Web3.0 as an Adaptive Strategy in Crisis: The Case of Nike and Adidas

Mikhail Sergeev
152121119

Dissertation written under the supervision of Professor Ricardo Reis

Dissertation submitted in partial fulfilment of requirements for the **MSc in International Management** (specialization in Strategy & Consulting), at the Universidade Católica Portuguesa, January 2023.

Abstract

Title: Web3.0 as an Adaptive Strategy in Crisis: The Case of Nike and Adidas
Author: Mikhail Sergeev

The COVID-19 pandemic caused huge distortions to how businesses function and define their strategies, with fashion industry not being an exception. The pandemic gave rise to intensive innovations in the digital sphere due to the fact that customers spent more time online, with gadgets serving as hubs for communication, entertainment, and sources to spend leisure time. For fashion brands, the digital innovations centered around web3.0 and related concepts, namely blockchain, metaverse, and Non-Fungible Tokens (NFTs). Rapid pace of developments across these areas made it crucial for companies to adapt and respond to crisis by bringing their own unique solutions to emerging customer needs (communication, showing off in the digital space, lively interactions, etc.). Therefore, the two brands, which are in the focus of this research, Nike and Adidas, decided to invest in respective projects with the goal to keep up with the market trends, enhance capabilities, and expand resource base.

This case aims to extend the body of knowledge in the web3.0 domain including adjacent concepts integral to this term and elaborate on practical implications of theoretical constructs by analyzing Nike and Adidas sportswear brands. This case can be applied to teaching purposes to address subjects such as dynamic capabilities, Resource-Based theory, crisis adaptation strategies, and related concepts.

Keywords: Fashion, Metaverse, web3.0, Dynamic capabilities, Resources and capabilities, Strategic crisis adaptation.

Resumo

Título: Web3.0 como uma Estratégia Adaptativa em Crise: O caso da Nike e da Adidas
Autor: Mikhail Sergeev

A pandemia de COVID-19 causou enormes distorções na forma como as empresas operam e definem as suas estratégias, e a indústria da moda não era uma exceção. A pandemia deu origem a inovações na esfera digital devido ao facto de os clientes passarem muito tempo online, com gadgets a servirem de centros de comunicação e entretenimento. Para as marcas de moda, as inovações digitais centraram em torno da web3.0, nomeadamente blockchain, metaverso, e Tokens Não Fungíveis (NFTs). O ritmo rápido dos desenvolvimentos nestas áreas tornou crucial para as empresas a adaptação e resposta à crise, trazendo as suas próprias soluções únicas às necessidades emergentes dos clientes (comunicação, exibição no espaço digital, interações animadas, etc.). Assim, as duas marcas, que estão no centro desta investigação, Nike e Adidas, decidiram investir nos seus respetivos projetos a fim de acompanharem as tendências do mercado, aumentarem as capacidades, e expandirem a sua base de recursos.

Este caso visa desenvolver o corpo de conhecimentos no domínio da web3.0, incluindo conceitos adjacentes que são parte integrante deste termo, e desenvolver as implicações práticas das construções teóricas através da análise das marcas Nike e Adidas de vestuário desportivo. Este caso pode ser aplicado para efeitos de ensino para abordar questões como capacidades dinâmicas, teoria baseada em recursos, estratégias de adaptação a crises, e conceitos relacionados.

Palavras-chave: Moda, Metaverso, web3.0, Capacidades dinâmicas, Recursos e capacidades, Adaptação estratégica à crise.

Table of contents

I. Acknowledgements ***5***

II. Glossary ***7***

2.1. List of abbreviations **7**

2.2. List of figures **8**

2.3. List of tables **8**

III. Introduction ***9***

IV. Theoretical Base ***11***

4.1. Blockchain technology: From Bitcoin to Non-Fungible Tokens **11**

4.2. Virtual worlds, metaverse, AR, VR, and AI **12**

4.3. COVID-19 crisis implications on business innovations **14**

4.4. Dynamic Capabilities **16**

4.5. Resource-Based theory **17**

V. Case Study ***19***

5.1. Introduction **19**

5.2. The State of Fashion 2023 ..... **19**

5.3. Nike **22**

5.3.1. Innovation & Technologies 22

5.3.2. Nikeland 23

5.3.3. RTFKT 25

5.3.4. Virtual Studios and .SWOOSH 27

5.4. Adidas **30**

5.4.1. Comparison with Nike 30

5.4.2. Into the Metaverse 31

5.4.3. Partnership with Prada 34

VI. Teaching Notes ***37***

6.1. Synopsis **38**

6.2. Teaching objectives **38**

6.3. Proposed assignment questions **39**

6.4. Suggested solutions and discussion **40**

6.4.1. Strengths, Weaknesses, Opportunities, Threats 40

6.4.2. Assessment of strategies 43

6.4.3. Analysis of resources and capabilities 45

VII. Conclusion ***48***

VIII. Appendix ***51***

IX. References ***52***

9.1. Academic articles **52**

9.2. Online sources **54**

I. Acknowledgements

First and foremost, I want to express gratitude to my family, especially to my mama and papa, Tatiana and Andrei, who gave me the opportunity to relocate to Lisbon to study and build my future in pursuit of the best life for their son.

To my sister Anastasiia and to my brother-in-law Akhil who assisted me a lot during my studies as experienced scholars, starting from the application to Católica Lisbon SBE and finishing with feedback about my thesis.

To my granny, Aleksandra, and to the families of Ageevy and Hmelevy who have always been enthusiastic about my achievements and who shared their support in tough periods.

To Católica Lisbon SBE represented by several people. To my academic supervisor, Ricardo Reis, who shared relevant pieces of advice and guided me in the journey of writing this dissertation. To the academic director of my program, Kyryl Lakishyk, who supported me in challenging periods. To my career advisor, Rita Fonseca, who assisted me in landing the job I wanted and starting an international career. To my Advanced Strategic Management course instructor, Ana Aranda, who lit my intrinsic desire to study the domain of strategy in-depth. To my futsal coach Ricardo Brasil, who has always been curious about my studies and work and who taught me a lot since I came to Portugal.

To my girlfriend, Aleksandra, whose advisory contributed to me becoming the person I am today and with whom we overcame many challenges living abroad.

To my English language schoolteacher, Viktoria Leonidovna, whose pedagogical mastery shaped my language skills in the childhood, which made me achieve great results beyond studies and learn several other languages apart from English, including Portuguese.

To the friends I met in Lisbon, Benjamin South and Weya Monteiro, who helped me assimilate in the local culture and not feel lonely 4,500 thousand kilometers away from home.

This dissertation is dedicated to my nephew Leon in hopes of a bright future for him.

II. Glossary

2.1. List of abbreviations

AI – Artificial Intelligence

API – Application Programming Interface

AR – Augmented Reality

BoF – Business of Fashion

DNA – Deoxyribonucleic acid

ETH – Ethereum

FIFA – International Federation of Association Football

IRL – In real life

IT – Information Technologies

ITM – Into the Metaverse

M&A – Merges and acquisitions

NFT – Non-Fungible Token

PR – Public relations

RBT – Resource-Based theory

ROI – Return on investment

RTFKT – Artifact

R&C – Resources and capabilities

SWOT – Strengths, Weaknesses, Opportunities, Threats

UEFA – Union of European Football Association

USPTO – United States Patent and Trademark Office

VP – Vice President

VR – Virtual Reality

VRIO – Valuable, Rare, Inimitable, Organization

3D – Three-dimensional

2.2. List of figures

Figure 1 – *Dynamic capabilities visual representation (author's own figure)* (p. 16).
Figure 2 – *VRIO Framework visual representation (author's own figure)* (p. 18).
Figure 3 – *Nikeland metaverse on the Roblox platform* (p. 24).
Figure 4 – *First Nike x RTFKT collection of digital sneakers* (p. 27).
Figure 5 – *Nike .SWOOSH landing page as of the launch date – November 14, 2022* (p. 29).
Figure 6 – *Adidas "Space Crystal" hoodie* (p. 34).
Figure 7 – *Adidas "Wallrunner" item* (p. 34).
Figure 8 – *Example of an Adidas for Prada re-source NFT #1023* (p. 35).
Figure 9 – *SWOT analysis Framework with examples for each subsection (author's own figure)* (p. 40).
Figure 10 – *Top three opportunities and challenges for 2023, % of respondents (McKinsey & Company and Business of Fashion, 2022)* (p. 51).
Figure 11 – *Top five capability gaps for 2023, % of respondents (McKinsey & Company and Business of Fashion, 2022)* (p. 51).

2.3. List of tables

Table 1 – *Crisis adaptive strategies* (p. 15).
Table 2 – *Strengths and weaknesses of Nike and Adidas (web3.0 perspective)* (p. 41).

III. Introduction

Fashion industry plays an important role in our daily lives. People regularly buy new fashion items to be stylish, follow new trends, and express themselves through clothes. Companies, in turn, constantly release fresh collections and try to adjust to changing consumer preferences every season.

The COVID-19 pandemic caused distortions to fashion industry by affecting logistic networks, distribution, and supplies. In addition, consumers spent significantly less time outside their apartments and shifted to digital environment because of lockdowns and other restrictions. Seeking communication and interaction, many considered metaverse prospective, because people sensed that they could substitute physical interactions with online ones.

Self-expression in the online world appeared to be as important as in real life, that is why huge brands like Louis Vuitton, BVLGARI, Dolce Gabbana, and others caught up with the trend. Some of them created "skins", or game characters' custom looks, (Balenciaga for Fortnite), some created their own exclusive Non-Fungible Token (NFT) collections (Nike in collaboration with RTFKT, Adidas in cooperation with Bored Ape Yacht Club, Punk's Comic and GMoney), some participated in metaverse fashion week in 2022 (Etro, Tommy Hilfiger, DKNY, and others).

Therefore, during the pandemic a synergy between web3.0 (a term that defines the next generation of web development following current web2.0 stage) and fashion industry started to emerge. The reasons were two: (1) the crisis made brands adapt to new digital business realities to offset physical operations and (2) it served as a catalyzer to intensively develop digital capabilities and grow resource base related to blockchain-related innovations. Nevertheless, the trend is still on an early stage, so those companies which are entering the digital space are explorers rather than experienced players. Brands understand the potential of this huge market for the future, especially from the financial perspective. For instance, game "skins" world market is estimated at $40 billion a year (Kansara, 2022) and NFTs from recognized authors and companies are listed for thousands, if not millions, of dollars in online marketplaces. Famous online game Fortnite with over 250 million users across the globe alone reported $300 million sales of "skins" per month (Lieber, 2019). There is a trend of digital environment development in the foreseeable future, with fashion industry being one of the key ones in embracing the digital space.

In the McKinsey & Company report from June 2022, "Value creation in the metaverse: The real business of the virtual world", it is stated that by 2030 metaverse has "potential to

generate up to $5 trillion" and that over 15% of corporate revenue is forecasted to be generated from this digital environment till 2027 according to 25% of C-suite representatives (McKinsey & Company, 2022). In addition, it is stated that in the first 6 months of 2022, over $120 billion were invested in the metaverse (McKinsey & Company, 2022). Therefore, web3.0 in general and metaverse in particular prove to be important for companies to consider in this growing digital area.

Motivation for this research centers around the fact that web3.0 is a highly volatile business sphere which has blurry future, and it is yet unclear how brands plan to embrace this novel digital space (specifically, metaverse and other blockchain-related innovations). Maybe some companies will leverage it as a source of PR (symbolic issuance of NFTs or cryptocurrencies), some could approach it as a luxury digital segment with pricy offerings of rare digital tokens, others could team up to launch collaborative collections, and some could even create their own digital ecosystems (i.e., metaverses). Therefore, it is curious to analyze different fashion companies' existing strategies and brand images and their correlation with approaches to web3.0 embracement. It is also vital to make predictions on how companies will adapt to uncertainty around this business sphere and whether their interest to metaverse and related areas will continue to grow after the COVID-19 pandemic. Finally, because of the extremely scarce number of credible sources, the intention is to enlarge the domain of knowledge about web3.0 and adjacent topics, specifically in the business context.

In this master's thesis the author explores current fashion industry trends in relation to web3.0 using the examples of two companies – Nike and Adidas. The author elaborates a case study which can be used in-class to teach subjects which center around blockchain, NFTs, and metaverse among others. Theoretical construct of the thesis, outlined in chapter IV, is based on the crisis adaptation framework, Dynamic Capabilities theory, and Resource-Based theory. Theoretical part is followed by the case study (chapter V) where the aforementioned fashion brands, Nike and Adidas, are analyzed in separate sections (5.3 and 5.4, respectively). Final part incorporates teaching notes for professors to address the academic application of the study (chapter VI) as well as conclusion and additional research topics (chapter VII). Appendix and references can be found in chapters VIII and IX, respectively.

