are just things that are attractive in the metaverse and why people will probably go there. I know people who already go to concerts in metaverse or organize fairs there. I think those are the most obvious use*

	cases. Or the things that haven't been invented yet. Those will certainly come in the future as well.'
Question 4: Which costs would you identify with entering the metaverse market?	Employee D: *'Of course, the obvious thing is the computing capacity that is needed for this. So capacities and storage and network costs. But these are the primary costs, and there are certainly many more, especially with regard to marketing. But also the topic of hardware. So it's not for nothing that Meta is investing an incredible amount in the Oculus area because they de facto offer the best hardware today with their headset, the Oculus Quest or Rift or whatever, at an attractive price point or at the most attractive price point. Tie that to their services. So if you want to use the glasses, you have to sign up with your Facebook/Meta account. And if you don't have that yet, you would create that and then have direct access to Meta's metaverse. And so there is just in the hardware area, there is a great dependence and there must be invested in any case. I had forgotten one cost aspect and that is the content, so the content is also essential for the metaverse'*
Question 5: How would you evaluate the competitive advantage gained through entering the metaverse market? Is it worth the cost of the acquisition?	Employee D: *'There is a competitive advantage if you are active in the metaverse, because you can address other target groups there, even in the future, which might not be addressable otherwise. But also when I offer content that is not available elsewhere, and of course Company A, as one of the major providers of games, offers a large share. I think we already have good content. Company Z is certainly leading the way. As far as the gaming sector as a whole is concerned and also the content for a metaverse. But that's why the acquisition of Company A is also an important thing for the metaverse. And it's also an advantage in terms of competition.'*
Question 6: In which way is Company A able to benefit from Company Z's technical and operational expertise?	Employee D: *'That's multi-layered, so that probably really starts with things like that they can use our cloud software internally. I don't know if they are already doing it, but then also clearly the topic of computing capacity and also that would be our publishing unit that creates gaming content and collaborates with other studios to make all the things available on gaming consoles. We also have a certain cloud for game streaming, which we offer. Google also tried something, but they haven't gotten as far as you no longer have to buy the games and then download them as a CD DVD, but they are streamed directly from the cloud and I can then play them on my smartphone, for example. We have a strong position as Company Z and will probably also offer these things to Company A, or they will be integrated or at least in such a way that they can use the support and then new customer groups can be opened up again. Yes, Company A was not doing so well at times, so we hope that it will be a good partnership.'*