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SCUOLA DI INGEGNERIA INDUSTRIALE
E DELL'INFORMAZIONE

Born-as-a-Platform Innovation Strategies: Insights in the Platform Thinking Realm

TESI DI LAUREA MAGISTRALE IN
MANAGEMENT ENGINEERING
INGEGNERIA GESTIONALE

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Academic Year: 2022-23

Abstract

"Learning and innovation go hand in hand. The arrogance of success is to think that what you did yesterday will be sufficient for tomorrow."

– William Pollard

Platforms have become increasingly significant in recent decades, enabling companies to emerge, expand, and go global by leveraging network effects and other platform key characteristics. However, established companies, once considered "incumbents", have also adopted Platform Thinking to become "agile". Airbnb and Amazon represent two of the most classic and renowned cases: the former was born as a platform, while the latter has embraced Platform Thinking and both are now leaders in their respective markets.

This work contributes to research on Platform Thinking through the analysis of fifteen platforms, examining their evolution using the case-analysis technique. The companies analysed throughout this document will be referred to as "Born-as-a-Platform", signifying businesses that are born with a digital platform Business Model and maintain this model at the core of their business throughout their evolutionary history. The aim of this research is not to explore how Platform Thinking can transform traditional linear value chain companies into platform-based Business Models in pursuit of greater effectiveness and efficiency. This topic, though intriguing, has been extensively addressed by scholars in the field. Instead, this research focuses on investigating how these platforms managed to emerge, survive, innovate, grow, and, most importantly, maintain market dominance over the years, mapping and examining the stages of their evolution.

The analytical framework proposed by Trabucchi and Buganza in the book "*PLATFORM THINKING – READ the past. WRITE the future*" has been expanded to ensure its adaptability to all types of companies, considering characteristics related to the world of platforms and valid for analysis. Through a longitudinal case-by-case study and subsequent cross-case analysis, this document also sought to identify recurring patterns, similarities, and differences within the various evolutionary stories, uncovering evidence of imitation strategies among companies within the same industry.

Keywords: Platform Thinking; Business Model Innovation; Imitation; Evolution Strategy; Data.

Abstract in italiano

"Apprendimento e innovazione vanno di pari passo. L'arroganza del successo consiste nel pensare che ciò che hai fatto ieri sarà sufficiente per domani."

– William Pollard

Le piattaforme sono diventate sempre più importanti negli ultimi decenni, consentendo alle aziende di nascere, espandersi e diventare globali sfruttando i network effects e altre caratteristiche chiave delle piatteforme. Tuttavia, le aziende consolidate, una volta considerate "incumbent", hanno a loro volta adottato il Platform Thinking per diventare "agili". Airbnb e Amazon rappresentano due dei casi più classici e celebri: la prima è nata come piattaforma, mentre la seconda ha abbracciato il Platform Thinking e ora sono entrambe leader nei rispettivi mercati.

Questo lavoro contribuisce alla ricerca sul Platform Thinking attraverso l'analisi di quindici piattaforme, esaminando la loro evoluzione attraverso l'uso della tecnica del case-analysis. Le aziende analizzate saranno definite in tutto il documento come "Born-as-a-Platform", ovvero aziende che nascono con un Modello di Business basato su una piattaforma digitale e mantengono questo modello al centro del loro business per tutta la loro storia evolutiva. Lo scopo della ricerca non è vedere come il Platform Thinking possa trasformare aziende tradizionali con una catena del valore lineare in un modello di business basato su una piattaforma, alla ricerca di maggiore efficacia ed efficienza. Questo argomento, anche se interessante, è stato trattato ampiamente dagli studiosi del settore. Questa ricerca si concentra invece sull'indagine di come queste piattaforme siano riuscite a nascere, sopravvivere, innovare, crescere e, soprattutto, mantenere una posizione di dominio nel mercato nel corso degli anni, mappando ed esaminando le fasi della loro evoluzione.

La matrice di analisi proposta da Trabucchi e Buganza nel libro "*PLATFORM THINKING – READ the past. WRITE the future*" è stata ampliata per garantirne l'adattabilità a tutte le tipologie di aziende, tenendo conto anche delle caratteristiche tangenti al mondo delle piattaforme e valide per l'analisi. Attraverso un'analisi longitudinale caso per caso e un'analisi incrociata successiva, questo documento ha anche cercato ricorrenze, similitudini e differenze all'interno delle diverse storie evolutive, rilevando evidenze di strategie di imitazione tra aziende appartenenti alla stessa industria.

Parole chiave: Platform Thinking, Innovazione del Modello di Business, Imitazione, Strategia Evolutiva, Dati.

Contents

1 Introduction

1.1. Platform Environment

Traditionally, markets are viewed in terms of producers and consumers. Producers add value by optimising a wide variety of activities, including procurement, design, manufacture, branding, marketing, sales, and services. The producer creates value for which the customer is prepared to pay. Markets are now thought as groups of people interacting to generate and consume value. Consumers are not only users of value, but they are also active producers or participants in the creation of it. Collaboration, participation, and interaction among participants generate gains (Joachimsthaler, 2020).

We have entered the "***Golden Age***" of digital innovation in recent years (Fichman et al., 2014), with the more pervasive and ubiquitous dispersion of digital technology having a significant influence on the innovation process. The spread of digital technologies aided enterprises in the creation of new businesses, new goods, and new services capable of challenging the established paradigms (Downes and Nunes, 2014; Trabucchi et al., 2017) and force business leaders to react instantly and re-think their entire structure and identity (Teece, 2012; Utesheva et al. 2015). "Platforms" are one of the most visible examples.

The relevance of platforms in the world has grown rapidly over the previous few decades due to their inherently dynamic nature (McIntyre et al., 2020a; de Reuver et al., 2018; Gawer, 2020) and the global landscape is dominated by them (Gawer, 2020; Parker and Van Alstyne, 2018). To put it differently, we are facing one of the most quickly growing phenomenon in managerial history (Trabucchi et al., 2019), as seen by the high values of platform-based organisations and start-up "unicorns". Although past research suggested that it could take years to achieve a dominant design (Tripsas, 1997), the process is currently moving at a much faster pace, with potentially disruptive consequences for incumbents. Many start-ups have been able to scale rapidly and expand globally by utilising network effects and the importance of platforms, transforming from enterprises with linear and simple Business Models into tech behemoths (Libert et al., 2016). Companies such as Uber and Airbnb entered the market with none of the resources typically deemed necessary for survival (e.g., proprietary assets, dedicated technology, and patents), quickly establishing a dominant position. Scholars refer to this phenomenon as "***The Power of Platforms***", which is defined as an innovative Business Model that uses digital technology to

connect people, knowledge, and businesses in an interactive ecosystem where value can be created, captured, and shared (Parker et al., 2016).

Today, we can take a ride from a stranger, sleep in a stranger's bed, and drive a car we don't own without asking anyone (Trabucchi and Magistretti, 2020). Platforms have altered the way we search for information, buy items, consume news and media, travel and move around (Trabucchi et al., 2021a). Platforms are posing a disruptive threat to entire industries (Downes and Nunes, 2014) and have sparked substantial management study (Gawer and Cusumano, 2014). Digital technologies have changed the game's laws, allowing for collaborative processes and new competitive dynamics (Nambisan et al., 2017). The way platforms develop, and capture value differs fundamentally from traditional digital firms and requires careful consideration (Cennamo, 2019; Correani et al., 2020). We live in the "***Platform Revolution***" age (Choudary et al., 2016). Digital platforms pervade our lives, making life easier or at least more convenient in many circumstances, and service after service, sector after sector, they change the rules of the game, suggesting new ways of producing, delivering, and enjoying goods and services.

Platform Thinking, instead, is the capacity to embed platform-based processes at the heart of any company's digital business transformation (Trabucchi and Buganza, 2023a). It is a strategy in which incumbents view their main goods as platforms that can be exposed to innovation areas, in order to generate additional products and, eventually, new revenue streams (Leijon et al., 2017). Platform Thinking enables businesses to overcome inherent conflicts in variety management by improving speed, cost, differentiation, and quality all at the same time (Sawhney, 1998). However, these are not the only reasons why Platform Thinking is critical and crucial in today's digital economy.

The first important aspect is that Platform Thinking fosters innovation (Trabucchi and Buganza, 2023a) by allowing third-party developers and enterprises to build complementary products or services on the core platform. This open ecosystem approach has the potential to result in the development of new goods, services, and features that the platform provider would not have developed on its own. As an example, the Apple App Store has enabled developers all around the world to create millions of apps, greatly enriching the capabilities and user experience of the iPhone.

The second factor explain the rise of platforms such as Amazon, Google, and Alibaba and their outstanding economic impact on the world (Trischler et al., 2021; Trabucchi and Buganza, 2021). Digital platforms have the ability to create significant economic development. They have the potential to transform whole industries and ecosystems, leading to creation of employment, entrepreneurial activity, and investment.

Digital ecosystems shift the focus of competition from firm-focused to ecosystem-focused (Jacobides, 2019). Platform Thinking typically leads to more personalised and user-centered experiences. Platforms can personalise their offerings,

recommendations, and services to individual users as they collect data on user behaviour and preferences. This level of personalisation boosts customer pleasure and engagement.

Moreover, platforms are, by definition, scalable and capable of capturing huge amounts of data. With more people joining, the platform is able to handle increased demand without a corresponding increase in costs (Libert et al., 2016; Parker et al., 2016), and collected data can be used to gain important insights about user behaviour, market trends, or upcoming prospects (Sriram et al., 2015). This scalability can be very useful, especially in enterprises where economies of scale are vital and data-driven decisions can lead to more successful strategy and product developments.

Lastly, Platform Thinking has disrupted traditional Business Models in various industries. Ride-sharing services such as Uber and Lyft, for example, have revolutionised the taxi sector, and streaming platforms such as Netflix have transformed the entertainment industry. Embracing Platform Thinking can assist established firms in drawing inspiration from the platform paradigm to open up and explore new avenues of innovation (Libert et al., 2016). But this is not always possible and, some established companies were not able to master the innovative meaning proposed by the new upcoming environment (Navionics in Buganza et al., 2015).

1.2. Scope of the Project

Many research and experts have concentrated on narrating and documenting how simple linear value chain businesses have grown through time (Verganti, 2017) or how these have been converted into platforms (Zhu and Furr, 2016) in order to adapt to modern changes. Instead, our research deals with another critical feature of the huge, unexplored universe of digital platforms: how all those companies that were Born-as-Platforms have grown and changed over time, moving from small to tech giants. This document will deal with an in-depth analysis of these organisations, explaining the techniques that these companies have adopted, identifying possible patterns between businesses operating in the same or other sectors and answering to the following research questions:

RQ1: "What are the Platform Thinking strategies emerging from Born-as-a-Platform organization that foster innovation?".

RQ2: "Are Born-as-a-Platform companies evolving their Business Model through imitation among firms in the same industry?".

To be clear and focused, it is necessary to create a brief explanation of what a "linear value chain" and "Born-as-a-Platform" company is. A linear value chain is a firm that follows the typical "**take, make, dispose**" manufacturing paradigm. It is a type of business or organisational structure in which activities and processes are organised in a linear way, with each step or function in the chain being closely related to the

preceding and following phases. Information, materials, or products move in a straight, one-way route from one department or function to another. Instead, A company is defined "Born-as-a-Platform" when it is established on a digital-platform Business Model (Transactional, Orthogonal, or Network Platform) (see Paragraph 2.1.) and through its evolutionary steps maintains the platform model as its core business. Born-as-a-Platform companies include the previously mentioned Airbnb, Uber, and eBay, as well as Meta, Visa, and Expedia.

Unlike traditional businesses which may subsequently move to a platform model or add platform-like features, organisations that are Born-as-a-Platform are developed around the concept of facilitating interactions and transactions between different groups of users or participants from the really first time they are created. However, this is not the sole distinction. Contrary to linear value chain organisations, these firms generate ecosystems of participants who create and exchange value within the platform (Jacobides, 2019). The company frequently serves as a mediator, offering tools, infrastructure, and regulations via which participants can engage. Platform companies profit from network effects, which occur when more users and participants join the platform. This creates a virtuous loop that attracts new users and partners, increasing the platform's value. Companies with a linear value chain may not experience network effects to the same extent. Their expansion is frequently correlated with market demand for their specific product or service rather than the size of their user base. Platform businesses frequently prioritise innovation that improves the ecosystem, promotes user engagement, and attracts new users. To enable third-party innovation, they may also invest in APIs (Application Programming Interfaces) and developer ecosystems. Traditional businesses concentrate on product or process innovation in relation to their main offering. Their attempts at innovation strive to improve the quality, cost-effectiveness, or characteristics of their products/services. Platform companies are nimbler and more adaptive to shifting market conditions. They can swiftly offer new features, services, or collaborations to increase the value of the platform and facilitate their further expansion (Trabucchi and Buganza, 2020). Linear value chain enterprises, because their operations, are frequently more rigid, specialised and may experience difficulties adjusting to quickly changing markets and technologies.

These are just few of the differences that distinguish a Born-as-a-Platform company from a linear value chain, but they demonstrate how the world has shifted in recent decades towards digital innovation (Brynjolfsson and McAfee, 2014). Many of the world's most valuable corporations have successfully made the move from linears to platforms. Apple, Google, and Amazon all began as product-centric businesses, creating value by providing distinctive commodities that satisfy specific consumer demands. They have, however, understood how to turn product consumers into platform users over time. They've also discovered ways to connect these customers

with third-party organisations such as app developers, publishers, and marketers (Leijon et al., 2017).

1.3. Structure of the Document

The document will be organised in five main blocks. The initial section was the Literature Review presented in Chapter 2 It acted as a foundation, delving into the classical theory of digital platforms, where the different typologies are investigated, shedding light on their diversity and characteristics. Furthermore, the transformative power of Business Model Innovation has been highlighted, emphasising the role of Platform Thinking as a means to foster innovation and its position on improving the traditional Business Model. To complete, the literature gaps that this document fills, and the purpose of the study has been explained.

In Chapter 3, the Research Methodology has been discussed, with an emphasis on the creation of a comprehensive database and the selection of organisations to be further explored. A board for longitudinal analyses has been developed to complete the framework and simplify comprehension of the firms' analysis. Moreover, the methodology applied for cross-case analysis with both Global and Industry Perspective as been explained.

Chapter 4, the Results, has been devoted to the longitudinal analyses of the fifteen chosen Born-as-a-Platform firms. It offered useful insights into the critical events, strategic decisions, and inventive leaps that have led to their success as digital platforms, but also a general overview of the company itself. After that, the results of the cross-case analysis have been reported to highlight patterns of recurrence, similarities, and differences among companies both in the totality of considered sample and also focusing on a single industry.

Moving on to Chapter 5, the Discussion, it has methodically examined the study's primary findings, offering a thorough evaluation of their ramifications and significance. These findings not only added to the theoretical understanding of digital platform dynamics. Business Model Innovation, and imitation strategies among industries, but they also had practical implications for industry practitioners looking to use the potential of platform-based innovation.

In the end, in Chapter 6, the Conclusions, final outcomes are drawn, underling the synthesis of the research questions, the theoretical and managerial contributions, the limitations of the study and future investigations suggested.

2 Literature Review

2.1. "Classical" Theory

Given the buzzword nature of the word Platform, various scholars have tried over the years to define and classify this type of Business Model. This document considers the classification and subclassification (Trabucchi and Buganza, 2023a) that sees platforms divided into Product Platform, Industry-Wide Platform, Transactional Platform, and Orthogonal Platform. Moreover, for the purpose of analysis, the concepts of Network Platform and Hybrid Platform are added to this classification.

2.1.1. Product or Internal Platforms

According to Meyer and Lehnerd (1997) a Product Platform (formerly also known as Internal Platform) is "*a set of components that creates a basic structure common to many products*". Leveraging this type of platform, "*a firm, either working by itself or with suppliers, can build a family of related products or sets of new features by deploying these components*" (Gawer and Cusumano, 2014). The family of related products that originates from the same Product Platform is called **product family** (Christensen, 1997)

The strategy, as highlighted in Figure 2.1, is to develop a component or a set of components (platform) that is a common base for subsequent products. In this way it is possible to significantly cut production costs and time but, simultaneously, have a wide range of products, different from each other, to be launched on the market.

Table 2.1: Advantages and Disadvantages of a Product Platform

Advantages	Disadvantages
A Product Platform allows to shorten the development time and reduce the cost of a new product, by creating a basic architecture on which to develop multiple products called derivatives.	Not being an actual product itself, a Product Platform cannot be monetized directly.
A Product Platform offers advantages from a financial point of view. Huge investments are required for the platform that will then be paid back by a higher number of products launched on the market.	Developing a Product Platform strategy involves high risk: making a mistake on the platform means compromising the entire product family for several years.
A Product Platform makes the production process more flexible: even if a single model doesn't hit the market needs, other new models using the same platform can be easily developed to be successful.	

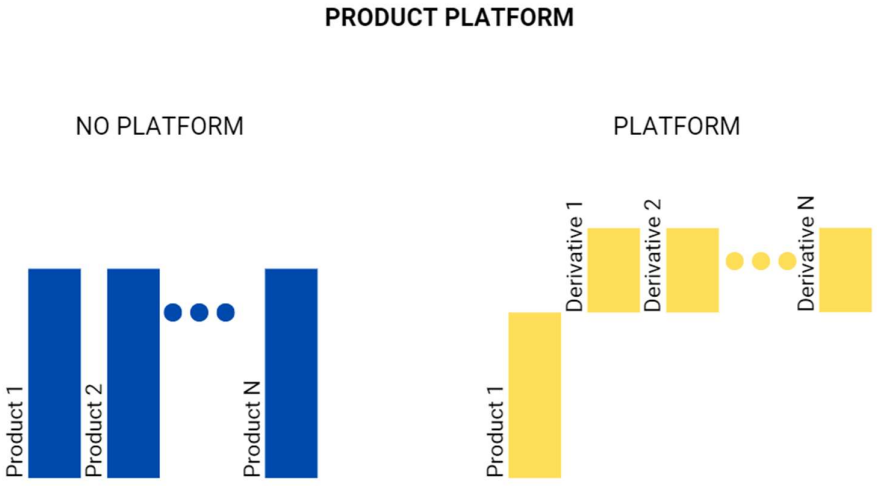


Figure 2.1: Product Platform - Adapted from Trabucchi and Buganza, 2023a

The most classic example of a Product Platform, and certainly one of the oldest, is the **Sony Walkman** of the 1980s illustrated, among others, by Sanderson & Uzumeri (1995).

The Sony Walkman is a very famous cassette player in the 1980's with more than 250 models released and 200 million units sold, first released in 1979 stopped its production in 2010.

Sony has based its success precisely on the Product Platform concept by exploiting as the basis of its models 5 elements: 3 cassette player architecture (WM2, WMD, and WM20) and 2 component innovations (the superflat motor and the NiCd "chewing gum" battery). None of these items is a product per se, but the large initial investment has served to save time, effort, and cost in all Walkman models released subsequently.

Through the Product Platform strategy, Sony Walkman has succeeded in capturing a stunning 40 percent market share by units sold and nearly 50 percent by value, with an average price of its products of only $20.

2.1.2. Industry-Wide or Innovation Platforms

Industry-Wide Platforms (or Innovation Platforms) are defined as "*products, services, or technologies that act as a foundation upon which external innovators, organized as an innovative business ecosystem, can develop their own complementary products, technologies, or services*" (Gawer and Cusumano, 2014).

It is a common starting point from which generally external actors, called **complementors**, can derivate many products by leveraging existing components connected in basic architecture (Trabucchi and Buganza, 2023a).

This type of platform takes strength from the concept of cross-side or indirect network externalities. Network externality, also known as network effect, refers to the phenomenon "*for which the utility that a user derives from consumption of the good increases with the number of other agents consuming the good*" (Katz and Shapiro, 1985). Network externalities can be divided into **same-side** and **cross-side network externalities** (Eisenmann et al., 2006). Same-side (or direct) network externalities refer to the situation where the value of a user in using the good increases with the expansion of the group to which it belongs, while cross-side (or indirect) network externalities refer to the increase in value per user with the expansion of the group on the other side of the market.

Indeed, the more end-users decide to use the platform, the more complementors will choose to develop their products or services for that specific platform, generating a virtuous circle of value creation and capture.

Through this model (Figure 2.2) the Innovation Platform can monetize in two ways: by selling the product directly, and by retaining a portion of the value exchanged, acting as an intermediary, between end-users and complementors and/or charging complementors to have the possibility to access the platform.

To fully understand the two types of platforms reported so far, it is valuable to expose their similarities and differences. (Trabucchi and Buganza, 2023a).

Table 2.2: Similarities and Differences between Product and Innovation Platform

Similarities	Differences
Enable innovation, by simplifying future development processes.	The Innovation Platform can be a product itself.
Starting from a common structure, very diverse and targeted products or services can be achieved.	In Innovation Platform network externalities can significantly increase the value of the platforms.
	With Innovation Platform it can be both possible to monetize the platform and capture value through innovations created by complementors.

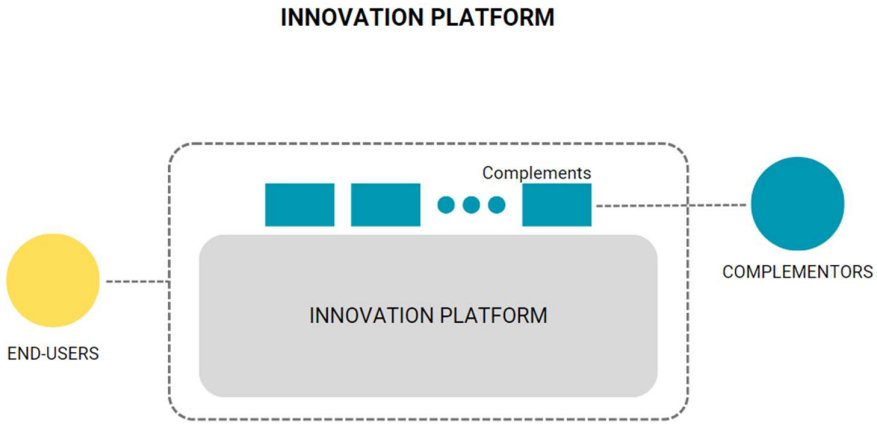


Figure 2.2: Innovation Platform – Adapted from Trabucchi and Buganza, 2023a

A typical example of Innovation Platforms are **videogame consoles**, which have gamers on one side and developers on the other side. Gamers buy the console, but its real value is the ability to play a variety of video games, sometimes developed exclusively for that console. Gamers choose the console partly because of its technical specifications, but mainly by looking at what video games are available to play on that platform. At the same time, game developers control how many gamers will be able to reach through the specific platform before making their choice and spending time and effort designing and adapting the game for the individual console.

2.1.3. Transactional Platforms

Transactional two-sided Platform are grounded in the original concept of the two-sided market (Rocket and Tirole, 2003) and needs three conditions to be qualified such (Evans, 2003):

1. The existence of two (or more) groups of customers (sides),
2. Linked through bidirectional cross-side network externalities,
3. With a platform provider able to internalize (at least partially) the externalities.

This type of platform is very different from a traditional Business Model, characterized by suppliers and customers; it creates value by turning an input into an output (linear value chain business). Given that Transactional Platforms have two distinct sides connected by indirect network externalities (Figure 2.3), they act as a **matchmaker** and are very difficult to launch, being characterized by the so-called **chicken and egg paradox**.

The chicken and egg paradox refers to the need of the platform provider to convince both sides to join the platform, even if it is worthless for one side to join if the other is not there (Caillaud and Julien,2003; Trabucchi, 2020).

The two sides are generally called **demand-side** and **supply-side** and are both viewed as customers from the platform perspective. The demand-side is a group of people seeking a service, while the supply-side is a group offering that service.

There are a variety of ways to monetize from this type of Business Model, the most classic involves the service being virtually free for the demand-side, while a percentage of the transaction is retained by the supply-side making the first side subsidized by the second.

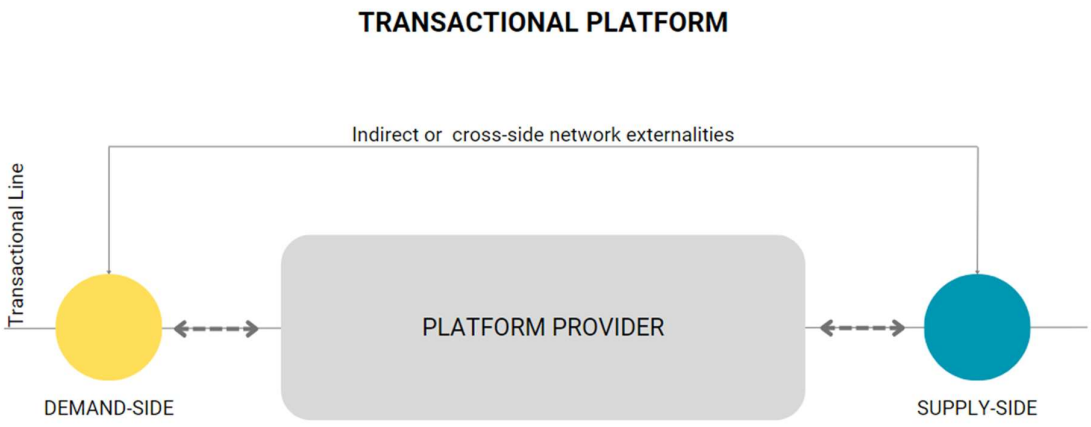


Figure 2.3: Transactional Platform – Adapted from Trabucchi and Buganza, 2023a

To further understand this type of platform and compare it with those already encountered, the similarities and differences of Transactional Platforms, compared to Product and Innovation Platforms, are outlined (Adapted from Trabucchi and Buganza, 2023a).

Table 2.3: Transactional vs Product Platform

Like Product Platform	Unlike Product Platform
There is a central body, without intrinsic value, that enables value creation.	The basic platform does not allow the generation of new products but only enables transactions between the sides.

Table 2.4: Transactional vs Innovation Platform

Like Innovation Platform	Unlike Innovation Platform
There are two (or more) customer groups that generate cross-side network externalities.	The platform cannot exist without having both sides on board, making the launch of a two-sided transactional platform much more complex.

Speaking of Transactional Platforms everyone will think of examples such as Airbnb, Uber, and Glovo. Another explanatory example is given instead: **credit cards**. These are examples of how Transactional Platforms are not a new Business Model and are not exclusively due to digitization even though they have certainly derived many benefits from it.

This model sees at its centre an actor (such as MasterCard or Visa) that connects people who own a credit card (demand-side) and the physical or online sellers who accept it as a payment method (supply-side) making the transaction smoother and safer even in absence of cash. The first and third conditions for being a Transactional two-sided Platform are thus met (two sides and an orchestrator in the middle). Moreover, the value of a credit card holder is zero if no seller accepts it as a payment method, while it is huge if all vendors accept it, and vice-versa. Therefore, the second condition is also met, as both sides are characterized by indirect network externalities.

2.1.4. Orthogonal Platforms

Two-sided non-transactional markets, from which the non-transactional (or Orthogonal) Platform takes shape, "*are characterized by the absence of a transaction between the two sides of the market and, even though an interaction is present, it is usually not observable, so that a per-transaction fee or per-interaction fee or a two-part tariff is not possible*" (Filistrucchi, et al., 2014).

As shown in Figure 2.4 there are always two sides and the platform operating as the central actor, having both sides as customers. The second side, though, moves away from the Transactional Line. The platform continues to offer two different services to the two sides but there is no longer any transaction among them and there is no presence of cross-side network externalities.

Two conditions are required to be considered an Orthogonal Platform (Trabucchi and Buganza, 2023a):

1. At least two sides
2. Unidirectional network externalities

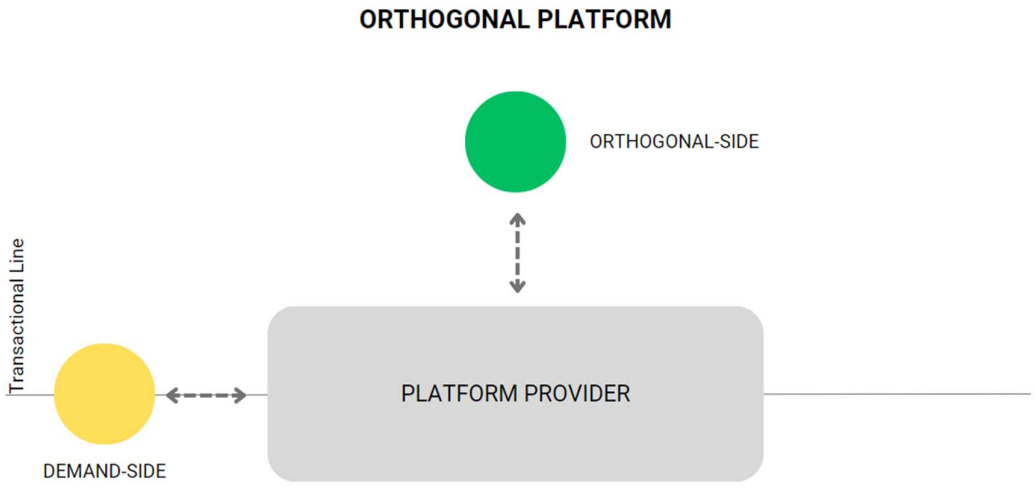


Figure 2.4: Orthogonal Platform - Adapted from Trabucchi and Buganza 2023a

Unlike the transactional one, the platform can provide service to the first side even without the presence of the second one, which is generally added to make the Business Model sustainable (Parker and Van Alstyne, 2005). The two sides then can join at different moments, eliminating the chicken-and-egg paradox.

An Orthogonal Platform can thus be defined as products or services that are based on the sale of different services to two groups of customers who do not come into direct contact with each other, relying on a unidirectional cross-side network externalities (MOOCS).

According to how the platform uses the first side to create value for the orthogonal one, two macro distinctions are generated: **Client-as-a-Target** and **Client-as-a-Source**.

2.1.4.1. Orthogonal Platforms: Client-as-a-Target

Client-as-a-Target (CaaT) is the typical model used by newspapers and, among others, **Google**; the former to be economically sustainable and the latter as huge part of its success.

The first newspaper to use this model was **La Presse**, a French historical newspaper, that in 1936 introduced paid advertising. The newspaper historically had the first side in place, the readers, and secondarily introduced advertisers who would use the newspaper's visibility and customer base for their advertisements.

First-side eyes, which are already present, are leveraged and "sold" by the platform to advertisers introducing a substantial new revenue stream. The advertisers are now paying to reach a huge number of readers in an easy way, this is why the strategy is called Client-as-a-Target.

Readers also benefit from the addition of the new side; the income derived from the sale of advertising space makes it possible for the company to sell the newspaper at few euros price, something that would be economically unsustainable otherwise.

Not bidirectional but unidirectional network externalities are present, as a rise in the number of readers increases the value for advertisers, but not vice-versa. The presence of excessive advertising space, on the contrary, is likely to undermine the reader's value in reading the newspaper.

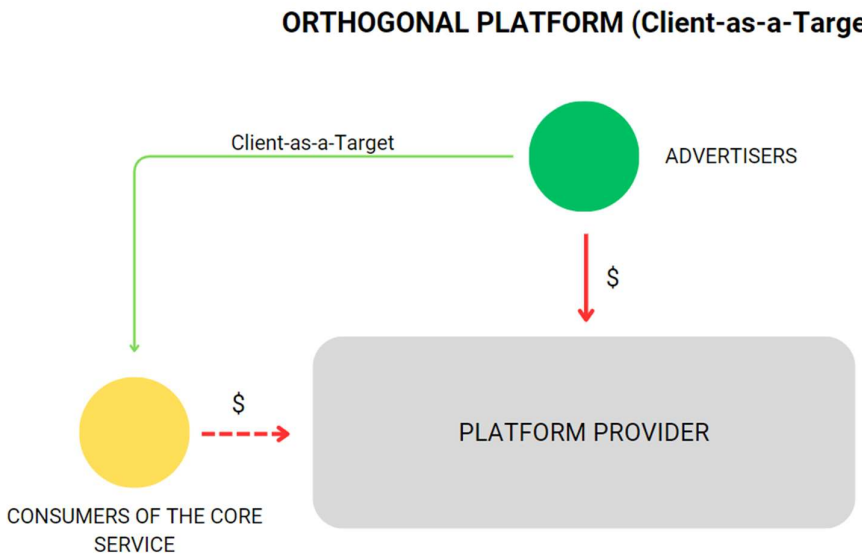


Figure 2.5: CaaT Orthogonal Platform - Adapted from Trabucchi and Buganza, 2023a

2.1.4.2. Orthogonal Platforms: Client-as-a-Source

Client-as-a-Source (CaaS) strategy instead is being strongly supported by the rise of digitization and is based upon data. Indeed, recent developments highlighted non-transaction dynamics based on the usage of data gathered during the interaction with the first side. Consequently, the perspective on the first end is changing, from a target to a source (Trabucchi et al., 2017; Rizk et al., 2020; Trabucchi and Buganza, 2019).

As made clear by Figure 2.6 this model consists of offering a service, often for free, to the first side and exploiting the data collected from this interaction by creating value for the orthogonal one. There are a variety of different ways to leverage the data collected by the platform, ranging from direct sales (a source of major privacy concerns these days), to providing increasingly targeted advertising services, through leveraging the data to improve the core business (Figure 2.7).

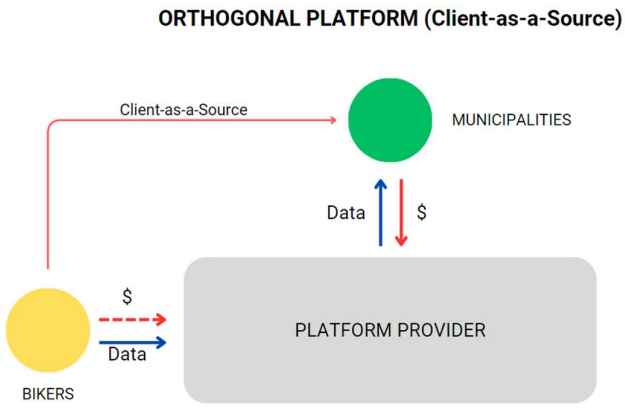


Figure 2.6: CaaS Orthogonal Platform - Adapted from Trabucchi and Buganza, 2023a

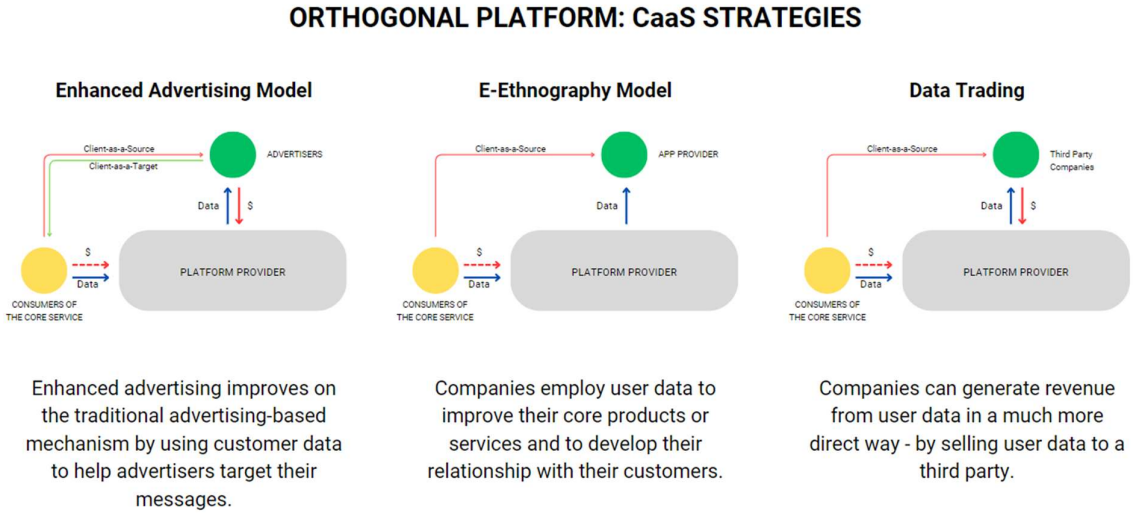


Figure 2.7: Client-as-a-Source Strategies – Adapted from Trabucchi and Buganza, 2023a

A very interesting example of a company that has exploited this Business Model is **Strava**. Strava is an American company that offers (with a freemium model) a tracking app to cyclists, which once became popular, due to its large user-base was able to access huge amounts of data. Strava decided to leverage this data by creating **Strava Metro** adding municipalities as orthogonal sides, being able to get San Francisco building bike lanes right along the city's most beloved routes for cyclists.