IV. Theoretical Base

4.1. Blockchain technology: From Bitcoin to Non-Fungible Tokens

Blockchain technology is relatively young, as its origins can be traced back to 2008 when Satoshi Nakamoto, a pseudonym for a person or group of people, created a "purely peer-to-peer version of electronic cash" named Bitcoin (Nakamoto, 2008). Bitcoin token was the first cryptocurrency, or electronic money, to be proposed, which worked on a "system for electronic transactions", i.e., blockchain (Nakamoto, 2008). Blockchain can be described as a "public ledger, in which all committed transactions are stored in a chain of blocks" (Zheng et al., 2018). The chain's length is not fixed and continuously grows when new blocks are appended. As a system, blockchain has several crucial characteristics which can be applied to the development of "future internet systems" (Zheng et al., 2018):

- Decentralization (i.e., absence of central governing entity which regulates decision-making processes and transaction flows).
- Persistency (i.e., corruption-proof).
- Anonymity (i.e., nameless transaction execution without association to particular entities or individuals, for instance via bank accounts).
- Auditability (i.e., transparency and inability to change network for someone's benefit).

Being such a profound and powerful concept, blockchain can be applied to a wider scale of domains than just online payments with cryptocurrencies. For instance, blockchain can potentially disrupt financial sphere, namely banking (Peters et al., 2015). Blockchain technology can eliminate the need for banks as intermediaries in contractual agreements between parties (e.g., in trade finance) via Smart Contracts, "which can automatically verify the interactions between the parties to the contract" (Peters et al., 2015).

One more application of blockchain could be to privacy and data protection. Nowadays, websites, social media, and other online resources actively collect users' personal data (example of Facebook case in 2018). Blockchain has potential to improve sensitive data protection by proposing a "decentralised personal data management system" which could ensure "user ownership of their data" and "fine-grained access control" (Peters et al., 2015).

Smart Contracts are inherent to ownership in context of blockchain because once parties "sign" such a Contract, something is transferred from user A to user B, for example a certain

amount of specific cryptocurrency (e.g., two Bitcoins). When the transaction is settled, ownership rights for these two Bitcoins are transferred from user A to user B. User B can use the number of Bitcoins they received for payments or for executing contractual relationships with other users over particular assets, for instance Non-Fungible Tokens (NFTs).

"Unlike bitcoin, where one coin is the same as another, NFTs are unique, each with different attributes" (Fairfield, 2022). Being digital assets, NFTs can take any form: videos, images, pieces of art, event tickets, etc. (Wang et al., 2021). Therefore, a user who owns an NFT, owns a one-of-a-kind asset which cannot be replicated. The first major NFT sale occurred in 2021 when Christie's sold the "Everydays: The First 5000 Days" NFT by Beeple for astonishing $69,346,250[1].

4.2. Virtual worlds, metaverse, AR, VR, and AI

The concept of virtual worlds is not new and was proposed already in the 20th century (Dionisio et al., 2013). Virtual worlds are "persistent online computer-generated environments where multiple users in remote physical locations can interact in real time" (Dionisio et al., 2013). Interaction can be in the form of games, work, or any other way of time spending. An example of a virtual world can be the Second Life launched in 2003, which is a 3D online environment for users to collaborate through their avatars. Some virtual reality (VR) applications center around virtual worlds as they generate 3D virtual objects and provide a feeling of physical presence for users, for instance when VR goggles are used (Dionisio et al., 2013).

Augmented Reality (AR) technology can be described as a bridge between physical and digital worlds. AR can be perceived as a technology which utilizes "physical world as an API[2] [application programming interface]" and merges "digital and physical data" to produce a singular representation (Hughes, 2012). This representation can be achieved via digital devices (e.g., Pokemon Go game where users search for virtual characters in the physical environment using their smartphone cameras). This is the most typical form of AR where smartphone camera

[1] Details available at https://onlineonly.christies.com/s/beeple-first-5000-days/lots/2020. Please note that different website contents, which are referred to in several sections of the thesis, may change from the access date (November 27, 2022).

[2] API can be described as an intermediary which allows several applications interact and exchange inputs. In the context of AR and according to Hughes (2012), physical world performs the role of such intermediary, which makes a user perceive the immersive nature of the digital domain through the extension of real-life experience.

works as a "magic lens" and a user can experience the surroundings through a "digital overlay" between the camera lens and display (Hughes, 2012).

Gilbert (2011) highlighted five characteristics inherent to the contemporary virtual world. The following features thoroughly describe the essence of state-of-the-art virtual worlds:

- 3D graphical interface. Text interface is not sufficient for a "full" virtual world.
- "Massively Multi-User Remote Interactivity", i.e., support of interaction among many users in distant geographic locations.
- Continuous operation of the virtual environment when individual users are not connected (i.e., persistency).
- Sense of "psychological presence" when users feel like if they were inside "residing within" the digital space (i.e., immersion).
- "User-Generated Activities and Goals", i.e., ability for users to define their actions in an open-ended manner and not solely follow the system-generated path of behavior in the virtual world (e.g., reaching checkpoints, fighting an enemy, etc.).

Metaverse "integrates the physical world with the virtual world" and provides opportunities for users' avatars to pursue diverse activities like content creation, socialization, or trading (Yang et al., 2022). Metaverse is defined as an "integrated network of 3D virtual worlds" by Dionisio et al. (2013) and incorporates four major components according to the authors: (1) *realism* or psycho-emotional immersion with digital environment, (2) *ubiquity* or accessibility of the metaverse via diverse devices with intactness of user's avatar, (3) *interoperability* or interchangeability of digital assets, e.g. NFTs, across particular implementations and seamless user transition between locations without disruption to experience, and (4) *scalability* or capacity to serve large number of users without disruptions to system functionality and user experience. These pillars comprise the comprehensive view on metaverse as a web3.0 development.

The relation of blockchain technology to metaverse can be built on the concept of decentralization and cohesion of isolated sectors into a connected stable and transparent economy (Yang et al., 2022). For instance, Smart Contracts could be used to execute transactions, cryptocurrencies – to make payments, NFTs – to register ownership of items in the form of unique limited tokens. When these components are united, a more sophisticated and profound version of the metaverse can be constructed.

Addressing the point of metaverse development and adding to the blockchain application, Artificial Intelligence (AI) should be mentioned. There exist different AI algorithms which can be applied to different areas in the metaverse. For example, machine learning algorithms have the "human ability" to learn and grow their experience based on large amounts of data (Yang et al., 2022). Yampolskiy et al. (2012) propose a set of algorithms for avatar face recognition in order to tackle the problem of criminal activities in virtual worlds. Lugrin and Cavazza (2006) suggest another type of AI algorithms which would enhance virtual objects' behavior by determining the most appropriate behaviors which follow user's interactions and communications. Therefore, AI algorithms have potential to elevate metaverse to an advanced level of user experience, blurring the threshold between real and digital even more.

4.3. COVID-19 crisis implications on business innovations

COVID-19 crisis caused distortions to the world economy and made businesses adapt to new realities. Fashion brands faced several complications, including logistic, sustainability, and valuation issues (McMaster et al., 2020; Brydges et al., 2021). In addition, consumer behavior changed and resulted in growing attention to the digital sphere (Silva & Bonetti, 2021), which made fashion brands accelerate digital transformation processes to respond to the exogenous shock in the form of the pandemic.

Because of the fact traditional fashion business model (i.e., brick-and-mortar retail) was at risk due to lockdowns and other health and safety measures implied by governments, development of digital business activity was crucial. As Jiang & Stylos (2021) highlight, consumer's online purchasing behavior during the COVID-19 pandemic was triggered across three domains: enhanced engagement in digital environment, transformative capacity of digital technologies, and socio-economic adaptability during crises. In order to align with new consumer demand trends, fashion brands had to adjust their operations and focus more on the digital domain along with considerations about their business performance.

Addressing the issue of crisis response strategies, Wenzel et al. (2020) elaborate several approaches which could be applied to fashion brands' operations to minimize the effects of COVID-19. These strategies have potential to enhance managerial decision-making when an exogenous shock occurs.

Table 1. Crisis adaptive strategies.

Retrenchment	Frequently pursued strategic response to crisis (Bruton et al., 2003) which centers around reduction across business components such as costs, overhead, assets, products, and product lines (Pearce & Robbins, 1993).
Persevering	Strategy of sustaining the *status quo* to mitigate crisis impact and even potentially outperform competitors who undergo strategic renewal (Wenzel et al., 2020) which appears to be effective as proved by scholars (Pacheco-de- Almeida, 2010; Stieglitz et al., 2016).
Innovating	While crises "relax […] the 'normal' constraints around decision-making" (Bryson, 1981), they open space to apply innovative approaches which were priorly not considered or unfeasible (Rosenbloom, 2000). *Innovating* is referred to as strategic renewal for crisis adaptation (Wenzel et al., 2020).
Exit	Discontinuation of business activities (Burgelman, 1996), which can sometimes be an unavoidable or even valuable strategic decision (Dai et al., 2016; Wenzel et al., 2020).

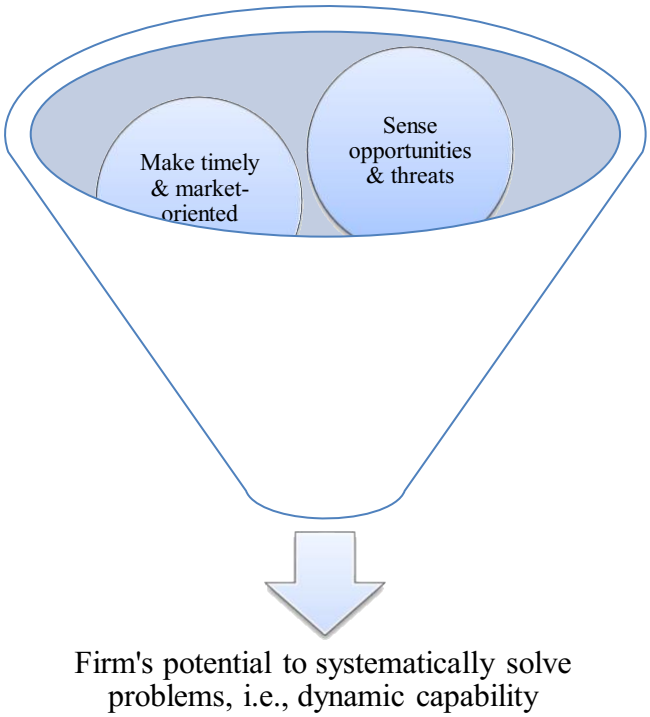
Focusing extensively on the innovating approach, it can be noticed that in fashion industry some brands decided to bet on blockchain-related innovations (specific company examples are analyzed in the case study section). Therefore, the COVID-19 crisis with its implications on socio-economic conditions for businesses and consumers served as a catalyzer for fashion brands' rapid innovations. These processes triggered the necessity to urgently develop new or exploit existing dynamic capabilities to fit in the emerging pattern of external environment and obtain sustainable competitive advantage.

4.4. Dynamic Capabilities

The early research on dynamic capabilities was developed in the 1990s by David Teece and colleagues. The concept serves as an assistance to managers who seek for competitive advantage in highly volatile and demanding environments (Teece et al., 1997). Teece et al. (1997) define dynamic capabilities as "firm's ability to integrate, build, and reconfigure internal and external competencies to address changing environments". In other words, dynamic capabilities impact company's adjustment of resource and competence bases to market environment in crisis times.

Barreto (2010) defines dynamic capabilities by highlighting four pillars which comprise the phenomenon:

Figure 1. Dynamic capabilities visual representation (author's own figure).



According to Barreto (2010), firm's propensity to "sense opportunities and threats" entails accurate interpretation of current and potential market conditions and events that may occur in the foreseeable future. Once interpreted correctly, opportunities can be seized and threats – avoided. The ability to make both "timely and market-oriented decisions" refers to (1) the right timing for decision-making when the product is ready for the market (supply) and the market is ready for the product (demand) and (2) superior value creation for customers,

respectively. Finally, alteration of resource base proposes resource acquisition, reconfiguration (i.e., development of new resources out of existing ones), and release.

Various firms may have different levels of propensities to these dimensions. For instance, one company may be advanced in resource reconfiguration but unskilled in choosing the right time to act (Rosenbloom, 2000). Hence, propensities proposed by Barreto (2010) should be applied to each company individually and compared to other players in the industry for credible results.

Definitions of Barreto stem from the analysis of an extensive number of articles on the topic; therefore, they are coherent with the ones suggested by the author of dynamic capabilities theory – David Teece. Teece (2007) described dynamic capabilities across the following three capacities:

- Sensing and shaping opportunities and threats.
- Seizing opportunities.
- Maintaining competitive advantage via advancing, developing, protecting, and reconfiguring tangible and intangible organization's resources.

Considering the aforementioned definitions of dynamic capabilities and their disaggregation, one may perceive those as firm's abilities to adapt in challenging situations. COVID-19 can be an example of an exogenous or "environmental" shock which made companies adjust to new digital realities and conditions in which enhanced performance was gained.

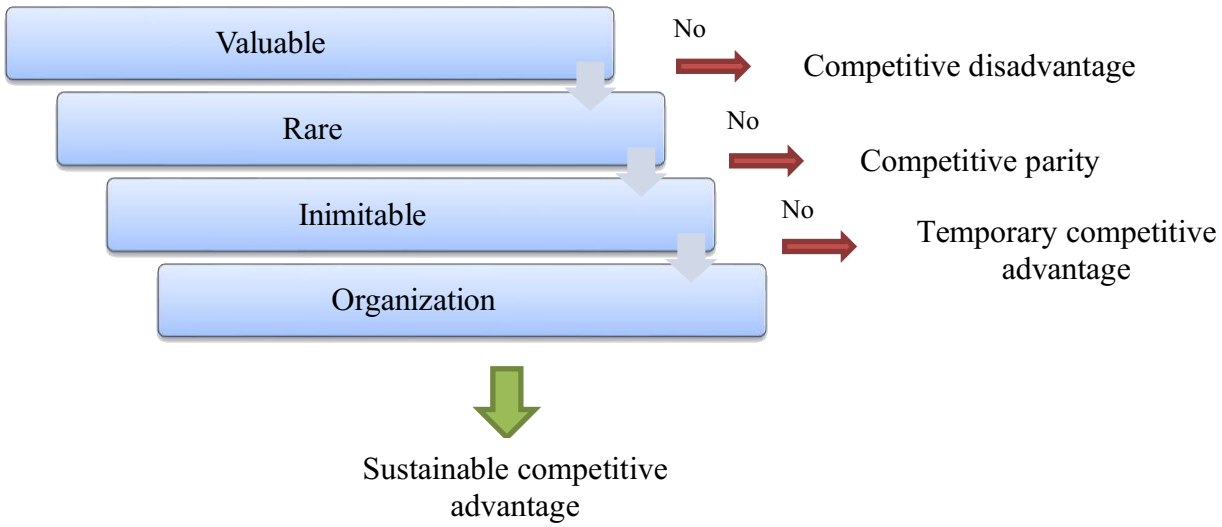
4.5. Resource-Based theory

The Resource-Based theory (RBT) proposed by Jay Barney in 1991 is directly related to dynamic capabilities. Barney (1991) focuses research on the internal company analysis, i.e., on firm's strengths and weaknesses (resource base), in contrast to the external environment, i.e., opportunities and threats (e.g., Porter's Five Forces framework). In this manner the author argues that internal company characteristics are linked to its performance, as two main assumptions in the paper are the following (Barney, 1991):

- Firms within an industry control heterogeneous strategic resources.
- These resources are not mobile and, hence, heterogeneity can have a long-lasting effect (i.e., be sustainable).

Barney (1995) also proposed the VRIO (Valuable, Rare, Inimitable, Organization) framework which aims at developing the RBT by defining specific characteristics of resources and their relation to competitive advantage of an organization. This framework can be applied to the analysis of specific companies within an industry with the goal to draw comparisons to competitors and derive variations in the strategic resources these firms possess. The following infographic describes the abbreviation:

Figure 2. VRIO Framework visual representation (author's own figure).



Therefore, the RBT relies on tangible and intangible resources that must be heterogeneous and immobile and have VRIO attributes to become VRIO resources that provide competitive advantage (Barney, 1995). This theory correlates with the theory of dynamic capabilities as both concepts assume high degree of endogeneity (i.e., effect of internal organizational resources and capabilities) to achieve competitive advantage.

V. Case Study

5.1. Introduction

In this section of the thesis the approaches of Nike and Adidas to embracing the metaverse are analyzed. As metaverse is a highly diverse digital environment, there exist multiple ways of how different companies' current operations may be transferred there. Apart from just being perceived as a sales source for physical items (online shopping) or digital tokens (NFTs), metaverse can be utilized for providing immersive customer experience, gaming, lively interactions with the brand, etc.

Therefore, it is crucial to perceive metaverse as a very different digital business ground in comparison to brick-and-mortar and online (i.e., web2.0) dimensions. Metaverse opens room to revolutionary customer relations approaches, and companies could tailor the techniques to embrace the digital space based on their own unique set of resources and capabilities. On top of that, due to the novelty of web3.0 and its ongoing development, dynamic capabilities can be grown within enterprises in order to compete with rivals successfully and capture larger shares of the establishing market.

Considering the points mentioned above, two companies have been chosen as examples of metaverse explorers: Nike and Adidas. The adaptive strategies of these giants of the fashion industry to the web3.0 during COVID-19 crisis differ to a certain extent. That is why it is particularly important to analyze how representatives of the same fashion segment (i.e., sportswear) deal with uncertainty about digital innovations and how much they are ready to put at stake to be one of the first comers to the metaverse. In addition, attention is stressed on the variations in how Nike and Adidas pave their unique paths in the new digital environment utilizing their own resources and capabilities with strategic outlooks for the future.

5.2. The State of Fashion 2023

Since 2016, McKinsey consulting company and Business of Fashion (BoF) online magazine and website about fashion industry collaborate in the publication of annual reports titled "The State of Fashion" (hereinafter "Report"). The version for 2023 was released on November 29, 2022. In the latest version there are being discussed the trends and potential developments in the industry, prospective strategies of brands, and other relevant topics. In this

year's edition attention is focused not only on conventional business approaches but also on innovative ones, which include web3.0 (metaverse, blockchain, NFTs, etc.)[3].

According to the survey of industry leaders, 84% prognose that market conditions will either worsen or stay the same in comparison to 2022. These data are different from the previous year expectations when 91% of managers forecasted market conditions to improve or stay the same in 2022 in comparison to 2021. In addition, the COVID-19 is listed as one of the top 3 concerns for the upcoming year only by 5% of executives, which signals that strategies to be applied in the after-pandemic period will shift to a new realm because of the change in market conditions. On the contrary, about a third of top managers note challenges related to direct-to-consumer channels as one of the most impactful topics for 2023.

Apart from market conditions, the Report highlights changing consumer preferences and behaviors. For instance, in 2022 approximately one-in-two Gen Z age group representatives purchased fashion items related to other gender identities than theirs. In addition, almost 40% of fashion executives expect occasion wear to be one of the growing categories in 2023. This can be linked to consumer's desire to show off and wear fancy outfits to various events after the COVID-19 pandemic, when there existed limitations on social gatherings and mobility for individuals.

Addressing additional tendencies for the upcoming year from the operational and internal organizational perspectives, 90% of fashion executives project skill shortage inside their organizations to occur in 2023. Furthermore, almost 80% of executives mention retail media networks as a marketing channel which will have the highest leverage rates in comparison to other ones. This means that leveraging metaverse could potentially lead to increased customer outreach and, consequently, ROI. As Brian Trunzo, expert in the area of metaverse, states, "[i]n web3, there's a more pure way of speaking to a customer by incentivising them — by providing digital assets and benefits to them through NFTs", which can be an example of leveraging the channel.

Although the aforementioned points may seem to be tangentially related to the web3.0 domain, trends and forecasts that companies state in the traditional business operations and strategies may trigger the effects in the digital environment. Focusing directly on the digital domain, only 3% of survey respondents mentioned web3.0 as one of the central topics for 2023 (the forecast for 2022 was 8%). These numbers reinforce the fact that although the digital

[3] Please note that the Appendix includes additional quantitative information to be considered.

domain is promising, it is still on the development stage and not many brands are betting on it in the foreseeable future.

5.3. Nike

5.3.1. Innovation & Technologies

Nike is an American sportswear company which was established in 1978 in Oregon when its predecessor, the Blue Ribbon Sports founded by Phil Knight and Bill Bowerman (running coach of Knight during college years), changed its brand name. Since then, Nike has been one of the leaders in fashion industry, specifically in the domain of sports clothing and sneakers. Nowadays it is hard to leave the house and not to see people wearing Nike items in the street. If you opened your wardrobe today, you would probably find at least one item from Nike there.

What made Nike so successful and recognizable around the globe, according to Phil Knight himself, is the company's ability to skillfully manage product marketing without solely focusing on the production part: "For years, we thought of ourselves as a production-oriented company, […] [b]ut now we understand that the most important thing we do is market the product. […] [M]arketing knits the whole organization together" (Knight, 1992, as cited in Willigan, 1992). In addition, Knight mentions innovation as an integral part of Nike's business where technology plays a crucial role. Nike's founder refers to consumers as leaders of innovation and highlights the importance of innovating "for a specific reason" (i.e., for the market) to avoid "making museum pieces" (Knight, 1992, as cited in Willigan, 1992).

> *"Bring inspiration and innovation to every athlete* in the world.*
> **If you have a body, you are an athlete" – Nike mission statement*[4].

The descriptions of Nike by Knight are still coherent with the company's outlook in 2022. Nike actively invests in new technologies, constantly creates top-notch products for consumers, and responses efficiently to market demand. Even physical Nike stores look exceptionally modern and futuristic. For instance, company's flagship store in New York, Soho district, is filled with interactive facilities which not only demonstrate Nike's innovativeness and technological orientation, but also provide immersive customer experience from the first

[4] Retrieved from https://about.nike.com/en.

step inside the building[5]. Customers can play basketball wearing latest Air Jordan models, run on a treadmill in a virtual park, or even try on self-lacing Mag Hyper Adapt sneakers.

Nike's brand image as well as capabilities come from the people who work in the company, probably the main resource the company owns. Therefore, when looking for potential candidates, recruiters at Nike pay special attention to the core pillars the company operates on: innovation and technologies. Nike's career website, namely its "Global Technology" section[6], has explicit statements about firm's investment in technologies, creativity, and forward-looking approaches in order to serve consumers in a customized and unique manner. Nike clearly demonstrates the integrity of digital domain in company's self-expression by mentioning that nowadays "[…] every day is digital" and, hence, Nike has to change how the company serves its customers and how it operates. Emphasis on innovation and technologies is made clear: "We're leveraging disruptive digital technologies across Nike's value chain to create the world's most innovative and distinctive product".

5.3.2. Nikeland

With the rise of the COVID-19 pandemic in the late 2019 and subsequent development of the digital environment, many companies started to rethink their business models in order to integrate into the new reality. Fashion brands in general and Nike in particular were not an exception. Although the company was not one of the first to move to web3.0, Nike's actions were substantial and rapid.

On October 27, 2021, Nike sent an application to the US Patent and Trademark Office (USPTO) aiming at registering its metaverse brand name ("NIKE"), logo (legendary swoosh), and slogan ("JUST DO IT"). As mentioned in the comment to the application, the trademark registration "[…] intended to cover the categories of downloadable virtual goods, namely, computer programs featuring footwear, clothing, headwear, eyewear, bags, sports bags, backpacks, sports equipment, art, toys and accessories for use online and in online virtual worlds" (USPTO Report, 2021). It is worth noticing how Nike explicitly states the difference between online usage of virtual goods and their distribution in virtual worlds, i.e., metaverse.

Shortly after sending the application to the USPTO, which is still awaiting examination by competent authorities, in November 2021 Nike announced the creation of Nikeland

[5] Details and images available at https://echochamber.com/article/nike-soho-new-york/.
[6] Details available at https://jobs.nike.com/pt/technology.

metaverse based on the Roblox platform. Roblox is a platform which allows users, with youngsters being the target audience, to create video games, play the ones created by other users, and collaborate in the digital space via going to concerts, sports events, fashion shows, and educational or entertainment activities among others[7]. An important point is that Roblox is neither a game, nor a metaverse; it rather an online environment which allows anyone to develop games of their own, play already developed ones, and be part of social online events and community as a whole. According to company's official website, as of June 30, 2022, Roblox accommodates over 50 million daily users.

Figure 3. Nikeland metaverse on the Roblox platform[8].