2.1.5. Network Platforms

A Network Platform is a model that is based on the concept of network effect, so its characteristics are, partially, the same as a network good. The New Palgrave Dictionary of Economics (Klemperer, 2008) specified that network effects arise when current users of a good benefit from it as additional users adopt it (classic examples are telephones and faxes). The effects establish multiple equilibria and strengthen the competition between incompatible networks. User preferences are central in shaping which network succeeds. First-mover choices, such as the typewriter QWERTY keyboard, freeze the market. New entrants, especially against established networks with proprietary technology, are often impossible. These types of competition and mechanisms shape the Network Platform market as well.

A classic example of Network Platforms are **social networks**, or at least early versions of them. Their value creation model (Figure 2.8) has the platform and only one side. The platform gives end-users the ability to interact with each other and grows by leveraging same-side network externalities. These kinds of platforms are usually the basis for getting to Orthogonal Platforms, to make Business Model economically viable. For example, by adding advertisers as the orthogonal side, a Client-as-a-Target strategy can be applied or, taking advantage of the large amount of data collected, a Client-as-a-Source strategy can be implemented. A transactional strategy can also be created: WhatsApp did it by launching **WhatsApp Business** in 2018, which now connects organizations with their customers.

One of the methods for remaining a Network Platform is to charge the end-user (through a pay-per-use or per-registration model for example). This strategy, however, would almost be a self-sabotage since nowadays the customer expects these kinds of services for free (WhatsApp) and the only solution would therefore be to seek economic sustainability through an Orthogonal Extension.

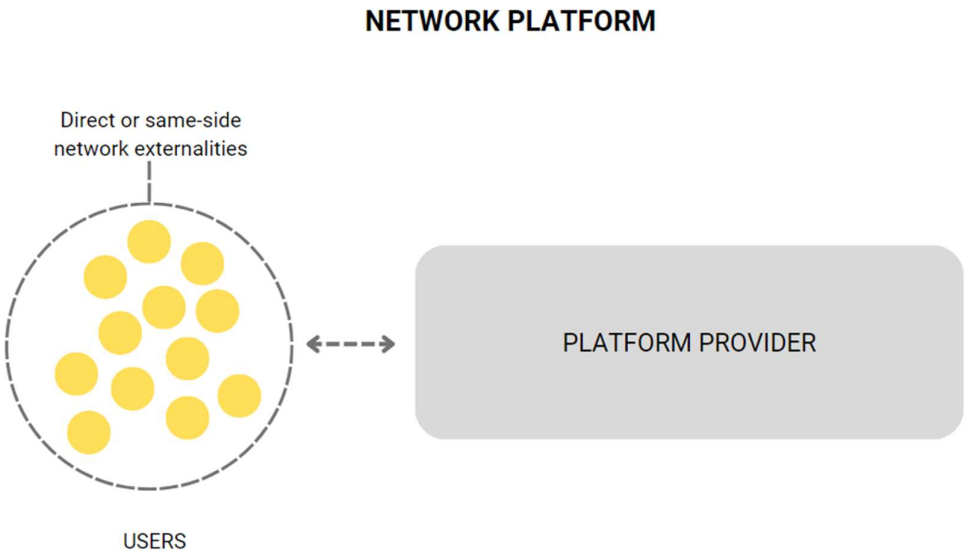


Figure 2.8: Network Platform Value Map

Twitter is one of the greatest examples of the transition from Network Platform to Orthogonal data via a CaaS strategy. Twitter collects a variety of data that can be used in several ways. For example, during the 2012 U.S. presidential campaign, Twitter recognized that great value was embedded in its tweets and give birth to the **Twitter Political Index**: an index to show sentiment trends toward Obama and Romney. By counting the number of tweets mentioning Obama (or Romney) and measuring "mood", the index was able to measure people's momentum toward the candidates. (Trabucchi and Buganza, 2023a)

2.1.6. Hybrid Platforms

The classification of platforms is not clear-cut, there is not only black and white, but there are also Hybrid Platforms. These platforms incorporate all or some of the defined platforms (especially transactional and orthogonal mechanism) into their model. These platforms sometimes arise directly hybrid, but much more often they evolve from a single type of platform (e.g., adding an orthogonal side to a transactional one) (Trabucchi and Buganza, 2020)

Companies can integrate all types of platforms into one organization, creating Hybrid Platforms. A clear example of this strategy is the well-known **Apple**. iOS (with its technological components of iPhones, its technological architecture, and its APIs for external developers) is a typical example of an Innovation Platform, allowing developers to create something new that elevates the iPhone. The App Store, on the other hand, is a typical example of a Two-sided Transactional Platform able to connect end-users and app developers. In addition, Apple with its product families (such as

iPod, iMac, iPad and others) is an excellent case of Product Platform. Take the iPhone as an example, its architecture enabled the development, on an annual basis, of one or more models as derivative products. This approach streamlined and enhanced the development process in terms of efficiency and duration. (Trabucchi and Buganza, 2023a)

2.2. Business Model Innovation

2.2.1. Business Model and Innovation

"*The essence of a Business Model is in defining the manner by which the enterprise delivers value to customers, entices customers to pay for value, and converts those payments to profit*" (Tecee, 2010). In other words, the **Business Model** (**BM**) is a company's architecture of value (Cortimiglia et al., 2016). It represents the way a company generates value for its target customers (value generation), delivers value to such target customers (value delivery), and captures a share of such value to make its business sustainable (value capture).

The most famous visualization tool is the one proposed by Osterwalder and Pigneur (2010) that developed a framework to represent the Business Model that goes under the name of **Business Model Canvas** (Figure 2.9). Business Model Canvas consists of nine basic building blocks covering the four main areas of a business:

- **Value Proposition**: a selected bundle of products and/or services targeting a group of customers and satisfying well-defined needs.
- **Value Interface** (value delivery): the channels through which we offer our value propositions to our customers and the types of relationships we have with them.
- **Value Infrastructure** (value creation): the key activities, resources, and suppliers/partners on which the value proposition is built.
- **Value Monetization** (value capture): the revenue streams through which the company earns from its customers and the corresponding cost structure.

Business Model and thus the Business Model Canvas is used for a variety of purposes. It simplifies and represents in an integrated and unified manner the various factors that affect how businesses are structured (Baden-Fuller and Morgan, 2010). When properly applied, it can assist decision makers in thoroughly depicting and evaluating their enterprise, considering the interrelated dynamics among its various components (Magretta, 2002; Zott et al., 2011). It can also facilitate effective communication among stakeholders using a shared common language (Doganova and Eyquem-Renault, 2009; Zott and Amit, 2010).

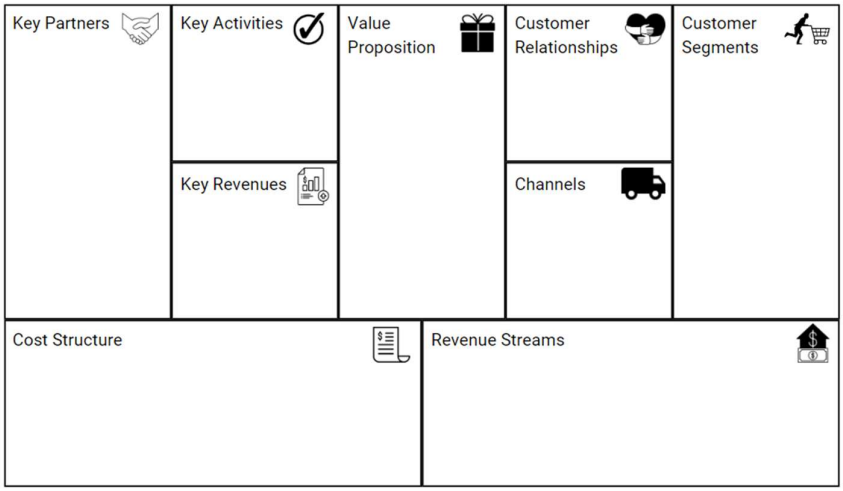


Figure 2.9: Business Model Canvas – Adapted from Osterwalder and Pigneur, 2010

The Business Model Canvas is often supplemented and completed by the **Value Proposition Canvas** (Osterwalder and Pigneur, 2010) (Figure 2.10). Value Proposition Canvas is a framework that makes it clear how the company creates value for the consumers while ensuring the product-market fit. Basically, it helps companies design products and services that customers want. It consists of two macroblocks: the **Customer Profile** that can be observed (Customer Job(s), Gains, and Pains), and the **Value Proposition Map** that can be derived and drawn (Products and Services, Gain Creators, and Pain Relievers).

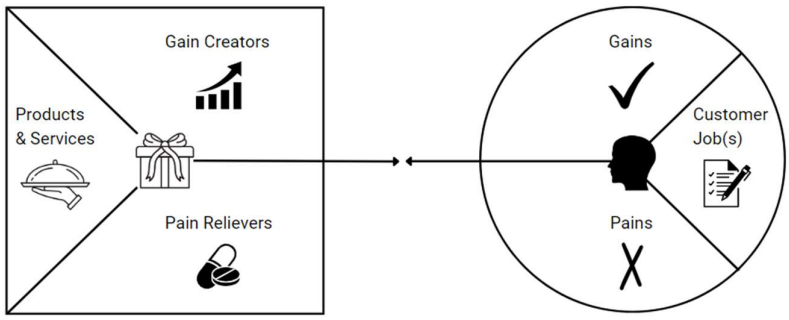


Figure 2.10: Value Proposition Canvas – Adapted from Osterwalder and Pigneur, 2010

There is no real definition, instead, of **Business Model Innovation** (**BMI**) (Schneider and Spieth, 2013), but there is a macro-distinction: a company/entrepreneur who builds a new Business Model from zero (BM design), and a company/manager who enhances the current Business Model (BM developing) (Zott and Amit, 2010; Schneider and Spieth, 2013; Ghezzi et al., 2014).

BMI is crucial as Business Model must be continuously reviewed and, if necessary, innovated in order to maintain its viability, competitiveness, and difficulty of imitation as it is highly dependent on environmental factors (i.e., technology, competitive, market, and legal/regulatory structures) (Samavi et al., 2009; Chesbrough, 2010; Teece, 2010).

Several types and classifications of BMI have been highlighted in the literature. BMI may arise as a result of both **internal** and **external influences** (Demil and Lecocq, 2010). The former covers the intentional acts of managers and the organic growth of interconnections between BM aspects; the latter includes adjustments in consumer expectations, technical developments, and monetary circumstances. Another classifies BMIs into **demand-pull** (changes in the value proposition in response to new customer needs or environmental opportunities) and **technology-push** (changes in the value proposition in response to technological innovations in the enterprise) (Trimi and Berbegal-Mirabent, 2012). Other authors distinguish BMI according to the degree of innovativeness: **radica**l versus **incremental changes** (Demil and Lecocq, 2010; Bucherer et al., 2012).

BMI is derived from strategic activities, such as internal and external analysis, strategy formulation and implementation (Demil and Lecocq, 2010) and has therefore over the years seen the creation of tools to support it. Some examples, other than the already mentioned Business Model Canvas and Value Proposition Canvas, include Osterwalder's SWOT Matrix and Porter's Value Chain and Five Forces.

2.2.2. Platform Thinking as an Innovation Tool

With the rise of digitization and the consequent emergence of platforms, a notable transition has taken place away from conventional enterprises, known as linear value chain firms (Dell'Era et al., 2021). These traditional entities followed resource-driven procedures to process raw materials into final products (Porter and Millar, 1985). In contrast, platform firms have come into prominence, assuming the role of intermediaries connecting end-users and suppliers offering ready-to-use products (Priem et al., 2018).

While conventional linear value chain firms witnessed the flow of value from upstream to downstream stages (Porter and Millar, 1985), in the realm of Platform Business Models, the generation of value is rooted in the interactions within the actors in the digital marketplace (Ramaswamy and Ozcan, 2018). Consequently, the established resource-based perspective of firms (Barney, 1991) no longer holds relevance for this specific Business Model. This shift has prompted the introduction of a novel mindset (Trabucchi and Buganza, 2023a) and toolkit to apply Platform Thinking as innovation mechanism.

2.2.2.1. The Reference Framework – The Value Map

To have a unique representation tool for value creation and capture, traceable to each platform, a Reference Framework has been introduced: **The Value Map** (Trabucchi and Buganza, 2023a) (Figure 2.11).

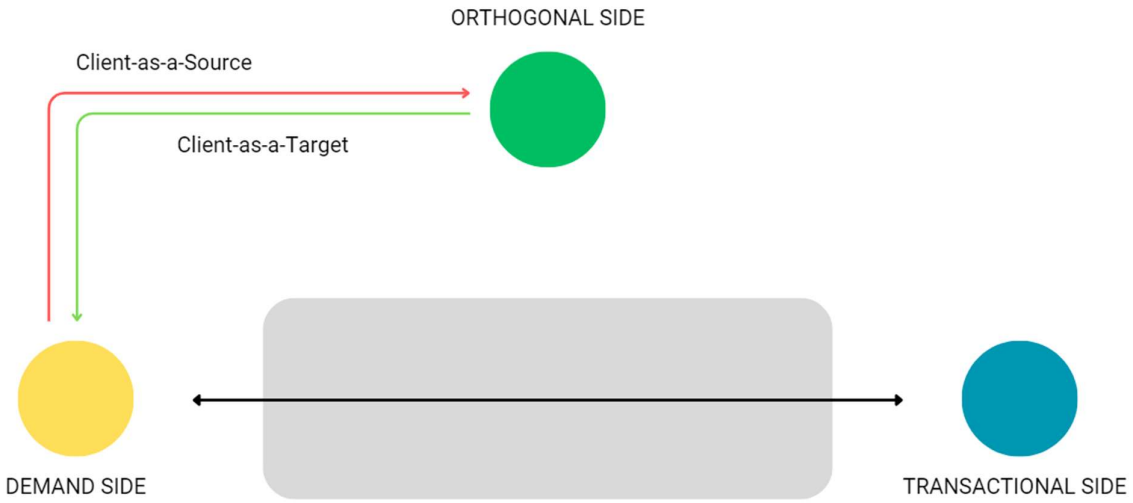


Figure 2.11: The Reference Framework - Adapted from Trabucchi and Buganza, 2023a

The framework sees a central block, the platform, acting as an intermediary between two or more sides. From the left, the demand side is connected via a **Transactional Line** to a transactional side (located to the right of the centre block). Instead, on top of the central block there is the orthogonal side connected to demand sides through the representations of the two possible strategies Client-as-a-Target (CaaT) (see Paragraph 2.1.4.1.) and Client-as-a-Source (CaaS) (see Paragraph 2.1.4.2.). CaaT with the arrow pointing to the demand side and CaaS with the arrow pointing to the orthogonal side, to emphasize the value creation direction.

Starting with this simple framework, it is possible to map the value creation and capture of all the platforms discussed: Transactional Platform (see Paragraph 2.1.3.), Orthogonal Platform (see Paragraph 2.1.4.) and Hybrid Platform (see Paragraph 2.1.6.).

Moreover, this Reference Framework is only a starting point. By adding more blocks, sides, and links you can get deeper and deeper into the specifics of the Platform's Business Model. For example, by adding arrows representing the exchange of money, it is possible to make the platform's revenue streams visually explicit. Furthermore, the Framework can be used to map the different evolutionary steps of the platform. For example, a Supply-side Addition strategy (see Paragraph 2.2.2.2.) is represented through the addition of a player in the transactional side.

2.2.2.2. Platform Thinking Matrix

As mentioned in Chapter 1 Platform Thinking is the ability to put platform-based mechanisms at the core of digital business transformation in any business (Trabucchi and Buganza, 2023a). Trabucchi and Buganza (2020) have drafted a **2x2 matrix** to map the evolutive steps of a platform over time.

Platforms can create and capture value in two different strategies:

- **Transactional Strategy**: sell a matchmaking service and leveraging cross-side externalities.
- **Orthogonal Strategy**: leveraging the service offered to the first side to create value for the orthogonal one (CaaT and CaaS approaches), relying on unidirectional network externalities.

These strategies can act with different sets of customers:

- **Exploitation**: all sides needed are already on the platform for some service offered, but now they are part of a new way of creating and capturing value.
- **Extension**: the platform is enlarged by adding a new side to offer the new feature.

The combination of these two classifications give birth to **four different strategies** enclosed in the 2x2 matrix (Trabucchi and Buganza, 2023a) (Figure 2.12):

- **Transactional Exploitation**: a new transaction is generated among sides already present on the platform.
- **Transactional Extension**: a new transaction is generated bringing on board new players.
- **Orthogonal Exploitation**: a new orthogonal mechanism (Client-as-a-Target or Client-as-a-Source) is generated among players already present on the platform.
- **Orthogonal Extension**: a new orthogonal mechanism (Client-as-a-Target or Client-as-a-Source) is generated bringing on board a new side.

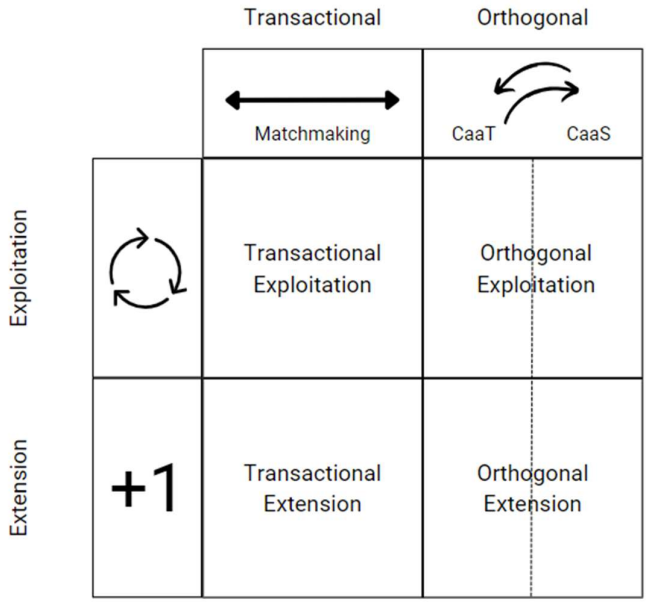


Figure 2.12: The Platform Thinking Matrix - Adapted from Trabucchi and Buganza, 2023a

With the matrix, a deeper step can be taken to map the possible innovation tactics that a platform can implement for each quadrant (Trabucchi and Buganza, 2023a) (Figure 2.13).

Transactional Exploitation quadrant, possible innovation tactics:

- **Service Enlargement**: the platform enlarges the services it offers to the sides already present, enabling new transactions among them.
- **Platform Gemini**: the platform enlarges its business offering a new platform. The new platform enables new transactions among the already existing sides.

Transactional Extension quadrant, possible innovation tactics:

- **Supply-side Addition**: the platform leverages the value generated by the demand-side to bring in a new type of player on the supply-side. The new player must offer the demand-side something consistent with the overall value proposition of the platform.
- **Demand-side Addition**: the platform leverages the value offered by the supply-side to accommodate a new type of player in the demand-side. The new player will receive something from the supply-side that is consistent with the overall value proposition of the platform.

Orthogonal Exploitation quadrant, possible innovation tactics:

- **Supply-side Advertising**: the platform continues to leverage a matchmaking service between the two transactional sides already in place but offering a new service to the supply-side. Through a Client-as-a-Target strategy, players in the

supply-side can pay the platform to have a sponsored position during the demand-side's choice of the match.

- **Side-oriented E-Ethnography**: the platform leverages the data collected in the interaction with one or more sides to offer a third side an additional value-added and data-driven service through a CaaS strategy.
- **Platform-oriented E-Ethnography**: the platform leverages with a CaaS strategy the data collected during service delivery, in order to gain insights about the true behaviours of its customers and thus improve its service offered.

Orthogonal Extension quadrant, possible innovation tactics:

- **Advertising**: the platform embraces a new orthogonal side to leverage the value of demand-side eyeballs through a CaaT strategy.
- **Enhanced Advertising**: the platform embraces a new orthogonal side to exploit the value of demand-side eyeballs through a CaaT strategy, leveraging the data collected during the offered service through a CaaS strategy.
- **Data Trading**: the platform embraces an orthogonal side to come up with a possibility to capture the value created by data collection during service delivery, using a CaaS strategy.

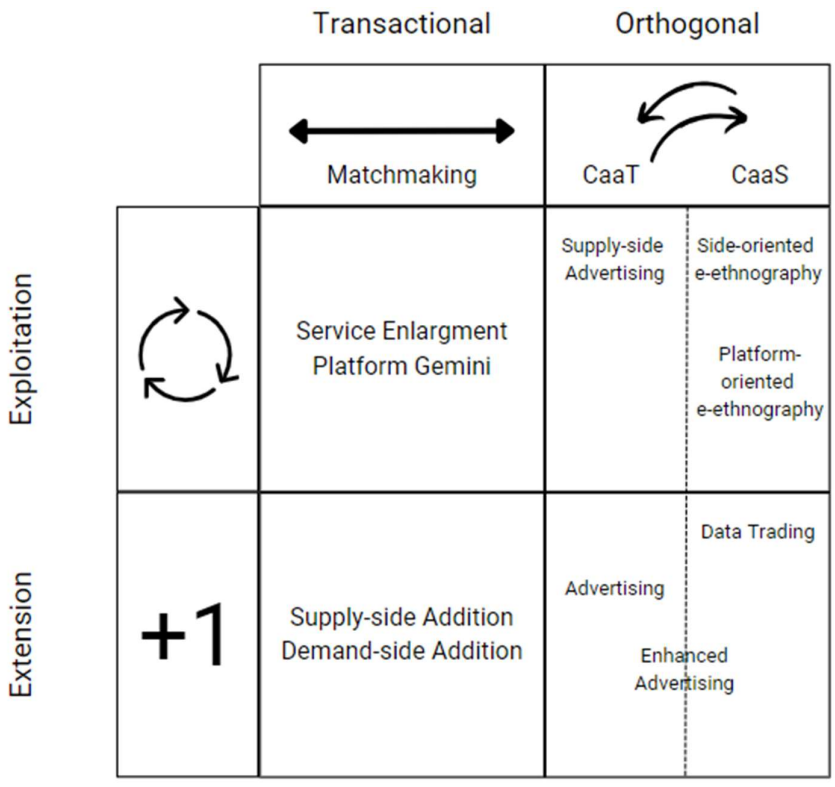


Figure 2.13: Platform Innovation Tactics in Platform Thinking Matrix - Adapted from Trabucchi and Buganza, 2023a

2.2.2.3. Idle Asset Hunting and Idle Asset Canvas

In the article "*Idle Asset Hunters—The Secret of Multi-sided Platforms*" (Trabucchi et al., 2021b) an innovation framework is proposed to help companies move from two-sided to multi-sided platform. This tool is called **The Idle Asset Hunting Loop** (Trabucchi and Buganza, 2023a) (Figure 2.14) and outlines how successful platforms act as Idle Asset hunters who are able to identify and exploit spare assets to foster innovation. When dealing with Platform Thinking innovation, the most important question indeed is not how to improve the architecture connecting the two already existing sides, but rather which Idle Assets are not exploited yet.

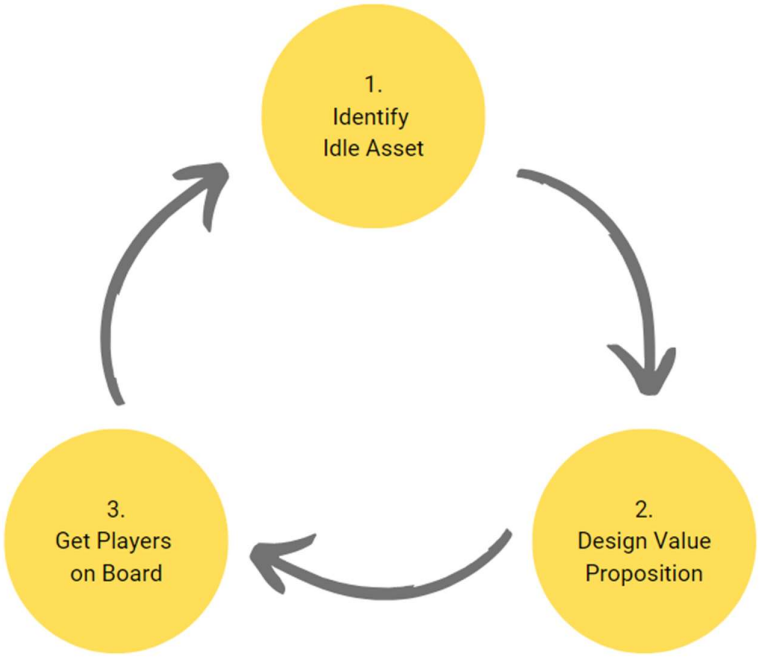


Figure 2.14: The Idle Asset Hunting Loop - Adapted from Trabucchi and Buganza, 2023a

The framework shows how multi-sided platforms innovate and evolve by creating an infinite loop that relies on **three consecutive steps**:

- **Identify Idle Asset(s)**: the platform provider, after creating a two-sided platform to reduce market friction, looks to its idle resources for a possible source of value. After having found the so-called Idle Asset, the platform provider looks for who can take advantage of it, sometimes a player(s) already on the platform, but more often a new one(s).
- **Design Value Proposition(s)**: the platform now has to create one or more value propositions; one for each new player entering the platform. The key for a successful innovation is that the new value proposition must be consistent with the one already embedded in the platform.

- **Get Players on Board**: the platform provider now faces the most difficult step of convincing the new player to come on board. It must now find a way to overcome the famous chicken and egg paradox (see Paragraph 2.3.) to make externalities flourish.

These three steps are common to any kind of evolution, whether this is from Transactional or Orthogonal Platform to multi-sided or Hybrid Platform or even starting with a linear value chain company.

To make the two frameworks clearer, an example is given: **the Uber case**. Uber was founded in 2009 to connect those who were tired of spending so much money on a cab service (Riders) and anyone who had a car, free time, and wanted to earn a little extra (Drivers). After identifying the friction in the market, Uber was able to offer both sides added value through a variety of services (i.e. real-time information about the ride for the rider). Finally, he was able to solve the chicken and egg paradox and get both sides on board. This is the initial step of the platform (Figure 2.15).

Figure 2.15: Step 1 Uber's evolution - Adapted from Trabucchi and Buganza, 2023a

A few years later Uber realizes it has, in addition to an efficient platform, many unused resources: drivers waiting for a call, and a large customer base with many possible needs besides the ride. Thus, **Uber Eats** was born, exploiting Drivers to bring food from restaurants to Riders' homes or offices. Doing so, through a Transactional Extension strategy with Supply-side tactic, restaurants are added as a new player (Figure 2.16). Getting the new side on board was relatively easy by being able to take advantage of the already achieved critical mass of the customer base.

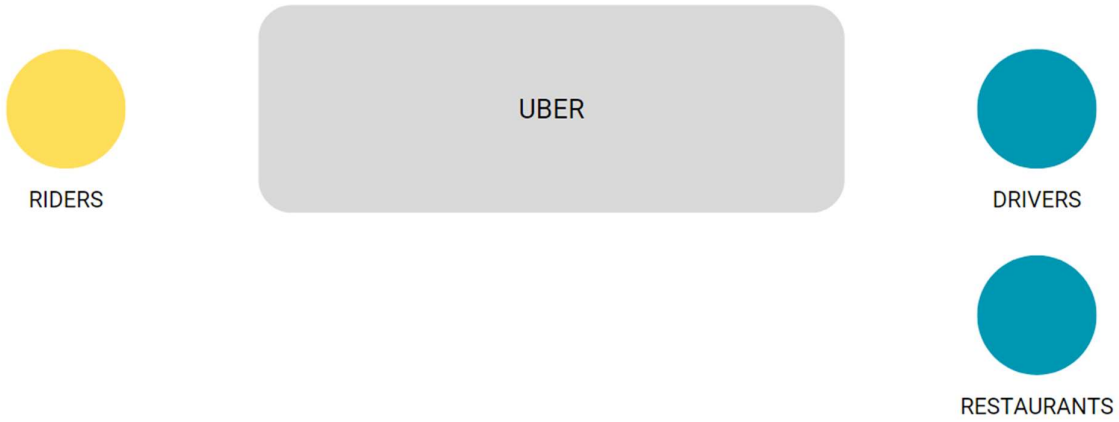


Figure 2.16: Step 2 Uber's evolution - Adapted from Trabucchi and Buganza, 2023a

The platform later realizes that it is in the presence of a new Idle Asset: data on car movements in cities. **Uber Movement** was created: through a data-driven epiphany researchers, municipalities, and anyone interested in mobility can access these huge amount of data (Figure 2.17).

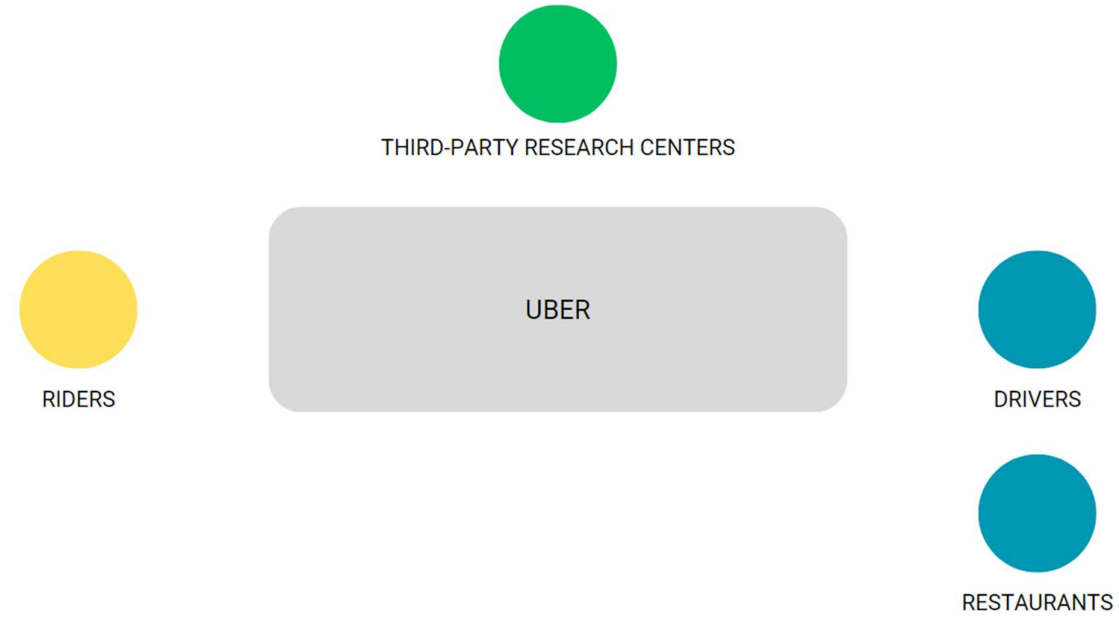


Figure 2.17: Step 3 Uber's evolution - Adapted from Trabucchi and Buganza, 2023a

To provide support for the first step of this innovation process (Idle Asset Identification), a new tool was introduced: **The Idle Asset Canvas** (Trabucchi and Buganza, 2023a) (Figure 2.18). This tool is useful for looking at the platform more in detail and understanding which resources are present and which might be idle.

It's important to underline that, being a support tool, it doesn't provide which assets are idle, but it provides a list of resources that could be so.

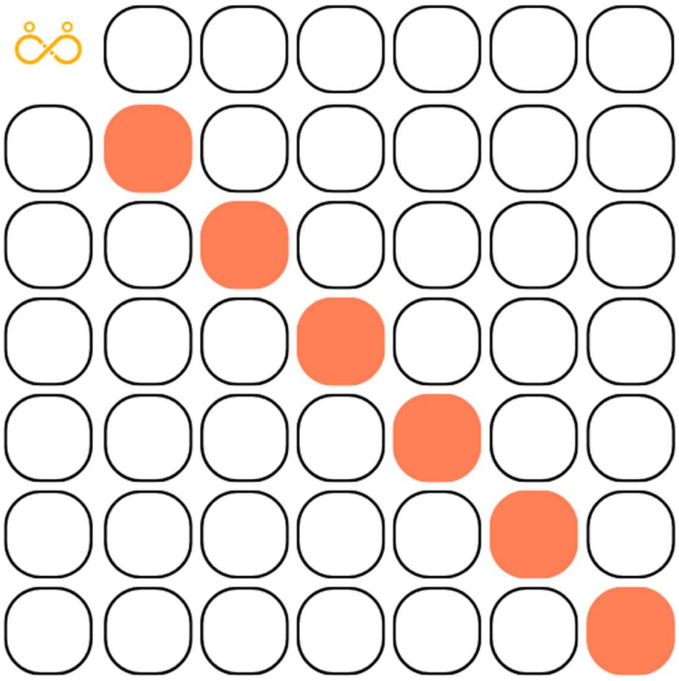


Figure 2.18: The Idle Asset Canvas - Adapted from Trabucchi and Buganza, 2023a

The steps to correctly use the Idle Asset Canvas are the following:

1. List all the players identified in the Value Map on both the rows and columns (including the company itself).
2. On the diagonal, think and list all the relevant assets that the player owns in terms of data, know-how, relationships, and physical resources.
3. In all the other boxes, write what the player on the row could find valuable from the actor of the column.
4. If any assets that might be valuable for any external actors has emerged from the analysis, add the new players on both the rows and the columns.
5. Let's now see in any possible match that could be exploited in a platform has emerged.

2.2.2.4. The Platform Thinking Process

All the tools described so far are used to understand how the platform and the ecosystem around it work. Trabucchi and Buganza (2023a) propose a **four-step Platform Innovation Process** that assists the platform provider in understanding where they are in their innovation journey and, even more importantly, in writing the

following innovative steps. This process ranges around two dynamics: the movement from reading to writing and the shift between a macro and a micro perspective.

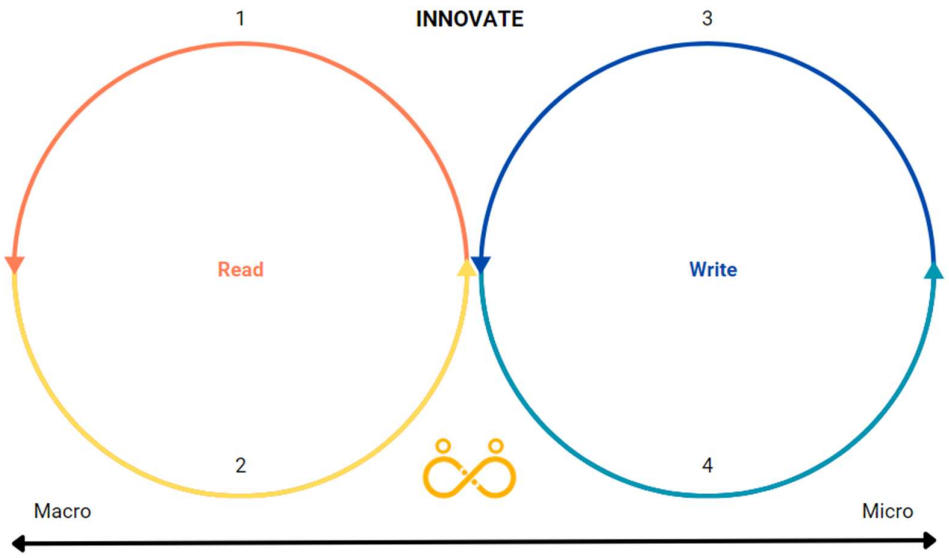


Figure 2.19: The Platform Thinking Process - Adapted from Trabucchi and Buganza, 2023a

1) **Step Back and Read (Where You Are)**

The goal is to reach the Value Map (see Paragraph 2.2.2.1.), and to do so, there are various tools to analyse the current state of the company; the most famous and useful one is the Business Model Canvas (see Paragraph 2.2.1.). There are many conventional ways to create the Value Map, but new necessary elements are introduced:

- A representation of all the key stakeholders involved in the value creation and capture.
- A representation of all the main value flows, which can be summarized in terms of Demand, Offer, and Money as well.

2) **Dive in and Read (What You Have)**

The goal is to look for Idle Assets that can be exploited through Platform Thinking. This is the steps where The Idle Asset Canvas (see Paragraph 2.2.2.3.) must be used in supporting this in-depth analysis. It is necessary now to critically analyse the identified resources and identify the potentially idle ones. There are no specific tools for this phase.

3) Dive In and Write (Where You May Go)

The reading phase is already finished and the writing one is starting. The goal of this step is to write in detail how the Idle Asset is exploited.
In their book, Trabucchi and Buganza (2023a) expose an interactive tool to support how best to execute this step: the **Platform Thinking Canvas** (Figure 2.20).
The steps to correctly use the Platform Thinking Canvas are the following:

1. First, identify two or more sides among: demand side(s), supply side(s), and orthogonal side(s).
2. Later, map the value flows among them: Money, Data, Services, and Data-driven value-added services.
3. Analyse whether the value creation and capture map could be significant, otherwise start over with another asset or other ways to exploit it.

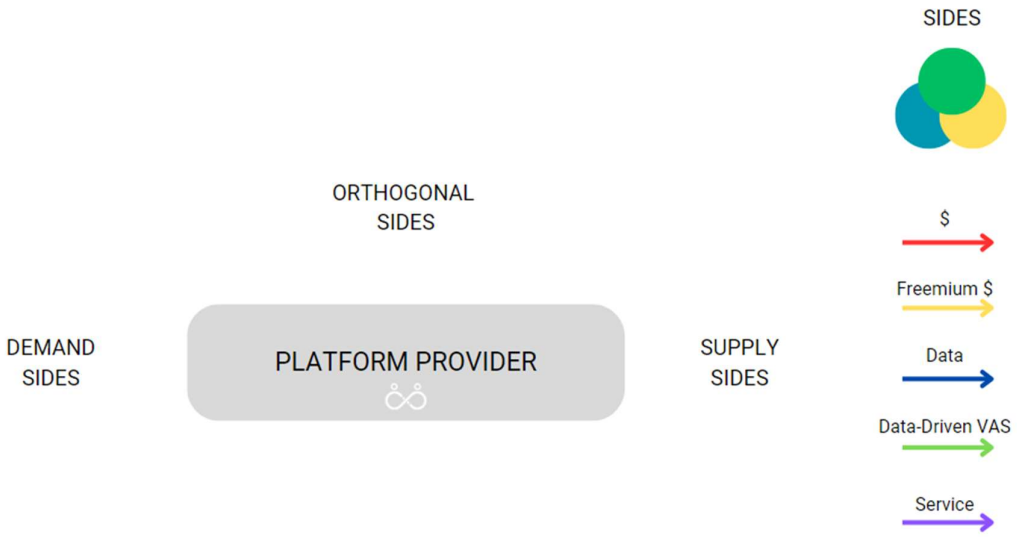


Figure 2.20: Platform Thinking Canvas - Adapted from Trabucchi and Buganza, 2023a

4) Step Back and Write (The Roadmap to Get There)

The last phase consists of zooming-out before moving forward to write the evolution roadmap, to understand whether the idea is feasible, interesting, and consistent with the platform. The first thing to consider is the value proposition. Indeed, the new value proposition must exist for all entering sides, but also for those already on board. It is necessary to make sure that the value propositions of the new piece are consistent with the old one, to create a smoothly integrated ecosystem. The last step is to define the actual roadmap: figure out which

players to start from, how to get them on board, how to solve the chicken and egg paradox, and so on.

2.3. Latest Literature and Literature Gap

Nowadays, it is clear to everyone that two-sided or multi-sided platforms are changing the game and often disrupting various industries (Downes and Nunes, 2014; Parker et al., 2016). In support of this, data show that some of the world's largest and fastest-growing companies are based on digital platforms. In addition, in the Fortune 500 list, the top 20 is populated by familiar platform giants such as Apple, Amazon, and Alphabet. Further, the companies that in the last years have achieved rapid growth rates are almost all connected to digital platforms (Anderson, 2021).

Therefore, other than the above-called "classical" theory, that has been presented to have the basic knowledge and a common language to understand the whole discussion, it is relevant to analyse the most recent study. Theory and latest articles, dealing with digital platforms in the Business Model Innovation field, were examined to look for a literature gap that was relevant for the thesis.

Although fast and considerable progress has been made in comprehending the rise of platforms, research is fragmented into disciplinary silos and lacks a broader view of strategic considerations in the realm of platforms (McIntyre et al., 2016).

A large portion of the articles analysed focus on how manufacturing companies, the so-called linear value chain, innovate their Business Model through digital platforms. Dell'Era et al. (2021) show how incumbents can reinterpret their resources and relationships to envision new multi-sided platforms and examine how the gained experience can unlock technological opportunities. A conceptual framework was used to demonstrate how digital platforms positively influence either Business Model Innovation and capacity reconfiguration of small and medium-sized enterprises (SMEs). Furthermore, evolutionary capability reconfiguration and replacement capability reconfiguration mediate the relationship between digital platforms and SME Business Model Innovation (Xie et al., 2022). Mancha and Gordon (2021) provide five distinct ways an organization can use multi-sided platforms (MSPs) for the transition from a non-platform to a Platform Business Model, with the possibility of combination among them (expand their offerings and add new activities to the Business Model; create an alternate way to exchange value in the business ecosystem; operating in a different region or in a different market, to enter the space; how an organization engages third parties on an MSP to innovate complements to its offerings; engage with third parties in the co-innovation of its own and their product and service offerings). Related again to the transition from linear value chain business through Platform Thinking, it is interesting to see how **the five characteristics of digital platform ecosystems** (generativity, convergence, share-ability, modularity, and

complementarity) have a positive impact on **the five dimensions of sustainable Business Model Innovation** (value proposition, value creation, value network, financial model, customer interface) (Li et al., 2023).

Another slice of the latest literature focuses on what we call Born-as-a-Platform (see Paragraph 1.2.), namely those companies that are already born using a Platform-based Business Model but focusing only on the initial phase of their story: birth, market entrance, and achievement of the critical mass. Platforms are no longer seen by the mainstream as a simple communication and sales channel, but as the basis of a true innovative Business Model (Gaudatis, 2017).

Trabucchi (2020), through the analysis of sixteen case studies identified **seven different tactics** to solve the chicken and egg paradox (Figure 2.21).

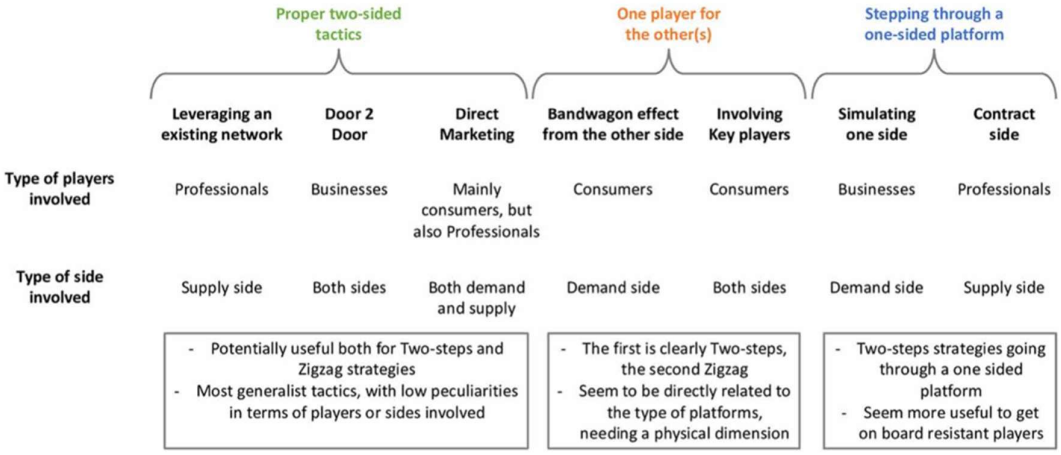


Figure 2.21: Tactics to overcome Chicken and Egg Paradox (Trabucchi, 2020)

Another paper (Trabucchi et al., 2018) highlights the key role that platform enhancers can play in launching a platform through strategic alliances and collaborations between companies, to create dominant designs and standards. Pussinen et al. (2023) focused on **three phases of the platform's life cycle**: before the launch of the platform; the actual launch phase; the growth path into the present moment since launch. In this way, they have made explicit the presence of reinforcing and balancing feedback loops responsible for the presence of snowball effect, retention of users, and balance with scarce resources. Roberts and Kim (2023) highlight a **strong relationship between platform mission and platform evolution** in early-stage platforms. More specifically, a directly proportional relationship between mission consistency and platform unity and a directly proportional relationship between mission specificity and platform evolution rate emerged.

Other articles focus instead on how companies defined Born-as-a-Platform have modified their Business Model to cope with particular and individual events, through a one-company deep-dive case. A considerable example is how Airbnb has innovated its Business Model to overcome the Covid-19 pandemic. The article points out that the platform's survival to lockdown is due not only to the disruptive Business Model, but especially to the continuous evolution of technology and BM (Oe and Thuy, 2020).

Another case concerning Covid-19 is the one of Uber in sub-Saharan Africa (Scheepers and Bogie, 2020). Uber has adapted its technology to provide new ways to get necessities quickly to consumers' homes via the Uber app and Uber Eats and to help its sides to survive the tough times. For example, the app has changed its policies to ensure safe deliveries, achieved partnerships with hospitals, and given drivers and restaurants the ability to request their payouts daily (instead of weekly).

One branch of literature that has recently arisen and is very interesting is about how it is possible to use digital platforms as a sustainability enhancer. Recent findings have shown that the success of a sustainable Business Model must consider users' perception of value. The end user is now increasingly concerned about sustainability. It is shown how the characteristics of the Platform Business Model are perfectly compatible and functional with the new consumer needs (Amaral and Orsato, 2022). Moreover, technological progress and the emergence of short video platforms have opened up fresh opportunities for disadvantaged groups. This study delves into how innovative Business Models on these platforms can encourage entrepreneurship within **the base-of-the-pyramid** (**BOP**) **demographic**. By enabling them to showcase their abilities, experiences, and everyday routines, these platforms facilitate the involvement of economically marginalized individuals in value-generating endeavours. As a result, the platform's influence extends to generating income, enhancing skills, fostering social connections, and driving the advancement of BOP entrepreneurs (Fu et al., 2022).

Some authors deep dive in innovation of the Business Model of a Born-as-a-Platform company but focusing only on a single case: for example, through a mobile payment app (Jocevski et al., 2019) or through the most famous tourist multi-sided-platform, Airbnb (Presenza et al., 2020). Others still address Business Model Innovation related to platforms but focus their papers on specific industries such as: the evolution in the video-game console industry to cope with the rise of the mobile gaming (Lantano et al., 2022), leverage the mechanisms of the multi-sided platform to revolutionise the Business Model of the dental industry (Ostapenko, 2018), or to innovate the healthcare industry through Platform Thinking mechanism (Fuerstenau et al., 2021).

Numerous researchers in the latest years have explored the interplay between Business Model Innovation, imitation, and industry dynamics in their respective articles (Trabucchi and Buganza, 2020; Sanasi et al., 2021; Hacklin et al., 2018; Snihur

and Wiklund, 2019; von Delft et al., 2018; Casadesus-Masanell and Zhu, 2013; Cennamo and Santalò, 2013).

Song et al. (2017) have increasingly recognized that third-party apps (APIs) play an important role in platform innovation and act as the foundation for platform leadership. There is a resultant **contradiction between innovation and imitation**. APIs can promote app innovation for a variety of reasons, such as reducing duplication of effort or experimenting with multiple alternative approaches at the same time, but they have also undoubtedly encouraged developers to create imitations (Wang et al., 2015).

Other authors are concerned with **the influence of extra-industry imitation in the world of digital platforms**. Hauke-Lopes et al. (2022) highlighted how, in many circumstances, **the key to make innovation is to copycat**. It is specifically stated that enterprises might use current solutions from other sectors adapting them to the specific requirements of their area of activity (Baden-Fuller and Haefliger, 2013).

The impact of imitation is also highlighted by Zhao et al. (2020) stating that market leaders pursue Business Model Innovation and imitation to emerge from intense competitive battles. Imitation strategies are useful to copy best practices and functional Business Models from competitors, while innovation ones to differentiate themselves.

Lastly, the Platform Thinking Research Team headed by its Scientific Directors Daniel Trabucchi and Tommaso Buganza have come up with interesting results. These findings were displayed for the first time during the symposium titled "*PLATFORMS RENAISSANCE: How S&P 500 companies are innovating through Platform Thinking*" (Trabucchi and Buganza, 2023b) hosted by Digital Innovation Observatories of the School of Management at Politecnico of Milan on Oct. 16, 2023. Three main insights were extrapolated from the 445 companies analysed and their 798 "Platform Initiatives" identified. The first refers to the fact that Platform Thinking is not just trendy, but **pervasive** in today's business landscape. Indeed, 92% of the companies reviewed have developed one or more platform-related initiatives over the years. The second insight refers to the fact that the term "platform" is often **confused** with "Digital Service" in the majority of cases. In fact, only 30% of the companies that show platform initiatives are actually developing proper platforms. The last insight refers to the fact that once a company has implemented and therefore mastered Platform Thinking is capable of **replicating** this success multiple times. Factually, 30% of the analysed companies develop 34% of the true platform initiatives.

This paper, through a **case-by-case in-depth analysis of fifteen companies** and a subsequent **cross-case analysis**, aims to analyse their evolutionary strategy by answering the following research questions:

RQ1: "What are the Platform Thinking strategies emerging from Born-as-a-Platform organization that foster innovation?".

RQ2: "Are Born-as-a-Platform companies evolving their Business Model through imitation among firms in the same industry?".

The companies analysed are part of the S&P 500 stock market index, composed of the 500 largest publicly traded companies in the United States, and are part of the Born-as-a-Platform subclassification already defined (see Paragraph 1.2.). Individual platform analysis was mainly conducted through analytical framework (board), enabling a detailed examination of each case. On the other hand, the cross-case analysis aimed to identify recurring patterns by extrapolating insights derived from the individual platform assessments.

This research extrapolates innovative results that validate and enrich several theoretical works of Platform scholars while providing practical examples and reflections to managers and entrepreneurs who want to enter or enhance their knowledge of Platforms realm. Analysing the evolution of a company's Business Model to foster innovation through Platform Thinking, as already outlined, is not a novel topic per se. The topic has already been considered for both linear value chain companies and Born-as-a-Platform ones. Linear value chains have almost universally been considered by analysing the transformation of their Business Model through the platform paradigm. While Born-as-a-Platform companies have been frequently analysed individually and only in the early stages of their lifecycle. Instead, our study, through a comprehensive approach manages to combine the profundity of a longitudinal case-by-case analysis and the capacity of a cross-case analysis to extract robust and interesting insights from a large sample.

3 Research Methodology

In this paper, the multiple case study method is employed (Yin, 2013) since previous studies with similar objectives draw on this approach. This methodology allows to expand the already existing theory and has already been used several times when dealing with early-stage research (e.g., Amit and Zott, 2001; Galunic and Eisenhardt, 2001; Trabucchi and Buganza, 2019). In inductive research, distinguishing between data analysis and data collection can be challenging. This is because the conclusions are rooted in the gathered data and the ultimate model evolves through a repetitive process cross-referenced with evidence from individual cases (Amit and Zott, 2001; Corbin and Strauss, 2008; Eisenhardt, 1989). The data was then analysed using qualitative content analysis and subsequently observations are made regarding the frequency of these data within individual cases and overall.

Three articles have been most of interest to the research methodology as three are the paragraphs in this chapter. Through the work of Täuscher and Laudien (2018), search engines were used for sampling and collection from the data, thus the creation of the initial database, and the qualitative data analysis approach. Their research consists of a classification based on a sample generated through search engines, and the use of secondary sources for subsequent qualitative and quantitative analysis. From the paper by Trabucchi and Buganza (2019), the concept of using a matrix for classifying the different types of evolutionary steps has been taken to have higher levels of clarity and intuitiveness. Their study seeks to explore the innovation strategies that companies rely on to expand their basic structure through a sample of companies in the mobile apps industry. Finally, the qualitative inductive approach and methodology for data analysis has been taken from Amit and Zott (2001).

According to these examples, the results of this paper have been achieved in the following way:

1. Company selection and initial data gathering via search engine has been done through database creation
2. A subsequent collection of data through secondary resources and mapping of strategies for each individual company has been done via longitudinal analysis (to answer to the RQ1)
3. A quantitative analysis of qualitative data through cross-case analysis (to answer to the RQ2)

The methodology used in carrying out these steps is stretched and explained deeply in the following paragraphs.

3.1. Database Creation and Companies Selection

3.1.1. General Overview

The pool of companies on which the analysis is based has been chosen from a complementary project, specifically the creation of a database. This database, created for the Digital Innovation Observatories of the School of Management at Politecnico of Milan by Platform Thinking Research Team headed by its Scientific Directors Daniel Trabucchi and Tommaso Buganza, aims to track the evolution of S&P 500 listed companies through Platform Thinking.

The S&P 500 (Standard & Poor's 500) is a stock market index in the United States. It represents a diverse cross-section of 500 large, publicly traded companies listed on major stock exchanges, reflecting the overall performance of the American equity market. These companies span various industries, including technology, healthcare, finance, consumer products, and others, making the S&P 500 a benchmark for assessing the health and direction of the U.S. economy and trends. The S&P 500 contains such companies as Apple, Amazon, Google, Microsoft, Meta, JPMorgan, Johnson & Johnson, and Bank of America.

The S&P 500 was chosen as the base of the analysis primarily due to **the value of the companies** it contains, which are among the largest in the world by capitalization, **the heterogeneity** among them, which provides higher robustness, and **the information available** on them. The companies, indeed, are among the biggest in the world and are publicly listed, so the amount of information about them is larger and more readily available.

The goal of the database is to see if and how the companies listed have used the **platform model** one or more times as foundation of an **evolutionary step**. The primary interest is to see if and how the Business Model that has been called two or multi-sided platform is used (see Paragraph 2.1.), but it is also of interest to track whether strategies called Product and Industry-Wide Platform are also employed. Due to the way the database is constructed, even those evolutionary steps that on the surface or through lack of knowledge would appear to be platforms but after in-depth analysis do not fall into the platform scenario, are also exposed for clarity. The next level of examination details the characteristics of the created or acquired platform such as the number and type of sides, Idle Assets leveraged, relationship to existing businesses, and the goal of the evolutionary step.

The database containing all the evolutionary steps involving platforms of the 500 companies will therefore be used for a variety of subsequent studies.

The pool of companies, and thus the analysis, explored in this paper is complementary by construction to the effective database created, this distinction will be clearly explained in the next section.

3.1.2. Database Creation

After **Phase 0** of the database creation, namely the detection of the companies to be analysed and their ranking inside the S&P 500, Phase 1 begins.

Phase 1 includes the main collection of data and information regarding the Platform Thinking theme for the selected companies and an initial clustering of them. In a first round of information gathering, the 500 companies were divided and assigned in numerical order and equally to each team member. For each of these companies, desk research was carried out using the Google search engine. "Company Name + Platform" is typed into the search bar, and the first three pages of the "All" section and the first three pages of the "News" section are checked for useful information. If a connection to the platform world is found in one or more articles, it was reported in a supporting Excel document in the following way:

- The company is considered a platform per se (i.e., it has a Platform Business Model at the core of its business), the words "Platform" in **green** are inserted next to its name and the analysis stops.
- The search yields no results and thus a **red** "No evidence" label is inserted next to the platform name and the analysis stops.
- The search yields results and then a brief description of the platform found is inserted next to the company name and the article link is inserted in a sub-sheet of the same Excel document.

The same analysis is also performed with the combination "Company Name + Data", again looking for articles with information related to the platform realm. After the first round of information gathering is finished, a second round is performed to make the information found more robust. Each team member has to go through the same mechanism again with a new pool of companies.

Phase 1 leads to the creation of **six clusters** of companies divided according to the information founded during the research and the consistency between the two rounds:

- **Cluster 1** (green-green): both rounds of analysis noted the company as a "Platform".
- **Cluster 2** (green-white): one round of analysis noted the company as "Platform" while the other found evidence related to Platform Thinking.
- **Cluster 3** (white-white): both rounds of analysis found evidence related to Platform Thinking.
- **Cluster 4** (white-red): one round of analysis found evidence related to Platform Thinking while the other found "No evidence".
- **Cluster 5** (red-red): both rounds of analysis found "No evidence".

- **Cluster 6** (green-red): one round of analysis noted the company as "Platform" while the other found "No evidence".

The goal of **Phase 2** is to achieve only three clusters as output: **Born-as-a-Platform companies**, **Platform Thinking companies**, and **No evidence companies**.

To achieve this, a subgroup of the Team was assigned to carry out a double-check of the preliminary six clusters. Phase 2 mainly breaks down into two stages: the allocation of intermediate cases and the final check of the three clusters.

Initially, each company belonging to the intermediate clusters has been reallocated to one of the main clusters through a more granular analysis of the links given in the supporting Excel document. At the end of this subphase, the three needed clusters were present: the cluster represented those companies that have been defined Born-as-a-Platform, the cluster of the companies that through Platform Thinking have evolved from a linear value chain Business Model, and finally the cluster of the companies that have found No evidence with the platform world.

The second subphase of Phase 2 dealt with validating the three cluster allocations. Each company in each group was therefore double-checked. For the Platform Thinking cluster, it is checked that the companies were born with a linear value chain Business Model and that the links and articles in the supporting Excel were accurate. For Born-as-a-Platform companies, it is checked that they employ a Platform Business Model and especially that these companies were born through platforms. Finally, for the No evidence cluster it was verified that there was no platform-related news among the information collected in the supporting Excel document.

The three clusters will have completely different applications for database creation and further analysis. The No evidence cluster is discarded because the **40 companies** it contained are not useful for the purpose for which the database is created. The **fifteen companies** considered Born-as-a-Platform are entered into a secondary database and are subjected to a more in-depth analysis regarding their evolutionary history. How the analysis that this work deals with is laid out in the next subchapter (see Paragraph 3.2.). The remaining **445 companies** in the "Platform Thinking" cluster are those covered by the actual database.

Phase 3 consists of the actual database creation. The database consists of **two main parts**, a descriptive and an analytical one. The **descriptive part** provides information regarding the company, the evolution step, and with respect to how the case was found. The columns about the company make explicit its ranking within the S&P 500, its company name, a brief description, and its type of business, namely whether it is B2B or B2C. The company description is taken from Wikipedia and makes explicit its founders, the industry in which it operates, major businesses, milestones in its history, its market positioning, and other interesting facts if present. The column making explicit its business type, on the other hand, can be filled with B2B, B2C, or both. The columns about the developmental case make explicit its listing number (if there are

more than one inside the same company), the name of the platform or new service introduced by the company, and a brief description of it. The case description should be comprehensive and explicit enough to leave no doubt when filing the columns in the analytical section. The column making explicit how the case was found refers to the way desk research through the search engine is used. Therefore, the column can be filled in with "Company Name + Platform" or "Company Name + Data".

The **analytical part** analyses the case from multiple perspectives. First, if the solution was considered as “Not a Platform” or “Tech Platform” the case was described accordingly. For all the other cases, it is made clear whether this is an acquisition or organic growth and whether there are partners as far as evolution is concerned. After that, the type of platform is specified (Innovation Platform, Transactional Platform, or Orthogonal Platform). A slightly different in-depth analysis is introduced for each type of platform.

Regarding Innovation Platforms and Transactional Platforms, demand-side and supply-side are identified. A deeper analysis then is done for each side: the type of actor present (Business B, Consumers C, Professionals P, Institutions I), whether the actor was external or internal to the company (Internal I, External E), and whether the side was already present or not (New N, Old O).

Regarding Orthogonal Platforms, the highlighted sides are of two types (demand-side and orthogonal-side). Demand-sides are analysed in the same way as for Innovation and Transactional Platforms, while orthogonal sides have a bit more specific analysis. The sides are initially analysed like the others, and in addition it is specified whether the orthogonal strategy used is Client-as-a-Target (CaaT), Client-as-a-Source (CaaS), or both.

The last part of the analytical part, on the other hand, explains the motivations and goals of the evolutionary step. It is made explicit the Idle Asset leveraged and its type (Know-How, Data, Relationships, Physical Assets), whether and how the new case is related to existing businesses, the GOAL (Add in the SAME Value Chain, Add in the ADJACENT Value Chain, Add in a NEW Value Chain, Add in a SUPPORTING Value Chain). Also in the same section, since these are often groups, it is analysed whether the new actors involved are still part of the company or are external to it.

Finally, possible additional services that can be interesting in how the platform works are included.

3.2. Longitudinal Analysis

Longitudinal analysis is performed to observe and track what types of strategies Born-as-a-Platform companies used to innovate their Business Model. The research is set up through a case-by-case study of the evolutionary history of fifteen companies, which started out as platforms and continue to innovate through platform-related steps. To perform this longitudinal analysis, a board (explained in detail in the following paragraphs) has been created to facilitate the mapping of these evolutionary steps and to make the evolution of the company clearer and more immediate for the final reader.

In order to obtain a more in-depth and comprehensive analysis, the evolutionary history of each individual company has been written down and the characteristics of each evolutionary step have been made explicit.

Each of the Born-as-a-Platform companies is listed in ascending order based on their position within the S&P 500 index and their description is subdivided in two main paragraphs: “About the Company” and “Evolution History”.

The section named "**About the Company**" is an important part of understanding a company's identity, history, leadership, mission, competitive environment, and financial structure. This paragraph delves into the many characteristics of an organisation, with the aim of providing an in-depth analysis of its fundamental information and strategic orientation so that the reader can better orientate himself when reviewing the evolutionary steps. This section contains the following information:

- **Firm Name**: this part includes the complete name of the firm, as well as any variants or subsidiary names under which it operates.
- **Year of Foundation**: readers may learn about the company's history, including the year it was created.
- **CEO and Leadership**: readers will find out about the company's Chief Executive Officer (CEO) and other important members of the leadership team.
- **Mission Statement**: the section will feature a mission statement or a synopsis of the company's key beliefs and aims. This statement usually summarizes the company's mission and its dedication to its customers, staff, and stakeholders.
- **Competitors**: this part outlines the key competitors of the firm in its industry or market. It may give a study of the competitive landscape, showing the rivals' strengths and shortcomings in respect to the firm.
- **Year of Public Offering**: readers will discover when the firm went public through an initial public offering (IPO) and became a publicly traded corporation.

The paragraph titled "**Evolution History**" acts as a historical investigation of the subject company's evolutionary path from its formation to the most recent year for which data is available. It intends to present a detailed narrative of the company's

transformational stages, elucidating the types of platforms and strategies used at each level to fulfil the company's goals.

3.2.1. Introduction to the Board

The analysis goes to examine companies listed in the S&P 500 stock index. These companies often take the form of corporate groups. Given the nature of these firms, it was necessary to modify the board for the investigation of evolution through Platform Thinking (see Paragraph 2.2.2.2.) making it suitable for group analysis.

The new board designed to represent the evolution in the company's Business Model is organized into three macro areas: company generalities useful for analysis are included in the **upper strip**, the left side of the board includes a **table** that traces the company's evolutionary steps through Platform Thinking, while on the right a **matrix** to map and classify these steps is included. It is important to emphasize that for proper analysis and reading of the board, the table and matrix must be used complementarily.

13 - Meta Platform Inc.(1/2)

Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality

#	Evolution	Idle Asset	Platform Innovation Tactic	Evolution Strategy	Type of Integration	Relatedness
0	Facesmash	-	-	-	-	
1	TheFacebook	-	-	Organic	Integrated	
2	Facebook API	-	-	Organic	Integrated	
3	Facebook Ads	Users' eyeballs	Advertising	Organic	Integrated	
4	Facebook Pages	Customer base	Supply-side Addition	Organic	Integrated	
5	Messenger	-	-	Organic	Separated Entity	
6	Instagram	-	-	Acquisition	Separated Entity	
7	WhatsApp	-	-	Acquisition	Separated Entity	
8	Oculus	-	-	Acquisition	Separated Entity	
9	Safety Check	-	-	Organic	Integrated	

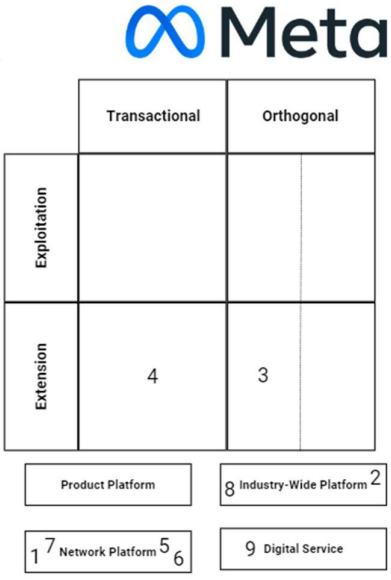


Figure 3.1: The Company's evolution Board

3.2.2. The Upper-Strip

The upper strip with useful generalities to analyse the company contains, starting at the top left, the **company's overall ranking** within the S&P 500 updated as of February 9, 2023, and by its side its **corporate name** as indicated in the aforementioned list. Beyond these is specified the **main industry** in which the company operates. Lastly,

the top right displays the **company's most recent logo** taken directly from its official website. This information is then useful for cross-case analysis.

3.2.3. The Table

The table analysing the characteristics of the company's evolutionary steps is organized into **seven columns** and as **many rows as the number of steps taken** by the company from a Platform Thinking perspective.

1st column: #

The first column "#" has a mainly functional role and orders by numbers the evolutionary steps the firm has taken, in ascending order by year of occurrence. The initial step is numbered with zero as it is not part of the actual evolution of the company but is rather taken as a starting point.

2nd column: *Evolution*

The second column "Evolution" shows the name of the step of evolution, whether this is a new feature added, a new firm part of the group, or a relevant block incorporated in the Business Model. The evolution considered is taken from the union of Wikipedia and official company website timelines, and only those steps that related in some way to the world of platforms have been taken. The name listed in the cell is the one of the company or service at the time of its creation or acquisition; if the name after acquisition has been changed, the new name is mentioned next to it in brackets.

3rd column: *Idle Asset*

The third column "Idle Asset" shows what motivated the company to take that evolutionary step. The theory defines Idle Assets as existing but untapped resources that, if leveraged, can generate great value for the platform and its future or already existing customers. The search for Idle Assets has no fixed methodology and requires a case-by-case analysis. In the case of companies and groups, it is more difficult to search for Idle Assets because sometimes growth and acquisitions are dictated by reasons not related to untapped resources. This column is filled only if the evolutionary step is a transactional or orthogonal type of innovation, otherwise the cell left blank is filled with a hyphen.

4th column: *Platform Innovation Tactic*

The fourth column "Platform Innovation Tactic" makes explicit which tactic was used during the step of the innovation process in a Platform Thinking logic. Theory defines these tactics (see Paragraph 2.2.2.2.) in relation to the individual platform. Since groups are also sometimes involved in this analysis, these tactics are therefore slightly redefined so that they are suitable for all companies under consideration and explicated so that their allocation to the step is clear and intuitive:

- **Service Enlargement** (Transactional Exploitation): the company enlarges the services it offers to the sides already present generally through organic growth or to a specific acquisition, enabling new transactions among them.
- **Platform Gemini** (Transactional Exploitation): the company enlarges its business offering a new platform or acquiring a new company. The new solution enables new transactions among the already existing sides.
- **Supply-side Addiction** (Transactional Extension): the company leverages the value generated by the demand-side to bring in a new type of player on the supply-side through organic growth or an acquisition. The new player must offer the demand-side something consistent with the overall value proposition of the company.
- **Demand-side Addiction** (Transactional Extension): the company leverages the value offered by the supply-side to accommodate a new type of player in the demand-side through organic growth or an acquisition. The new player will receive something from the supply-side that is consistent with the overall value proposition of the platform.
- **Supply-side Advertising** (Orthogonal Exploitation): the company continues to leverage a matchmaking service between the two transactional sides already in place but offering a new service to the supply-side. Through a Client-as-a-Target strategy, players in the supply-side can pay the company to have a sponsored position during the demand-side's choice of the match.
- **Side-oriented E-Ethnography** (Orthogonal Exploitation): the company leverages the data collected in the interaction with one or more sides to offer a third side an additional value-added and data-driven service through a CaaS strategy.
- **Platform-oriented E-Ethnography** (Orthogonal Exploitation): the company leverages with a CaaS strategy the data collected during service delivery, to gain insights about the true behaviours of its customers and thus improve the offered services.
- **Advertising** (Orthogonal Extension): the company embraces a new orthogonal side to leverage the value of the demand-sides eyeballs through a CaaT strategy.
- **Enhanced Advertising** (Orthogonal Extension): the company embraces a new orthogonal side to exploit the value of demand-side eyeballs through a CaaT strategy, leveraging, using a CaaS strategy, the data collected during the service offered.
- **Data Trading** (Orthogonal Extension): the company embraces an orthogonal side to come up with a possibility to capture the value created by data collection during the services delivery, using a CaaS strategy.

Also, this column, as happens for the third one, is filled only if the evolutionary step is a transactional or orthogonal type.

5th column: ***Evolution Strategy***

The fifth column "Evolution Strategy" makes explicit how the company came into possession of the new service, resource, or platform. There are **three possible alternatives** to fill the cell:

- **Acquisition**: acquisition refers to the process of one company purchasing another, gaining control over its assets, liabilities, and operations. This can lead to the acquired company becoming a subsidiary of the acquiring entity.
- **Merger**: a merger involves the combination of two or more companies into a single entity, often resulting in shared ownership and resources. Mergers can occur for various reasons, such as expanding market reach or achieving synergies.
- **Organic**: organic growth signifies a company's expansion through internal efforts, like expanding product lines, or entering new markets. It doesn't rely on external factors like acquisitions and mergers, emphasizing the company's self-sustained development.

In the case where this column is filled with "Merger" the columns "Idle Asset" and "Platform Innovation Tactic" are not filled in as their theme is not compatible with a merger.

6th column: ***Type of Integration***

The sixth column "Type of Integration" emphasizes how the new service, resource, or company is integrated with those already present. There are **two possibilities**:

- **Separated Entity**: appears when after its acquisition or creation the resource, service, or company has been left independent from the parent company. Usually, this strategy is used after an acquisition to retain the subsidiary's established brand, customer loyalty, and operational efficiency.
- **Integrated**: appears instead when after its acquisition or creation the resource, service, or company is integrated into the parent firm. Usually, this strategy is used both following an organic growth or an acquisition, in the latter case an integration in useful for leverages the acquired company's assets, resources, and human capital in the parent firm's operations.

7th column: ***Relatedness***

The seventh column "Relatedness" is used to understand, especially in the case of groups, to which the existing company or product the new evolutionary step is related. The column is filled with a dot of a different colour for each company or platform present, then each new evolutionary step is associated with a dot of the same colour as the company or platform to which it is related. This column is necessary to enable the board to be read in a seamless way through visual tool.

3.2.4. The Matrix

The matrix proposed is an evolution of the Platform Thinking Matrix presented in the Literature Review (see Paragraph 2.2.2.2.). Like the one already exposed, the actual matrix is based on the intersection of two axes representing **how value is created and captured from the company** (Transactional vs. Orthogonal) and **which actors are involved in these strategies** (Extension vs. Exploitation). The two axes result in a 2x2 matrix generating four quadrants, representing the four possible innovation strategies of a platform. The theory clearly defines these strategies but only from the perspective of a single platform. Since this analysis also includes companies in the form of a group, these strategies are slightly redefined to be adaptable to all companies analysed:

- **Transactional Exploitation**: a new transaction is generated among sides already present on the company.
- **Transaction Extension**: a new transaction is generated bringing on board new players.
- **Orthogonal Exploitation**: a new orthogonal mechanism (Client-as-a-Target or Client-as-a-Source) is generated among players already present on the company.
- **Orthogonal Extension**: a new orthogonal mechanism (Client-as-a-Target or Client-as-a-Source) is generated bringing on board a new side.

A helpful tool for this phase is the Value Map (see Paragraph 2.2.2.1.). The map allows a systematic examination of the evolutionary step:

- It allows to assess whether the evolutionary step requires and includes the addition of a new side (thus distinguishing between Exploitation and Extension). For the addition of a new side, it is necessary that the new customer is not already within the Value Map design of the platform. The customer may already be part of the platform but start using it for/also for a different purpose. Therefore, what is important is to see that a new value proposition, consistent with the one already present, is added for the new sides. Vice-versa, it is not considered a side addition to add new customers type who nevertheless use the platform for the same purpose as those already present, e.g. customers in a new geographical area or sellers of products slightly different from those already traded in a marketplace.
- It also makes it possible to understand whether the added or exploited side is to be considered on the Transaction Line or Orthogonally. Once the actual addition or non-addition of a side and its position relative to the central block in the Value Map has been identified, it is already possible to recognise the strategy used and thus in which quadrant of the matrix the evolutionary step has to be placed. At this stage, the Value Map is still useful for deep diving in the analysis and identifying the Platform Innovation Tactic used.