The underlying idea of Roblox is creativity and innovation, which correlates directly with Nike. Nikeland allows its visitors to experience sports with no limits, compete, create, and enjoy sports in various ways. The essence of the metaverse is linked to Nike's vision of transforming sport into lifestyle. Users can not only experience built-in features, but also create their own mini games, participate in contests, obtain rewards based on performance, and dress up in Nike outfits which incorporate latest models of apparel and sneakers. Nikeland also provides immersive online experience by connecting the real and digital worlds: users can perform movements with their smartphones IRL to trigger online actions of their avatars like running or jumping. Such an entertaining feature stimulates youngsters to move rather than just interact statically via electronic devices and creates even more value for users when perceived in the general way.

[7] Details available at https://www.roblox.com/info/about-us?locale=en_us.
[8] Image source: https://www.brandjam.it/en/nikeland-nikes-metaverse/.

It is also important to note that with its own metaverse, Nike is aiming at expanding its client base, be that current or future one, to younger generations (commonly referred to as Gen Z and Alpha). It is reported that Gen Z representatives spend approximately 3 hours per day on social media, which highlights the importance of digital presence for youngsters (Lieber, 2019). Therefore, Nike is expanding its resource and capabilities base in order to connect with young customers today to establish links with the brand, which can potentially grow to stronger bonds in the future when this youth will choose which company's apparel or sneakers to buy in the adulthood.

5.3.3. RTFKT

Roblox integration was not the last step Nike made to embrace the virtual world. As the next step in this sequence of connected strategic moves, the company purchased RTFKT (pronounced as "artifact") in December 2021. RTFKT is a "creator led organization" which "uses the latest in game engines, NFT, blockchain authentication and augmented reality, combined with manufacturing expertise to create one of a kind sneakers and digital artifacts", as stated on the official website of the company[9]. It was founded in January 2020 and, before being acquired by Nike, had developed several collections alongside Jeff Staple (Staple Design), Lexus, and Takashi Murakami.

RTFKT was founded by Benoit Pagotto (along with Chris Le and Steven Vasilev), a true believer in the digital era of fashion who warns the industry: "A lot of brands are going to die" (Kansara, 2022). As Pagotto mentioned himself, the brand is "90 percent digital, 10 percent physical […]" (Kansara, 2022). Since its foundation, RTFKT has been focusing on becoming a metaverse-focused company. Today the brand not only releases collections of different wearable items for characters, but also avatars themselves. For instance, the Clone X NFT series by Takashi Murakami, famous digital designer, consist of 20,000 NFTs which range across the following 8 "DNA[10] types": humans (50%), robots (30%), angels (8,75%), demons (8,75%), reptiles (1,25%), undead (0,6%) Murakamis (0,5%) and aliens (0,15%) (Kansara, 2022). In addition, to bringing its own collections to the market, RTFKT gives way for public to create,

[9] Details available at https://rtfkt.com/.
[10] DNA is a material in human bodies which stores information about how to construct and maintain the functioning of an organism. Each human has their unique DNA structure. The "DNA types" refer to different creatures that can be used as avatars.

customize, and sell 3D-renderred items, benefiting in the form of sales share, with intention to develop a "platform side of business" according to Pagotto (Kansara, 2022).

RTFKT not only focuses on professionals and adults when defining its business model, but also considers youth as target audience, as Vasilev notes: "Social media makes up a huge part of sneaker culture and our business model will allow kids to flex what sneakers they've bought without having to worry about actually wearing them" (Lieber, 2019). This strategy can be stated more broadly without solely focusing on sneakers, which are referred to in the quote. Same can be applied to wider range of wearables and avatars as mentioned previously.

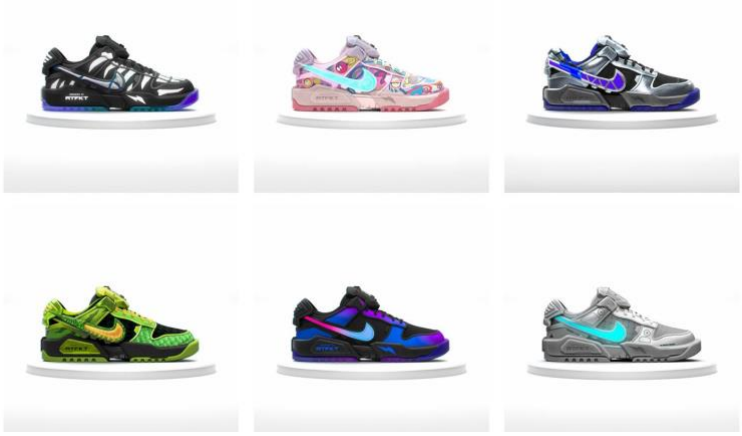
By the end of 2021 Pagotto's company revenue was estimated at $180 million (in 2020 it was $200,000) with a team of 15, which rounds up to $12 million per employee (Kansara, 2022). In comparison to Nike, which generated $44,5 billion with 73,000 employees ($610,000 per person), that is a tremendous difference (Kansara, 2022). These numbers make it clear from the financial perspective why the sportswear brand from Oregon decided to seize the potential of the digital gem, i.e., RTFKT. Although the Nike and RTFKT deal value was not publicly disclosed, some sources mention the number of over $200 million with a share of NFTs royalties' resale for RTFKT founders of 10-20% (Kansara, 2022).

In a nutshell, RTFKT is an independent digital organization which deals with technical aspects of NFTs creation, from 3D modelling to online sales via digital assets marketplaces such as OpenSea. Companies like Nike may request design ideas from RTFKT and expect to receive a thoroughly developed NFT collection, for instance, which is ready to be publicly traded. Because of the fact Nike is a fashion brand in essence, the firm did not have profound technical capabilities to enter the novel NFT business domain. Therefore, it was decided to invest in the acquisition of the IT start-up which was less costly in comparison to internal capability development and appeared to generate large ROI (Nike NFTs created in collaboration with RTFKT are being listed for sale for thousands of dollars per unit on the OpenSea marketplace). On May 27, 2022, RTFKT also purchased the "dotswoosh.eth" Ethereum domain for ETH 19.72 (around $38,000 on the day of transaction), which is currently in the beta version and is undergoing development.

Some of the NFT examples from the RTFKT website include hoodies, hats, jackets, bombers as well as non-clothing items like virtual robots or pigeons among others. Nevertheless, the main items under Nike logo are sneakers. The first collection of Nike x RTFKT sneakers was dropped in April 2022 and appeared to be a huge success. The wearable NFT items were called "cryptokicks", a trademark which Nike intended to register back in 2019. Cryptokicks can be worn in metaverses or via AR devices, customized, traded, and

exchange as their owner wishes, which makes the product agile and appealing to larger audience in comparison to non-customizable NFTs.

Figure 4. First Nike x RTFKT collection of digital sneakers[11].



5.3.4. Virtual Studios and .SWOOSH

Apart from creating the Nikeland metaverse and acquiring RTFKT, in January 2022 Nike established a separate division within the company's business structure – Nike Virtual Studios. The branch is responsible for web3.0 related decisions, which include blockchain, metaverse, and NFTs in particular. Because of the division's novelty, it is still being formed and certain positions are being filled with employees on the ongoing basis. Based on the recent opening for the position of Director in Education and Support on Nike's career website, Virtual Studios aim at "[…] building the future of how audiences engage with sport, product, content, and culture"[12]. The division is run by the current Vice President (VP) of the SNKRS division (pronounced as "sneakers"), Ron Faris.

Virtual Studios' creation proves the fact that Nike views web3.0 as the future for the industry the company operates in. With the new business unit, which is not responsible for digitalization or online retail in general but is narrowly focused on metaverse and blockchain-related initiatives, the company demonstrates strong intentions to secure its ground from the business standpoint. The separate division allows Nike to segregate its wide-ranging online operations and apply customized solutions to emerging market opportunities and threats. In

[11] Image source: https://www.businessoffashion.com/news/technology/nike-and-rtfkt-reveal-their-first-virtual-sneakers/.
[12] Details available at https://employeereferrals.nike.com/jobs/nike-virtual-studios-director-education-support-nyc-la-or-or-84603.

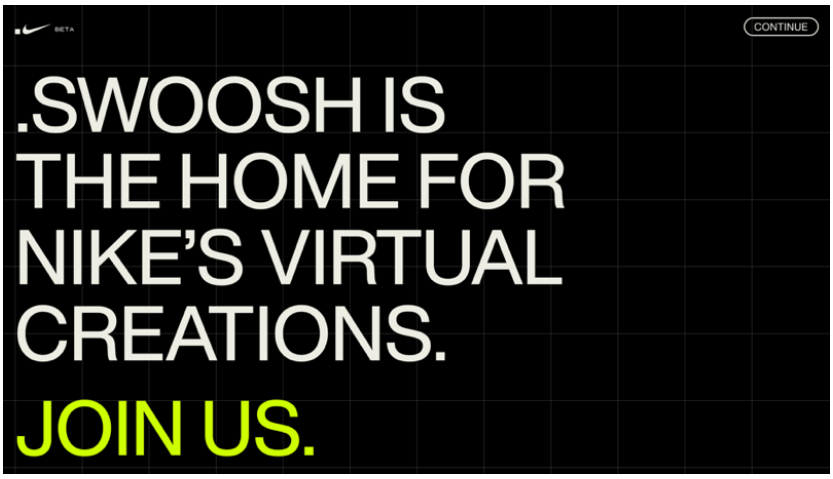
addition, Virtual Studios can serve as a creative lab which can be used by the company as a resource for experimentation with new releases and tracking customer engagement in Nike's innovations in the area without potentially affecting other branches' workflows, which have been established throughout the years.

Till the creation of the Virtual Studios, Nike had not delivered any web3.0 initiative under its own brand name. Nikeland was associated with Roblox, whereas NFTs were released in conjunction with RTFKT. However, in November 2022, Nike Virtual Studios announced the launch of the .SWOOSH (pronounced as "dot swoosh") platform under the web domain mentioned in the previous section of the case. In a nutshell, the platform serves as a learning source for web3.0 enthusiasts and those who are curious about the area and want to know more about recent trends. It is important to highlight that Nike focuses specifically on the audience who is not yet very proficient in the blockchain-related topics rather than on experts. Although the landing page of the platform is still labelled as "beta" and is in the development phase, there are certain benefits listed that users may potentially exploit:

- Create their own collections of virtual goods (i.e., NFTs), trade them, or use as wearables in games.
- Receive priority access to upcoming drops and contents.
- Collaborate and co-create or compete with other users in contests and challenges (be part of the digital community as a whole).
- Participate in online and in-person Nike events to meet athletes and community members.

In December 2022 Nike is going to release educational content about the platform to communicate to users what web3.0 is and how to set up digital wallets via a third-party provider (action oriented at making Nike's digital tokens, i.e., NFTs, more accessible and demanded via such platforms as OpenSea). Nike also plans to hold a "community challenge" to increase user involvement. Finally, in December 2022 the company schedules a tour in six cities worldwide to present the platform and explain its strategic essence. In January 2023 the company plans to drop its first collection on .SWOOSH which will not only be in the form of digital tokens (like RTFKT collections), but also be linked to physical items (similar to the approach that Adidas follows and which is explained further in the case).

Figure 5. Nike .SWOOSH landing page as of the launch date – November 14, 2022[13].



According to Marc Bain (2021), who is a tech correspondent at BoF, "[t]he complicated user experience involved in setting up a digital wallet and minting NFTs — meaning logging the digital assets on a blockchain — is a barrier to entry [to web3.0] in itself". Nike wants to remove the barriers for users and bring knowledge about the web3.0 domain to the public. As of today, the *status quo* can be compared to "internet before web browsers existed" as Ron Faris is cited by Bain (2021). The elimination of the main obstacle – insufficient knowledge about metaverse, digital tokens, and blockchain technology – would allow Nike to experience more customer engagement, loyalty, and profits in the long term. The company would influence industry trends as well by creating safe grounds for further development of web3.0 field in relation to fashion industry. This secures not only company's position in the foreseeable future but also Nike's investments that have already been made (Nikeland, RTFKT, Virtual Studios, and .SWOOSH itself).

[13] Image source: https://www.swoosh.nike/.

5.4. Adidas

5.4.1. Comparison with Nike

Headquartered in Bayern, Germany, Adidas is a multinational sportwear company with almost 100 years of history, which was founded in the beginning of the 20th century by Adolf Dassler. Dassler started to make shoes in the house of his mother, and his elder brother Rudolf decided to join in 1924. Since then, their company was called "Dassler Brothers Shoe Factory". After World War II the relationship between Dassler brothers broke down, and in 1949 Rudolf left the company to establish Puma. Adolf, in turn, created Adidas.