- In the upper-left quadrant (**Transactional Exploitation**), the map can be useful to see if no sides around the same central block are added and thus only a new service is introduced that revolves around the same actors (Service Enlargement). If, on the other hand, no sides are added but there is a need to include a new central block that exploits the same sides, this is the case of Platform Gemini. In the case of the addition of a side, the lower left quadrant (**Transactional Extension**), it is necessary to see where the new side is added on the Transactional Line in relation to the central block. If it is introduced to the left of the central block, it is called Demand-side Addiction. If it is added to the right Supply-side Addiction.
- Regarding the two right-hand quadrants (**Orthogonal Exploitation** and **Orthogonal Extension**), the map only helps in the identification of the sides, whereas a more in-depth case-by-case analysis is required for the classification into Platform Innovation Tactics. The only help the map offers is the identification of the type of value creation. If the arrow points to the demand-side, the strategy is Client-as-a-Target. If the arrow points to orthogonal-side, the strategy is Client-as-a-Source.

In addition to these four tactics exposed through the matrix, four other evolution strategies carried out by the analysed companies are identified. Even most of these strategies have already been made explicit in theory (see Paragraph 2.1.) but need a little redefinition to be compatible with the new analysis:

- **Product Platform** or Internal Platform is a set of components that creates a basic structure common to many products. Leveraging this type of platform, a firm can build a family of related products (product family). The creation or acquisition of this product can bring huge benefits to the company. Benefits that are even bigger if the one to come into possession of a Product Platform is a group that can exploit its features within all its companies. To recognize this type of strategy, there is no general rule, but a case-by-case analysis is needed.
- **Industry-Wide Platform** or Innovation Platforms is defined as a product, service, or technology that act as a foundation upon which external innovators, organized as an innovative business ecosystem, can develop their own complementary products, technologies, or services. These Innovation Platforms enable companies and groups to enjoy the benefits that additional services created by external actors bring them, expanding the value offered by the company's services. To recognize this type of strategy, there is no general rule, but a case-by-case analysis is needed.
- **Network Platform** is a digital framework enabling interaction and collaboration among individuals or entities, often leveraging technology for communication and value creation. Again, the Value Map is very useful. A Network Platform can be recognized by the presence of the central block representing the platform and only one side. This single side represents a group

of people who use the platform for the same purpose, and the value is created by their interactions through same-side network externalities and captured by the central block.

- **Digital Service** refers to an online or technology-based offering, that delivers specific functionalities, experiences, or solutions to users. It encompasses various forms such as software applications, web platforms, or cloud-based tools, enhancing convenience and accessibility through digital means. To recognize this type of strategy, there is no general rule, but a case-by-case analysis is required. Generally, a service is referred to as a digital one if its characteristics meet the definition, and the case does not fall into any of the other possibilities of the renewed matrix.

Board compilation does not require a predefined filling order. It is recommended to first fill in the upper stream with company generalities and then have a combined matrix and table approach. This combined use of matrix and table is necessary to ensure that the information is consistent during the compilation of the board and strongly assists those performing the analysis in correctly retracing the individual step and overall company's evolution. The use of both table and matrix is useful to make it easier for the reader to approach the board. Single use of a table would make the reading too heavy and often unclear. Through use only of a matrix, on the other hand, it would not be possible to expose all the information needed for analysis.

3.3. Cross-case Analysis

The cross-case analysis has been conducted to give an overview of the data collected through longitudinal analyses of individual cases and mainly to find evidence of correlation between the evolutionary strategies pursued by different companies belonging the same industry.

This analysis is composed of two macro paragraphs: **Global Perspective Analysis** and **Industry Perspective Analysis**. Specifically, the first one goes to explore database trends and characteristics through a global viewpoint, while the second one goes to analyse evolutionary patterns among companies that belong to the same industry. The first type of analysis (Global Perspective Analysis) has mainly an introductory and supporting function for the second one (Industry Perspective Analysis). Indeed, the analysis with a global perspective is meant to give a comprehensive view of the database, its orders of magnitude, and its most important features. The industry perspective analysis, on the other hand, is the centrepiece of this document and aims to find a correlation between the type of industry in which companies operate and the characteristics of their evolution history.

The main tool used for the cross-case analysis was Excel. It was therefore necessary to transform the longitudinal analyses into a supporting database. To do so, the analysis board has been broken down and reassembled in the supporting database (Figure 3.2).

The columns highlighted in yellow are the transcript in the database of the so-called "Upper Strip" and explicit the identity characteristics of the company, specifically: the rank within the S&P 500; the name of the company; the industry to which the company belongs.

The columns in blue, on the other hand, clarify the characteristics of the individual evolutionary step. The first six columns are the simple transcription of the above-called "Table", while the last column is the transcription of the information contained in the "Matrix". More specifically, these columns show: the name of the evolutionary step; the Idle Asset leveraged to implement the evolutionary step; the Platform Innovation Tactic implemented; the Evolution Strategy used; the Type of Integration; the Relatedness among platforms belonging to the group; the Platform Strategy employed.

Results have been extrapolated from this database with special arrangements depending on the analysis to be performed and through the employment of multiple pivot tables.

S&P 500 Ra	Name	Industry		Evolution	Idle Asset	Platform Innovation Tact	Evolution Strategy	Type of Integration	Relatedness	Platfrom Strategy
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	0	Facesmash	-	-	-	-	A	-
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	1	TheFacebook	-	-	Organic	Integrated	B	Network Platform
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	2	Facebook API	-	-	Organic	Integrated	B	Industry-Wide Platform
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	3	Facebook Ads	Users' eyeballs	Advertising	Organic	Integrated	B	Orthogonal Extension (CaaT)
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	4	Facebook Pages	Customer base	Supply-side Addition	Organic	Integrated	B	Transactional Extension
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	5	Messenger	-	-	Organic	Separated entity	B	Network Platform
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	6	Instagram	-	-	Acquisition	Separated entity	C	Network Platform
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	7	WhatsApp	-	-	Acquisition	Separated entity	D	Network Platform
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	8	Oculus	-	-	Acquisition	Separated entity	E	Industry-Wide Platform
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	9	Safety Check	-	-	Organic	Integrated	B	Digital Service
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	10	Facebook Live	Customer base	Service Enlargement	Organic	Integrated	B	Transactional Exploitation
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	11	Facebook Marketplace	Users as potential new buyers	Supply-side Addition	Organic	Integrated	B	Transactional Extension
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	12	Workplace by Facebook	Best practice, data	Platform Gemini	Organic	Separated entity	F	Transactional Exploitation
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	13	Instagram Shopping	Users as potential new buyers	Supply-side Addition	Organic	Separated entity	C	Transactional Extension
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	14	WhatsApp Business	Users as potential clients	Supply-side Addition	Organic	Separated entity	D	Transactional Extension
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	15	WhatsApp Payments	Customer base	Service Enlargement	Organic	Separated entity	D	Transactional Exploitation
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	16	Horizon Workrooms	-	-	Organic	Integrated	G	Digital Service
14	Visa	Financial Services	0	BankAmericard	-	-	-	-	A	-
14	Visa	Financial Services	1	Visa Debit	-	-	Organic	Integrated	A	Digital Service
14	Visa	Financial Services	2	Automated Teller Machines (ATM) Network	-	-	Organic	Integrated	A	Digital Service
14	Visa	Financial Services	3	PayWave (Visa Contactless)	-	-	Organic	Integrated	A	Digital Service
14	Visa	Financial Services	4	mVisa	-	-	Organic	Integrated	A	Digital Service
17	Mastercard Incorporated	Financial Services	0	Credit Card Provider	-	-	-	-	A	-
17	Mastercard Incorporated	Financial Services	1	Priceless Cities Program	-	-	Organic	Integrated	A	Digital Service
17	Mastercard Incorporated	Financial Services	2	QkR	-	-	Organic	Integrated	A	Digital Service
17	Mastercard Incorporated	Financial Services	3	MasterPass	-	-	Organic	Integrated	A	Digital Service
17	Mastercard Incorporated	Financial Services	4	Mastercard Send	-	-	Organic	Integrated	A	Network Platform

Figure 3.2: Cross-case Analysis Database

3.3.1. Global Perspective Analysis

Regarding the Global Perspective Analysis, **four separate pivot tables** were created so that all relevant aspects in a macroscopic analysis could be highlighted. Namely: “Overall Platform Strategy”, “Overall Platform Innovation Tactic", “Overall Evolution Strategy”, and “Overall Type of Integration”.

Each of these pivot tables has been created in an analogous way, with a few minor adjustments for a better interpretation of the results:

- “**Overall Platform Strategy**” is created by entering in the "Rows" field the "Platform Strategy" column of the supporting database and in the "Values" field the "Count" of these and the "% of Parent Total”. For the creation of this pivot table, it has been necessary to filter out all step 0s from the analysis as they would have reported a "-" as a result, throwing off the percentages obtained.
- “**Overall Platform Innovation Tactic**" is created by entering in the "Rows" field the "Platform Innovation Tactic" column of the supporting database and in the "Values" field the "Count" of these and the "% of Parent Total”. In this case, in addition to filtering out all 0 steps, it has also been necessary to filter out the results "Product Platform", "Industry-Wide Platform", "Digital Service", and "Network Platform" as they are not consistent for this type of analysis. They also would have generated a "-" as a result by throwing off the analysis percentages.
- “**Overall Evolution Strategy**" is created by entering in the "Rows" field the "Evolution Strategy" column of the supporting database and in the "Values" field the "Count" of these and the "% of Parent Total”. Even for these pivot tables it has been necessary to filter out all step 0s from the analysis as they would have reported a "-" as a result, throwing off the percentages obtained.
- “**Overall Type of Integration**" is created by entering in the "Rows" field the "Type of Integration" column of the supporting database and in the "Values" field the "Count" of these and the "% of Parent Total”. Accordingly, even for these pivot tables it has been necessary to filter out all step 0s from the analysis as they would have reported a "-" as a result, throwing off the percentages obtained.

3.3.2. Industry Perspective Analysis

Regarding the Industry Perspective Analysis, **five different pivot tables** were created to highlight possible correlations between companies in the same Industry. Namely: “Industry Platform Strategy”, “Industry Platform Innovation Tactic", “Industry Relatedness”, “Industry Evolution Strategy”, and “Industry Idle Asset”.

- “**Industry Platform Strategy**” is created by entering in the first level of the "Rows" field the "Industry" column of the supporting database, “Name” at the

second level, and “Platform Strategy” at the third one, in the "Values" field the "Platform Strategy Count" and the "% of Parent Total”. For the creation of this pivot table, it has been necessary to filter out all step 0s from the analysis as they would have reported a "-" as a result, throwing off the percentages obtained.

- “**Industry Platform Innovation Tactic**” is created by entering in the first level of the "Rows" field the "Industry" column of the supporting database, “Name” at the second level, and “Platform Innovation Tactic” at the third one, in the "Values" field the "Platform Innovation Tactic Count" and the "% of Parent Total”. In this case, in addition to filtering out all 0 steps, it has also been necessary to filter out the results "Product Platform”, “Industry-Wide Platform", "Digital Service", and "Network Platform" as they are not consistent for this type of analysis. They also would have generated a "-" as a result by throwing off the analysis percentages.
- “**Industry Relatedness**” is created by entering in the first level of the "Rows" field the "Industry" column of the supporting database, “Name” at the second level, and “Relatedness” at the third one, in the "Values" field the "Relatedness Count" and the "% of Parent Total”. No adjustments were necessary in this instance.
- “**Industry Evolution Strategy**” is created by entering in the first level of the "Rows" field the "Industry" column of the supporting database, “Name” at the second level, and “Evolution Strategy” at the third one, in the "Values" field the "Evolution Strategy Count" and the "% of Parent Total”. Even for these pivot tables it has been necessary to filter out all step 0s from the analysis as they would have reported a "-" as a result, throwing off the percentages obtained.
- “**Industry Idle Asset**” is created by entering in the first level of the "Rows" field the "Industry" column of the supporting database, “Name” at the second level, and “Idle Asset” at the third one, in the "Values" field the "Idle Asset Count" and the "% of Parent Total”. Even in this case, in addition to filtering out all 0 steps, it has also been necessary to filter out the results "Product Platform", "Industry-Wide Platform", "Digital Service", and "Network Platform" as they are not consistent for this type of analysis. They also would have generated a "-" as a result by throwing off the analysis percentages.

4 Results

4.1. Longitudinal Analysis

4.1.1. Meta Platform Inc.

4.1.1.1. About the Company

Meta Platforms Inc., formerly Facebook Inc., is a worldwide technological corporation headquartered in Menlo Park, California, in the United States.

Mark Zuckerberg and his friends devised the concept of a new website that would connect all Harvard students. Their source of inspiration was Harvard's online student directory's "Face books". His earlier project **Facemash**, a "hot or not" website that contrasted female Harvard undergraduates side by side, provided the technical insights.

In October 2021, Mark Zuckerberg announced that the company was undergoing a significant rebranding effort. The company was to be renamed "Meta Platforms Inc." to reflect a broader vision for the future that encompasses the development of the "metaverse".

Today, the company is one of the world's largest and most prominent social media and technology firm, with a substantial impact on the global digital environment and has expanded its offerings beyond social networking into other technology fields.

Meta was founded with the goal of "*bringing people closer together and making the world more connected*". However, the corporation has been involved in a number of controversies and issues over the years, including worries about user privacy, the propagation of disinformation, and the company's impact on society. As a result of these concerns, the company has taken initiatives to address misinformation and privacy issues, such as hiring content moderators, deploying fact-checking tools, and improving user control over data privacy settings.

Meta faces competition in this mission from other significant firms in the social media industry business, including Alphabet Inc., Twitter Inc., Snap Inc., and TikTok.

On May 18, 2012, Meta Platforms Inc. became a publicly traded business with its first public offering (IPO). This was a watershed moment in the firm's history, as it signified the shift from a privately held company to one that was listed and traded on the stock exchange under the ticker symbol "**FB**" on the NASDAQ.

4.1.1.2. Evolution History

In 2003, a young Mark Zuckerberg developed **Facesmash** (0) during his sophomore year at Harvard. In terms of design and operation, Facesmash was a straightforward website. Users could visit the site and compare two randomly picked images of students. They were then asked to choose which of the two people they thought was more attractive. The site recorded these votes, and the findings were utilised to create rankings of the most and least beautiful students based on a simple hot-or-not formula. Facesmash immediately acquired popularity due to its bold and somewhat controversial nature. It allowed users to compare people only based on their physical appearance, which raised privacy and ethical problems. The administration of Harvard University, as well as several students, objected to the site. It was taken down by the university just a few days after it was introduced due to the controversy and unfavourable publicity. Facesmash, although its brief existence, was the beginning of Mark Zuckerberg's exploration with online social networking concepts and provided some insights into the possibilities of developing platforms for digitally linking individuals.

In 2004, with the help of his roommates Andrew McCollum, Dustin Moskovitz, Chris Hughes and Eduardo Saverin, Zuckerberg launched **TheFacebook** (1), known today as Facebook. Inspired by his earlier project, Facesmash, Zuckerberg sought to establish a more extensive and integrated platform that would allow Harvard students to create profiles, connect with each other, and share information other than simply rating the appearance. The idea was to create an online place that mirrored real-world social networks and allowed people to communicate in a digital setting. Following its initial start at Harvard, it immediately extended to other Ivy League universities, and later to schools and universities across the United States and Canada. As the platform's user base developed, it continued to evolve by adding new capabilities, increasing user interface design, and improving user experience. TheFacebook deleted the "The" from its name in August 2005 and became simply "**Facebook**." The site's expanding desire to become a universal social networking platform available to a broader audience beyond college campuses was reflected in the name change. Facebook's popularity grew, and by 2006, it was open to the general public rather than just students. TheFacebook is a **Network Platform.**

In 2006, Facebook introduced **Facebook API (Application Programming Interface)** (2). It has played an important part in the growth of the internet by allowing developers to incorporate Facebook's social networking features and data into their own programmes, websites, and services. Recognising the opportunity for third-party developers to improve the platform experience and broaden its reach, Facebook chose to open up via an API. The Facebook API provided developers with a variety of features and capabilities. Within the Facebook ecosystem, developers may gain access to user profiles, friend lists, and relationships. The API allowed users to offer rights to third-party apps in a safe manner, ensuring that only authorised apps could access

their data. Apps may post content to a user's Facebook wall, change statuses, and share stuff with the user's network. The Facebook API's debut has a significant influence on the digital environment. There has grown a robust industry of third-party Facebook apps, ranging from social games to productivity aids. Non-profit organisations and communities utilised Facebook integration to develop networks and mobilise support. Facebook modified its API restrictions and access rights over time to address privacy concerns and increase data security. In reaction to the Cambridge Analytica data controversy in 2018, the business also changed how developers could access customer data. Acting as a foundation upon which external innovators can develop their own complementary products, Facebook API is an **Industry-Wide Platform**.

In 2007, the company introduced **Facebook Ads** (3). As Facebook's user base grew, its inventors and management recognised the opportunity to monetise the network by providing businesses with a method to contact its consumers through advertising. Facebook has the possibility to provide marketers with a highly effective and personalised advertising solution because to its vast user data and ability to target specific demographics, interests, and behaviours. Facebook's initial advertising product, "Facebook Flyers", was unveiled in 2007. Flyers were image-based advertisements that featured in the right-hand column of users' profiles. These early ads, however, were quite straightforward and did not include the extensive targeting capabilities that have since become a feature of Facebook Ads. This service has changed the digital advertising landscape by giving businesses of all sizes the tools they need to reach their target consumers in a highly personalised and successful way. It has become a cornerstone of many marketing campaigns due to its combination of smart targeting, attractive ad styles, and robust analytics. The ability to attract new customers with specific adverts based on data analysis is an example of **Orthogonal Client-as-a-Target Extension** (**Advertising**).

In the same year it was introduced **Facebook Pages** (4). As Facebook grew in popularity and moved beyond its initial focus on individual user profiles, the network saw the need to provide a platform for businesses, celebrities, NGOs, and other entities to interact with their audiences. Before the launch of Facebook Pages, these entities frequently utilised personal profiles to engage with their supporters, which was ineffective and inappropriate for representing a brand or organisation. Pages could be customised with profile photographs, cover photos, and tab-based content to suit a company's branding and identity. Followers of a Page may like, comment on, and share posts, allowing it and its audience to interact directly. The creation of Facebook Pages marked an important step in Facebook's expansion from a strictly personal networking platform to a space that supported a wide range of organisations and interests. With the introduction of a new value proposition for the existing side of the platform, Facebook Pages is an example of **Transactional Extension**, specifically a **Supply-side Addiction** innovation approach.

In 2011, Facebook created **Messenger** (5). Facebook Messenger is a standalone messaging network that Facebook introduced to give users with a dedicated platform for private messaging and communication outside of the main Facebook network. Before the release of Messenger, Facebook's private chat was primarily handled within the main Facebook app. However, as messaging got more popular and people began to rely on it as their major mode of communication, Facebook recognised the need for a more feature-rich and user-friendly messaging platform. Users could share photographs, videos, audio messages, and emojis in addition to text messages. The platform allowed users to create group chats, making it easier to converse with numerous individuals at the same time. It also enabled users to communicate in real time, including phone and video calls, making it a powerful communication tool. Businesses and developers might build chatbots and link services into Messenger, offering a variety of activities other than personal conversation. Facebook Messenger has evolved to be one of the world's most popular messaging apps, with millions of users speaking every day. It altered how people interacted on social media by establishing a separate venue for personal and professional discussion. Like Facebook, Messenger is a **Network Platform**.

In 2012, the company acquired the **Network Platform Instagram** (6). Founded in 2010 by Kevin Systrom and Mike Krieger, Instagram's initial focus was on providing users with a platform to share photos taken on mobile devices, enhancing them with filters and basic editing tools. Users could use their mobile devices' cameras to take pictures or choose existing photos from their libraries to share with their followers. Instagram, like other social media platforms, launched a follow system in which users may follow other users' accounts in order to view their postings in their feeds. Facebook announced the acquisition of Instagram in April 2012 for around $1 billion in cash and equity. The debut of Instagram changed the way people shared and consumed visual material on social media. Its user-friendly interface, creative tools, and emphasis on visual storytelling contributed to its status as a major platform for personal expression, content creation, and brand promotion.

On February 19, 2014, Facebook announced its intention to buy **WhatsApp** (7) for $19 billion. The high price tag of this acquisition startled many, but it demonstrated Facebook's acknowledgment of WhatsApp's rapid growth and ability to dominate the messaging industry. Jan Koum and Brian Acton founded WhatsApp in 2009. Because of its simple and dependable messaging capabilities, end-to-end encryption, and cross-platform compatibility, the software quickly acquired popularity. WhatsApp's main distinctive feature is the ability to transmit text messages immediately over an internet connection, bypassing the constraints and expenses involved with SMS texting. It is linked to users' phone numbers, making it simple to start up and find contacts. Users could connect with other existing users who have WhatsApp accounts as well. The acquisition of the **Network Platform** WhatsApp by Facebook was a landmark event in

the tech industry, reflecting Facebook's strategic interest in mobile messaging and its desire to expand its reach in the evolving communication landscape.

In March 2014, Facebook acquired for approximately $2 billion **Oculus** (8). Facebook's purchase of Oculus represented the company's confidence that virtual reality (VR) may become a new communication platform, enabling more immersive and social interactions beyond gaming. The introduction of Oculus played a pivotal role in rejuvenating interest and advancement in VR technology. It popularised the concept of consumer VR and sparked industry innovation. Oculus' emphasis on gaming, social engagement, and the metaverse corresponds with the larger technological path taken by firms such as Meta. Like the introduction of Facebook API, the acquisition of Oculus involves the implementation of an **Industry-Wide Platform** within Facebook.

In October 2014, Facebook launched **Safety Check** (9). The concept for Safety Check emerged in the aftermath of the 2011 earthquake and tsunami in Japan. The technical team at Facebook in Tokyo intended to design a service that would allow people to connect and communicate during emergencies, especially if standard communication channels were hindered. The goal of introducing Safety Check was to give people a way to tell their loved ones of their safety during a crisis. When a crisis or tragedy strikes, Facebook uses different indications to determine if users are in the impacted area, such as the location of their most recent posts and their present location. When a high number of individuals in a certain location post about an event, Facebook's algorithms activate Safety Check. Users in the impacted area are notified and asked if they are safe. They can then indicate themselves as safe, and their friends and followers will be notified. Safety Check is an example of **Digital Service**.

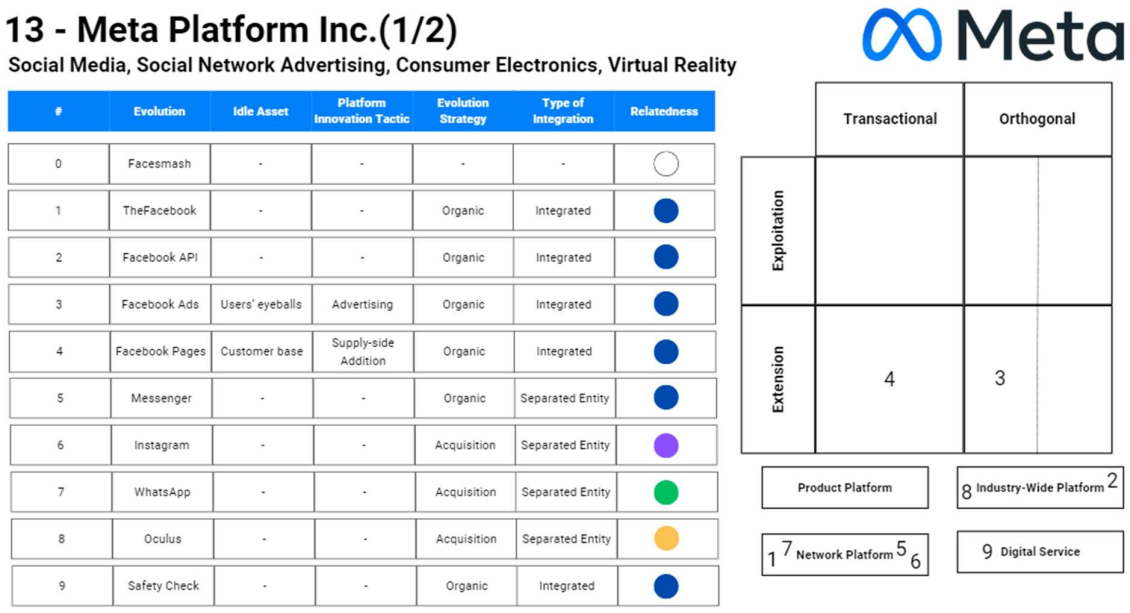


Figure 4.1: Meta's evolution Board (Part 1)

In 2015, Facebook launched **Facebook Live** (10), a real-time video streaming service that allowed users to connect with others through comments, likes, and reactions. The platform changed the way people shared and consumed information on the platform, offering new opportunities for journalists, media outlets, brands, educators, and professionals. Facebook Live allowed users to broadcast breaking news, conduct interviews, and cover events from behind the scenes. It also allowed brands to promote products, organize Q&A sessions, introduce new initiatives, and communicate with customers in real time. This marked a significant step forward in the growth of online social media, as Facebook Live is a **Transactional Exploitation's** example characterized by a **Service Enlargement** innovation tactic.

Facebook Marketplace (11), introduced in October 2016, enables users to purchase and sell items in their local areas, improving the platform's online utility. Users can advertise products for sale and search for items in various categories, allowing negotiation and meeting arrangements. Facebook has gradually expanded the Marketplace's availability to more countries and areas, including tools for marking products as "Sold" and creating "For Sale" groups. This **Transactional Extension** offers a new value proposition to existing sides (**Supply-side Addition**), enhancing the platform's utility as an online marketplace.

In the same year, there was the launched of **Facebook Workplace** (12). Facebook Workplace is a **Transactional Exploitation** (**Platform Gemini**) aimed to give businesses a familiar and user-friendly platform for internal communication and collaboration. Before Facebook Workplace, organisations relied on a combination of email, intranets, and other platforms for internal communication and collaboration. Facebook recognised an opportunity to use its successful social networking model to build a platform designed specifically for professional interactions. The interface of Facebook Workplace was very similar to the standard Facebook platform, making it easy for users to shift to a work-related setting. Workplace, like Facebook, allows organisations to create groups for various teams, departments, projects, or interests. It was designed specifically for work-related activities, bridging the gap between personal and professional networking. Its stand-alone design enabled businesses to keep a discrete location for internal communication while benefiting from the familiarity of the Facebook ecosystem.

Instagram Shopping(13) was introduced in 2017, allowing users to browse and buy products within the app. Businesses could include product tags in their posts, making them shoppable. Instagram collaborated with e-commerce partners to facilitate product catalogue integration, enabling real-time inventory sync. The platform expanded Shopping's availability to more countries and regions and launched "Live Shopping" for direct sales during live broadcasts. This revolutionized the way businesses connect with their audiences and convert followers into customers. Like Facebook Marketplace, Instagram Shopping is a **Transactional Extension**'s case (**Supply-side Addition**).

Meta evolution is still far from reaching its conclusion when **WhatsApp Business** (14) is launched on January 18, 2018, as a tool for businesses to communicate with clients professionally and streamlined. It allows organisations to create a dedicated business profile with information like location, contact information, and website. Automated messages are available for non-business hours or greeting new clients. WhatsApp also launched the WhatsApp Business API, allowing larger businesses to integrate WhatsApp messaging into their customer communication platforms. WhatsApp Business has significantly facilitated customer-business interactions in the digital age, improving customer experiences and growth. It transformed WhatsApp from a Network Business into a Transactional Two-sided Platform (**Transactional Extension**), distinguished by a **Supply-side Addition** platform innovation strategy.

WhatsApp's development was not complete and June 15, 2020, introduced **WhatsApp Payments** (15) with the purpose of providing a smooth and quick way for users to send money to friends and family, as well as to support business transactions. Users could make payments directly from the chat app, eliminating the need to navigate to a separate payment app. WhatsApp Payments is a **Transactional Exploitation** (**Service Enlargement**) which transformed the messaging app into a platform for financial transactions, enhancing its utility for users in India and potentially in other regions.

On August 9, 2021, Meta launched **Horizon Workrooms** (16) as a collaboration tool that employs virtual areas for meetings and activities. It is intended to be the principal venue for all types of Metaverse work and collaboration. Horizon Workrooms can be accessible via a web browser or a virtual reality headset. Users have the option of creating their own virtual workspaces or joining existing ones. Customers can collaborate on documents, whiteboards, and presentations once they are in a workspace. They can also share data and participate in video conferences. Horizon Workrooms is still in its early stages, but it has the potential to change the way people work. It can help teams collaborate more efficiently even when they are not physically in the same spot. It can also aid in the creation of more immersive and interesting work experience. Like Facebook Workplace, Horizon Workrooms could be considered as a **Digital Service**.

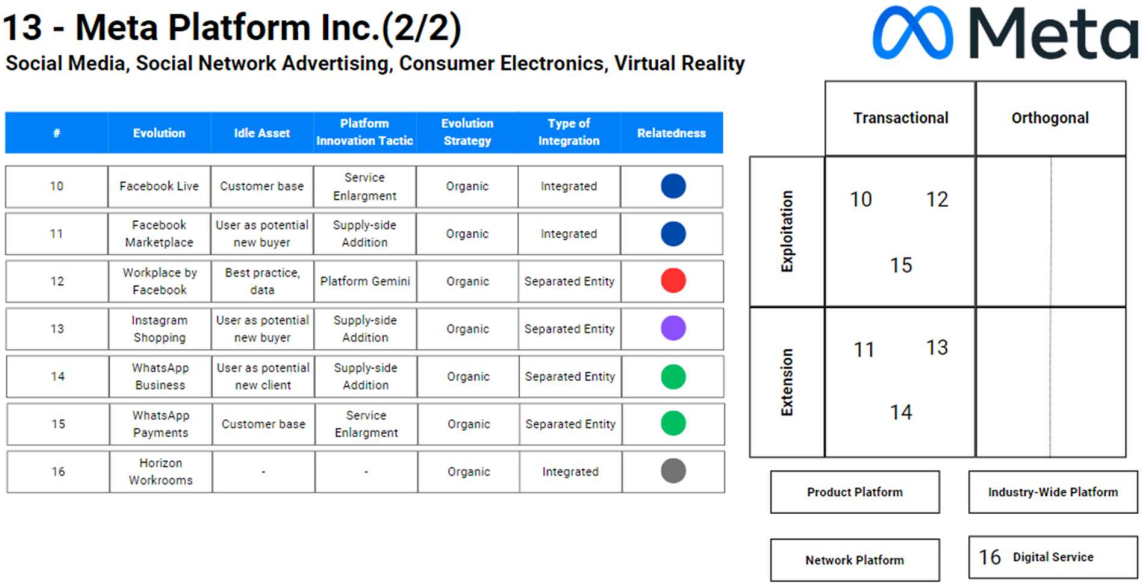


Figure 4.2: Meta's evolution Board (Part 2)

4.1.2. Visa Inc.

4.1.2.1. About the Company

Visa Inc. is a global financial services company that facilitates electronic funds transfers and digital payment solutions. It functions as a payments technology corporation, offering the framework for business, financial, government, and consumer transactions. The first consumer credit card programme, BankAmericard, was established in Fresno, California, in 1958. In order to reflect its international expansion and popularity more accurately, it changed its name to "Visa" in 1976. Today, it operate in more than 200 countries and territories with products and services available on cards, laptops, tablets, and mobile devices.

The company's primary goal is to *"unite people, businesses, and economies through its effective and secure payment network, facilitating smooth electronic transactions and promoting global economic progress"*. Visa is committed to offering financial institutions, businesses, and customers cutting-edge payment options that are reliable, secure, and convenient.

Visa faces competition in this mission from other significant firms in the financial services business, including Mastercard Incorporated, PayPal Holdings, Alipay, and WeChat Pay.

On March 18, 2008, the IPO occurred and nowadays the company is publicly traded on the New York Stock Exchange (NYSE) under the ticker symbol "**V**".

4.1.2.2. Evolution History

Based on the understanding and the information gathered, all the steps that will be discussed in this paragraph should be regarded as **Digital Services** that the company has built over the years. As a result, it would not go on to specify its typology for each of them, as seen in Meta and in subsequent cases.

In 1958, Bank of America introduced **BankAmericard** (0), the forerunner to Visa. The programme began as an experiment in Fresno, California, to investigate the practicality of revolving credit accounts and electronic payments. Cardholders could make purchases up to the bank's established credit limit. They could then pay back the loan over time. Monthly statements describing transactions and outstanding amounts were mailed to cardholders. They might pay the full balance or a minimum payment, with interest accruing on any unpaid balance. BankAmericard was instrumental in revolutionising consumer finance by pioneering the concept of revolving credit and the ease of making payments without cash. Its success opened the way for the creation of current credit card payment systems, including electronic transaction infrastructure and secure cardholder data protection.

In 1975, Visa implemented **Visa Debit** (1). Visa Debit is a payment card product offered by Visa Inc. that allows customers to make purchases, access funds, and conduct various financial transactions utilising funds straight from their associated bank accounts. It combines the benefits of a regular debit card with the Visa payment network's widespread popularity and worldwide reach. Visa Debit cards are often dual-functional, allowing cardholders to conduct both signature-based (credit) and PIN-based (debit) transactions. This flexibility allows consumers to choose how they want to use their cards.

In 1983, Visa introduced the **Automated Teller Machines network** (**ATM**) to revolutionize banking and financial services. ATMs allowed individuals to conduct various banking transactions without the need for traditional bank facilities. Visa collaborated with member banks, technology providers, and financial institutions to build the ATM network infrastructure, requiring standardized protocols for transaction processing, security, and interoperability. The ATMs' main role was to allow cardholders to withdraw cash from their accounts, provide balance enquiries, fund transfers between accounts, and check recent transaction history. Over time, ATM technology has evolved with features like colour displays, touch screens, envelope-free deposits, check scanning, and support for complex banking processes.

Visa payWave (3) was debuted in 2007. It is a contactless payment technology feature that allows cardholders to wave their card in front of contactless payment terminals without physically swiping or inserting the card into a point-of-sale device. In 2019, Visa rebranded Visa payWave to **Visa Contactless** to provide a more unified and consistent name for its tap-and-go payment technology across various markets. Cardholders can use the service to make payments by simply touching their Visa

Contactless-enabled card, smartphone, or wearable device on a contactless payment terminal. The transaction is completed wirelessly, eliminating the need to enter or swipe a card. Visa Contactless transactions are faster than standard card payments, making them ideal for fast-food restaurants, public transportation, and other situations where speed is critical. The ease with which a card or device can be tapped makes Visa Contactless user-friendly, allowing a wide spectrum of consumers to readily adopt and use the technology.

With the rapid adoption of smartphones and mobile technologies, there was an increasing demand for digital payment solutions that took advantage of mobile devices' convenience. In response to this demand, Visa launched **mVisa** (4) in 2015. It is a mobile payment service that enables customers to make safe and convenient payments with their smartphones. By scanning QR codes, users can conduct person-to-person (P2P) transfers, pay bills, and make purchases at merchants. mVisa is intended to interact with many banks and financial institutions, encouraging interoperability and allowing users to link different debit and credit cards to the platform. The service has grown over time to include new features and capabilities, including as connection with mobile wallets and reward programmes. Visa continues to investigate ways to improve the user experience, security, and adoption of mVisa through technological developments.

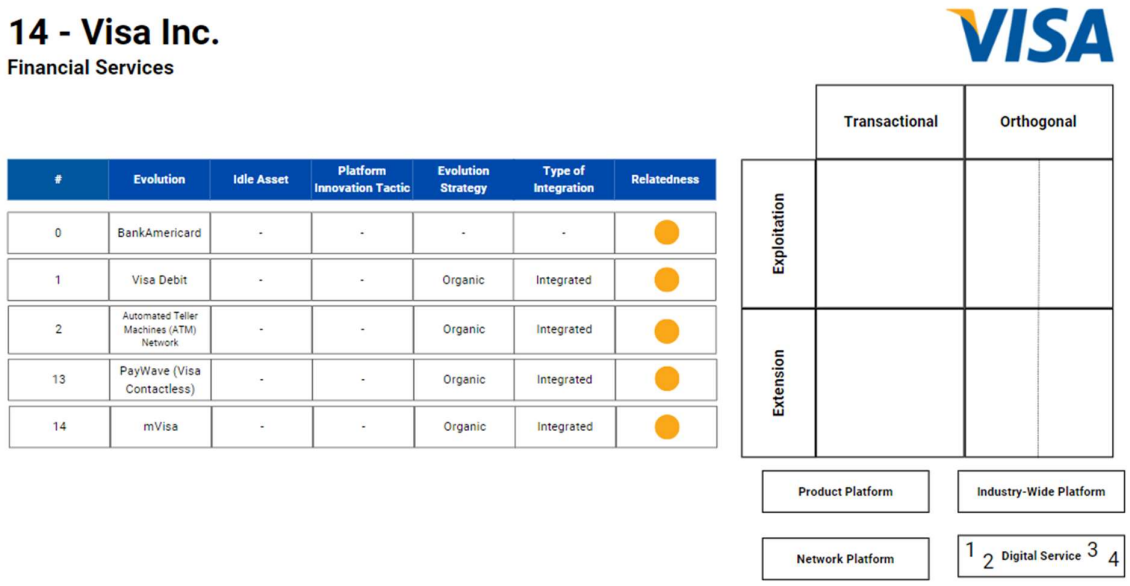


Figure 4.3: Visa's evolution Board

4.1.3. Mastercard Incorporated

4.1.3.1. About the Company

Mastercard was born in the late 1940s, when numerous US banks offered specially-made paper to their customers that could be used like currency in local merchants. Several franchises emerged during the next decade in which a single bank in a big city would accept cards as payment with specific merchants they had chosen to deal with. One of these organisations founded the Interbank Card Association (ICA) in 1966. To reflect its commitment to international growth, ICA changed its name to MasterCard International in 1979.