Having more experience in the sportswear industry than Nike, Adidas managed to be the leading company on the globe during a major part of the 20th century. Professional runners were using Adidas sneakers, especially the ones with spikes which were the development of Adolf Dassler in 1936. Unlike its main competitor from Oregon, Adidas does not put that much emphasis on marketing of its products via athletes. Instead, the company produces top-notch products for the market needs, i.e., for specific needs of each customer (e.g., regular runner, football, or basketball player). In contrast, Nike advertises its apparel and equipment for groups of customers via sports role models like Lebron James or Cristiano Ronaldo (runners, football, and basketball players as specific classes of sportsmen).

To exemplify this point, one may analyze companies' major physical stores. Nike subdivides its stores in sport categories. In this way, one may find all products relevant to a specific sport in one place (shoes, apparel, accessories, equipment). Adidas follows a different approach: the company segregates sections in product types. In this way, all shoe types (boots, sneakers, running shoes, etc.) are located in section A, different balls (for playing tennis, volleyball, handball, etc.) – in section B, apparel (T-shirts, shorts, sweatshirts, etc.) – in section C, etc.

In its mission statement Adidas also highlights the importance of being the leading sportswear brand in the world with top position in each strategic product category (emphasis specifically on the product):

"To be the best sports brand in the world. We are the best when we are the credible, inclusive, sustainable leader with #1-2 market share in each strategic category." – Adidas *mission statement*[14].

With this main difference between the brands, the variation in how Adidas and Nike approach their businesses in general arises. While Nike invests more in collaborations with specific athletes that are linked to the brand throughout their careers (Michael Jordan, Tiger Woods, Serena Williams, and others), Adidas pays more attention to relationships with organizations, although also supporting specific athletes. In this manner, some of Adidas partners are the FIFA, the UEFA, top sports Federations on country levels, and major sports clubs. Adidas is one of the main sponsors of the 2022 World Cup in Qatar as the company supports not only the organization of the tournament, but also many national teams (e.g., Spain, Argentina, and Germany among others).

Despite the aforementioned minor differences in how these two giants of the sportswear industry operate, they share a crucial similarity when it comes to business development. In the same way as Nike, Adidas considers innovation as an important part of the business. The German brand constantly delivers modern solutions to customers with peculiar needs in sports. Adidas also states that the brand's ultimate goal is to offer products which deliver enhanced performance, while being produced in a sustainable way. The company puts sustainability on top when it comes to manufacturing and distribution of physical goods. Although innovation is crucial for Adidas, balance with sustainability is a priority.

5.4.2. Into the Metaverse

Adidas started to embrace the metaverse in 2021 when the company first stated its intentions to enter the digital environment. In December 2021, around the same time when Nike intended to register its trademarks for the metaverse usage, Adidas announced the collaboration with Bored Ape Yacht Club (NFT brand), Punk's Comic (NFT comic series), and GMoney (crypto investor) along fashion brand's Originals line. This collaboration with crypto- and NFT-related stakeholders was the start of a massive program, which entailed the creation of both digital and physical products. The number of partners was chosen not spontaneously – the three partners represent the three stripes on the Adidas logo.

[14] Retrieved from https://www.adidas-group.com/en/about/culture/who-we-are/.

The ongoing program is named "Into the Metaverse" (ITM) and consists of three subsequent interconnected stages[15]. This project aims at bringing the knowledge and passion about web3.0 in general and metaverse and NFTs in particular to the common public. Adidas invites "the original thinkers and doers to the new age of originality" by showing what "the future of fashion could be". The timeline of the ITM program is the following:

- Phase 1: Adidas Originals launch a joint NFT collection with stakeholders mentioned above. In addition to the digital tokens, the brand offers exclusive physical content to its customers who can place orders to buy a pair of a yet unknown physical item and an NFT.
- Phase 2: Period when customers receive NFTs attributable to their orders placed during the first phase. NFTs are received only after the physical merchandize is claimed, i.e., digital tokens accompany apparel or accessories purchased. Besides the physical and digital items, participants of the ITM project also receive a mysterious capsule with content, which is released on November 16, 2022.
- Phase 3: Release date of the magical content of the capsule mentioned in the second phase. Adidas Originals launch its first digital collection of clothing items, which can be purchased in the OpenSea platform. Participants of the ITM program receive one random item for their commitment and patience during the project which lasted almost a year. The total number of designs is 16, which include 8 products with several color variations of selected pieces.

On the final stage of the ITM program Adidas demonstrates a special approach to NFTs and digital clothing. Because of the fact digital tokens cannot be compared in terms of their touch, quality, and texture, Adidas decides to attribute special characteristics to its pieces from the ITM collection.

For example, the "Space Crystal" hoodie consists of 20% fiber optics, 30% germanium, 50% the MetaKey, and 100% Mystique. Clearly the last attribute is qualitative or intangible, but the first three are tangible and describe the piece of clothing from the composition perspective in the same way Adidas would do with an ordinary hoodie from its physical store (e.g., 95% cotton, 5% polyester). The composition of the hoodie cannot be imagined because the described elements are both fictional (the "MetaKey") and non-intuitive to be used for a garment (fiber optics and germanium).

[15] Details available at https://www.adidas.com/metaverse/timeline.

In addition to half-imaginary composition, Adidas attributes "superpowers" to the items in the ITM collection. In this manner the "Space Crystal" hoodie is capable of "tissue generation", "metamorphosis", "gamma-ray mind control", "spontaneous combustion", and "infrared and thermal vision".

Another example could be the "Wallrunner" item. It consists of 20% answered wens, 20% feathers, 20% hugs, and 100% Adidas. The superpowers are "bouncy collisions", "force-proof", and "clumsy-proof".

Although the Adidas collection was developed jointly with professional NFTs creators, the prices of the tokens are $80 on average (converted from ETH on November 28, 2022[16]). So, Adidas indeed sticks to its claims about affordable and open metaverse world for all users. In contrast, Nike's RTFKT NFTs cost from several hundred to thousands of dollars.

It is not yet certain whether the attributed superpowers and compositions of the apparel will influence owner's experience in the metaverse and, if so, in which way, but nevertheless Adidas goes one step beyond ordinary NFTs with these inventions. It could be that with the end of the ITM project and the released collection Adidas will focus on new developments and innovations in the field. One of such innovations could be company's own metaverse, similar to the Nikeland, where all the features of special Adidas items could be utilized. Alternatively, Adidas could partner with existing metaverses to bring the immersive experience to its customers via customized usage of garments and superpowers. This yet unknown, but very intriguing point is probably the next step for the company in its embracement of the vast digital environment.

When the launch of the ITM project was announced in December 2021, Erika Wykes-Sneyd, VP of Brand Communications at Adidas Originals stated that "it is already in [Adidas] DNA to be a true collaborator brand" (Adidas News Site, 2021). This statement correlates with the fact that Adidas pays precise attention to collaborations with stakeholders, both organizations and individuals. To date, strategic actions of Adidas centered around jointly uniting forces with renowned web3.0 creators to create, deliver and capture value in the digital environment. It maybe that the company will focus on this strategy (i.e., collaborative one) in the future to gain its stake in the metaverse[17].

[16] Please note that cryptocurrencies' valuations are extremely volatile and may change significantly in short time periods. Therefore, readers are encouraged to check information on crypto prices on the day of working on the case to operate with credible data. Information can be verified at coinmarketcap.com.
[17] Source for Figure 6 and Figure 7: https://www.adidas.com/metaverse/.

Figure 7. Adidas "Space Crystal" hoodie.

Figure 6. Adidas "Wallrunner" item.

5.4.3. Partnership with Prada

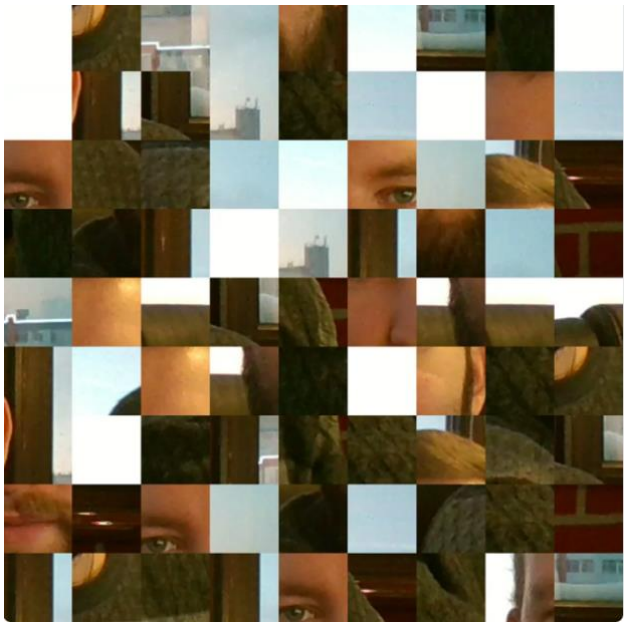
After the success of the ITM campaign, in January 2022 Adidas Originals announced a new "first-of-its-kind" project with Prada under the title "Adidas for Prada re-source" and in collaboration with Zach Lieberman, digital artist from the United States (Adidas News Site, 2022). Adidas has already partnered with Prada in 2019 for the release of a physical collection[18], so the choice of the luxury brand was not spontaneous for the German sportswear company. The idea of the project was to give an opportunity for users to personally create NFTs and profit from the sales of "creator-owned art". This type of collaboration unveils the potential perception of how digital tokens can be operated with by fashion brands on a totally new level, where users participate in the creation of items for free and, consequently, are incentivized. Additionally, part of the revenues from each transaction is donated to charity.

Adidas for Prada re-source NFTs are comprised of individual images that users share, which are formed in tiles to make up specific abstract picture. Zach Lieberman was responsible for the design side of the project which centered around merging the images into complete pieces of art, which were then sold as NFTs and which are still available for sale on OpenSea (as of December 1st, 2022). Participation in the project was limited to 3000 randomly selected

[18] Details available at https://qz.com/1744841/prada-and-adidas-will-blend-sports-and-luxury-in-new-partnership.

users who owned full intellectual property rights to their personal NFTs and were able to sell their tokens on the secondary market.

Figure 8. Example of an Adidas for Prada re-source NFT #1023[19].



Although the project may have seemed promising and original for both brands, the outputs from the financial standpoint were not convincing. Based on the analysis from the OpenSea platform for the collection page, the total volume of launched NFTs is valued at ETH 476 ($538,000 as of November 28th, 2022, which is the date when the analysis was performed and which is the reference date for calculations in this sub-section), and the average price per item was ETH 0,058 ($63)[20]. Since March 26th, 2022, when the market stabilized after the release date, the number of daily trades of items from the collection ranged from 1 to 9, with an average price being approximately ETH 0,07 ($86). When the collection release was performed on January 28th, 2022, in the first three days the volume of transactions was equal to ETH 340 ($418,200), but the volume rapidly dropped to less than ETH 1 ($1230) per day by the end of February 2022.

The total volume of transactions of Adidas for Prada re-source NFTs was less than $500,000 during the 10-month period since January 28th, 2022. This estimate is quite small, especially when compared with NFT collections from other brands, for instance with RTFKT

[19] Image source: https://opensea.io/assets/matic/0x7dec38e3874ecbc842cc61e66c1386aca0c0ea1f/1022.
[20] Details available at https://opensea.io/collection/adidas-for-prada-re-source/activity.

ones, where tokens are sold for hundreds or thousands of dollars. In addition, RTFKT does not need to split revenues with partners since the company performs the work alone. Adidas and Prada, in turn, work in collaboration, not mentioning the main designer, Lieberman, and charity focus of the project. The Adidas for Prada re-source collection was not labelled as a non-for-profit one, although there were plans to allocate certain amount of funds to charity. That is why the questionable success of the project is not only reinforced with the numbers but also not clearly aligned with the strategic perspective.

VI. Teaching Notes

The aim of the following chapter of the thesis is to provide guidance for professors in teaching the current case in-class. The section includes general synopsis of the case study, teaching objectives, potential questions for student assignments with proposed solutions, and conclusion including potential improvements to the study. These materials should be valuable in presenting the case and analyzing it by drawing connections between theoretical concepts and practical instances elaborated in the previous chapters.

The guidelines described in this section are generic, which means that both professors and students may have different views on the concepts and may approach the case from various perspectives. This includes both suggested assignment questions and proposed solutions. In addition, it is important to note that this case was developed in four consecutive months from September to December 2022, and therefore the socio-economic reality may differ between the date of case preparation and the date of analysis, especially considering such a rapidly developing area as web3.0.

6.1. Synopsis

Nike and Adidas are the two giants of the fashion industry, which are established on the market for decades. These brands dominate the sportswear industry, and their apparel and sneakers can be encountered in many wardrobes across the globe. During the COVID-19 pandemic, which jeopardized many businesses and forced companies to adapt to new realities, these brands decided to invest heavily in the emerging market of web3.0, following the growing attention to the area from both consumers and other fashion companies.

Digital innovations in the sphere of blockchain, metaverse, and adjacent domains were the integral parts of Nike and Adidas strategies during the turbulent times of the pandemic. As a result, both companies managed to perform several initiatives to add the web3.0 component in their business models. The case study demonstrates the actions undertaken by Nike and Adidas in-depth, and the following sections present the overall summaries of the brands' strategies along with references to theoretical concepts defined in the theoretical chapter of the thesis (chapter IV). Subsequent sections of this chapter define teaching objectives of the case (6.2) as well as suggested assignment topics (6.3) and proposed discussion tracks (6.4).

6.2. Teaching objectives

After the analysis of the presented case, students are expected to expand their knowledge in the domains of crisis adaptation strategies, dynamic capabilities, and Resource-Based theory. These theoretical pillars serve as foundation for the analysis of particular companies, namely Nike and Adidas, which should allow readers to transmit the aforementioned theoretical concepts to exemplify them with practical business implications. Specifically, students should be able to:

1. Identify crisis adaptive strategies of organizations and distinguish those strategies from short-term tactical moves companies undertake in order to follow those strategies.
2. Analyze organizational resource and capabilities bases with focus on VRIO resources and dynamic capabilities in particular.
3. Navigate in the emerging academic and business domain of web3.0, especially in the metaverse and NFT topics, and support discussion about these spheres by referring to real-life business instances, namely from the fashion industry.

4. Understand businesses of Nike and Adidas on a substantial level, including the web3.0 developments performed by the two brands.
5. Apply the knowledge acquired in the theoretical and practical chapters of the case to adjacent domains with the goal to expand further the growing body of research and practice in the areas of strategy and web3.0.

6.3. Proposed assignment questions

The list of questions below does not intend to limit the analysis of the case only to the proposed dimensions, as these questions and responses to them are limited to the author's vision of the case. Instructors are encouraged to reshape the assignment focus if relevant conditions and discussion flow established throughout the course warrant. In addition, since questions are focused on both Nike and Adidas, the class can be subdivided in two respective groups (with possibility to segregate these groups in teams) in order to engage students in a debate type of discussion (i.e., Nike versus Adidas), which could potentially intensify the learning process and create more value for both professors and students. The following topics are proved with an aim at guiding academic instructors when teaching the case:

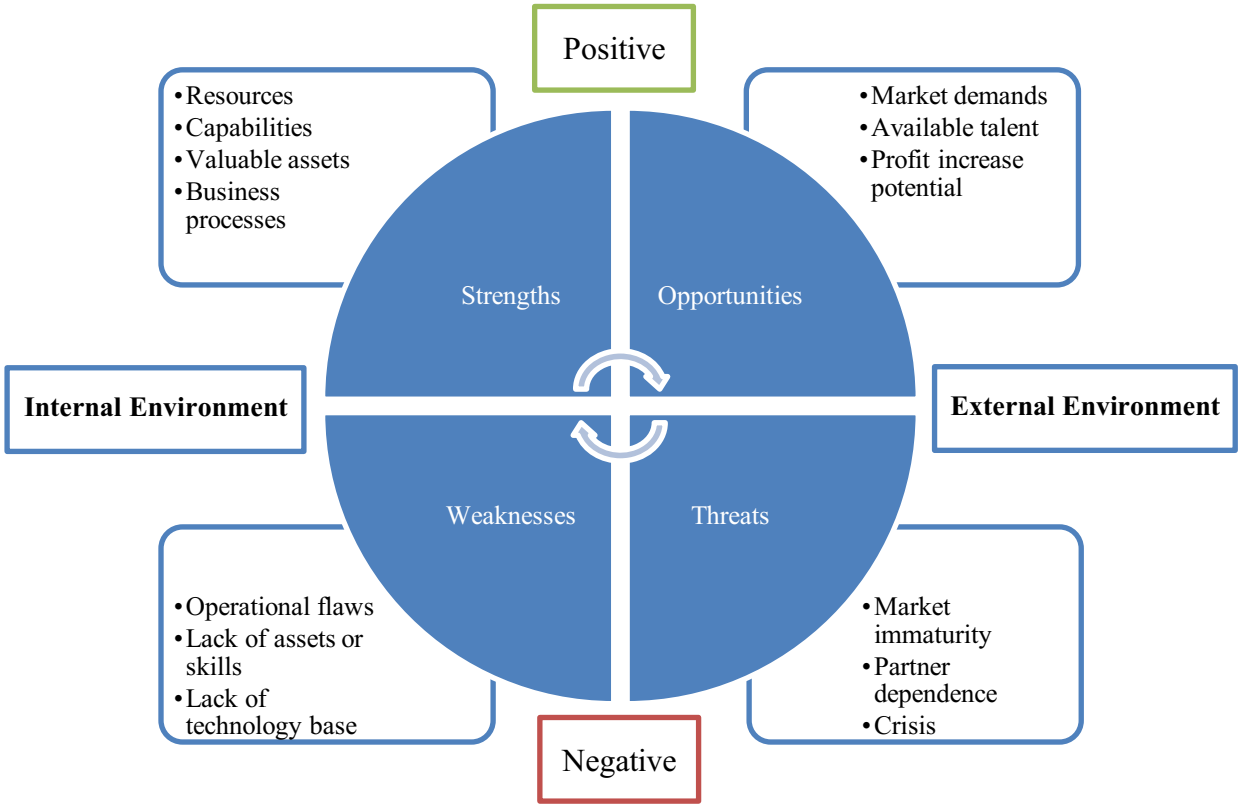
1. What are the strengths and weaknesses of Nike and Adidas that influence their businesses specifically in relation to the web3.0 domain? What market threats could jeopardize their operations in the web3.0, and which external opportunities could they exploit?
2. What are the advantages and disadvantages of the strategies both Nike and Adidas selected to embrace the web3.0 during the crisis, and how can these strategies be assessed (i.e., how effective were these strategies)? *Note: for a debate type of setting, get students to answer what they would do if they were the boss.*
3. Based on the case materials and strategies inherent to each brand, elaborate on the resources and capabilities (R&C) that Nike and Adidas have already developed and/or plan to develop in the foreseeable future and which outcomes do these R&C aim at bringing.

6.4. Suggested solutions and discussion

6.4.1. Strengths, Weaknesses, Opportunities, Threats

SWOT (Strength, Weaknesses, Opportunities, Threats) framework is useful in comprising a vivid image of a specific company. It is probably one of the most well-known and widely used tools for strategic analysis. An infographic which takes into account the aspects covered in SWOT analysis along with relevant generic examples of each of the four pillars is represented as follows:

Figure 9. SWOT analysis Framework with examples for each subsection (author's own figure).



By analyzing firm's external opportunities and threats along with internal strengths and weaknesses, one may obtain a detailed view on which resources and capabilities this company possesses as well as how well it may potentially respond to market fluctuations and exogenous shocks. Initiating the analysis with the internal perspective, the following table summarizes the strengths and weaknesses of Nike and Adidas in the context of web3.0:

Table 2. Strengths and weaknesses of Nike and Adidas (web3.0 perspective).

	Nike	Adidas
Strengths		
Innovativeness	✓	✓
Recognition and reputation	✓	✓
Marketing focus	✓	
Technological focus	✓	
Diversified portfolio of projects	✓	
Affordable digital tokens		✓
Sustainability		✓
Weaknesses		
Lack of internal technological base	✓	✓
Dependency on partners	✓	✓
Costly digital tokens	✓	
Limited scope of projects		✓

Strengths: Both Nike and Adidas are one of the most known sportswear brands in the world, with a strong focus on innovation as an integral part of their businesses. Both factors may contribute to them embracing web3.0 as the market perceives the actions of such successful brands as credible – the innovative nature of the firms makes it natural for them to navigate in the ambiguous frontiers of the uncertain digital environment.

Nike demonstrates its commitment to product marketing and technological essence of the company, which can be noticed in the statements of Phil Knight and general outlook of the brand. These two points were beneficial for Nike to enter the web3.0 space and establish the firm's presence in the new digital space. Doing so helped Nike to engage in several substantial projects in the recent years in relation to web3.0 (Nikeland, RTFKT, Virtual Studios and .SWOOSH). One of Nike's weak points, at least on the early stage of the web3.0 development, could be the high price of NFTs by RTFKT which could potentially discourage customers from purchasing these digital tokens.

Adidas chose a different strategy in relation to NFTs and made its branded digital tokens rather cheap in comparison to the majority of those offered by Nike, which could be beneficial for the brand to attract customers on the nascent stage of the market development. Adidas could also leverage its commitment to, and experience with, sustainability projects via web3.0. For

example, the company may engage in promotion of usage of virtual assets (apparel, sneakers, accessories, complete avatars, etc.) to decrease production of physical goods or perform other activities to highlight firm's proactivity in the fields of sustainability and environmental protection. Regarding the weak points of Adidas, the company has participated in a limited number of projects – mainly NFT collection drops in collaboration with partners (Bored Ape Yacht Club, Punk's Comic, GMoney, Prada) – which may be perceived as insufficient engagement from the public. However, due to the market novelty, Adidas still has time to announce additional moves in web3.0 in the foreseeable future.

Weaknesses: Both Nike and Adidas share a common weakness in regard to web3.0 embracement: lack of internal technological resources related to the new market. Although Nike purchased RTFKT and Adidas established strong bonds with ones of the most popular professionals in the industry, those resources are not integrated in company structures but are rather outsourced – RTFKT remains as an independent organization and Adidas partners are not brand's employees. Therefore, both firms are dependent on technology partners, at least to a certain extent.

The external market opportunities and threats are similar to each of the brands when they are analyzed from the web3.0 perspective. Therefore, the following points are considered as the most impactful ones for the companies under analysis:

- **Opportunities**
    - Shape the market on the early stage (educate, invest, grow human capital, collaborate rather than compete, etc.). Nike and Adidas have a unique opportunity to be the pioneers of web3.0 for fashion, and the brands should leverage the current stage of market development to smoothly adjust their operations in the new digital environment while the market is agile and flexible.
    - Be first movers and experience increased benefits from embracing the digital environment. These benefits may be both tangible (namely, financial) and intangible (increased brand recognition, perception of firms as innovative and ready to experiment, etc.).
    - In some years have separate businesses online (i.e., digital twins). Digital twins are basically digital versions of organizations (Nike and Adidas), functioning fully in the metaverse and which are aligned with physical business activities (operations, manufacturing, logistics, etc.).
- **Threats**

- High level of uncertainty. Because of the ongoing market formation, it is yet unclear what ROI Nike and Adidas will achieve, and which strategies will turn out to be successful in general. Therefore, there exists the possibility that these companies will lose (part of) the invested funds and/or experience difficulties on defining strategic moves if the market does not grow as expected.
- Lack of knowledge about web3.0 from the target audience. Nike and Adidas need to increase the level of acceptance of blockchain-related innovations among their client base to foster their businesses in the new market because public still knows little about metaverse and NFT areas, among others.
- Potential misalignment of brand image in web3.0 and IRL. Nike and Adidas should be cautious of their web3.0 initiatives to run their virtual and physical business lines in cohesion. For instance, if one of these brands decides to start selling luxury digital assets to be utilized in metaverse, this could be ambiguously perceived by the firm's customers, as both brands primarily produce sportswear.

In addition, there also exist some specific opportunities and threats that are specific to Nike and Adidas. Nike, for example, may afford to define its subsequent actions by leveraging Virtual Studios, – a separate business unit – which would not interfere with established operations of the company in other segments. Further, as mentioned in the list of threats, Nike should analyze the pricing model for its NFTs not to be perceived as a luxury web3.0 brand.

Adidas should be aware of the sustainability side of its business, and not trap itself in the situation of sustainable practices solely IRL. Because blockchain-related activities are linked to the huge consumption of energy, Adidas should define a specific line of argumentation to reason its presence in the web3.0 in the eyes of its customers.

6.4.2. Assessment of strategies

With the rise of the COVID-19 pandemic, Nike sensed the urge to respond to the crisis in a strategic manner. It was natural for a company such as Nike (flexible, creative, sporty) to innovate and adjust its resource base to the challenges at hand. The company started to embrace the new business sphere where it had not previously massively invested in. This move was not reckless – there were other fashion industry giants who tried grounds in web3.0 before Nike

(e.g., Gucci, Tommy Hilfiger, and Dolce Gabbana). Nike analyzed the market condition profoundly, taking into consideration the decisions other fashion brands undertook, and selected its own approach.