Mastercard's extensive payment network encompasses over 200 nations and territories, allowing for frictionless cross-border transactions. The network of the organisation connects millions of merchants, financial institutions, and cardholders, ensuring speedy and dependable payment services.

The purpose of Mastercard is to "*connect and power an inclusive, digital economy that benefits everyone, everywhere by making transactions safe, simple, smart, and accessible*". This mission statement highlights Mastercard's commitment to driving financial inclusion, security, and innovation in the global payment landscape by leveraging its technology and experience.

In its pursuit of this mission, Mastercard faces competition from other prominent players in the financial services industry such as Visa Inc., PayPal Holdings, and Alipay.

On May 25, 2006, the company, which had been organised as a bank cooperative, went public. The stock is traded on the New York Stock Exchange under the symbol "**MA**".

The corporation eliminated the "MasterCard" term from their distinctive Brand Mark in January 2019. The interlocking red and yellow circles may now stand on its own.

4.1.3.2. Evolution History

In the same way dealt with Visa, based on the understanding and the information gathered, all the steps, except for Mastercard Send, discussed in this paragraph should be regarded as **Digital Services** that the company has built over the years.

The beginnings of Mastercard may be traced back to its predecessor, the "Interbank Card Association", which was founded in 1966. This Group was made up of California banks who wanted to build a unified payment system to compete with the major competitor at the time, BankAmericard (later known as Visa).

The first big move taken by the organisation was the launch of the "**Interbank Card**" (0) in 1966, which was a flat and paper-based charge card. Cardholders could use this card to make purchases at participating retailers and pay the bill at the end of the

month. It functioned similarly to the contemporary credit card; however it was not as generally recognised as credit cards are now. In 1969, the organisation released the "**Master Charge: The Interbank Card**," a notable advance in its payment offerings. This card was created to act more like a revolving credit card, allowing cardholders to carry a balance and make payments over time. It was created in reaction to the increasing popularity of BankAmericard and other credit card programmes. The Master Charge card was designed to simplify and standardise payment processing among member banks, making it easier for cardholders to use their cards in a variety of settings. This endeavour involves developing a shared network for authorising and settling transactions, laying the groundwork for Mastercard's future worldwide payment network.

In 2011, the company launched **Priceless Cities Program** (1) that was launched as part of Mastercard's larger priceless marketing campaign, which emphasises the idea that certain experiences and events in life are "priceless" and cannot be quantified. Mastercard's "Priceless Cities" loyalty and experiential programme provides members with exclusive access to curated events, incentives, and experiences in key cities across the world. The programme is tailored to specific locations, each with its own set of events that promote the local culture, attractions, and entertainment alternatives. Cardholders frequently obtain access to activities that the general public does not have. This exclusivity adds to the Priceless Cities program's value proposition. It also offers personalised recommendations and insights based on a cardholder's interests and choices, increasing the relevance and appeal of the experiences available.

In 2012, Mastercard introduced **QkR** (2). QkR by Mastercard is a mobile payment and ordering service aimed at improving the consumer experience in a variety of industries such as entertainment, sports, and hospitality. It enables customers to make payments and place orders using their cell phones or other mobile devices in a seamless and simple manner. Unlike other Mastercard mobile payment apps, such as Pay Pass, QkR uses an Internet connection rather than NFC from the phone. In fact, QR codes (Quick Response codes) are used by QkR to ease transactions. Customers can use the QkR app to scan QR codes displayed at merchant sites, prompting them to make payments or submit orders. QkR was developed as part of Mastercard's commitment to innovate and improve the way customers interacted with businesses and services.

A year after, in 2013, the Group decided to introduce, as part of its strategy to provide a modern and secure solution for digital payments, **MasterPass** (3). MasterPass works as a digital wallet, securely storing a user's payment card information, billing addresses, and other pertinent information. Despite its name, MasterPass is compatible with more than only Mastercard products, and it allows you to save card and payment system data. Mastercard does not charge merchants any fees for MasterPass sales. MasterPass is intended to function on a variety of devices, including smartphones, tablets, and desktop PCs. Users can access and finish transactions from several devices, increasing ease and flexibility.

Mastercard introduced **Mastercard Send** (4) in 2015 to meet the demand for faster, more accessible payment solutions in the digital age. This system enables real-time, cross-border money transfers and disbursements, allowing individuals, businesses, and organizations to send funds efficiently to recipients' debit cards, bank accounts, or mobile wallets. Mastercard Send improves the speed and convenience of P2P payments, company disbursements, and other money transfer scenarios. It is versatile for both local and international transactions, supports multiple currencies, and facilitates transfers between countries and regions. Mastercard Send is a **Network Platform**, where value is produced through same-side network externalities, with only one side active, such as consumers transferring money.

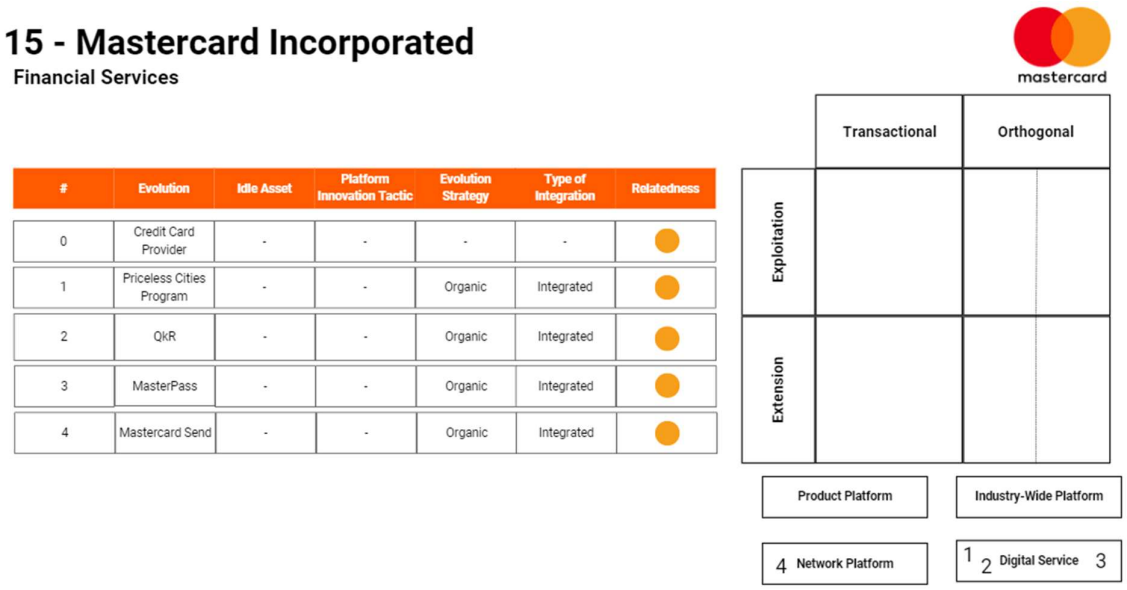


Figure 4.4: Mastercard's evolution Board

4.1.4. Booking Holdings Inc.

4.1.4.1. About the Company

Booking Holdings Inc., established in 1996, is a global leader in the online travel and accommodation industry. The company was founded by Jay S. Walker, who recognized the potential of the emerging digital landscape to revolutionize the way people plan and book their travel arrangements.

Operating in the broader travel and tourism sector, Booking Holdings Inc. focuses on providing an array of online booking services for accommodations, flights, rental cars, and vacation packages through its well-known brands, including Booking.com, Priceline, Kayak, Agoda, and OpenTable. The mission of Booking Holdings is to

"*empower people to experience the world, offering a convenient and comprehensive platform to plan and book travel experiences seamlessly*".

In its pursuit of this mission, Booking Holdings Inc. faces competition from other prominent players in the online travel industry such as Expedia Group, Airbnb, and TripAdvisor. These companies vie for market share and consumer loyalty by offering similar booking services and innovative solutions to meet the diverse needs of travellers worldwide.

Booking Holdings Inc. went public in 1999 on the NASDAQ stock exchange under the symbol "**BKNG**", marking a significant milestone in its corporate journey. The initial public offering (IPO) allowed the company to raise capital and expand its operations, solidifying its position as a frontrunner in the online travel sector. Since then, Booking Holdings has continued to evolve, leveraging technology and data to enhance user experiences and reshape the way people explore and engage with the world through travel. Currently, the ownership structure of Booking Holdings Inc. is distributed among various institutional and individual investors, with no single majority owner.

4.1.4.2. Evolution History

One distinguishing feature of Booking Holdings Inc. is that all of the Group's acquisitions operate under the same name, but they remain distinct entities with their own catchment area. This point will be discussed further in the paragraph "Cross-case Analysis" (Paragraph 4.2.).

Priceline.com (0), founded in 1997 by Jay S. Walker, is a metasearch engine that revolutionized the online travel industry by introducing a unique "Name Your Own Price" model. Widely utilized in the United States it operates in the travel and hospitality sector, facilitating bookings for flights, hotels, rental cars, and more. One of Priceline's defining features was its opaque booking model. In this method, travellers may choose certain criteria for hotels, such as location and star rating, without knowing the identity of the exact hotel until the actual booking. Travellers had a feeling of adventure as they were able to achieve substantial reductions while also helping hotels to fill rooms without undercutting their listed rates. From the beginning, Priceline saw the relevance of technology in the travel sector. The firm spent a lot of money establishing user-friendly platforms and mobile applications that made booking easier and gave travellers access to a large inventory of travel alternatives. For example, the addition of the "Express Deals" function allowed customers to immediately locate inexpensive hotel bargains without the need for bidding or waiting. The acquisition of other travel-related companies by Priceline Holdings Inc. (formerly Booking Holdings Inc.) further expanded Priceline's portfolio.

One of the most significant step was in 2005, when Priceline.com acquired **Booking.com** (1). Since its beginning in 1996, Booking.com has evolved as a major

participant in the worldwide online travel business. Booking.com has revolutionised the way travellers explore and book hotel alternatives thanks to its user-friendly design, large inventory of rooms, and worldwide reach. The dedication to customer-centricity is at the heart of Booking.com's success. The platform's user-friendly design and functionality have made researching, comparing, and reserving hotels easier, essentially democratising trip planning. This strategy recognises that the modern traveller values transparency, choice, and personalised experiences in addition to convenience. The platform's global reach has allowed it to build alliances with lodgings of all sizes, from boutique hotels to big hotel chains. These relationships help Booking.com provide its consumers with competitive prices and special discounts. All of these significant factors drew the attention of Priceline.com, who, as previously stated, chose to purchase the firm. Enlarging its business offerings with the acquisition of company, make Booking.com an example of **Transactional Exploitation** (**Platform Gemini**).

From the acquisition of Booking.com, the Group also gaining its subsidiary **Rentalcars.com** (2). Rentalcars, founded in 2004, has revolutionised traditional automobile rental procedures by providing travellers with greater flexibility, choice, and convenience. Rentalcars.com has had a significant impact on how travellers obtain rental automobiles. The platform acts as a link between travellers and automobile rental companies in a world where seamless mobility is more prized. It has successfully used the internet and digital technology to simplify and streamline the automobile rental process. The platform's wide network of rental providers is one of its most notable characteristics. It works with a wide range of automobile rental firms, both major and small, around the globe. This network guarantees that users of Rentalcars.com have access to a broad fleet of vehicles, ranging from tiny cars for city exploration to large SUVs for family vacations and luxury cars for those wanting a touch of indulgence. With the introduction of a new platform that provides new services, the value proposition presented to the platform's existing users changed. This is a case of **Transaction Extension**, in particular a **Supply-side Addition** tactic.

Two years later, in 2007, **Agoda.com** (3), the online travel agency operating mainly in the Asia-Pacific, was acquired. Agoda's uniqueness lies in its specialized focus on the region's economic growth and booming tourism sector, offering unique insights and possibilities to travellers. The company's success is also attributed to its inclusivity and worldwide reach, offering services in multiple languages and currencies, promoting cross-cultural exchange and enriching the travel experience. Agoda.com operates as a **Transactional Exploitation** (**Platform Gemini**), expanding into new geographical areas.

With the idea to empower the Group’s best practice and enlarge its data gathering, in 2013 there was the implementation of **Kayak.com** (4) another travel metasearch engine that operates worldwide. Founded in 2004, Kayak simplifies vacation planning by offering a comprehensive platform to gather and compare travel alternatives.

Its key feature is its ability to search and compare costs across multiple websites simultaneously, providing travellers with the information they need to make informed decisions. Kayak.com offers a comprehensive perspective of available options, combining data from airlines, hotels, car rental companies, and other travel service providers. By meeting modern travellers' demands, Kayak.com has transformed the travel industry and is considered a **Transactional Exploitation's** case (**Platform Gemini**).

In 2014, another important acquisition was done by the Group: **OpenTable** (5). Founded in 1998 by Chuck Templeton, OpenTable's journey reflects the transformation of the dining experience in the digital age. OpenTable aims to bridge the gap between diners and restaurants by offering an online platform for restaurant reservations. Its real-time reservation mechanism allows guests to check restaurant availability, choose desired time windows, and secure a reservation quickly. This feature matches guests' expectations for efficiency and immediacy in their dining experiences. OpenTable is the go-to site for customers seeking culinary experiences, whether it's a cozy romantic meal or a crowded restaurant for group celebrations. Providing something fundamentally new, the ability to book a dining experience has transformed and increased Booking Holdings' value offering, making OpenTable a **Transactional Extension** (**Supply-side Addition**).

In 2017 The Priceline Group acquired the Momondo Group, which included **Cheapflights** (6) and **Momondo** (7).

Cheapflights, which was founded in 1996, has played an important part in the democratisation of air travel by providing travellers with a strong tool for finding economical and convenient flight alternatives. The commitment to simplifying the flight booking experience is at the heart of Cheapflights' success. Recognising that the sheer amount of airline alternatives might be intimidating, Cheapflights has developed a platform that streamlines the search and booking experience. Travellers may enter their departure and destination locations, travel dates, and preferences, and the site will do the rest by presenting them with a curated selection of flights that meet their requirements.

Momondo was established in 2006, and its goal is to enabling travellers to discover and book flights, hotels, and autos that fit their own interests and budgets. It realises that booking is typically a significant part of a traveller's schedule, and the alternatives available might be perplexing. Momondo solves this by offering a platform that aggregates booking information from a wide range of airlines, online travel agencies (OTAs), and hotel systems, resulting in a comprehensive image of reservation options.

Cheapflights could be considered as **Transactional Extension** (**Supply-side Addition**), while Momondo a **Transactional Exploitation** (**Platform Gemini**) as it is acquired after Cheapflights.

Ultimately, in 2017 Kayak.com, previously acquired by the Group, purchased **Mundi (8)** the Brazilian metasearch engine further expanding the group's geographic coverage. Founded in 2014, it recognised the need for travellers to have a single platform that collects information on a number of transport options, from taxis and ride-sharing services to buses and trains. This comprehensive strategy recognises that travellers frequently require various forms of transportation to accomplish their travels. Mundi also emphasises the significance of openness in transportation pricing. It seeks to offer travellers with a comprehensive picture of the expenses connected with their preferred mode of transportation, including any additional taxes or surcharges. This transparency coincides with the rising expectation among travellers for plain and honest pricing in the transportation sector. This last situation exemplifies a **Transactional Exploitation** (**Platform Gemini**).

The company name was changed from The Priceline Group Inc. to Booking Holding Inc. in 2018, however the goal of acquiring the most promising or competitive online travel providers has not altered.

81 - Booking Holdings Inc.

Travel Technology

#	Evolution	Idle Asset	Platform Innovation Tactic	Evolution Strategy	Type of Integration	Relatedness
0	Priceline.com	-	-	-	-	
1	Booking.com	Best practice, data	Platform Gemini	Acquisition	Separated Entity	
2	Rentalcars.com	Customer-side searching for complementary services	Supply-side Addition	Acquisition	Both	
3	Agoda	Best practice, new geographicial area, data	Platform Gemini	Acquisition	Separated Entity	
4	Kayak.com	Best practice, data	Platform Gemini	Acquisition	Separated Entity	
5	OpenTable	Customer-side searching for complementary services	Supply-side Addition	Acquisition	Separated Entity	
6	Cheapflights	Customer-side searching for complementary services	Supply-side Addition	Acquisition	Both	
7	Momondo	Best practice, data	Platform Gemini	Acquisition	Separated Entity	
8	Mundi	Best practice, new geographicial area, data	Platform Gemini	Acquisition	Separated Entity	

BOOKING HOLDINGS

	Transactional	Orthogonal
Exploitation	1, 3, 4, 7, 8	
Extension	2, 5, 6	

Product Platform	Industry-Wide Platform
Network Platform	Digital Service

Figure 4.5: Booking Holdings' evolution Board

4.1.5. PayPal Holdings Inc.

4.1.5.1. About the Company

PayPal Holdings Inc. (Pay, "To Pay" and Pal, "Friend") is a prominent American financial technology company that revolutionized online payments and digital transactions. Founded in December 1998, by Max Levchin, Peter Thiel, and Luke Nosek, PayPal emerged as a subsidiary of Confinity, an American software company

based in Silicon Valley. The company's initial vision was to "*create a secure and convenient method for transferring money digitally*", reducing the dependency on traditional paper-based transactions.

Dan Schulman, President and CEO of PayPal Holdings Inc., joined PayPal in 2014 and played a pivotal role in shaping the company's direction towards innovation and expansion.

PayPal operates within the financial technology industry, primarily focusing on online payment processing and digital money transfers. Its mission centers around enabling individuals and businesses to "*connect and transact seamlessly across borders and currencies*". PayPal aims to empower people by providing easy-to-use, secure, and accessible financial tools that enhance the efficiency of commerce in a rapidly evolving digital landscape.

PayPal faces competition from various players in the financial technology sector. Notable competitors include Square, Inc. (which offers Square Cash and Cash App), Stripe (a technology company that builds economic infrastructure for the internet), and traditional financial institutions venturing into the digital payment space.

PayPal went public on February 15, 2002, under the ticker symbol "**PYPL**" on the NASDAQ stock exchange. The initial public offering (IPO) marked a significant milestone in PayPal's journey, allowing it to raise capital for further expansion and solidify its position as a leading player in the online payments industry.

As seen below, the company has changed through time, leaving money exchange at the basis of its operation and enhancing and expanding its service mostly through acquisitions of promising startups in its field, but without ever significantly altering its business strategy.

4.1.5.2. Evolution History

Max Levchin, Peter Thiel, and Luke Nosek founded Confinity in December 1998, a company that developed security software for mobile devices. However, not having been successful with this Business Model, they turned their focus to a digital wallet. **PayPal** (0) and its first representation was launched in 1999. PayPal's initial version was a ground-breaking online payment system meant to provide a safe and easy way for individuals and companies to send and receive money electronically over the internet. The original idea for PayPal was to establish a system that used infrared technology to allow users to send money between Palm Pilots (a popular portable device at the time). However, this notion proved impracticable, and Confinity shifted its focus to developing an online payment system. PayPal's initial version allowed users to send money to others simply entering the recipient's email address. This streamlined the payment procedure and reduced the need to reveal sensitive financial information. PayPal's user base grew fast during the dot-com boom, owing to its

simplicity of use and the growing popularity of online purchasing and e-commerce. Its services developed beyond online payments over time, evolving into a digital wallet platform that enabled users to store cash, make online purchases, and even pay in physical locations via partnerships and integrations.

In 2009, PayPal acquired **Bill Me Later** (1), an online transactional credit company, for $945 million. Bill Me Later allowed online purchases without a credit card, similar to a virtual credit card. PayPal recognized the potential in this business and rebranded it as **PayPal Credit** in 2012. This name change aimed to emphasize the link between PayPal and credit, allowing consumers to understand that PayPal was more than just a way to send and receive money; it also provided flexible financing alternatives. Users could still apply for and use credit lines for online purchases, and PayPal Credit's interaction with the main PayPal platform was tightened, allowing users to manage their accounts from their current accounts. Bill Me Later could be considered as a **Digital Service** because delivers specific functionalities and experiences to users.

In 2013, PayPal acquired **Braintree** (2), a Chicago-based company founded in 2007 to simplify internet commercial transactions. Braintree's developer-centric approach simplifies payment processing integration into websites and mobile apps, allowing businesses to focus on providing excellent customer experiences. The company has powered payment results for industry giants like Uber and Airbnb, demonstrating its scalability and dependability in handling high-volume, worldwide transactions. In 2013, PayPal bought Braintree for $800 million, aiming to broaden its presence on the internet and mobile payments sectors and strengthen its market footprint. Braintree, like the prior example of Bill Me Later, might be deemed as **Digital Service**.

Purchasing Braintree PayPal also takes over **Venmo** (3), leaving it a separate entity. Venmo, founded in 2009 by Andrew Kortina and Iqram Magdon-Ismail, is a digital payment network that has transformed the way people spend money. It enables users to share expenses among friends, transforming traditional exchanges into digital experiences. Venmo introduced the concept of "Venmo balance", allowing users to store money in their accounts, allowing them to use it for further transactions or transfer it to their bank account. PayPal, seeing this potential, purchased Venmo, allowing them to enter the mobile payments and peer-to-peer transactions industry. Differently from the previous cases, Venmo is an example of **Transactional Exploitation** because a new transaction is generated among sides already present on the company through a **Platform Gemini** innovation tactic.

PayPal paid $1.09 billion in 2015 for **Xoom** (4), a digital remittance service founded in 2001 by Kevin Hartz, Alan Braverman, and John Kunze. Xoom aimed to provide a faster, less expensive, and more convenient way for people and families to send money in distant countries. The platform's digital-first orientation allowed users to start money transfers with a few taps on their phones or clicks on their PCs, a radical shift from previous remittance systems. The integration with PayPal enhanced Xoom's

possibilities, making it more convenient for PayPal's large customer base and exemplifying financial inclusion and accessibility. Xoom is a **Network Platform** because the value is produced by interactions through same side network externalities and there is only one side active in the platform, such as the consumers who transfer money.

In the same year, the company founded **PayPal.me** (5). PayPal.me is a significant advancement in digital payments and financial technology, offering a revolutionary method for peer-to-peer transactions. Initially created as a subsidiary service of PayPal, it aimed to simplify the process of requesting and transferring money in casual situations. PayPal.me aimed to democratize digital payments by reducing barriers to entry, allowing individuals, small enterprises, and organizations to easily collect payments. This aligns with the broader discourse on financial inclusion, which emphasizes making financial services accessible to everyone, regardless of geographic location or socioeconomic position. PayPal.me, like Xoom, has built a network of users who transfer money among themselves, classifying it as a **Network Platform**.

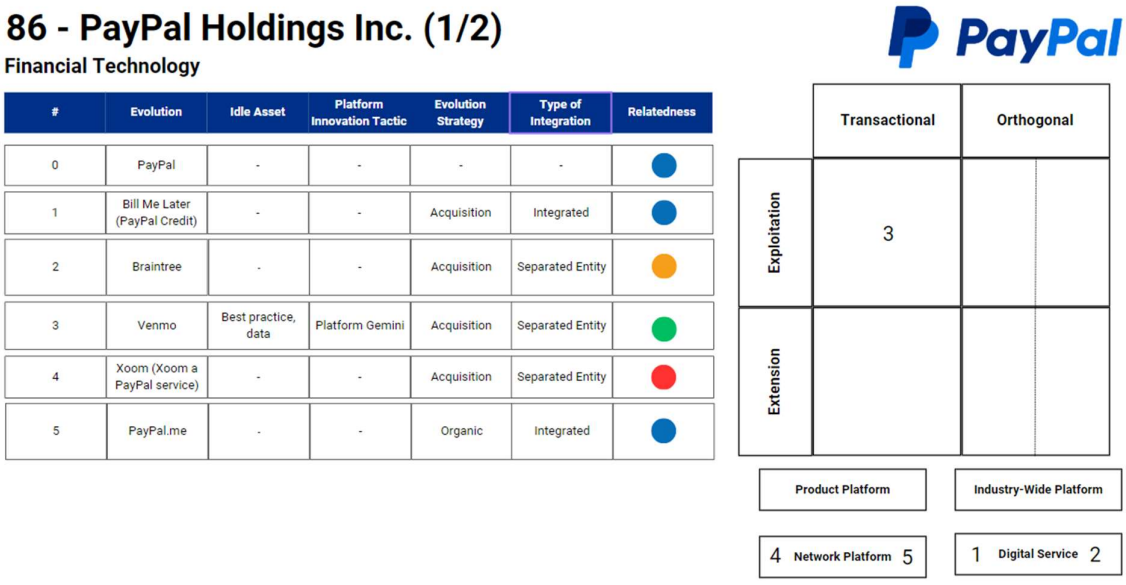


Figure 4.6: PayPal Holdings' evolution Board (Part 1)

Three years later, in 2018, Paypal acquired three important companies, **iZettle** (6), **Hyperwallet** (7) and **Simility** (8).

iZettle, established in 2010 by Jacob de Geer and Magnus Nilsson, is a standout in the FinTech space. iZettle emerged from Stockholm, Sweden's thriving startup scene, on a mission to revolutionise the landscape of small and micro-business payments, a sector that has long been overlooked by established financial institutions. At its heart, iZettle aimed to address a basic issue for small businesses: the capacity to take card payments.

It recognised that standard POS systems and card terminals were sometimes too expensive and cumbersome for many small companies. This realisation signalled the start of iZettle's journey. In recognition of its transformative potential, iZettle drew the attention of PayPal. This acquisition marked PayPal's strategic entry into the world of physical point-of-sale transactions, complementing its strong presence in online payments.

The beginnings of Hyperwallet may be traced back to 2000, when Lisa Shields launched the firm with the goal of simplifying the intricate network of cross-border payments. The company's significance lies in its role as a facilitator of financial inclusion, improving access to income and earnings for those facing restrictions in obtaining payments from overseas. This aligns with the academic debate on FinTech's role in boosting financial inclusion and levelling the global financial playing field, attracting the attention of PayPal.

The genesis of Simility is rooted in the realisation that as commerce progressively transitioned to digital platforms, so did the methods of fraudulent activity. Co-founders Rahul Pangam, Uttam Phalnikar, and Kedar Samant saw a crucial need for adaptable and intelligent fraud protection systems that could keep up with fraudsters' developing techniques. The platform uses machine learning and artificial intelligence principles to analyse large datasets and identify fraudulent behaviour patterns. It allows businesses to differentiate between genuine and fraudulent transactions in real time. Simility's solution is tailored to clients' unique needs and risk profiles, making it not one-size-fits-all. PayPal acquired Simility and integrated its fraud prevention technology into its financial services. iZettle, Hyperwallet and Simility are cases of **Digital Service**.

A different scenario is the company's acquisition of **Honey** (9) for more than $4 billion, making it PayPal's biggest acquisition. Honey was founded in 2012 by Ryan Hudson and George Ruan as a browser plugin to help consumers save money while navigating the huge e-commerce world. It aimed to be an intelligent assistant that scanned the internet for the best deals and discounts. However, Honey faces challenges such as privacy concerns and regulatory requirements. Ensuring user data security and meeting regulatory criteria are constant concerns. Honey, like Venmo, is an example of **Transactional Exploitation**, where a **Service Enlargement** is provided to the existing platform.

In 2021, following the crypto hype, the company introduced **Checkout with Crypto** (10). The goal of Checkout with Crypto is to bridge the gap between established banking systems and the decentralised world of cryptocurrency. The importance of the service stems from its ability to provide consumers with more financial options and freedom. It recognises that different people have different paying preferences. While traditional fiat currencies have traditionally dominated trade, digital currencies provide a fascinating and innovative alternative. Checkout with Crypto allows

customers to exert greater control over their financial life by allowing them to utilise their cryptocurrency holdings for ordinary purchases, a concept important to the discourse on financial autonomy. The online offering Checkout with Crypto was designated as a **Digital Service**.

Lastly, in 2022 PayPal introduced the **Digital Service Passkeys** (11). Passkeys emerge as an essential protection in the complicated realm of securing digital identities and sensitive information as we navigate an increasingly digital environment. Passkeys, similar to physical keys, can take various forms, from simple passwords to complex cryptographic tokens. They function as digital access arbiters, distinguishing between authorized and unauthorised access. Passkeys are dynamic and flexible, adapting to digital threats and fraudsters' complex strategies. Advances like multi-factor authentication and biometric verification are being developed to enhance security. However, privacy and data security concerns remain, and maintaining passkeys' safety remains a constant concern for PayPal and the FinTech industry.

86 - PayPal Holdings Inc. (2/2)

Financial Technology

#	Evolution	Idle Asset	Platform Innovation Tactic	Evolution Strategy	Type of Integration	Relatedness
6	iZettle	-	-	Acquisition	Separated Entity	
7	Hyperwallet (Hyperwallet a PayPal service)	-	-	Acquisition	Separated Entity	
8	Simility	-	-	Acquisition	Integrated	
9	Honey	Money transaction to gather coupons, innovative way of doing marketing for the business	Service Enlargement	Acquisition	Separated Entity	
10	Checkout with Crypto	-	-	Organic	Integrated	
11	Passkeys	-	-	Organic	Integrated	

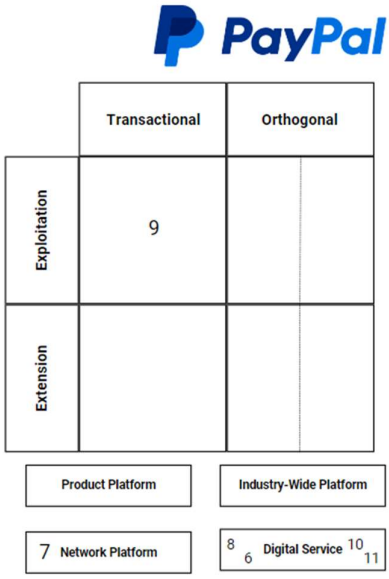


Figure 4.7: PayPal Holdings' evolution Board (Part 2)

4.1.6. CME Group Inc. Class A

4.1.6.1. About the Company

CME Group Inc., a cornerstone of global financial markets, was founded in 1898 as the Chicago Butter and Egg Board. Its transformational journey, led by visionaries such as Richard J. Daley and Leo Melamed, culminated in the formation of the Chicago Mercantile Exchange (CME) in 1919.

CME Group holds a paramount position in the derivatives and futures exchange industry. Its core mission revolves around providing a "*secure and efficient platform for market participants to manage risk and find price discovery*". By facilitating the trading of a diverse array of assets, ranging from agricultural commodities to energy products and financial derivatives, CME Group contributes significantly to the stability and integrity of global financial markets.

Competing in a dynamic landscape, CME Group faces a number of formidable rivals. Intercontinental Exchange (ICE) operates as one of its key challengers, known for its broad range of financial products and services. Additionally, Eurex Group, a European derivatives exchange, and NASDAQ OMX Group, a global exchange operator, also vie for market share in this highly competitive sector.

In the realm of initial public offerings (IPOs), CME Group marked a significant milestone by going public on December 6, 2002. The company listed its shares on the Chicago Board Options Exchange (CBOE) under the ticker symbol "**CME**".

CME Group is a worldwide derivatives marketplace where organisations and individuals may trade futures and options on interest rates, stock indexes, foreign currency, energy, metals, and agricultural commodities. Despite the fact that the exchange occurs in the typical manner, as it does for other businesses such as Nasdaq Inc. and Intercontinental Exchange Inc., which will be discussed later, the company has also an electronic trading platform, **CME Globex,** allowing users in about 150 countries to trade futures and options contracts in an easier way.

4.1.6.2. Evolution History

In the late 19th century, the United States experienced significant economic growth and agricultural expansion, particularly in the Midwest. Chicago, located in the agricultural belt, became a major trade centre for agricultural goods. In 1898, the Chicago Butter and Egg Board was established to provide a central marketplace for butter and egg producers and purchasers. The board expanded to include cereals, meats, and other agricultural commodities. CME Group Inc.'s history began with the board's formation.

It continued to operate under that name until 1919, then changed to the **Chicago Mercantile Exchange (CME)** (0) to represent its larger scope, since it traded more than butter and eggs. CME is credited with inventing the concept of futures contracts. Futures contracts are standardised agreements to purchase or sell a certain quantity of an underlying asset on a future date at a fixed price. This breakthrough transformed risk management and price discovery in financial markets. The company launched interest rate futures in the 1970s, allowing investors to hedge against interest rate changes. This product revolutionised financial markets and quickly became one of CME's main services. The CME (often called "the Chicago Merc", or "the Merc") was

the first financial exchange to "demutualize" in 2000 and in 2002 to become a publicly traded company controlled by shareholders.

In 2007, the Chicago Mercantile Exchange (CME) merged with the **Chicago Board of Trade** (**CBOT**) (0), another major futures exchange, creating the **CME Group**. On April 3, 1848, the Chicago Board of Trade was established. It arose during a period of great agricultural and economic boom in the American Midwest, where farmers faced uncertainty as grain prices fluctuated. Like Chicago Mercantile Exchange in its early stage, the major focus of the Board was agricultural commodities, namely grain futures contracts, but it has recently expanded its services to include financial instruments such as Treasury bond and Treasury note futures contracts. CBOT's merger with CME Group signalled the end of the Chicago Board as a separate exchange, but its legacy lives on inside the broader CME Group, which continues to market CBOT's historical contracts.

The CME Group has evolved over time through a series of **Transactional Exploitation** acquisitions, with **Service Enlargement** as a primary innovation tactic (all of the following cases could be classified as part of this strategy), ensuring that its users have an increasing number of products to trade and more trading hubs.

In 2008 it was announced that the **New York Mercantile Exchange (NYMEX)** (1) had accepted a takeover offer from the CME Group for $8.9 billion. The New York Mercantile Exchange was founded in 1882 as the New York Oil Exchange, with an original concentration on trading oil futures contracts. It was well-known for its effect on global commodity prices and played an important role in the trade of energy and metal commodities. NYMEX, like many other exchanges, moved away from conventional open outcry trading and towards computerised trading platforms. This change increased trade efficiency and accessibility. Following the acquisition by CME Group, the NYMEX brand continued to exist but under the CME Group umbrella.

In the same year, CME acquired **Commodity Exchange (COMEX)** (2), which used to be separate exchanges. Established in 1933 as New York Commodity Exchange (NYCE), its founding coincided with a time of economic uncertainty during the Great Depression, and it aimed to provide a centralized marketplace for trading precious metals futures. The exchange's name was shifted to the Commodity Exchange, Inc. in 1975 to better represent its larger purpose, which encompassed industrial metals as well as precious components. Despite CME Group's takeover, COMEX created a lasting impact as a vital marketplace for precious and industrial metals. Its benchmark contracts had a significant impact on global metal pricing and risk management techniques.

The evolution of the American Group is not concluded and in 2012, it expanded again by acquiring the **Kansas City Board of Trade (KCBT)** (3) for $126 million. The Kansas City Board of Trade was formed in 1856, making it one of the country's oldest commodities markets. It was founded to meet the demands of farmers and dealers in

the Midwest's booming wheat-producing regions. Wheat contracts from KCBT played an important role in price discovery for cereal markets both locally and internationally. Farmers used them to hedge their grain output, while purchasers used them to insure future supply. Following CME Group's takeover, KCBT discontinued autonomous operations, and its wheat contracts were incorporated into CME Group's Chicago Board of Trade (CBOT) exchange, resulting in a more centralised marketplace.

Lastly, in 2018 CME acquired the U.K.-based company **NEX Group** (4). NEX Group was set out from ICAP plc, a worldwide interdealer broker, in 2016. It was recognised for supplying market players with electronic trading platforms and technological solutions, mainly in the foreign exchange (forex or FX) and fixed income sectors. The acquisition by CME Group aimed to enhance its offerings in the foreign exchange and fixed income markets as well as the Group worldwide financial market position.

112 - CME Group Inc.Class A

Financial Market Service, Financial Market Technology

#	Evolution	Idle Asset	Platform Innovation Tactic	Evolution Strategy	Type of Integration	Relatedness
0	Chicago Mercantile Exchange (CME)	-	-	Merger	Separated Entity	●
0	Chicago Board of Trade (BOT)	-	-	Acquisition	Separated Entity	●
1	New York Mecantile Exchange (NYMEX)	More traded products, users, and new deck	Service Enlargement	Acquisition	Integrated	●
2	Commodity Exchange (COMEX)	More traded products, users, and new deck	Service Enlargement	Acquisition	Integrated	●
3	Kansas City Board of Trade (KCBT)	More traded products, users, and new deck	Service Enlargement	Acquisition	Integrated	●
4	NEX Group	More traded products, users, and new international deck	Service Enlargement	Acquisition	Integrated	●

CME Group

	Transactional	Orthogonal
Exploitation	1 2 3 4	
Extension		

Product Platform | Industry-Wide Platform

Network Platform | Digital Service

Figure 4.8: CME Group's evolution Board

4.1.7. Intercontinental Exchange Inc.

4.1.7.1. About the Company

Intercontinental Exchange Inc. (ICE) is a prominent global financial services company that operates in the exchange and clearinghouse industry. It was founded in 2000 by Jeffrey C. Sprecher, who is the current Chairman and CEO of the company.

Since then, ICE has evolved into a key player in the financial markets, providing essential infrastructure and services to facilitate trading and risk management.

The company's core mission is to build and operate a "*transparent, efficient, and trusted marketplace that enables participants to access a wide range of financial products*". ICE operates numerous exchanges, including the New York Stock Exchange (NYSE), ICE Futures, and ICE Bonds, offering trading in equities, derivatives, commodities, and fixed income securities.

As a leading player in the financial industry, ICE faces competition from various companies that operate in the exchange and trading space. Notable competitors include CME Group, Nasdaq Inc., and Deutsche Börse AG. Despite the competition, ICE has managed to maintain a strong market position due to its diverse product offerings, cutting-edge technology, and emphasis on customer satisfaction.

In 2005, ICE went public through its initial public offering (IPO), listing its shares on the New York Stock Exchange under the ticker symbol "**ICE**". The IPO marked a significant milestone in the company's growth, enabling it to raise capital and expand its operations further.

Over the years, ICE has grown through strategic acquisitions and partnerships, expanding its global footprint and enhancing its product portfolio. The company's success can be attributed to its ability to adapt to the evolving needs of the financial industry and leverage technology to deliver innovative solutions.

4.1.7.2. Evolution History

The Intercontinental Exchange (**ICE**) (0) is an important milestone in the growth of global financial markets. Founded in 2000, ICE quickly established itself as a forerunner in electronic trading, notably in the energy and commodities industries. The company was founded in response to a growing awareness of the need for modernisation and openness in historically opaque and fragmented energy markets. Its initial focus was on developing electronic trading platforms to these markets, with the goal of providing a more efficient and accessible way of trading energy derivatives. This was a break from the traditional open-outcry trading mechanism that had previously characterised these marketplaces.

Intercontinental Exchange's strategy for expansion has involved acquiring various exchanges, with some proving successful and others facing challenges due to regulatory or antitrust concerns. To better comprehend the actual evolution history only accomplished steps have been provided.

The next eight evolutionary phases may all be referred to as **Transactional Exploitation** since they include the establishment of new transactions between current parties on the platform, giving the potential of trading new and different financial items as well as accessing new geographical regions.

In 2001, ICE acquired the **International Petroleum Exchange** (**IPE**) (1), a prominent energy trading institution established in London in 1980. The IPE was a key player in the trade of crude oil and refined petroleum products, offering a centralized marketplace for energy commodity purchases and sales. It specialized in energy derivatives, making it a significant hub for market participants seeking to hedge against price volatility. The acquisition marked a significant shift in the IPE's operations, transitioning from open-outcry trading to electronic trading under ICE's direction, modernizing the exchange and expanding its global reach.

After making all its energy futures exchanges fully electronic, in 2007 ICE acquired the **New York Board of Trade** (**NYBOT**) (2), **ChemConnect** (3), and **Winnipeg Commodity Exchange** (**WCE**) (4).

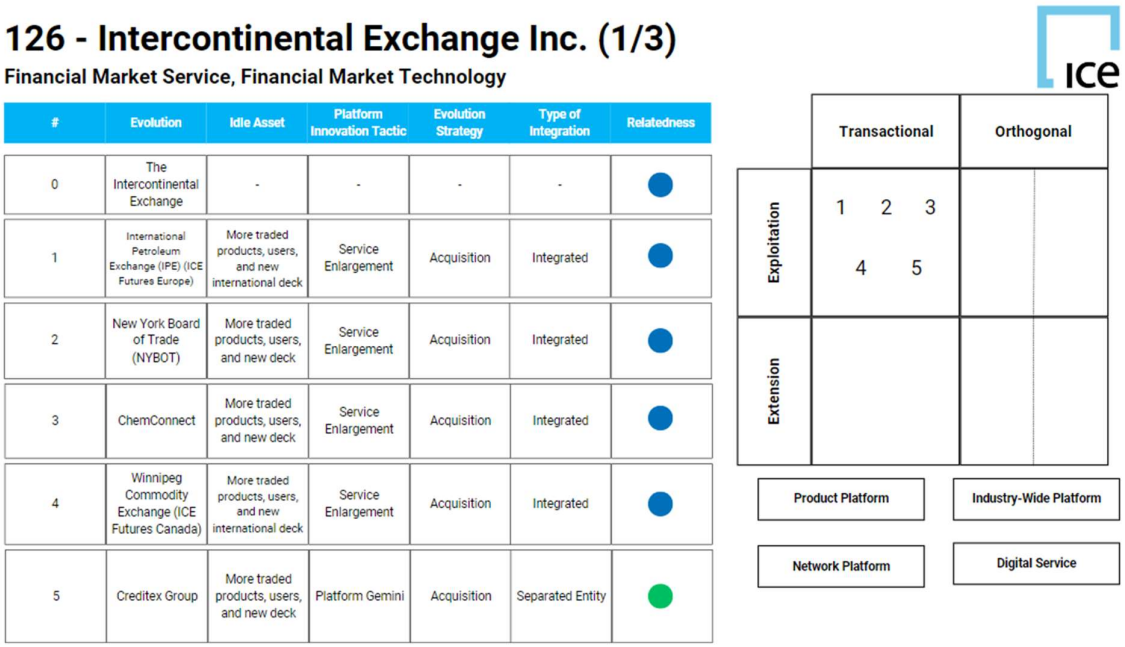
Established in 1870, the New York Board of Trade initially operated under the name New York Cotton Exchange (NYCE) and was primarily focused on cotton futures trading. The NYBOT evolved alongside the global economy. It broadened its product portfolio to include agricultural and commodity futures contracts that include sugar, cocoa, coffee, and frozen concentrated orange juice. In the late twentieth century, the winds of change rushed across financial markets. The NYBOT adopted electronic trading due to technological developments and a rising desire for efficiency. This change was a considerable break from the conventional open-outcry method, but it was required to remain competitive in a fast changing financial market. The NYBOT thrived under ICE control, acting as a commodities futures trading centre.

The chemical business has always relied on direct relationships between buyers, suppliers, and middlemen, resulting in a long, unclear, and wasteful process. ChemConnect pioneered B2B e-commerce in 1995 by establishing an online marketplace that united worldwide buyers and suppliers. This platform sought to simplify chemical procurement and sales by providing a one-stop shop. Centralising chemical product information, offering real-time access to product specifications, price, and availability, and boosting market transparency were key breakthroughs. ChemConnect also launched an online bidding system, which allows customers to seek estimates and suppliers to react with competitive bids. Outside the digital marketplace, ChemConnect was essential in boosting e-commerce adoption in an industry that was previously wary of internet technology, prompting other industries to pursue similar digital solutions.

The Winnipeg Commodity Exchange, founded in 1887 in Winnipeg, Manitoba, was a commodity trading institution that left an indelible effect on the landscape of agricultural goods in Canada. The WCE was primarily an agricultural commodities exchange that traded grain and oilseed futures and options contracts. It created a market for farmers, grain elevators, and speculators to hedge their price risk, allowing for more consistent and predictable earnings in an industry infamous for price volatility. The WCE has changed and responded to shifting market factors throughout

its existence. It was the first North American commodity exchange to implement electronic trading. While the WCE as a separate institution has passed into history, its legacy keeps on. The exchange's activities continue to be guided by the spirit of agricultural commodity trade, the legacy of wheat pricing, and the dedication to risk management.

In 2008 **Creditex Group Inc.** (**Creditex**) (5) has been acquired by ICE for approximatively $625 million. Founded in 1999 during a revolutionary moment in the financial industry, Creditex became an over-the-counter credit derivatives transaction facilitator. It provided a platform for market players to purchase and sell credit default swaps and other credit-linked products. Creditex's involvement in improving liquidity and transparency in the credit derivatives market was significant. The company pioneered the use of a standardized and computerized trading platform, expediting trading procedures and enabling more effective price discovery.



126 - Intercontinental Exchange Inc. (1/3)

Financial Market Service, Financial Market Technology

#	Evolution	Idle Asset	Platform Innovation Tactic	Evolution Strategy	Type of Integration	Relatedness
0	The Intercontinental Exchange	-	-	-	-	
1	International Petroleum Exchange (IPE) (ICE Futures Europe)	More traded products, users, and new international deck	Service Enlargement	Acquisition	Integrated	
2	New York Board of Trade (NYBOT)	More traded products, users, and new deck	Service Enlargement	Acquisition	Integrated	
3	ChemConnect	More traded products, users, and new deck	Service Enlargement	Acquisition	Integrated	
4	Winnipeg Commodity Exchange (ICE Futures Canada)	More traded products, users, and new international deck	Service Enlargement	Acquisition	Integrated	
5	Creditex Group	More traded products, users, and new deck	Platform Gemini	Acquisition	Separated Entity	

Figure 4.9: Intercontinental Exchange's evolution Board (Part 1)

Two years later, in 2010, ICE acquired **Climate Exchange PLC** (6) and **European Climate Exchange** (**ECX**) (7) by listing the products on the ICE Futures Europe trading platform.

Climate Exchange PLC, founded in 2003 in London, was a pioneer in environmental markets, promoting the trade of environmental instruments and emissions allowances. It expanded into renewable energy certificates (RECs) to create markets for clean energy features. Despite facing challenges such as the success of emissions

trading and voluntary carbon reduction programs, its legacy serves as proof of the value of creative financial solutions in tackling global concerns. The company's journey highlights the challenges and risks of environmental markets and the importance of addressing global concerns.

Climate Exchange played a significant role in the creation and operation of the European Climate Exchange (ECX), established in 2005 in London. The ECX became a crucial marketplace for trading carbon allowances and credits, crucial in the development of the European Union Emissions Trading System (EU ETS). The ECX allowed enterprises subject to emissions restrictions to purchase and sell carbon permits, which were assigned credits based on past emissions. The ECX expanded beyond Europe, becoming a global leader in carbon trading, drawing participants from various countries to participate in emissions trading and offset programs.

After two years of negotiations and blockades by antitrust ICE succeeds in acquiring **NYSE Euronext** (8) for $8.2 billion, blowing it away from Nasdaq and Deutsche Börse. The merger, which aimed to modernize trade and enhance execution efficiency, merged the NYSE with a more contemporary exchange network, including markets in Amsterdam, Brussels, Lisbon, Milan, and Paris. The merger highlighted globalisation and financial market consolidation, reflecting the interconnection of the world's economy. NYSE Arca platform, a popular venue for trading ETFs and options, exemplified the company's dedication to technical innovation. The business is now part of the ICE group, but its history serves as a testament to the persistence and flexibility required in a volatile and interconnected financial world.

Differently from Creditex Group that is a **Platform Gemini** tactic, all the others could be considered as **Service Enlargement's cases**.

The six evolutionary phases that follow are entirely distinct in idea. In fact, they may be classified as **Digital Services** since they provide consumers with certain features, experiences, or solutions and they do not fall into any of the other possibilities of the matrix.

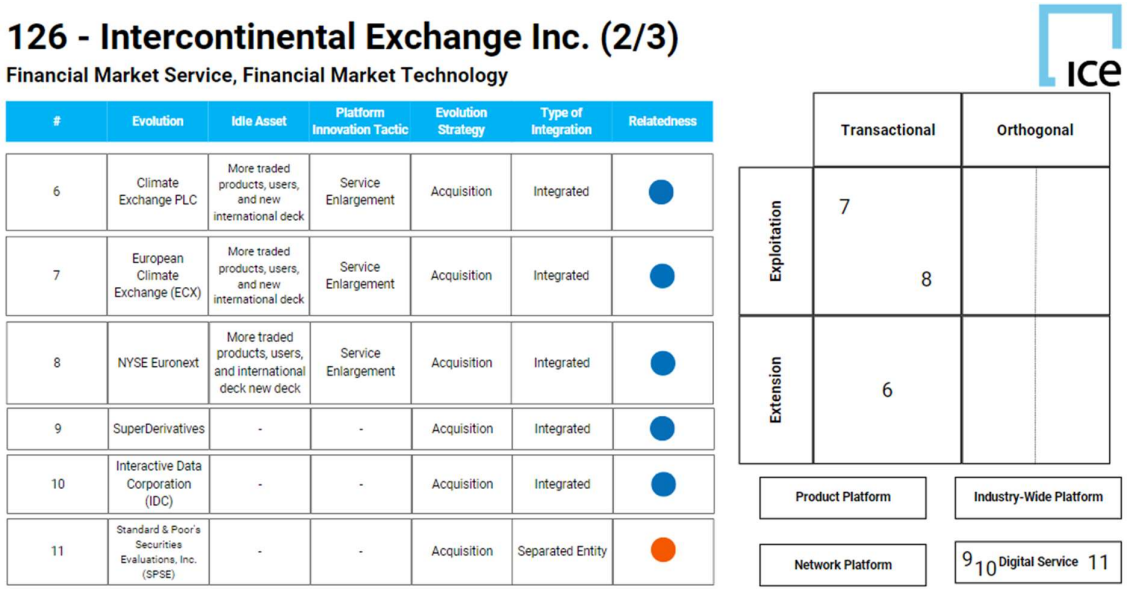
In 2014, ICE acquired **SuperDerivatives** (9), a provider of risk management analysis, financial market data and valuation services. The firm was created in 2000, at a period when financial markets were undergoing fast technology improvements and rising complexity. The major objective of the organisation was to give financial experts with reliable and efficient tools for pricing and analysing complex derivatives, which were becoming increasingly important in modern finance. SuperDerivatives' unique pricing algorithms and data analytics were important advances. These models included powerful mathematical algorithms and market data, allowing users to precisely evaluate options and obtain insights into risk exposures. This skill was especially important when financial institutions extended their derivatives portfolios and attempted to better control the related risks. The purchase by ICE heralded a new stage in the company's history, bringing it into alignment with a bigger organisation while

retaining its technical innovation and proficiency in futures pricing and risk management.

In 2015, ICE acquired **Interactive Data Corporation** (**IDC**) (10), a provider of financial market data for the fixed-income market. IDC, founded in 1969, aimed to provide data services for various debt instruments, such as government bonds, corporate bonds, and mortgage-backed securities. The complex and lack of transparency in the fixed-income market made IDC an ideal partner for providing essential solutions. IDC's services focused on gathering, verifying, and releasing fixed-income pricing and reference data, which was crucial for market players like banks, asset managers, and institutional investors. IDC also invested in innovative data collection and processing technologies, providing real-time and intraday price data. These technologies enabled investment professionals to analyse risk, optimize portfolios, and comply with regulatory obligations.

In 2016 ICE acquired two market analysis companies that publish financial research and studies on stocks, bonds and commodities, **Standard & Poor's Securities Evaluations, Inc.** (**SPSE**) (11) and **Credit Market Analysis** (**CMA**) (12).

Standard & Poor's Securities Evaluations, Inc. (SPSE), founded in 1982, specialized in independent securities assessment for financial products like bonds, shares, and derivatives. It provided credible and transparent price data for market players, addressing the challenges of bond valuation due to price opacity and subjectivity. As financial markets became more connected, the need for accurate assessments expanded beyond traditional asset classifications. SPSE's solutions included real-time pricing, end-of-day valuations, and risk analytics. However, the 2008 financial crisis and regulatory reforms highlighted the need for correct asset pricing. SPSE must adapt to changing legal constraints and market needs while remaining objective and independent. The lasting impact of SPSE serves as a reminder of the critical role autonomous valuation providers play in ensuring the financial sector's smooth operation and integrity.



126 - Intercontinental Exchange Inc. (2/3)

Financial Market Service, Financial Market Technology

#	Evolution	Idle Asset	Platform Innovation Tactic	Evolution Strategy	Type of Integration	Relatedness
6	Climate Exchange PLC	More traded products, users, and new international deck	Service Enlargement	Acquisition	Integrated	
7	European Climate Exchange (ECX)	More traded products, users, and new international deck	Service Enlargement	Acquisition	Integrated	
8	NYSE Euronext	More traded products, users, and international deck new deck	Service Enlargement	Acquisition	Integrated	
9	SuperDerivatives	-	-	Acquisition	Integrated	
10	Interactive Data Corporation (IDC)	-	-	Acquisition	Integrated	
11	Standard & Poor's Securities Evaluations, Inc. (SPSE)	-	-	Acquisition	Separated Entity	

Figure 4.10: Intercontinental Exchange's evolution Board (Part 2)

Credit Market Analysis (CMA) is a crucial tool in the global finance industry, analysing credit risk linked to financial instruments like bonds and credit derivatives. It helps market players like shareholders, asset managers, and insurance companies assess issuer creditworthiness and portfolio risks. CMA aims to predict default likelihood and severity of loss, often expressed as credit spreads or credit risk premiums. Credit rating models and scoring systems have been developed to forecast borrowers' financial standing and default likelihood, providing investors with a standard for risk assessment. The digital revolution has also influenced CMA, enabling the analysis of massive datasets and the creation of more complex models. However, CMA faces challenges due to the constantly changing nature of financial markets, new credit instruments, and economic downturns like the COVID-19 pandemic.

In 2017, ICE acquired two fixed income index and services platforms, **BofA Merrill Lynch Global Research Index Platform** (**BofAML**) (13) and **Virtu BondPoint** (14).

The BofA Merrill Lynch Global Research Index Platform, launched in the early 2000s by Bank of America Merrill Lynch, is a crucial tool for investors, asset managers, and financial professionals seeking detailed insights into global financial markets. It serves as a repository for research and analysis by BofA Merrill Lynch's global staff of researchers and analysts, providing in-depth analysis and projections for various markets and investing instruments. The platform's accessibility and easy-to-use layout make it easy for clients to find research papers, investing techniques, and market data. Its worldwide outlook helps investors balance their portfolios and manage exposure to multiple areas.

Virtu BondPoint, launched in 2019, is a significant advancement in electronic fixed-income trading. It offers clarity and pre-trade price discovery, providing traders with a comprehensive view of available assets and their suggested prices. This transparency helps reduce knowledge asymmetry and promotes fair and efficient trading. Virtu BondPoint also offers innovative trading functions and tools, supporting both request-for-quote (RFQ) and central limit order book (CLOB) trading protocols. It also provides real-time market data, analytics, and risk management tools to assist traders in managing their portfolios.

In 2018 ICE acquired **Chicago Stock Exchange** (**CHX**) (15) and **TMC Bonds LLC** (16) further increasing its competitiveness. These venues, like the Commodity Exchange or the Kansas City Board of Trade, might be classified as **Transactional Exploitation** (**Service Enlargement**).

The Chicago Stock Exchange, founded in 1882, is a significant financial institution in the United States, focusing on regional and smaller enterprises. Unlike the NYSE and Nasdaq, CHX caters to enterprises that don't meet the strict listing standards of larger exchanges. This has stimulated economic development in Chicago and provided opportunities for smaller companies to access public capital markets. The CHX has evolved over time, moving away from traditional floor trading to computerized platforms, boosting efficiency, reducing costs, and making the market more accessible to investors, traders, and institutions. This has contributed to the exchange's global reach.

TMC Bonds LLC is a financial services firm specializing in fixed-income securities and municipal bonds. Established in 2000, it offers innovative trading services and technology platforms to institutional and individual customers. The company is known for its competence in the municipal bond market, where municipal bonds are issued by states and municipalities to support public works initiatives. TMC Bonds provides real-time price data, transaction execution services, and access to a large network of dealers and investors. The company has reacted to regulatory reforms, particularly following the 2008 financial crisis, by implementing stringent compliance procedures to ensure its trading system complies with all applicable legislation. This dedication benefits investors and the sustainability and credibility of the fixed-income market.

Lastly, Intercontinental Exchange purchased two key **Digital Services** companies, **risQ** (17) and **Black Knight** (18), in 2020 and 2022, respectively.

risQ, a fascinating institution in the financial world, has been focusing on risk assessment since 2016, concentrating on climate change's impact on financial markets. Climate risk has become a major concern due to increased knowledge of global warming and its economic effects. As climate-related disasters increase, businesses and financial institutions are incorporating climate risk into their decision-making processes. risQ integrates climatic data with financial modelling to provide insights

into how climate risk might affect asset values, investment approaches, and portfolio management. However, climate risk assessment faces challenges due to uncertainties in long-term climate forecasts and changing regulatory frameworks. risQ must constantly update its risk assessment models to align with evolving requirements and meet the evolving needs of the financial world.

Black Knight, a leading financial technology and real estate services company, has revolutionized the mortgage and housing industries by providing integrated software, data, and analytics services. Founded in 2014, it covers all aspects of the mortgage lifecycle, from generation to default management. Black Knight's commitment to innovation is evident in its investment in machine learning and artificial intelligence capabilities, which improve risk assessment, loan origination, and client interaction. The company became public in 2020, demonstrating its importance in the financial technology industry, and was acquired by ICE in 2022.

126 - Intercontinental Exchange Inc. (3/3)

Financial Market Service, Financial Market Technology

#	Evolution	Idle Asset	Platform Innovation Tactic	Evolution Strategy	Type of Integration	Relatedness
12	Credit Market Analysis	-	-	Acquisition	Separated Entity	
13	BofA Merrill Lynch Global Research Index Platform (BofAML)	-	-	Acquisition	Separated Entity	
14	Virtu BondPoint	-	-	Acquisition	Separated Entity	
15	Chicago Stock Exchange (CHX)	More traded products, users, and new deck	Service Enlargement	Acquisition	Integrated	
16	TMC Bonds LLC	More traded products, users, and new deck	Service Enlargement	Acquisition	Integrated	
17	risQ	-	-	Acquisition	Separated Entity	
18	Black Knight	-	-	Acquisition	Separated Entity	

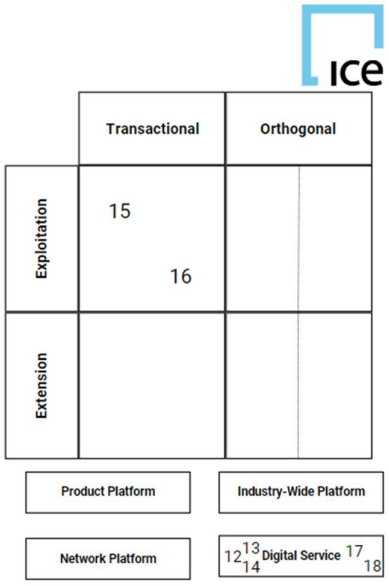


Figure 4.11: Intercontinental Exchange's evolution Board (Part 3)

4.1.8. Copart Inc.

4.1.8.1. About the Company

Founded in 1982 by Willis J. Johnson, **Copart** is a prime example of an American success story. Johnson's father, an entrepreneur who dabbled in everything from constructing homes to operating restaurants, taught him business principles as he was growing up. Johnson founded Copart with just one junk yard in California using that entrepreneurial drive, a strong work ethic, and a passion for change.

The main goal of Copart is to "*create an organised marketplace where buyers and sellers can trade cars quickly*". The business's web platform makes it easier to recover, sell, and repurpose automobiles while serving a wide range of international customers.

For a range of sellers, including insurance companies, rental car agencies, regional governments, financial institutions, and non-profit organisations, Copart specialises in the resale and remarketing of used, wholesale, and salvage title automobiles. In order to guarantee that customers can find what they're searching for, Copart's extensive inventory is held on more than 8,000 acres of land and comprises a variety of vehicles, including industrial vehicles, early and late model automobiles and trucks, vintage and exotic cars, and more.

While the competitive landscape may have evolved since then, the main competitors are IAA Inc. (Insurance Auto Auctions), KAR Auction Services Inc., Manheim and eBay Motors.

In 1994, Copart achieved a significant milestone when it went public and started trading publicly on the NASDAQ under the ticker "**CPRT**". The company's development and expansion were significantly impacted by this decision.

Copart has developed over the course of its existence from a single salvage yard with humble origins into a world leader in online auto auctions, having a beneficial influence on thousands of communities all over the world.

4.1.8.2. Evolution History

In 1998, the **Copart Online Auction platform** (0) revolutionized the salvage and used car industries by facilitating the purchase and sale of vehicles through a virtual marketplace. The platform provided a digitized inventory of salvage and used cars, allowing buyers to browse ads, check car specifications, and judge condition. Sellers posted their vehicles to connect with more buyers. Registered users could bid on cars, with the technology automatically increasing bids until the maximum amount was reached. Once an auction ended, the winner could arrange for payment and vehicle pickup or shipping through the platform.

In 2010, Copart acquired **CrashedToys** (1). CrashedToys is a specialized division of Copart Inc. that focuses on the auction and remarketing of powersports vehicles, which include motorcycles, ATVs (all-terrain vehicles), watercraft, snowmobiles, and other similar recreational vehicles. The platform serves a specialised market of powersports enthusiasts, collectors, repair facilities, and dealers who are interested in old or salvaged powersports cars for a variety of uses, including rebuilding, repair, components, and resale. This is an example of **Transactional Exploitation** in which a new segment of consumers, powersports fans, becomes active inside the platform, yet it continues to sell automobiles and the initial value proposition is maintained.

The platform innovation strategy employed in this case is **Service Enlargement**.

In 2017, Copart Inc. provided **Copart 360°** (2), a thorough automobile inspection service. This service aims to give customers precise information about the state of the automobiles listed on the Copart auction site. The service uses sharp pictures to provide a detailed view of the car's condition, enhancing transparency and boosting buyer confidence. The results are then used to produce an extensive inspection report, detailing the car's current state, flaws, changes, and existing issues. Copart 360° is not a platform per se, but it is a **Digital Service** integrated in the Copart platform.

In the same year, Copart decided to acquire **National Powersport Auctions** (**NPA**) (3). NPA is a leading auction company specialized in the powersports industry. As CrashedToys, also NPA provides a platform for dealers and other industry professionals to buy and sell motorcycles, ATVs, jet skis, and other powersports vehicles. The company's acquisition is an example of **Transactional Exploitation**, specifically a **Service Enlargement** where Copart decided to increase the services it provides to parties currently using the platform in order to facilitate additional transactions.

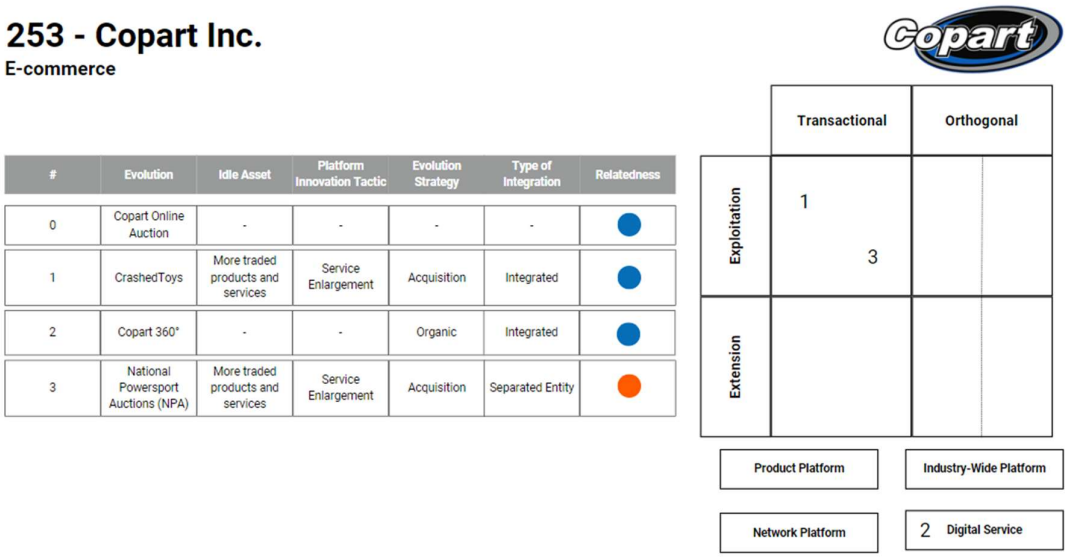


Figure 4.12: Copart's evolution Board

4.1.9. eBay Inc.

4.1.9.1. About the Company

eBay Inc. is a global e-commerce company that enables online business-to-business and consumer-to-consumer sales. It was founded on September 3, 1995, by Pierre Omidyar in San Jose, California, USA. In September 1997, the business changed the

name of its service from AuctionWeb to eBay in honour of Omidyar's consulting business, Echo Bay Technology Group. Due to a gold mining corporation already owning the domain name echobay.com, Omidyar abbreviated it to **eBay.com**.

The company's mission revolves around "*connecting buyers and sellers globally, creating economic opportunities and empowering people to pursue their passions*".

eBay's platform includes electronics, fashion, collectibles, home & garden, cars, and more categories. Sellers may create virtual storefronts, list their items, and reach a large number of potential purchasers. Meanwhile, buyers benefit from a diverse product offering, competitive price, and the ease of online buying.

eBay, like every other business, has rivals. Amazon.com, Alibaba Group, Etsy and Walmart are some cases of eBay's main competitors.

With its first public offering (IPO) on the NASDAQ stock exchange on September 21, 1998, eBay became publicly traded under the ticker symbol "**EBAY**". The IPO marked the company's transformation into a publicly traded corporation and gave it access to cash for future expansion and development, which was a crucial turning point in its history.

The great bond that connects customers to the platform is so strong and deeply rooted that as Jamie Iannone, eBay President & CEO said: "*Our community inspires me. I see and hear about all the ways our sellers and buyers are starting businesses and fuelling their passions on eBay, it's truly magical. And this pushes me and the team forward, to help them succeed, every day*."

4.1.9.2. Evolution History

The original **eBay Auction Platform** (0), introduced by the company's founder Pierre Omidyar in 1995, was a straightforward yet ground-breaking online marketplace that transformed the way consumers bought and sold goods. The original eBay auction platform had a simple, text-based user interface. The platform was accessible through a web browser, and its basic design prioritised usability above aesthetics. Items that sellers wished to sell could be listed. A title, a description, and an optional image of the item were all included in each listing. Each auction featured a timer that displayed the amount of time left before it ended. The timeframe would be slightly extended if a bid was made in the last few minutes of the auction so that other bidders may reply, eliminating last-second sniping. In its early days, eBay focused on niche markets, with a sizable user base of collectors and enthusiasts.

In 2000, eBay introduced **eBay Motors** (1). eBay Motors is a dedicated division within eBay that focuses on facilitating the buying and selling of automobiles, motorcycles, boats, parts, and accessories. The platform offers a large selection of features and tools specifically designed for the automobile sector, making it a well-liked hangout for both

buyers and sellers. Vehicles of all kinds can be listed by sellers. Detailed information about the vehicle, such as the maker, model, year, mileage, condition, and features, is often included in listings. Everything from engines and transmissions to tyres, brakes, interior parts, and aftermarket enhancements are available from sellers. Like CrashedToys for Copart Inc., eBay Motors is an example of **Transactional Exploitation**, with **Service Enlargement** as Platform Innovation Tactic.

In the 2002, the company decided to acquire **iBazar** (2). In 1995, Pierre Kosciusko-Morizet and Olivier Granjon developed one of the first online auction and e-commerce platforms, iBazar, in France. Through the acquisition, eBay was able to compete with national and international e-commerce platforms and gain a bigger presence in Europe. This is a case of **Transactional Exploitation** (**Service Enlargement**), where the purchase of the European e-commerce platform enabled new possible transaction for eBay.

In 2009, eBay has introduced **Deals** (3). Deals is the name of a section of the eBay site that offers unique discounts, promotions, and time-limited offers on a variety of goods. Users will have access to discounts and bargains on a variety of products in this section, including electronics, clothing, household goods, and more. The objective is to draw customers with alluring deals that offer discounts on both well-known and specialty goods. As the previously mentioned case, Deals is a case of **Transactional Exploitation** (**Service Enlargement**).

In 2016, eBay acquired **Ticketbis** (4) to enlarge its services portfolio. Ticketbis was a Spain-based online platform that facilitated the buying and selling of event tickets, including concerts, sports events, theatre performances, and other live entertainment experiences. People who had spare tickets to events or wanted to resell them might list as sellers on Ticketbis. Individuals looking to get tickets for events they wished to attend were referred to as buyers. By enabling both buyers and sellers to explore, compare, and buy tickets, Ticketbis eased the transaction process. Entering a market that has never been explored by the business and allowing new users to utilise the platform to buy and sell tickets for events is an example of **Transactional Exploitation** (**Service Enlargement**).

In 2018, eBay acquired **Giosis's Japan Business** (5). Giosis was a Southeast Asian e-commerce business that ran a number of regional online markets. Giosis was established by Shashank Dixit and was well-known for its popular Qoo10 platform. As Devin Wenig, President and CEO of eBay Inc said: "*The acquisition of Giosis' Japan business significantly expands eBay's footprint in Japan, one of the largest e-commerce markets in the world. Building on the strength of the Qoo10.jp platform, we will be able to offer Japanese consumers more inventory from around the world. With the Qoo10.jp platform, we also will be able to serve a new and growing user base as well as broaden our presence in a dynamic, underpenetrated market with strong e-commerce potential and high mobile adoption.*". This acquisition could be seen as a **Transactional Exploitation** leveraging a new

geographical area and serving the same sides. Unlike the above mentioned situations, Giosis' Platform Innovation Tactic is **Platform Gemini**.

In 2022, **TCGplayer** (6), a trusted marketplace for collectible card game enthusiasts, has been acquired. The addition of this business strengthens eBay's emphasis category strategy and its product line, giving customers even more options. Customers' entire collecting experiences will be improved by eBay and TCGplayer thanks to their combined 26 years of knowledge, dedication to the trading card market, expansive e-commerce platform, and strategic omnichannel capabilities including order fulfilment and cart optimisation. With TCGplayer, sellers will be able to quickly upload, sort, and identify enormous catalogues while also creating customisable webstores and bringing actual inventory online. The previously described case is an example of **Transactional Exploitation** (**Platform Gemini**).

271 - eBay Inc.

E-commerce

#	Evolution	Idle Asset	Platform Innovation Tactic	Evolution Strategy	Type of Integration	Relatedness
0	eBay.com	-	-	-	-	
1	eBay Motors	More traded products and services	Service Enlargement	Organic	Integrated	
2	iBazar	More traded products, services, and new geographical area	Service Enlargement	Organic	Integrated	
3	Deals	More traded products and services	Service Enlargement	Organic	Integrated	
4	Ticketbis	More traded products and services	Service Enlargement	Organic	Integrated	
5	Giosis's Japan Business	More traded products, services, and new geographical area	Platform Gemini	Acquisition	Separated Entity	
6	TCGplayer	More traded products and services	Platform Gemini	Acquisition	Separated Entity	

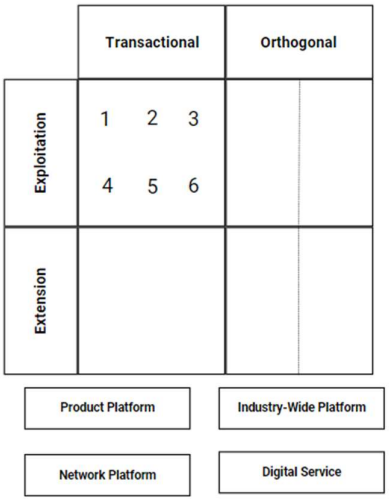


Figure 4.13: eBay's evolution Board

4.1.10. Nasdaq Inc.

4.1.10.1. About the Company

Nasdaq Inc., originally known as the National Association of Securities Dealers Automated Quotations, is a global financial services firm best known for managing stock exchanges and offering technology solutions to many parts of the financial industry. Nasdaq, which was founded in 1971, has grown to become one of the world's largest and most important stock exchanges, specialising in technology-focused firms. It is also a major provider of trading, clearing, and data solutions to the global financial community.