In particular, Nike made three major decisions, which are (1) the investment in Nikeland, (2) the purchase of RTFKT, and (3) the creation of Virtual Studios with .SWOOSH being the first major project of the new business unit. The first provided the firm with an opportunity to have its own metaverse, customized to its brand image and outlook, which may serve as a virtual "sandbox" for creativity, experimentation, and engagement with their young target audience. The second revealed widely the potential of the NFTs world for the company, which complements the metaverse initiative. Finally, the third decision secured Nike's position with its own platform related to web3.0 with ability to develop further the internal capabilities within Nike (i.e., without potentially being tied to external stakeholders in full).

During the COVID-19 crisis, Adidas ,along with its main competitor – Nike – decided to support the heat around web3.0. The company, as it had previously demonstrated, managed to innovate in response to the crisis and offset retail operations by introducing the ITM program. The company played a relatively safe card by not revealing specific details about the project from the start, as the campaign initiated with customer buyouts of "magic boxes" in the form of NFTs and physical items blends. While the pandemic's impact on businesses was decreasing, Adidas started to reward loyal customers who purchased NFTs with merchandize and digital tokens as well as special items in the culminative ITM collection in collaboration with the Bored Ape Yacht Club, Punk's Comic, and GMoney. This was a form of continuation of the digital trend even after the peak of the COVID-19 pandemic. In addition, in the recessive part of the COVID-19 crisis, Adidas announced the partnership with Prada, which also served as a form of continuation of customer attraction and value capture even after the intensive pandemic period.

Adapting to crisis by innovation was a well-conceived response for such a large and renowned company as Adidas. The brand had the necessary resources to make strategic moves and be one of the early adopters in the metaverse. Following a different strategy than Nike in the digital tokens sphere (i.e., affordability versus exclusivity), Adidas managed to capture a large customer audience who would potentially promote the brand in the digital space.

Assessment of the described strategies is challenging due to several factors: the emerging nature of web3.0 and blockchain-related business opportunities, uncertainty about the future of the new digital market, lack of blockchain literacy among public, and limited number of possible tactical moves to enter the trend, among others. Therefore, a reasonable time should

pass till the actions performed by Nike and Adidas are ripe enough to be evaluated from the business and management perspectives. At this point, it may even be unclear for Nike and Adidas themselves where the web3.0 path will lead the brands.

Nevertheless, a few insights can be developed by analyzing the moves of the companies. For example, it can be noticed how substantial investments of Nike are. The company did not solely launch an NFT collection, but rather acquired another firm specializing in the domain. In addition, the Oregon brand established a separate business unit related to the web3.0 through which it plans to influence the emerging market (e.g., educate general public via the .SWOOSH platform) and potentially impact other brands' activities in the area (i.e., create spillover of desire to innovate and enter the trend to catalyze market development). These moves demonstrate Nike's long-term vision and readiness to bet significantly even in the uncertain conditions.

Regarding Adidas, the company has demonstrated more risk averse behavior to date as the German brand did not invest in M&A or organizational structure alterations. The company hedged against the risk of potential failure by collaborating with external stakeholders to deliver NFT collections. Nevertheless, one of these collections, the ITM, was prolonged for a period of almost a year and made Adidas create interest from the customers to participate and be rewarded with physical items. In this link between real and virtual assets Adidas demonstrated an entrepreneurial spirit, trying to achieve convergence between the two domains – conventional (i.e., IRL) and prospective (i.e., digital).

6.4.3. Analysis of resources and capabilities

From the perspective of dynamic capabilities, Nike demonstrated their execution in this case. First, the company managed to sense a potentially profitable and prospective opportunity on the market and act accordingly to follow the web3.0 trend. Second, the firm made market-oriented decisions across several domains (metaverse and NFTs) on time to meet demand from the customer side (consumers' shift to digital during the pandemic with the goal to explore and socialize), for both adults and youngsters (i.e., different age target audiences). Finally, Nike managed to enlarge its resource base by investing in specific resources which made the company hedge against the crisis effects and capture additional target audience (youngsters and metaverse/NFT enthusiasts).

Nike managed to develop several internal resources. First, Nikeland is a huge virtual sports ground where users can compete and team-up and, consequently, perceive themselves as

athletes sponsored by the Nike brand to some extent. There even exist some physical activities that can be performed IRL to obtain in-game results inside the Nikeland. Therefore, this digital space is customized purely for the company, and enables Nike to further develop it exclusively for company's needs, making them hardly imitable, unique, tailored, and leveraged in an efficient manner, i.e., VRIO. Second, human capital acquired with the purchase of RTFKT partially "untied Nike's hands" from a technological perspective. Nike currently has an opportunity to release digital fashion items under the brand name of one of the best and most credible tech startups in the web3.0 domain, which barely has major competitors, making it valuable, rare, and hard to imitate. Third, Virtual Studios allows Nike to segregate the web3.0 business domain from other digital business operations as well as take focused action on what the company plans to perform in the upcoming future (currently large fashion brands do not possess similar separate divisions and follow the strategy of participating in various campaigns related to web3.0 often not following a specified structured strategy). Till now the company has followed a "surprise" course of action when users were not aware of strategic decisions undertaken by Nike. From now on, Nike may be more transparent and forward-looking with its own VRIO resource of Virtual Studios and .SWOOSH as its most significant project so far.

Addressing the dimension of dynamic capabilities for Adidas, the brand demonstrated superior performance in comparison to many fashion brands in web3.0. First, Adidas sensed an opportunity to enter the web3.0 in the right moment during the pandemic when target audience was fascinated by inventions in the digital space. Adidas also hedged itself with an "affordable" strategy against potential threats of declining interest to the metaverse and NFT domains in the foreseeable future (when digital items are relatively cheap, customers would have little incentives to get rid of digital assets, as they would rather keep them for potential market rise and/or as souvenirs). Second, the German company managed to prolong its ITM campaign for almost a year, which made it possible to enter the metaverse trend smoothly while simultaneously matching customer expectations from one phase to the other. Therefore, Adidas not only made timely and segregated market moves, but also matched customer demand for digital items which was even surpassed by physical offerings. Finally, the company extended its resource base by establishing links with new partners and technical specialists to make the strategy work in practice.

Regarding the VRIO resources, Adidas acquired some of them: partnerships with valuable and experienced stakeholders, which will likely collaborate with the brand on the ongoing basis, and ITM digital fashion collection with potentially even more extensive releases in the future (could possibly be performed separately with each stakeholder to increase rarity

and specialty of collections as well as diversify styles). Due to the scarcity of well-known professionals in the spheres related to metaverse, NFTs and cryptocurrencies, Adidas's partnerships are valuable and strategic in nature. It is unlikely that some of the partners will leave the squad after this initial success and mutual gains. Imitation of the collaboration can be performed by other large brands, but the scale and quality of stakeholders would be hard to match for competition, and current Adidas partners might hesitate to engage in side projects that may ruin their relationships with Adidas. In addition, due to the work experience with specific partners, Adidas has an advantage in future projects: established relationships could lead to quick and customized execution with clearly defined goals.

VII. Conclusion

The presented case study provides insights into the developments in the digital sphere in the recent years, specifically in the web3.0 domain, with metaverse and NFTs being the focal topics under analysis. By scrutinizing the fashion industry through the prism of the domain in scope, with focus on Nike and Adidas brands, a vivid image of how these fashion brands were exploring the new digital environment in recent years (and continue to explore it) was comprised.

The strategic responses of Nike and Adidas to the COVID-19 crisis centered around similar approach, namely innovation. The two brands invested in developing organizational capabilities and expanding their resource bases in the blockchain-related sphere. These initiatives vary for the two companies, with Nike approaching the potential business area of the upcoming years in a more substantial way (expansion of technical capabilities via acquisition of human capital – RTFKT, establishment of a separate business unit – Virtual Studios, launch of the educational platform dedicated exclusively to web3.0 – .SWOOSH) and Adidas behaving as a more cautious explorer (collaborations with other brands and creative designers, launch of an NFT collection – the ITM – in several stages linked to physical products).

Despite the differences in tactical moves of Nike and Adidas, by actively acting on the web3.0 fashion podium and building their broadly scoped strategies with long-term focus, both the American and German brands contribute to shaping the future market around metaverse, NFTs, and related innovations, which are still in the nascent stage of development. The future of the digital fashion market is dependent, to a vast extent, on the activity of large brands, such as Nike, Adidas, and others briefly mentioned throughout the case. Therefore, it is important to understand on an early stage what fashion companies are performing nowadays in order to secure their potential future positions in this market and how much are they willing to put at stake to foster the market establishment process.

To expand this domain of knowledge even further and to broaden the limits of the current research, several topics can be addressed:

- Firstly, primary data sources can be leveraged, specifically interviews or focus groups with low- or middle-level managers, to perceive the internal strategic vision around web3.0 of the representatives of foundational layers of corporate hierarchy. Throughout the case, executives from the fashion and digital industries are extensively cited, including representatives from Nike and Adidas themselves. In addition, these citations are complemented with qualitative and

quantitative information from industry reports. However, the opinions of lower-level specialists (who work operationally on the initiatives which are later implemented) on the current state and future potential of web3.0 developments, which mainly center around metaverse and digital tokens, would elevate the understanding of the topic to a new level. As an example, these could be the analysts from the Nike Virtual Studios who participated in the launch of .SWOOSH and who are probably currently working on future releases. Because of the ongoing development process of web3.0 lines of business of Nike and Adidas and general novelty of this digital sphere, the author of the case did not manage to encounter with similar type of employees from any of the two brands during his research on the topic.

- Secondly, because fashion brands are actively exploring the web3.0 sphere, there are considerable data widely available in public domain, including social media. While manual data collection and analysis represents an important first step into inquiry on the topic, automated content analysis, e.g., using machine learning, can be leveraged to analyze large amounts of data. Such analyses can yield interpretative understanding of how the meaning of web3.0 for fashion is being formed through the statements, actions, and commitments made by key stakeholders. This understanding can shed new light on why particular innovation outcomes are obtained under conditions of radical uncertainty.
- Finally, additional calculations could be performed to analyze financial prospects of the investments of Nike and Adidas. Because of the volatility of cryptocurrencies and subsequent uncertainty about digital token prices as well as constantly growing attention to metaverse, the estimations may vary significantly in different time periods (based on currency exchange rates and number of users attracted to digital spaces like Nikeland, for instance). This is the reason why profound calculus is not included in the case. Nevertheless, it could serve as an approximation and an additional viewpoint on the tangible outputs of the strategies the two brands follow in relation to web3.0.

As Siggelkow (2007) states, “The main object of case studies should be to provoke thought and new ideas […]” to scrutinize complex reality which lies beyond theoretical concepts. This is exactly what the author of this research intended to promote. Unfortunately,

one thesis cannot cover such a complex and rapidly developing sphere in full, but the case describes the topic with sufficient level of detail for teaching purposes.

VIII. Appendix

Figure 10. Top three opportunities and challenges for 2023, % of respondents (McKinsey & Company and Business of Fashion, 2022).