While its headquarters are in New York City, the company has a global presence with offices and operations in various countries.

The company's mission is to "*make financing available to businesses of all sizes, from startups to large organisations*". It provides a platform for businesses to raise cash through public markets, allowing them to fuel growth and follow business plans.

To preserve the financial markets' integrity, Nasdaq Inc. tries to provide a transparent and fair trade environment, to maintain regulatory compliance, and to uphold high ethical and governance standards.

Nasdaq confronts competition from a variety of organisations that engage in the exchange and trading market as a key participant in the financial industry. CME Group, Intercontinental Exchange (ICE), and CBOE Global Markets are among the notable competitors.

In 2002, Nasdaq became a publicly traded firm. Nasdaq was previously controlled by the National Association of Securities Dealers (NASD), a self-regulatory organisation for the US securities sector. NASD revealed plans to split off Nasdaq into a new, for-profit corporation in 2000. Nasdaq was spun off in 2002 through an initial public offering (IPO), and it became a publicly traded corporation with its own exchange.

4.1.10.2. Evolution History

The launch of the Nasdaq Stock Market was a watershed moment in financial history since it signified the establishment of the world's first electronic stock exchange. Floor trading was used by traditional stock exchanges in the early 1970s, when traders physically convened on trading floors to purchase and sell equities. This process was frequently lengthy, inefficient, and constrained by trade hours and accessibility. Recognising the market-changing potential of technology, the National Association of Securities Dealers (NASD) started on a project to develop an electronic trading platform.

On February 8, 1971, the **Nasdaq Stock Market** (0) was formally created. The Nasdaq Stock Exchange began as an electronic quote system. It provided a computerised platform for market makers to publish bid and ask prices for securities. The Nasdaq Stock Market opened the path for other stock exchanges across the world to adopt electronic trading systems, but not only that. Its electronic infrastructure and emphasis on technology drew many tech-focused companies to list on Nasdaq exchange, cementing its relationship with the technology sector even more.

In 2004, the company integrated **Nasdaq SMART** (1). Nasdaq SMART (Nasdaq Trade Surveillance & Market Abuse programme) is a market surveillance and compliance system that assists financial institutions and exchanges in detecting and investigating potential market abuse. Nasdaq SMART continually monitors market activity for

suspicious patterns, such as big orders executed near to the market close, or trades executed at prices significantly different from the current market price. It can be used to track and organise investigations, including work assignment, document storage, and collaboration with other investigators. Due to its scalability, it may be utilised by organisations of any size. It is adaptable, allowing it to be tailored to the individual demands of any organisation and it's continually getting new features and capabilities. Nasdaq SMART is an example of **Digital Service**.

Two years later, in 2006, the American exchange introduced **Nasdaq Clearing** (2). Nasdaq Clearing is a central counterparty (CCP) that offers clearing services for a wide range of financial products, including stocks, bonds, and derivatives. The CCP reduces risk by ensuring the settlement of all deals cleared by it. This means that if one party to a trade fails to pay, it will step in and make sure the other side gets paid. Nasdaq Clearing can assist market players cut costs by providing economies of scale and removing the need for each market participant to have its own clearing system. As with the preceding scenario, it is an example of **Digital Service**.

In 2007, Nasdaq acquired OMX, parent company of **Nasdaq Baltic** (3) and **Nasdaq Nordic** (4).

Nasdaq Baltic is a collection of stock exchanges in the Baltic countries of Estonia, Latvia, and Lithuania. It allows enterprises in the Baltic region to have access to capital markets and generate financing through initial public offerings (IPOs) and subsequent trading. Nasdaq Baltic is home to **three exchanges**: The Nasdaq Tallinn Stock Exchange (TTSE), The Nasdaq Riga Stock Exchange (RSE), The Nasdaq Vilnius Stock Exchange (VSE).

Nasdaq Nordic is a collection of stock exchanges that include Sweden, Denmark, Finland, Norway and Island. It operates **five exchanges**, which are: Nasdaq Copenhagen, Nasdaq Helsinki, Nasdaq Iceland, Nasdaq Oslo, and Nasdaq Stockholm.

The acquisition allowed the American stock exchange to expand its limits and enter a completely new market, giving services to new clients. They are **Transactional Exploitation**, in which the firm keeps its value proposition while expanding into a new geographical region and giving the opportunity to exchange new financial items. **Service Enlargement** is the platform innovation approach present in these scenarios since the platform provider decides to expand the services it offers to the sides currently on the platform, enabling additional prospective transactions.

In the same year, Nasdaq acquired **Nord Pool Spot Exchange**, renamed as **Nasdaq Commodities** (5). Nasdaq Commodities is a regulated market that trades and clears a wide range of commodity-related items such as gas, oil, and power. The division is active in environmental markets, including the trading of emission allowances. Nasdaq Commodities is an example of **Transactional Exploitation** because of the platform's service expansion to the existing sides (**Service Enlargement**).

In 2011, the company introduced **Nasdaq Market Replay** (6). The Nasdaq Market Replay tool is a cloud-based replay and analysis instrument that allows users to access the consolidated order book and trade data for Nasdaq, NYSE, and other regional exchange-listed stocks at any time. Investors use Nasdaq Market Replay to analyse historical market data and identify trading opportunities. Traders use it to test trading strategies, compliance officers investigate potential market abuse, and regulators use it to monitor market activity and enforce regulations. It is a case of **Digital Service**.

In 2015, Nasdaq Inc. purchased **Second Market**, which was renamed **Nasdaq Private Market** (7). The Nasdaq Private Market is an important component of private capital businesses, offering liquidity and transparency to private firm equities. It is a fully electronic trading platform that enables accredited investors to buy and sell private business stock in a safe and secure environment. With over 10,000 accredited investors all over the world, the Nasdaq Private Market has a global reach. This provides access to a broad pool of potential investors for private enterprises. It is an example of **Transactional Exploitation** with **Service Enlargement** as Platform Innovation Tactic.

In 2017, the company introduced **Nasdaq IR Insight** (8). Nasdaq IR Insight is a software platform that assists publicly traded corporations in managing their investor relations (IR) programmes. Nasdaq IR Insight assists public firms in maintaining a record of their investor relationships, including contact information, investment interests, and previous conversations. It also helps publicly traded firms in the planning and execution of investor events such as roadshows, analyst days, and investor conferences. Finally, Nasdaq IR Insight supports public firms in making their research available to investors, like research reports, presentations, and earnings call transcripts. It is a case of **Digital Service**.

330 - Nasdaq Inc.

Financial Market Service, Financial Market Technology

#	Evolution	Idle Asset	Platform Innovation Tactic	Evolution Strategy	Type of Integration	Relatedness
0	Nasdaq Stock Market	-	-	-	-	●
1	Nasdaq SMART	-	-	Organic	Integrated	●
2	Nasdaq Clearing	-	-	Organic	Integrated	●
3	Nasdaq Baltic	More traded products, users, and new international deck	Service Enlargement	Organic	Integrated	●
4	Nasdaq Nordic	More traded products, users, and new international deck	Service Enlargement	Organic	Integrated	●
5	Nord Pool Spot Exchange (Nasdaq Commodities)	More traded products, users, and new deck	Service Enlargement	Organic	Integrated	●
6	Nasdaq Market Replay	-	-	Organic	Integrated	●
7	Second Market (Nasdaq Private Market)	More traded products, users, and new deck	Service Enlargement	Organic	Integrated	●
8	Nasdaq IR Insight	-	-	Organic	Integrated	●

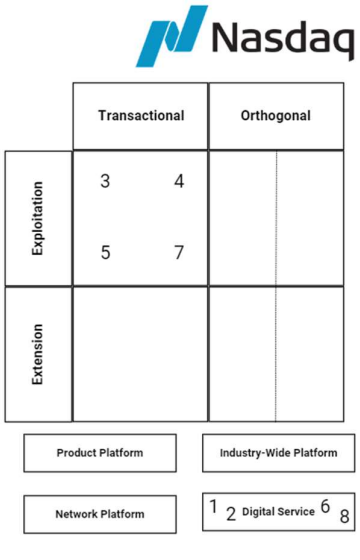


Figure 4.14: Nasdaq's evolution Board

4.1.11. Expedia Group Inc.

4.1.11.1. About the Company

Expedia Group Inc. is a multinational online travel and technology company headquartered in Seattle, Washington, USA. Expedia, which began as a branch of Microsoft in 1996, has expanded to become one of the biggest and most well-known online travel metasearch agencies in the world. The business manages a large number of travel brands and services, providing numerous options for reserving accommodations, travel bundles, rental cars, cruises, and other travel-related services. In order to achieve the greatest results, it assists both its partners and travellers in choosing the appropriate routes among millions options.

The goal of Expedia Group is to "*power global travel for everyone, everywhere.*" Through its many travel brands and technological platforms, the company seeks to make travel easy and accessible for consumers all over the world.

With unmatched industry expertise and cutting-edge technological innovation, it created a two-sided marketplace that enables the group to sort through millions of options for travellers and partners globally. Regardless, Expedia Group faces competition from a variety of other firms, including Booking Holdings Inc., Airbnb, and Google Travel.

On August 9, 2005, Expedia Group became a publicly traded business. The initial public offering (IPO) was completed, and the stock began trading on the NASDAQ under the ticker "**EXPE**".

4.1.11.2. Evolution History

The first version of **Expedia.com** (0), launched in 1996, marked the beginning of what would become one of the most significant transformations in the travel industry. As division of Microsoft, it was established with the goal of using the internet to completely transform how people plan, research, and book their travel. The early version of Expedia.com had a user interface that was straightforward and minimal, typical of mid-1990s websites. The layout was simple, with few images and an emphasis on text-based content. To find flights, users could search using their departure and destination cities, travel dates, and other preferences. Various flight alternatives were presented in the search results, together with information on the airlines, departure and arrival times, and prices. Once users selected a flight, they would proceed through a step-by-step booking process.

In 2001, Expedia Group decided to acquire the American platform **Hotels.com** (1). Founded in 1991 by David Litman and Robert Diener, Hotels.com is an online platform that specializes in offering hotel accommodations to travellers. The business lists more than 325,000 hotels on 85 websites in 34 different languages in roughly 19,000 different

locales and it offers consumers a simple interface via which they can look up, evaluate, and reserve. Hotels.com may provide additional lodging options in addition to conventional hotels, including vacation rentals, upscale inns, bed & breakfasts, and luxury resorts. Hotels.com is an example of **Transactional Extension** bringing a new demand-side on board: accommodation providers (**Supply-side Addition**).

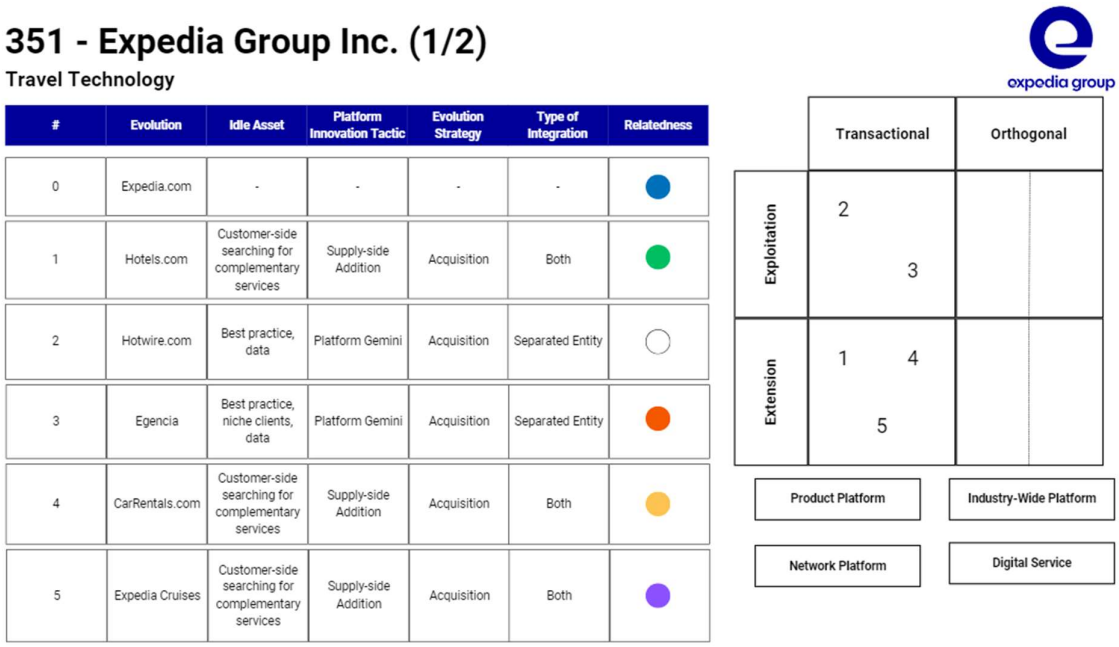
In 2003, the Group acquired **Hotwire.com** (2). Hotwire.com is an online travel platform that offers discounted rates on various travel services, including hotel accommodations, flights, rental cars, and vacation packages. Hotwire's "opaque pricing" model is one of its distinctive qualities. Customers can therefore reserve lodging or travel at a discount, but specifics (such as the precise hotel name or departure time) are not made public until after the booking has been made. Users submit their trip information (such as the destination, the dates of travel, and the number of travellers), and Hotwire displays possibilities that meet their requirements. Customers finish the booking procedure after making a choice. With the acquisition of Hotwire.com, Expedia decided to expand the services it provides to the parties currently using the platform. This is an example of **Transactional Exploitation** using **Platform Gemini** as a platform innovation approach in which the platform provider seeks to expand its company by creating a new platform based on current connections.

In 2004, in order to enlarge the portfolio of services offered, Expedia acquired **Egencia** (3). Egencia is a corporate travel management company that provides technology solutions and services to help businesses manage their travel expenses and arrangements. It provides resources for reserving accommodations, transportation, and other travel-related services while preserving oversight and control over trip costs. Within the constraints of their company's travel restrictions, travellers can browse and reserve flights, lodgings, and other travel-related accommodations via the Egencia web platform. As the previous case, Egencia is a case of **Transactional Exploitation** (**Platform Gemini**).

Four years later, the company bought **CarRentals.com** (4) in an effort to strengthen its position in the market and provide a fresh product to draw in new clients. CarRentals.com is an internet resource that focuses on assisting tourists in locating and reserving rental cars for their journeys. Users can compare pricing, vehicle options, and rental terms from several car rental providers in one location thanks to its user-friendly layout. Users can continue with the booking process by providing their information and making the reservation. This is an example of **Transactional Extension** because it offers a brand-new service that allows the car rentals to join the platform (**Supply-side Addition**).

In 2013, Expedia completed the acquisition of **Expedia Cruises** (5). Expedia Cruises is a 1987-founded travel agency franchise corporation that focuses on the promotion and selling of air, land, and cruise trips. Users of Expedia Cruises have access to a huge selection of cruises offered by numerous cruise lines, catering to diverse interests and

price ranges. Customers have the option of researching cruises to well-known locations all over the world, such as the Caribbean, Europe, and Alaska. The ports of call, events, and attractions at each location are listed in full along with the cruise itineraries. As a result, visitors can decide what to do based on their interests and ideal experiences. The Group attracted new potential consumers who were not previously interested in using the platform by introducing the option to plan and book cruises, thus introducing a new demand-side. **Transactional Extension** is present in this instance (**Supply-side Addition**).



351 - Expedia Group Inc. (1/2)

Travel Technology

#	Evolution	Idle Asset	Platform Innovation Tactic	Evolution Strategy	Type of Integration	Relatedness
0	Expedia.com	-	-	-	-	
1	Hotels.com	Customer-side searching for complementary services	Supply-side Addition	Acquisition	Both	
2	Hotwire.com	Best practice, data	Platform Gemini	Acquisition	Separated Entity	
3	Egencia	Best practice, niche clients, data	Platform Gemini	Acquisition	Separated Entity	
4	CarRentals.com	Customer-side searching for complementary services	Supply-side Addition	Acquisition	Both	
5	Expedia Cruises	Customer-side searching for complementary services	Supply-side Addition	Acquisition	Both	

Figure 4.15: Expedia Group's evolution Board (Part 1)

In the same year, there was the acquisition of **Trivago** (6). Trivago is a travel metasearch engine that allows users to find and compare hotel prices across many online booking sites and hotel networks. It offers a platform for travellers to search and compare hotel options based on price, location, guest ratings, and facilities. Trivago's goal is to make hotel booking easier by gathering information from several sources and presenting it in a user-friendly manner. When a customer has found a hotel, Trivago normally directs them to the appropriate booking site, where they may complete their reservation. Trivago is a **Transactional Exploitation** whose acquisition is the introduction of a new platform in Expedia's ecosystem, leveraging on the same sides (**Platform Gemini**).

A year after, in 2014, the company acquired the Australian website **Wotif** (7). Wotif is an online travel platform that offers discounts on hotel rooms, flights, holiday packages, and other travel-related services. The platform's goal is to provide travellers

with an easy-to-use interface for searching for and booking various travel options at reasonable pricing. It offers choices for scheduling local activities, tours, and car rentals in addition to hotels and flights. Wotif's primary concentration is on serving travellers in the Asia-Pacific region, which includes Australia, New Zealand, and portions of Southeast Asia. Wotif, like Trivago before it, is an example of **Transactional Exploitation** (**Platform Gemini**).

The Expedia Group had a successful year in 2015. In fact, it made four significant acquisitions: **Vrbo** (8), **Orbitz** (9), **CheapTickets** (10) and **Travelocity** (11).

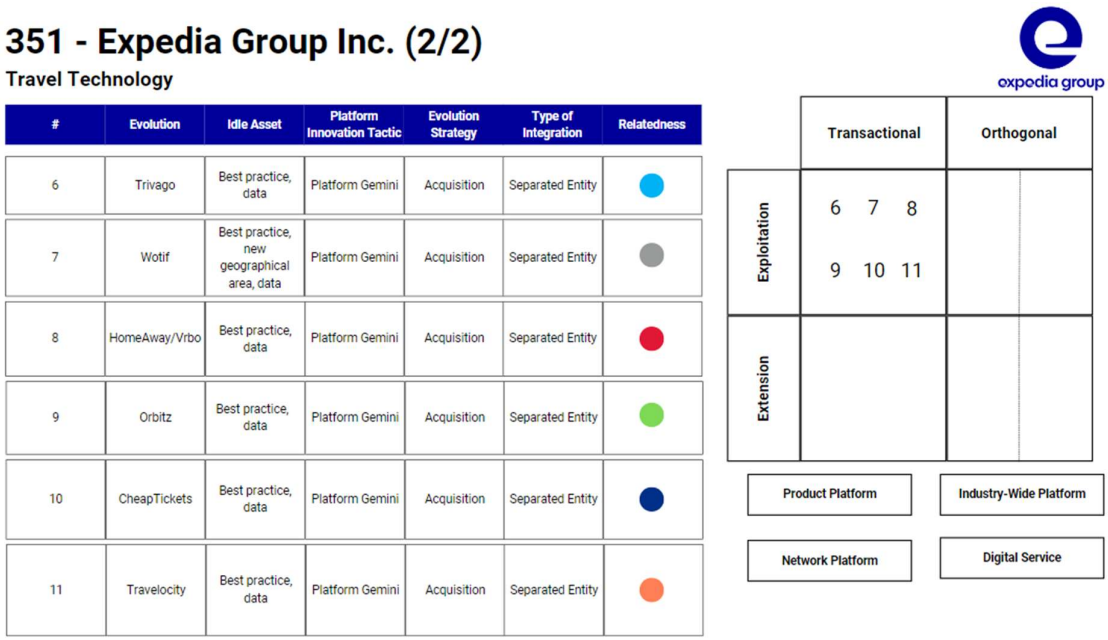
Vrbo, which stands for Vacation Rentals by Owner, is an internet company that specialises in providing travellers with vacation rental properties. It connects property owners and managers with travellers looking for one-of-a-kind lodgings, such as holiday houses, cabins, condos, and other private dwellings. Vrbo's platform enables travellers to search for and book vacation homes in popular places throughout the world. It allows travellers to book vacation rentals directly with home owners or managers, giving a more personalised and typically less expensive alternative to traditional hotels.

Orbitz was formed in 2001 and quickly rose to prominence as one of the first online travel agents. Today, it is an online travel booking platform that provides a variety of services, including flights, hotels, vacation packages, rental cars, cruises, and activities.

CheapTickets is an online travel booking platform that provides a wide range of travel-related services, such as flight bookings, hotel reservations, rental car reservations, vacation packages, and more. It seeks to make trip planning and booking more economical and convenient for travellers.

Founded in 1996 and quickly gained popularity as one of the pioneers of online travel booking, nowadays Travelocity is an online travel agency that provides a platform for travellers to search for and book various travel services, including flights, hotels, rental cars, vacation packages, cruises, and activities.

All of the preceding scenarios are examples of **Transactional Exploitation** by offering different, though related, services to the same sides on different platforms (**Platform Gemini**).



351 - Expedia Group Inc. (2/2)

Travel Technology

#	Evolution	Idle Asset	Platform Innovation Tactic	Evolution Strategy	Type of Integration	Relatedness
6	Trivago	Best practice, data	Platform Gemini	Acquisition	Separated Entity	
7	Wotif	Best practice, new geographical area, data	Platform Gemini	Acquisition	Separated Entity	
8	HomeAway/Vrbo	Best practice, data	Platform Gemini	Acquisition	Separated Entity	
9	Orbitz	Best practice, data	Platform Gemini	Acquisition	Separated Entity	
10	CheapTickets	Best practice, data	Platform Gemini	Acquisition	Separated Entity	
11	Travelocity	Best practice, data	Platform Gemini	Acquisition	Separated Entity	

Figure 4.16: Expedia Group's evolution Board (Part 2)

4.1.12. Etsy Inc.

4.1.12.1. About the Company

Etsy Inc. is a well-known online marketplace founded in June 2005 by Rob Kalin, Chris Maguire, and Haim Schoppik. It was created as a forum for artisans, crafters, and vintage aficionados to sell their one-of-a-kind and handcrafted items to a global audience.

According to Rob Kalin, he called the site Etsy since he "*wanted a nonsense word because I wanted to build the brand from scratch*". He was watching Fellini's 8 ½ and taking notes on what he heard. Etsi is frequently used in Italian. It means 'oh, yeah' (properly, "eh, si"), and it means "what if" in Latin and French.

The company's major goal is to develop a lively community of creative sellers and link them with discerning consumers looking for one-of-a-kind, personalised, and frequently handcrafted items. Josh Silverman is the CEO and owner of Etsy Inc. Under his guidance, Etsy has thrived and expanded its influence throughout the e-commerce market.

Etsy is an e-commerce and online marketplace website that caters to a niche market of people searching for unique and customised products that differ from the mass-produced things commonly seen on bigger e-commerce platforms. The company's aim is to "*Keep Commerce Human*", emphasising its dedication to supporting local and

independent craftspeople, promoting sustainability, and encouraging buyers and sellers to feel a sense of community.

Etsy, like every other business, has rivals. Amazon Handmade and eBay's "Artisanal" category are two of Etsy's main competitors. While these sites also sell handmade and one-of-a-kind things, the company stands apart by focusing solely on items manufactured by individual sellers and small companies. Because of its concentration on the artisanal niche, Etsy has developed a dedicated consumer base that seeks items that show originality and creativity.

On April 16, 2015, Etsy went public, under the ticker symbol "**ETSY**", marking a key milestone in the company's growth and giving it with the resources to further improve its platform, increase its user base, and secure its position as a prominent player in the e-commerce market.

4.1.12.2. Evolution History

The original **Etsy.com** (0), which launched in 2005, was a simple online transactional two-sided platform aimed to connect independent craftsmen and craftspeople with potential purchasers. The layout of the website was clean and basic, with an emphasis on showing the items themselves. Users may simply explore and find a broad choice of unique things thanks to the homepage's search bar and categories. Each seller had their own store page where they could display their items, describe them, and establish prices. Etsy prioritised establishing a feeling of community among its members in its earliest stages. Sellers were encouraged to personalise their stores, reveal their creative processes, and interact with shoppers via direct messaging and public forums. Etsy distinguished itself from other e-commerce platforms by emphasising community-building, resulting in a more personalised and human-centered purchasing experience.

In 2014, Etsy introduced **Etsy Wholesale** (1), a B2B (business-to-business) platform. It was created to simplify wholesale transactions between qualified retail buyers (boutiques, galleries, and stores) and Etsy sellers (makers and designers) who were interested in buying unique, handcrafted, and antique goods in bigger numbers for resale. A carefully chosen assortment of goods from Etsy sellers who chose to take part in the wholesale marketplace was made available by Etsy Wholesale. By promoting relationships between creative businesses and retail partners, Etsy Wholesale aims to expand Etsy's marketplace model into the wholesale sector. It was designed to give merchants more chances for development and income while giving customers a curated source for unique goods. Etsy announced the shutdown of Etsy Wholesale in July 2018. The business made the decision to end the platform to concentrate on other projects and enhance its primary marketplace services. As a result, Etsy Wholesale has ceased operations, but its legacy exemplifies Etsy's dedication to promoting

connections among creative professionals and independent craftsmen. Etsy Wholesale is a case of **Transactional Exploitation** (**Service Enlargement**) since the retail buyers and the sellers were already in the market.

In 2015, Etsy introduced **Etsy Manufacturing** (2), a service provided inside the platform that links sellers with independent producers and manufacturers to assist them in producing their goods. This service was launched to help Etsy merchants grow their companies and satisfy customer demand while preserving the quality and originality that Etsy appreciates. Sellers may engage with manufacturers through Etsy Manufacturing that are skilled in a variety of manufacturing processes, including carpentry, casting jewellery, and printing, among others. Through the platform, sellers may collaborate with manufacturers to produce goods that reflect their creative vision. This is a case of **Transactional Extension** (**Supply-side Addition**) in which a new side (manufacturers) is added to offer an additional service to the customer-side: the possibility to make products on request.

In 2019, Etsy acquired **Reverb** (3), an online marketplace specializing in musical instruments, gear, and accessories. Reverb offers a user-friendly interface for vendors to list their products, provide detailed descriptions, and set pricing. Etsy's acquisition allowed them to access the music community and penetrate the music equipment market. Reverb continued to function as a standalone site, but Etsy's resources improved its user interface and expanded its product selection. The acquisition also enabled cross-promotion between Etsy and Reverb, allowing both sites to expand their markets. This strategic move demonstrates Etsy's commitment to promoting independent sellers, developing communities, and offering unique products. Reverb is a **Transactional Exploitation's** case (**Service Enlargement**).

In 2021, Etsy introduced **Etsy Ads** (4), a marketing and promotion tool that the company provides to everyone using the platform to promote their goods inside the Etsy marketplace. Etsy Ads is an example of **Orthogonal Extension** in which the new orthogonal side is willing to advertise on the platform with a **Client-as-a-Target** (**CaaT)** strategy. Because the firm decides to invite an orthogonal side to capture the value inherent on the demand side by selling their eyeballs in a Client-as-a-Target approach, the platform innovation method employed for Etsy Ads is **Advertising.**

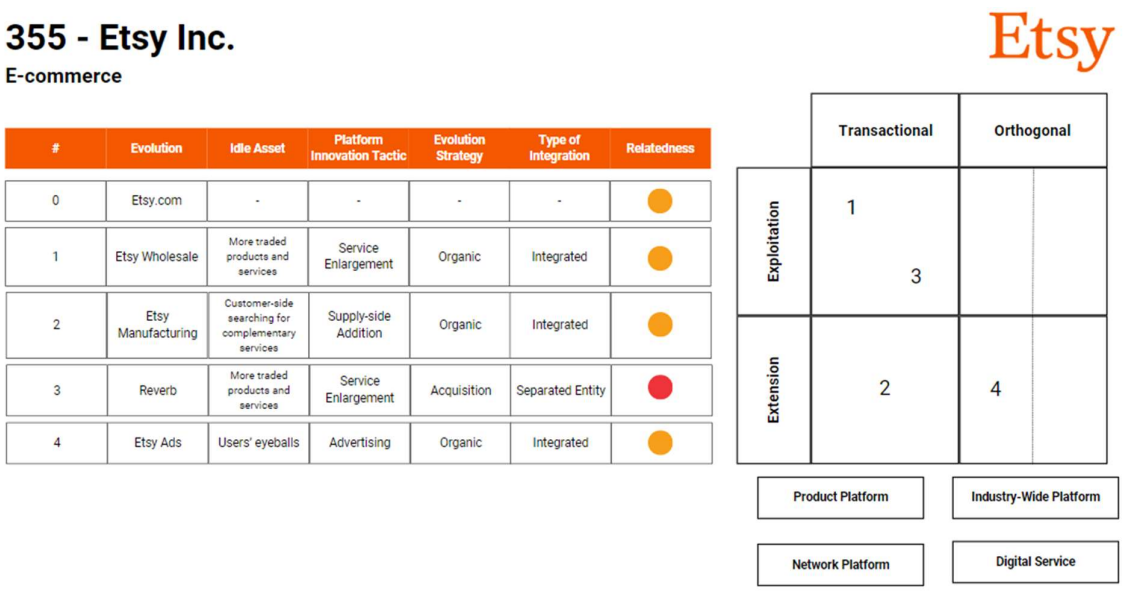


Figure 4.17: Etsy's evolution Board

4.1.13. Match Group Inc.

4.1.13.1. About the Company

Match Group Inc. is a prominent American technology company that operates within the online dating and social networking industry. Founded in 1995, the company has played a pivotal role in reshaping the way individuals connect and form relationships in the digital age. Gary Kremen, who saw how the internet might completely alter the dating scene, is the visionary behind the creation of Match Group. With Tinder, Match.com, Meetic, OkCupid, Hinge, Plenty of Fish, and other well-known dating worldwide brands, the company owns and runs the largest global portfolio of online dating services.

The mission of Match Group is to "*facilitate true interactions and meaningful connections online*". The organisation strives to empower people to find friendship and love by giving them access to platforms that allow them to identify like-minded people.

Despite the dominant position in the industry, Match Group faces competition from several key players such as Bumble Inc., Zoosk and eHarmony

On November 19, 2015, Match Group went public with its initial public offering (IPO) on the NASDAQ stock exchange under the ticker symbol "**MTCH**". This action gave investors a chance to profit from the rise of the online dating industry while also enabling the firm to obtain funds and expand its operations.

As their brands say: "*We're still on the cutting edge of bringing people together, revolutionizing the way people connect*".

4.1.13.2. Evolution History

Except for platforms also hosting an orthogonal side, all other scenarios addressed will be considered **Network Platforms** since they connect people of the same sides and takes strength from same-side network-externalities.

Match.com (0), established in 1995, is a popular online dating service that aims to help people find lasting relationships. Users can create detailed profiles highlighting their interests, preferences, and personality traits, which are used by matching algorithms to connect individuals with potential partners. These algorithms consider variables like user preferences, location, and hobbies. Match.com continuously learns from user interactions to improve their recommendations. The platform offers private chat, email-style communication, and winks to show interest. Premium subscriptions provide more advanced features like unlimited chatting and the ability to view who has visited your profile.

Match Group acquired **OkCupid** (1) in 2011, an online dating platform known for its unique matchmaking approach and focus on meaningful connections. The platform's unique feature is its extensive questionnaire, which users fill out during profile creation, covering topics like personal beliefs and lifestyle choices. OkCupid uses an algorithm to suggest matches based on user responses and website activities. The platform also considers other factors beyond physical appearance to connect people with similar interests and beliefs. Users can communicate through liking profiles and sending messages, with the site offering questions and icebreakers to promote meaningful conversations.

In 2013, Match Group decided to enlarge its portfolio of services and it acquired **Meetic** (2). Founded in 2001 by Marc Simoncini, Meetic has become a significant player in the online dating industry, offering a range of features and services to help individuals connect and find meaningful relationships. As in the previously case, users can create detailed profiles that include information about their interests, hobbies, and preferences. These profiles serve as a basis for potential matches. Meetic frequently plans real-life events and activities, such singles parties and social gatherings, in order to promote in-person contacts in addition to online interactions. As for Match.com, Meetic offers greater capabilities through premium subscription plans, including limitless messaging and access to sophisticated search tools.

In 2015, the Group decided to acquire also **PlentyOfFish** (**POF**) (3), founded by Markus Frind in 2003. Over the years, POF has acquired a sizable user base thanks to its uncomplicated strategy and user-friendly interface. The Chemistry Predictor, a quiz that evaluates users' personality traits, interests, and attitudes, is one of POF's distinguishing features. The platform uses the responses to this questionnaire to suggest compatible matches. A new important feature is MeetMe. Users using this function are shown a collection of profile pictures, and they can decide whether they want to meet each person based solely on their appearance in the images. POF offers

premium subscription options that offer further benefits, such as increased visibility, access to longer profiles, and the capacity to determine whether messages have been read, even though fundamental services are normally available for free.

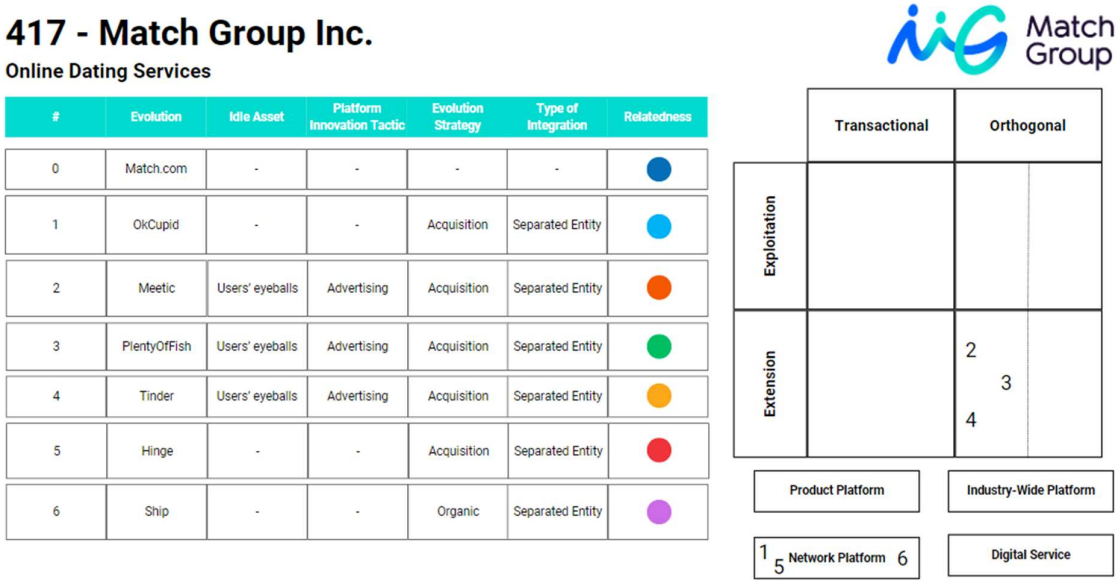
Match Group bought **Tinder** (4) in July 2017 for $3 billion, revolutionizing the way people connect and communicate in the digital era. Tinder, founded in 2012 by Sean Rad, Jonathan Badeen, Justin Mateen, Joe Munoz, Dinesh Moorjani, and Whitney Wolfe Herd, uses a swipe-based matching method to show interest and pass. Users can start a chat by swiping right on each other's profiles. The app uses geolocation technologies to connect users with nearby partners, facilitating spontaneous meetings and connections. Tinder offers premium subscription options like Tinder Plus and Tinder Gold, which provide features like unlimited swipes, rewinding swipes, and seeing who has liked your profile before swiping. Additionally, Tinder Passport allows users to change their location and match with people in other cities or countries, making it particularly useful for travellers or those interested in meeting people from different places.

Despite their incorporation into the Group, the three previously described platforms remain distinct entities that add an orthogonal side. As a result, they have been classified as **Orthogonal Client-as-a-Target Extension** (**Advertising**).