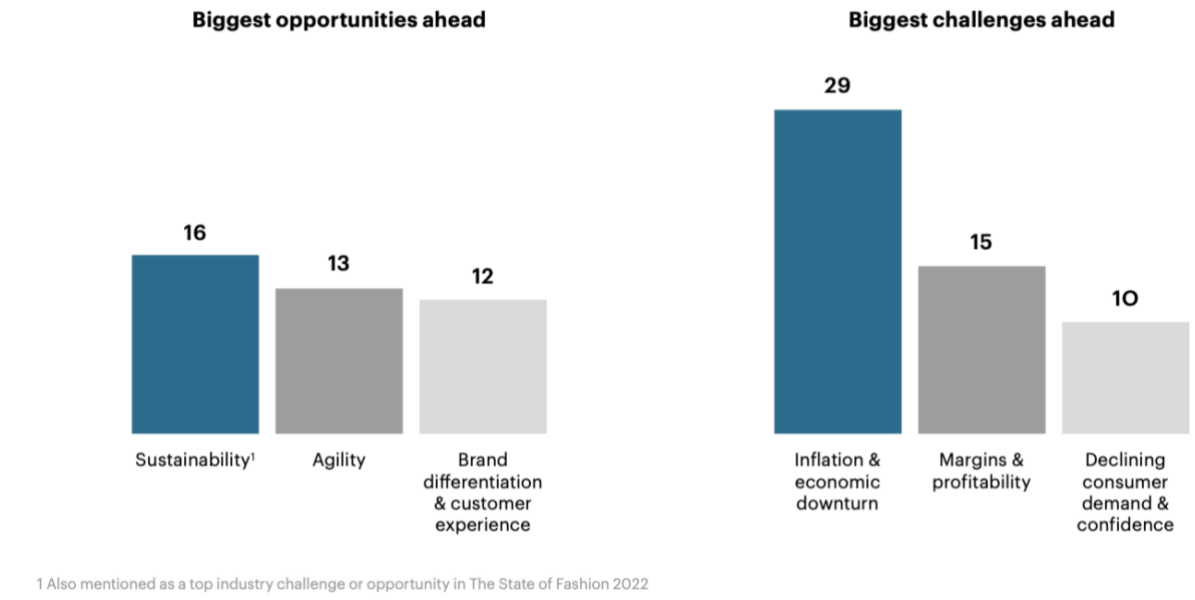
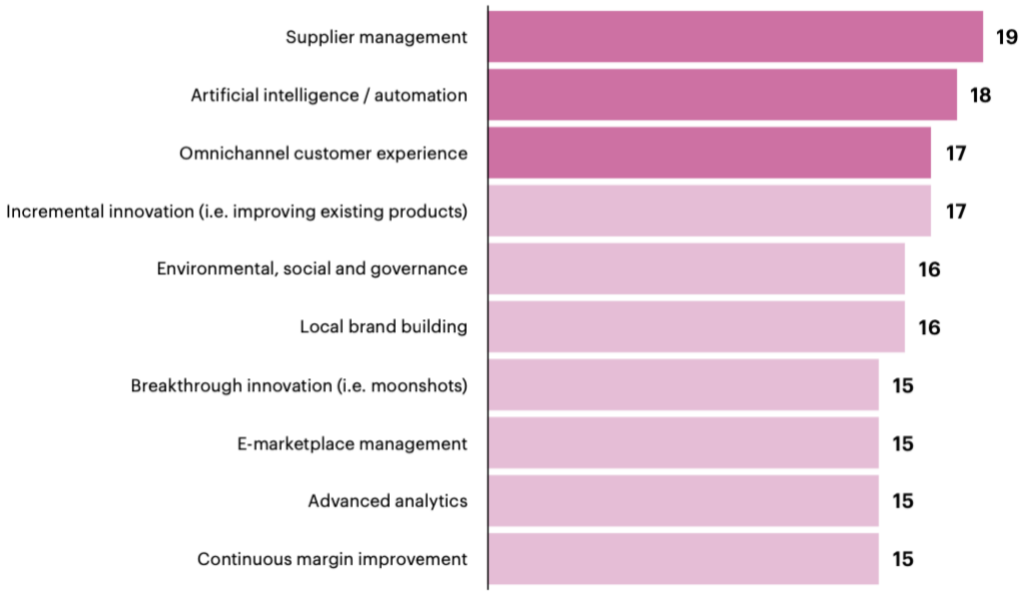


Figure 11. Top five capability gaps for 2023, % of respondents (McKinsey & Company and Business of Fashion, 2022).



IX. References

9.1. Academic articles

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*(1), 99–120. https://doi.org/10.1177/014920639101700108

Barney, J. B. (1995). Looking inside for competitive advantage. *Academy of Management Perspectives, 9*(4), 49-61. https://doi.org/10.5465/ame.1995.9512032192

Barreto, I. (2010). Dynamic capabilities: A review of past research and an agenda for the future. *Journal of Management*, *36*(1), 256–280. https://doi.org/10.1177/0149206309350776

Bruton, G. D., Ahlstrom, D., & Wan, J. C. C. (2003). Turnaround in East Asian firms: Evidence from ethnic overseas Chinese communities. *Strategic Management Journal*, *24*(6), 519–540. https://doi.org/10.1002/smj.312

Brydges, T., Heinze, L., Retamal, M., & Henninger, C. E. (2020). Platforms and the pandemic: A case study of fashion rental platforms during COVID-19. *The Geographical Journal*, *187*(1), 57–63. https://doi.org/10.1111/geoj.12366

Bryson, J. M. (1981). A perspective on planning and crises in the public sector. Strategic Management Journal, 2(2), 181-196. https://doi.org/10.1002/smj.4250020207

Burgelman, R. A. (2007). A Process model of strategic business exit: Implications for an evolutionary perspective on strategy. *Strategic Management Journal*, *17*(S1), 193–214. https://doi.org/10.1002/smj.4250171012

Dai, L., Eden, L., & Beamish, P. W. (2016). Caught in the crossfire: Dimensions of vulnerability and foreign multinationals' exit from war-afflicted countries. *Strategic Management Journal*, *38*(7), 1478–1498. https://doi.org/10.1002/smj.2599

Dionisio, J. D. N., Burns III, W. J., & Gilbert, R. (2013). 3D virtual worlds and the metaverse: Current status and future possibilities. *ACM Computing Surveys (CSUR)*, *45*(3), 1–38. https://doi.org/https://doi.org/10.1145/2480741.2480751

Fairfield, J. (2022). Tokenized: The law of Non-Fungible Tokens and unique digital property. *Indiana Law Journal 97*(4), 1261. https://www.repository.law.indiana.edu/ilj/vol97/iss4/4/?utm_source=www.repository.law.indiana.edu%2Filj%2Fvol97%2Fiss4%2F4&utm_medium=PDF&utm_campaign=PDFCoverPages

Gilbert, R. L. (2011). The P.R.O.S.E. (Psychological Research on Synthetic Environments) Project: Conducting in-world psychological research on 3D virtual worlds. *Journal for Virtual Worlds Research*, *4*(1). https://jvwr-ojs-utexas.tdl.org/jvwr/article/view/2108

Hughes, I. (2012). Virtual worlds, augmented reality, blended reality. *Computer Networks*, *56*(18), 3879–3885. https://doi.org/10.1016/j.comnet.2012.09.016

Jiang, Y., & Stylos, N. (2021). Triggers of consumers' enhanced digital engagement and the role of digital technologies in transforming the retail ecosystem during COVID-19 pandemic. *Technological Forecasting and Social Change*, *172*(2021). https://doi.org/10.1016/j.techfore.2021.121029

Lugrin, J.-L., & Cavazza, M. (2006, June 14). AI-based world behaviour for emergent narratives. *ACE '06: Proceedings of the 2006 ACM SIGCHI International Conference on Advances in Computer Entertainment Technology*. https://dl.acm.org/doi/10.1145/1178823.1178853

McMaster, M., Nettleton, C., Tom, C., Xu, B., Cao, C., & Qiao, P. (2020). Risk management: Rethinking fashion supply chain management for multinational corporations in light of the COVID-19 outbreak. *Journal of Risk and Financial Management*, *13*(8), 173. https://doi.org/10.3390/jrfm13080173

Nakamoto, S. (2008). *Bitcoin: A Peer-to-Peer Electronic Cash System*. Decentralized Business Review. https://www.debr.io/article/21260.pdf

Pacheco-de-Almeida, G. (2010). Erosion, time compression, and self-displacement of leaders in hypercompetitive environments. *Strategic Management Journal*, *31*(13), 1498–1526. https://doi.org/10.1002/smj.896

Pearce, J. A., & Robbins, K. (1993). Toward improved theory and research on business turnaround. *Journal of Management*, *19*(3), 613–636. https://doi.org/10.1016/0149-2063(93)90007-A

Peters, G. W., Panayi, E., & Chapelle, A. (2015). Trends in crypto-currencies and blockchain technologies: A monetary theory and regulation perspective. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2646618

Rosenbloom, R. S. (2000). Leadership, capabilities, and technological change: The transformation of NCR in the electronic era. *Strategic Management Journal*, *21*(10-11), 1083–1103. https://doi.org/https://doi.org/10.1002/1097-0266(200010/11)21:10/11%3C1083::AID-SMJ127%3E3.0.CO;2-4

Siggelkow, N. (2007). Persuasion with case studies. *Academy of management journal, 50*(1), 20-24. https://doi.org/10.5465/amj.2007.24160882

Silva, E. S., & Bonetti, F. (2021). Digital humans in fashion: Will consumers interact? *Journal of Retailing and Consumer Services*, *60*. https://doi.org/10.1016/j.jretconser.2020.102430

Stieglitz, N., Knudsen, T., & Becker, M. C. (2015). Adaptation and inertia in dynamic environments. *Strategic Management Journal*, *37*(9), 1854–1864. https://doi.org/10.1002/smj.2433

Teece, D. J. (2007). Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*, *28*(13), 1319–1350. https://doi.org/10.1002/smj.640

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic management journal, 18*(7), 509-533. https://doi.org/10.1002/(SICI)1097-0266(199708)18:7%3C509::AID-SMJ882%3E3.0.CO;2-Z

Wang, Q., Li, R., Wang, Q., & Chen, S. (2021). Non-Fungible Token (NFT): Overview, evaluation, opportunities and challenges. *ArXiv:2105.07447 [Cs]*, *3*. https://arxiv.org/abs/2105.07447

Wenzel, M., Stanske, S., & Lieberman, M. B. (2020). Strategic responses to crisis. *Strategic Management Journal*, *41*(7/18). https://doi.org/10.1002/smj.3161

Yampolskiy, R. V., Klare, B., & Jain, A. K. (2012). Face recognition in the virtual world: Recognizing avatar faces. *11th International Conference on Machine Learning and Applications*, *1*, 40–45. https://doi.org/10.1109/ICMLA.2012.16

Yang, Q., Zhao, Y., Huang, H., Xiong, Z., Kang, J., & Zheng, Z. (2022). Fusing blockchain and AI with metaverse: A survey. *IEEE Open Journal of the Computer Society*, *3*, 122–136. https://doi.org/10.1109/OJCS.2022.3188249

Zheng, Z., Xie, S., Dai, H. N., Chen, X., & Wang, H. (2018). Blockchain challenges and opportunities: a survey. *International Journal of Web and Grid Services*, *14*(4), 352. https://doi.org/10.1504/ijwgs.2018.10016848

9.2. Online sources

Adidas originals and Prada announce a first-of-its-Kind open-metaverse & user-generated NFT project. (2022, January 20). Adidas News Site. https://news.adidas.com/originals/adidas-originals-and-prada-announce-a-first-of-its-

kind-open-metaverse---user-generated-nft-project/s/30a29dad-6ded-4302-ae40-f9f2338e7298. Accessed 27 Nov. 2022.

Bain, Marc. "Nike Is Launching Its First Big Web3 Project." *Business of Fashion (BoF)*, 14 November 2022, https://www.businessoffashion.com/articles/technology/nike-is-launching-its-first-big-web3-project/. Accessed 27 Nov. 2022.

Chavie, Lieber. "Would You Buy a Virtual Pair of Nikes?" *Business of Fashion (BoF)*, 8 July 2019, https://www.businessoffashion.com/articles/technology/virtual-fashion-digital-products/. Accessed 1 Dec. 2022.

Into the metaverse: How we got here and where we are headed. (2021, December 16). Adidas News Site. https://news.adidas.com/originals/into-the-metaverse--how-we-got-here-and-where-we-are-headed/s/6ccb61cb-2135-453e-8626-ac3d56faab30. Accessed 12 Nov. 2022.

Kansara, Vikram Alexei. "Benoit Pagotto: The Nike-Backed Gamer Building the Supreme of the Metaverse." *Business of Fashion (BoF)*, 12 October 2022, https://www.businessoffashion.com/articles/entrepreneurship/benoit-pagotto-launch-bof-500-class-of-2022-fashion-industry-entrepreneur/. Accessed 1 Dec. 2022.

McKinsey & Company. "Value creation in the metaverse: The real business of the virtual world." Jun. 2022, Value-creation-in-the-metaverse.pdf (mckinsey.com). Accessed 9 Dec. 2022.

McKinsey & Company, and Business of Fashion. "The State of Fashion 2023." 29 Nov. 2022, https://www.mckinsey.com/industries/retail/our-insights/state-of-fashion. Accessed 1 Dec. 2022.

USPTO Report (2021). Nike, Inc. Trademark Registration. https://uspto.report/TM/97095855. Accessed 6 Nov. 2022.

Willigan, G. E. (1992, July). *High-Performance Marketing: An Interview with Nike's Phil Knight*. Harvard Business Review. https://hbr.org/1992/07/high-performance-marketing-an-interview-with-nikes-phil-knight. Accessed 30 Oct. 2022.