In 2019, Match Group fully acquired **Hinge** (5). Hinge is a cutting-edge dating app that sets itself apart by emphasising the development of genuine connections and partnerships. Justin McLeod founded Hinge in 2012, and since then it has grown in popularity for its distinctive method of online dating that places an emphasis on sincerity, considerate interactions, and compatibility. Hinge gives users the option to "like" particular photographs, prompts, or questions on a profile rather than using the conventional experience. Users can also remark on specific questions, providing a forum for deep dialogues to begin. Hinge introduced online dating capabilities that let users express their openness to online connections and make video chats in response to shifting social dynamics. With its "Hinge Preferred" premium membership, Hinge offers extra features including limitless likes, sophisticated filtering options, and the ability to view who has liked your profile.

In the same year, Match Group partnered with media brand Betches to launch a dating app, called **Ship** (6). By including the user's friends in the matching process, the social dating app Ship puts a novel spin on conventional dating services. The software allows users to ask for opinions and guidance from their friends, making dating more social, enjoyable, and participatory. Users of Ship can get together with friends to form a "Crew," who work together to swipe, match, and talk with possible partners. Collectively, the crew members can comment on potential matches and share their thoughts on compatibility. Using information about their tastes and location, Ship makes daily match recommendations to users. The crew can decide whether to "*ship*" (approve) or "*sink*" (disapprove) a match collectively. Within the app, crew members

can participate in group chats to talk about potential matches, give advice, and organise interactions.



417 - Match Group Inc.

Online Dating Services

#	Evolution	Idle Asset	Platform Innovation Tactic	Evolution Strategy	Type of Integration	Relatedness
0	Match.com	-	-	-	-	
1	OkCupid	-	-	Acquisition	Separated Entity	
2	Meetic	Users' eyeballs	Advertising	Acquisition	Separated Entity	
3	PlentyOfFish	Users' eyeballs	Advertising	Acquisition	Separated Entity	
4	Tinder	Users' eyeballs	Advertising	Acquisition	Separated Entity	
5	Hinge	-	-	Acquisition	Separated Entity	
6	Ship	-	-	Organic	Separated Entity	

Figure 4.18: Match Group's evolution Board

4.1.14. MarketAxess Holdings Inc.

4.1.14.1. About the Company

MarketAxess Holdings Inc. is a well-known financial technology (fintech) firm that operates a fixed-income electronic trading platform. MarketAxess, founded in 2000 and headquartered in New York City, has played a significant role in revolutionising how institutional investors and dealers trade bonds and other fixed-income instruments.

When compared to traditional voice-based trading methods, this platform allows users to trade bonds and other fixed-income products with greater transparency and efficiency.

MarketAxess Holdings Inc.'s mission is focused on "*improving and modernising the way fixed-income securities are traded*". For this reason, it is constantly developing and improving its trading platform, leveraging advanced algorithms, data analytics, and artificial intelligence to increase trade execution, pricing transparency, and overall market efficiency.

While the competitive environment has changed since then, some of MarketAxess's main competitors are Tradeweb Markets Inc., Bloomberg LP, CME Group, Intercontinental Exchange Inc. (ICE), and Nasdaq Inc.

The company aspires to provide a collaborative ecosystem where market participants may connect, share ideas, and interact productively. The platform of the company functions as a communication hub, allowing members to create relationships and foster a sense of community.

MarketAxess Holdings Inc. began trading publicly in 2004. On that date, the company's stock was listed on the NASDAQ under the ticker symbol "**MKTX**".

4.1.14.2. Evolution History

The initial release of the **MarketAxess Trading Platform** (0) in 2000 marked a revolutionary improvement in the trading of fixed-income instruments. The goal of this computerised trading platform was to streamline and modernise bond trading's customarily manual and telephone-based processes. The platform's first version supported a range of fixed-income assets, including corporate, government, mortgage-backed, municipal, and agency bonds. This broad product selection seeks to meet the needs of a variety of market players. Institutional investors, dealers, and other market participants may use the platform from their computers thanks to its user-friendly web-based interface. Users could securely access the portal by logging in with their individual credentials. The platform's capacity to support automated trade execution was one of its key characteristics. It could automatically execute deals on behalf of users when specific conditions were satisfied (such as matching bid and ask prices), minimising the need for personal interaction.

The company made the decision to launch **MarketAxess European Platform** (1) in 2005 in order to increase its reach outside of the USA. The European Platform was created to address the distinctive features of the region's sovereign, corporate, and other bond markets, which comprise a wide variety of issuances from different nations. It was created to replicate what MarketAxess had accomplished with its initial platform in the United States by bringing the advantages of electronic trading, transparency, and efficiency to the region's bond markets. The platform allowed cross-border trading by enabling users to carry out transactions with counterparties based in various European nations. This attribute widened trading opportunities and increased market liquidity. The MarketAxess European Platform is a representation of **Transactional Exploitation** because it enters in a new geographical area, Europe, but with the same side involved in the transaction (**Service Enlargement**).

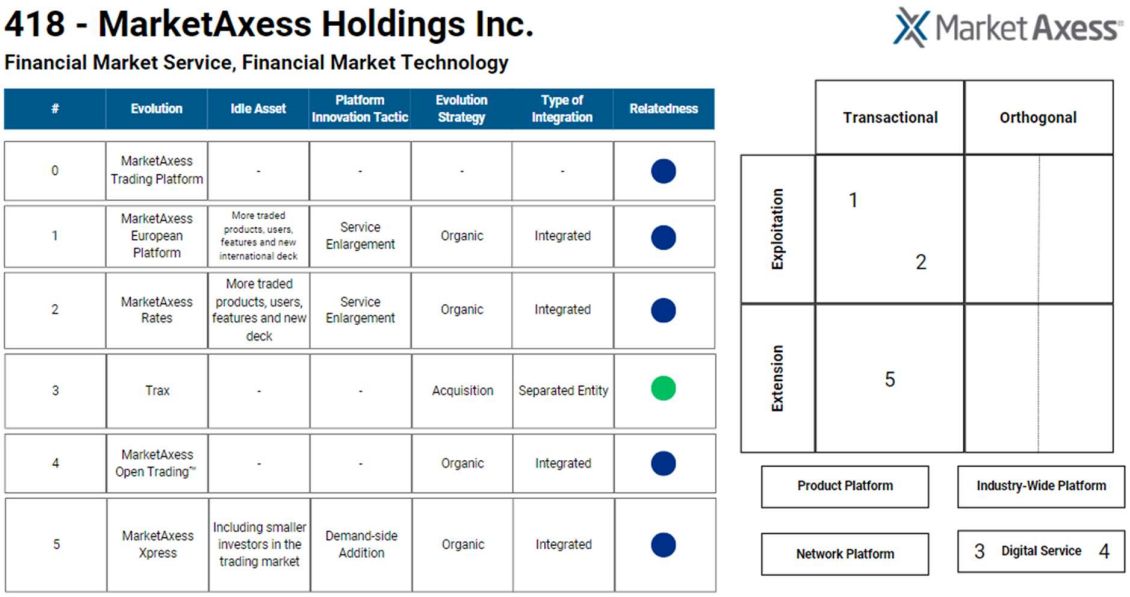
In 2011, MarketAxess has introduced **MarketAxess Rates** (2). MarketAxess Rates is a platform for trading fixed income securities, specifically government bonds and other interest rate products. In order to increase the efficiency and transparency of trading fixed income instruments, MarketAxess Rates provides a variety of features. On the platform, users have the option to trade anonymously, which can preserve their privacy and reduce the chance of information leaking. Customers can get the most

recent pricing data from MarketAxess Rates thanks to its dynamic pricing engine. MarketAxess Rates is a case of **Transactional Exploitation** (**Service Enlargement**).

In order to strengthen its offerings and provide a full range of solutions for both pre-trade and post-trade activities in the fixed-income markets, MarketAxess purchased **Trax** (3) in 2013. Trax provides automated trade matching and confirmation services, which help market participants reconcile and confirm trades efficiently after they have been executed. It compiles a sizable amount of fixed-income market data and makes it accessible. Trade information, pricing, trading volume, and other pertinent variables are all included in this data. This information can be used by market participants to understand market movements and make wise trading decisions. Despite being a division of MarketAxess Holdings Inc., Trax functions independently inside the MarketAxess ecosystem. With Trax, MarketAxess decides to improve the services offered to parties currently using the platform, a clear example of a **Digital Service**.

In 2013. MarketAxess Holdings Inc. introduced **MarketAxess Open Trading** (4), commonly referred to as the 'MOT' protocol, as a component of its electronic trading platform to offer market participants a new means to access liquidity and improve transparency. The "all-to-all" trade model of MOT is one of its distinguishing characteristics. Participants in traditional trading often communicate with a dealer acting as an intermediary. MOT allows for direct communication between market players, fostering a more welcoming and cooperative trading atmosphere. Participants have access to a wider variety of pricing data, enabling them to make better trading decisions. By doing away with the usual dealer intermediary, MOT simplifies the trade execution procedure. Reduced execution times, lower transaction costs, and more overall efficiency can result from this. The company launched MarketAxess Open Trading as an example of a **Digital Service** to boost the functionality and potential of its platform.

In 2016, MarketAxess has introduced **MarketAxess Xpress** (5). It is designed for smaller institutions and retail investors who want to trade fixed income securities. MarketAxess Xpress is integrated with the main MarketAxess platform, so users can access the same liquidity and pricing information. However, MarketAxess Xpress has a simpler user interface and lower trading fees, making it more accessible to smaller investors. MarketAxess Xpress is an example of a **Transactional Extension** in which the platform provider decides to capitalise on the value inherent on the supply side by onboarding a new group of clients as a demand-side: smaller institutions and retailer investors (**Demand-side Addition**).



418 - MarketAxess Holdings Inc.

Financial Market Service, Financial Market Technology

#	Evolution	Idle Asset	Platform Innovation Tactic	Evolution Strategy	Type of Integration	Relatedness
0	MarketAxess Trading Platform	-	-	-	-	
1	MarketAxess European Platform	More traded products, users, features and new international deck	Service Enlargement	Organic	Integrated	
2	MarketAxess Rates	More traded products, users, features and new deck	Service Enlargement	Organic	Integrated	
3	Trax	-	-	Acquisition	Separated Entity	
4	MarketAxess Open Trading™	-	-	Organic	Integrated	
5	MarketAxess Xpress	Including smaller investors in the trading market	Demand-side Addition	Organic	Integrated	

Figure 4.19: MarketAxess' evolution Board

4.1.15. Live Nation Entertainment Inc.

4.1.15.1. About the Company

Live Nation Entertainment Inc. is a global leader in the live entertainment industry, renowned for its exceptional production and promotion of live events. Founded in 2005, the company has revolutionized the way audiences experience concerts, festivals, and other live performances.

Live Nation Entertainment was established through the merger of Live Nation and Ticketmaster, resulting in a comprehensive entertainment powerhouse. Its co-founders, Michael Rapino, and Irving Azoff played instrumental roles in shaping the company's trajectory. Rapino continues to lead Live Nation as its CEO and has been a driving force behind its growth and success.

Operating within the broader entertainment sector, Live Nation Entertainment specializes in live event production, artist management, ticketing services, and venue operations. The company's mission is to "*connect artists with their fans and create unforgettable live experiences that resonate globally*". By leveraging its extensive resources, Live Nation Entertainment aims to enrich the lives of music enthusiasts through access to a diverse range of live performances.

The company faces competition from several key players in the live entertainment space. Among its prominent rivals are AEG Presents, which also organizes and promotes live events, and C3 Presents, known for its expertise in producing major festivals.

In 2005, Live Nation Entertainment made its debut on the public market under the ticker symbol "**LYV**" and has since demonstrated consistent growth, financial performance and strong influence across continents.

4.1.15.2. Evolution History

SFX Entertainment, founded in 1996 by media entrepreneur Robert F.X. Sillerman, was a prominent firm in the electronic dance music (EDM) sector, specializing in the production, promotion, and administration of electronic music festivals and concerts. The company aimed to capitalize on the growing popularity of EDM and its culture by partnering with various brands to offer unique experiences for festivalgoers. SFX Entertainment was a significant moment in the growth of the live entertainment business, demonstrating the feasibility of integrating multiple entertainment divisions into a single organization. Despite challenges and ownership changes, the company's creative strategy influenced how entertainment giants conducted live event promotion and production. In 2005, through a spin-off, SFX Entertainment gave birth to **Live Nation** (0).

Between 2006 and 2009, the company decided to focus on music by acquiring related companies around the world and disposing of other lines of business.

In 2010, Live Nation merged with **TicketMaster** (0), an American ticket sales and distribution firm, to create a powerful alliance. Ticketmaster offers an online platform and mobile app for customers to browse, select, and purchase tickets for events across various genres and locations. The company has embraced mobile ticketing, allowing users to digitally keep their events on their phones, saving time and eliminating the need for printed tickets. However, Ticketmaster has faced scandals and lawsuits, including allegations of infringement of various laws. The fees from ticket sales, which account for a significant portion of total ticket costs, have drawn scrutiny from regulators, customers, and performers. The US Department of Justice has also criticized the company for retaliating against venues violating the Live Nation merger's 2010 10-year consent order. The merger has resulted in a giant entertainment platform that combines event production expertise with seamless ticketing services, elevating live entertainment accessibility and innovation globally.

Live Nation Productions (1), a subsidiary of Live Nation Entertainment Inc., was established in 2015 to produce film, television, and documentaries. The company leverages its extensive network in the music and entertainment industries to create engaging content. It accesses exclusive concert footage, interviews, and other music-related content, allowing it to create documentaries that provide detailed insights into the lives and careers of various singers and bands. These movies often feature behind-the-scenes footage, personal stories, and historical background, allowing fans to better understand their favourite musicians. Live Nation Productions exemplifies the

company's efforts to expand beyond live events and tickets, aiming to increase its influence and contacts in the entertainment industry. Live Nation Productions could be considered as **Orthogonal Client-as-a-Service Exploitation** (**Platform-oriented E-Ethnography**) leveraging the data collected from the platform's relationships with artists and fans to the creation of movies.

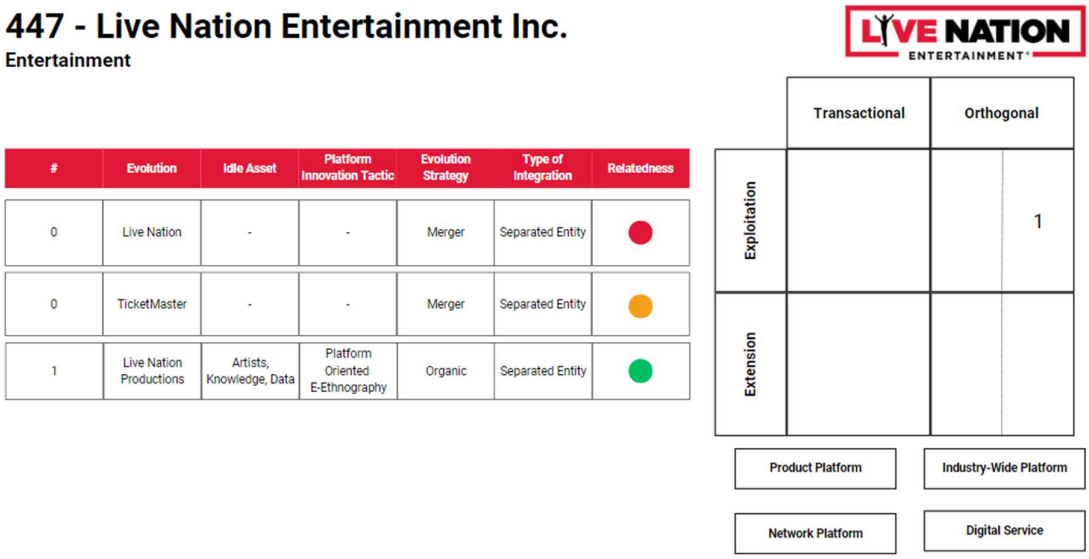


Figure 4.20: Live Nation Entertainment's evolution Board

4.2. Cross-case Analysis

4.2.1. Global Perspective Analysis

4.2.1.1. Findings

Global Perspective Analysis is carried out mainly to give a comprehensive perspective of the database: get an overview of the overall trends to have a point of reference so that future analyses can be more easily approached. Despite this, it is also able to highlight relevant findings.

Table 4.1 shows the number of steps labelled according to Platform Strategy without considering other step characteristics, from the most present to the least. Using this as a starting point, it is also possible to better understand the overall perspective on Platform Innovation Tactic, Relatedness, Evolution Strategy, and Type of Integration. It is immediately apparent that the **Transactional Exploitation** strategy with its 44.04% covers almost half of the **109 alternatives** and that there is a large disparity between **Transactional** (55,02%) and **Orthogonal** (5,51%) strategies.

This disparity, apart from the decision of the individual companies, is probably also due to the methodology used to collect the information (see Paragraph 3.1.). The most widely option outside of the traditional matrix is Digital Service, which comes second overall with 27.52%. Network Platforms covered a healthy 10.09%, Industry-Wide Platforms only 1.83%. There is no evidence of Product Platforms.

As Platform Strategy and Platform Innovation Tactics are closely related (the former being the parent classification of the latter), it is also interesting to observe the breakdown of Platform Innovation Tactics (Table 4.2). It is important to mention that as far as Product Platform, Industry-Wide Platform, Network Platform, and Digital Service are concerned, in theory, no Platform Innovation Tactic is expected.

Of the **48 cases** of **Transactional Exploitation**, it is possible to see that 62.5% are of the **Service Enlargement** type while 37.5% are instead considered **Platform Gemini**. This happens because the analysed platforms prefer to expand the service within the same platform rather than create a new one that offers a different service to the same sides.

Out of the **12 cases** of **Transactional Extension**, the vast majority (91.67%) are of the **Supply-side Addition** type while only **one case** (8.33%) is of the **Demand-side Addition** type. It makes explicit the fact that when a side is added on the Transactional Line it is almost always added in the supply-side.

Regarding the **Orthogonal Extension** cases, they are all from the **Client-as-a-Target** subclassification and from the **Advertising** tactic. No cases of Orthogonal CaaS Extension are noted in the 109 overall steps of evolution.

Finally, from the category **Orthogonal Exploitation**, only one instance of the **Client-as-a-Source** type was found. This evolutionary step is from the **Platform Oriented E-Ethnography** tactic.

Table 4.1: Platform Strategy Overall

Platform Strategy	Count	%
Transactional Exploitation	48	44,04%
Digital Service	30	27,52%
Transactional Extension	12	11,01%
Network Platform	11	10,09%
Orthogonal Extension (CaaT)	5	4,59%
Industry-Wide Platform	2	1,83%
Orthogonal Exploitation (CaaS)	1	0,92%
Total	**109**	**100,00%**

Table 4.2: Platform Innovation Tactic Overall

Platform Innovation Tactic	Count	%
Service Enlargement	30	45,45%
Platform Gemini	18	27,27%
Supply-side Addition	11	16,67%
Advertising	5	7,58%
Demand-side Addition	1	1,52%
Platform Oriented e-ethnography	1	1,52%
Total	**66**	**100,00%**

Table 4.3 makes explicit the Evolution Strategy overview, namely whether the evolutionary step was the result of an Organic Growth or an Acquisition. There is a substantial balance between **Acquisition** and **Organic**, **67 cases** and **42 cases**, respectively. This type of classification is less topic-specific and disconnected from those seen previously. Despite this it will be noted in the next section how Evolution Strategy is a source of division and findings in same-industry analysis.

Table 4.3: Evolution Strategy Overall

Evolution Strategy	Count	%
Acquisition	67	61,47%
Organic	42	38,53%
Total	**109**	**100,00%**

Finally, with Table 4.4 the Type of Integration is made explicit. It must be stressed that there is no correlation between this category and the Evolution Strategy. A platform can be Integrated or left a Separated Entity whether it is created organically or acquired. Again, there is some balance, and no particular category is predominant. There are **57 cases** of **Integrated**, **47 cases** of **Separated Entity**, and **five cases** of **Both**. Both cases can be attributed to companies that came into possession of platforms through Acquisition, have Integrated their services within the operations of the other platforms in possession, and at the same time left the new platform also as a Separated Entity.

Table 4.4: Type of Integration Overall

Type of Integration	Count	%
Integrated	57	52,29%
Separated entity	47	43,12%
Both	5	4,59%
Total	**109**	**100,00%**

4.2.1.2. Relationship between Platform Thinking and Product, Industry-Wide, Network Platforms, and Digital Service

Returning now to the focal research of this study, let's proceed to explicate the main outcomes starting with those emerging from the longitudinal analysis. In order to obtain these results, as already made explicit in the chapter "Methodology" (see paragraph 3.2.), it is recalled that it was necessary to extend and adapt the framework proposed by Trabucchi and Buganza (2023a) so that it would be compatible with the type of companies taken into analysis and so that it would also consider other interesting features in the Platform Thinking realm.

The first result extrapolated from the data collected from the longitudinal analysis refers to the large presence of **Digital Service** as a **Platform Strategy** used within the evolutionary steps of Born-as-a-Platform companies. **53.33%** of the platforms reviewed show the implementation of at least one Digital Service, and often multiple implementations can be seen: **46.67%** of companies show the presence of two or more **Digital Services** in their evolutionary steps. It is also interesting to see the percentage covered by **Digital Services** out of the total number of **Platform Strategies** mapped. These, in fact, cover **27.52%** of the evolutionary steps, ranking second only to **Transactional Exploitation** (**44.04%**) and putting a significant gap over **Transactional Extension** (**11.01%** of the total). Besides having value on its own this insight becomes even more interesting when juxtaposed with the second insight explained by Trabucchi and Buganza in their work, namely that linear value chain companies often

confuse the terms Platform and Digital Service. It has thus been shown that linear value chain companies use the term “platform” incorrectly and this leads to the presence of a large presence Digital Services related to the Platform Thinking sphere. Born-as-a-Platform companies, that have based their entire success on this Business Model, are fully aware of the difference between the two terms. Nevertheless, the presence of Digital Services is also strongly present in the Born-as-a-Platform sphere as far as Platform Strategy is concerned. Thus, most of the investigated companies implement, along with others, the following strategy. After being born and entered the market, the platform, in order to continue to grow and innovate, decided to implement various Digital Services to maintain and renew its competitive advantage. These services can be within the platform itself (such as Copart 360 for Copart Inc. or Safety Check for Meta) or stand-alone and complementary to it (like Braintree for PayPal Holdings Inc. or Credit Market Analysis for Intercontinental Exchange Inc.).

Regarding the other supplementary Platform Strategies (Product Platform, Industry-Wide Platform, and Network Platform) the picture is radically different. Within this study there was even no evidence of a single instance of **Product** (or **Internal**) **Platform**. Product Platforms, on the other hand, are well known and present within linear value chain businesses. This is because they are particularly tied to the production of physical products, even if not exclusively so, and therefore do not match well with Born-as-a-Platform companies which are almost all born digital. They do not offer an authentic product but rather a matchmaking service. On the other hand, as far as **Industry-Wide Platform** is concerned, the only company to use it among the ones reviewed was the social media Company "par excellence": Meta. The Social Media Group, through The Facebook API, allowed developers to integrate its social features into their programs, expanding the platform's reach. It provided access to user profiles, enabled secure data sharing, and spawned a thriving industry of third-party applications for Facebook. A few years later Meta replicated the strategy by purchasing Oculus and allowing external developers to innovate through its platform, seeking to bring greater value to the Metaverse, aligning the strategy with the Group's mission and vision. This strategy is certainly suitable for a Social Media company but more hardly to a Financial Service company or a Financial Market Technology company for example. Opening up to external innovators may increase the value and attractiveness of the platform, but it certainly decentralizes its governance and thus makes it easier to lose its control. Finally, **Network Platforms** are particularly present (**10.09%** of the total) although slightly more than a quarter of the companies (**26.67%**) have implemented them at least once. In addition to the well-known Facebook, Instagram and WhatsApp, examples of these are Mastercard Send and PayPal.me. The motivations for placing a Network Platform alongside the Platform Thinking world are mainly twofold. The first platforms respectively were in fact born to create a large customer base that was then leveraged to implement an Orthogonal strategy.

The latter, on the other hand, were created by already established platforms and were used as an additional service to create value for customers on the same side.

4.2.1.3. Platform Replication Strategy by Born-as-a-Platform companies

A second interesting finding of this research lies in the observation that a platform, after successfully implementing a **Platform Strategy**, tends to replicate the same strategy several times with successful outcomes. Thus, if a company manages, for example, to capitalise on a certain type of **Idle Asset** (such as a huge customer base or some best practices) by implementing a **Transactional Exploitation**, it will tend to reapply the same strategy in the future. It is important to emphasise that the possibility of exploiting the same or a similar Idle Asset several times is due by the circumstance that the companies analysed are often groups of companies. A single platform could not in fact use an Idle Asset more than once, because once discovered and leveraged it would no longer be idle. Within the database created, **93,33%** of the companies confirm this insight.

The frequency of how often these companies implement the same strategy varies greatly, ranging from companies implementing only one strategy throughout their evolutionary history to companies implementing up to five strategies over and over again. For instance, among the vast number of examples available, eBay Inc. and Visa have implemented throughout their evolutionary history a single Platform Strategy, namely **Transactional Exploitation** leveraging their customer base, new traded products and services, and **Digital Services**. Booking Holdings Inc. and Expedia Group Inc. leveraging their best practices and customers looking for complementary services continued to solely alternate between **Transactional Exploitation** and **Transactional Extension**, experiencing outstanding growth. Match Group Inc. is another fine example: it has in fact, over the years, implemented a **Network Platform** three times, and employed an **Orthogonal Extension (CaaT)** strategy thrice. However, the most interesting instance supporting this thesis is definitely Meta. The company has in fact implemented both a **Transactional Extension** strategy and a **Network Platform** four times in its history, a **Transactional Exploitation** strategy three times, has twice implemented both a **Digital Service** and an **Industry-Wide Platform**, and has only once failed to replicate a strategy.

To further validate the finding that there is a pattern of repetition regarding the **Platform Strategy** implemented by Born-as-a-Platform companies it is enough to consider the percentage of steps per firm that have not been replicated (so far): **6.42%**.

4.2.1.4. Centralisation vs Decentralisation in platform realm

Another insight from this research relates to the domain of **Relatedness** and **Type of Integration**, there are indeed groups that prefer to focus their business and evolutionary strategy by concentrating on a single platform (**53,33%**) while others that prefer to differentiate the number of platforms they hold (**46,67%**). Thus, there is no dominant strategy regarding the centralization of platforms within groups.

Seven of the fifteen companies investigated choose to have a decentralized or at least partially decentralized portfolio. In fact, these companies have a variety of platforms in their portfolio, with none of them having a clearly dominant position in share over the others. The strongest exemplifications of this trend are Booking Holdings Inc. and Expedia Group Inc. where there is a new platform, always added through Acquisition, for each newly analysed evolutionary step. The same strategy is also implemented by Match Group Inc. even though in recent years it has abandoned growing through Acquisition and has shown an evolutionary step through Organic Growth. Less radical but still a decentralized strategy is, for example, that of Meta. In fact, the company bases its value on its three warhorses (Facebook, Instagram, and WhatsApp) and continues to innovate within and through these. At the same time, it continues to create or acquire new platforms or Digital Services leaving them separate entities and thus increasing the group's portfolio. A common aspect of all these companies is that they prefer to have a related rather than a diversified portfolio, meaning that the companies owned by the group all belong to the same or a related and complementary industry. This feature allows these companies to better leverage best practices and Idle Assets acquired during their history and growth, replicating the same Business Model, or implementing a new one strictly related to the old business.

Instead, **eight out of fifteen companies** prefer to revolve their business around a single platform. These companies are often composed effectively by a single platform, while other groups have one dominant platform in terms of share and value and one or more smaller platforms interconnected with it. Visa, Mastercard Inc., CME Group Inc. Class A, and Nasdaq Inc. are among those platforms that throughout their evolutionary history have been based on one and only one platform, making countless innovations through different Platform Strategies but always internally within the platform. Instead, Copart Inc., eBay Inc., Etsy Inc., and MarketAxess Holdings Inc. concentrated most of their innovative efforts within their core platform, but it also happened that over the years a platform was added that was closely related to the core activity or that for instance replicated the same business in a different geographical market. Copart Inc. exemplifies the first scenario by introducing National Powersport Auctions (NPA), a marketplace where users can exchange powersports vehicles such as motorbikes and jet skis, leaving it as a Separated Entity alongside its core business based on the exchange of cars. The acquisition of Giosis's Japan Business by eBay Inc., on the other hand, represents a clear choice of strategy focused on geographic expansion, has at the same time been left as a Separated Entity in order not to affect

the balance of a market very different from the one in which the parent company operates.

Born-as-a-Platform firms act and align themselves with "normal" linear value chain companies in terms of **Relatedness** and **Type of Integration.** Indeed, there is no dominating strategy since, according to strategic business theory, there is a trade-off between centralising and decentralising making no action better than the other one. A centralisation strategy, relying on a single platform, guarantees greater specialisation and concentration, focusing on a single strategy or a single market, making the most of its best practices and often achieving faster and higher profits. Moreover, having only one platform, management and control complexity is relatively low. At the same time, however, it entails a high degree of dependence on the individual market, hence a higher risk and a lack of protection against fluctuations. Instead, a decentralized strategy brings reduced risk, protection against loss, and greater flexibility, leading to greater long-term stability. But, at the same time, it ensures higher costs and management complexity coupled with potentially lower profits.

4.2.2. Industry Perspective Analysis

4.2.2.1. Findings

Examining the companies in the database by comparing them according to their industry, clear correlations were found between Industry type and Platform Strategy, Platform Innovation Tactic, and Relatedness. While mixed results were found regarding the relationship between Industry and Evolution Strategy. This section will logically report only those companies that can be clustered according to their industry, thus only those firms that have at least one other company with the same type of industry within the database.

Regarding the Platform Strategy domain, all the companies analysed found a strong correlation between the type of industry and the strategy applied. All three companies belonging to the E-commerce industry showed a strong predominance of **Transactional Exploitation**. Meanwhile, the four companies that are part of the Financial Market Service and Financial Market Technology industry see an early majority of **Transactional Exploitation** followed by a strong presence of **Digital Service**. The two companies in the Financial Services industry see a quasi-totality of **Digital Services** while the two in the Travel Technology industry see a **Transactional** step totality with a large majority of the **Transactional Exploitation** type.

In the realm of Platform Innovation Tactic, the situation does not change. There is a great correlation with among companies in the same industry. E-commerce companies consistent with Platform Strategy evolve predominantly through **Service Enlargement** Similarly behave the companies in the Financial Market Service and

Financial Market Technology industry, while all companies in the Travel Technology industry prefer **Platform Gemini** as a tactic. Financial Services companies are not considered in this sub-analysis, being composed solely of Digital Services and Network Platforms.

The Relatedness domain also shows a strong interrelationship among companies in the same industry. All E-commerce companies tend to focus on a single main platform while sometimes supplementing it with a few minor ones. In a very similar way behave the companies in the Financial Market Service and Financial Market Technology industry. In a completely opposite vein, the two companies in the Travel Technology industry act by adding a new platform to the group for each evolutionary step. Finally, the Financial Services companies present a single platform for the entire duration of their evolutionary history.

The Evolution Strategy domain, however, is the only one with contrasting strategies relative to companies in the same industry. In the E-commerce industry, for example, two companies prefer to expand through **Acquisition** while the third one through **Organic Growth**. In addition, Financial Market Service and Financial Market Technology companies are also split down the middle, two preferring to evolve through **Acquisition** while the other two through **Organic Growth**. Companies in the Financial Services and Travel Technology industries, on the other hand, expand consistently: the former solely through **Organic Growth** while the latter purely through **Acquisition**. For these reasons, it is not possible to see a correlation between Industry and Evolution Strategy.

4.2.2.2. E-commerce

The E-commerce industry cluster includes **three** online marketplaces: **Copart Inc.**, **eBay Inc.**, and **Etsy Inc.** The companies analysed in this cluster report a close correlation between Platform Strategy, Platform Innovation Tactic, and Relatedness while they show discordance regarding Evolution Strategy.

Regarding Platform Strategy, it can be seen (Table 4.5) that these companies evolved predominantly through **Transactional Exploitation**, while the other strategies used do not report patterns or similarities. Indeed, 66.67% of Copart Inc.'s evolutionary steps, 50% of Etsy Inc.'s, and even 100% of eBay Inc.'s are classified as Transactional Exploitation. The evolutionary steps that are not classified as it in the table are all different from each other. Copart Inc. shows one case of **Digital Service** (33.33%) while Etsy Inc. shows one case of **Orthogonal Extension** (**CaaT**) and one case of **Transactional Extension** (25% each).

Table 4.5: E-commerce Platform Strategies

Platform Strategy	Count	%
E-commerce		
eBay Inc.		
Transactional Exploitation	6	100,00%
eBay Inc. Total	**6**	**100,00%**
Etsy Inc.		
Orthogonal Extension (CaaT)	1	25,00%
Transactional Exploitation	2	50,00%
Transactional Extension	1	25,00%
Etsy Inc. Total	**4**	**100,00%**
Copart Inc.		
Digital Service	1	33,33%
Transactional Exploitation	2	66,67%
Copart Inc. Total	**3**	**100,00%**
E-commerce Total	**13**	

Given the strong association between Platform Strategy and Platform Innovation strategy (Table 4.6), it is clear that these evolutionary steps were mostly accomplished through a Service Enlargement tactic. In the case of Copart Inc, keeping in mind that Digital Service is not related to Platform Innovation Tactics, it is observed that 100% of the remaining evolutionary steps are classified as **Service Enlargement**. eBay Inc. shows that of its six evolutionary steps, all Transactional Exploitation, **four** are categorized **Service Enlargement** (66.67%) while only **two Platform Gemini** (33.33%). Finally, consistent with theory, Etsy Inc. sees 50% of its evolutionary steps named as **Service Enlargement**, as 50% were Transactional Exploitation for Platform Strategy.

Table 4.6: E-commerce Platform Innovation Tactics

Platform Innovation Tactic	Count	%
E-commerce		
eBay Inc.		
Platform Gemini	2	33,33%
Service Enlargement	4	66,67%
eBay Inc. Total	**6**	**100,00%**
Etsy Inc.		
Advertising	1	25,00%
Service Enlargement	2	50,00%
Supply-side Addition	1	25,00%
Etsy Inc. Total	**4**	**100,00%**
Copart Inc.		
Service Enlargement	2	100,00%
Copart Inc. Total	**2**	**100,00%**
E-commerce Total	**12**	

Regarding Relatedness, it can be seen (Table 4.7) that all three companies focus primarily on the main platform, adding, in some cases, one or two secondary platforms. eBay Inc. has **five** related evolutionary steps (71,43%) and **two** independent ones. Etsy Inc. shows **four** related evolutionary steps (80%) and **one** standalone. Finally, Copart shows **three** related evolutionary steps (75%) and only **one** self-standing one.

Table 4.7: E-commerce Relatedness

Relatedness	Count	%
E-commerce		
eBay Inc.		
A	5	71,43%
B	1	14,29%
C	1	14,29%
eBay Inc. Total	**7**	**100,00%**
Etsy Inc.		
A	4	80,00%
B	1	20,00%
Etsy Inc. Total	**5**	**100,00%**
Copart Inc.		
A	3	75,00%
B	1	25,00%
Copart Inc. Total	**4**	**100,00%**
E-commerce Total	**16**	

As previously announced, Table 4.8 highlights that regarding Evolution Strategy there were different approaches among the companies. Copart Inc. and eBay Inc. approach their growth primarily through **Acquisitions**: 66.67% both. In contrast, Etsy Inc. prefers to expand in an **Organic** way (75%).

Table 4.8: E-commerce Evolution Strategies

Evolution Strategy	Count	%
E-commerce		
eBay Inc.		
Acquisition	4	66,67%
Organic	2	33,33%
eBay Inc. Total	**6**	**100,00%**
Etsy Inc.		
Acquisition	1	25,00%
Organic	3	75,00%
Etsy Inc. Total	**4**	**100,00%**
Copart Inc.		
Acquisition	2	66,67%
Organic	1	33,33%
Copart Inc. Total	**3**	**100,00%**
E-commerce Total	**13**	

The three companies in the E-commerce industry are all born by leveraging the digital marketplace Business Model, creating a virtual space where they act as an intermediary and enable transactions between potential customers and potential buyers. This is the most classic but probably the most effective platform model. This model indeed, once critical mass is reached by balancing the two sides, generates great potential and a huge amount of value. After the three companies got through the initial phase, they realized this potential and expanded accordingly, leaving the initial marketplace at the centre of their core business. For this reason, there is a predominance of evolutionary steps of the **Transactional Exploitation** and more specifically **Service Enlargement** type. This type of evolution allows them to leverage the two sides already present and strong and improve their experience within the marketplace through **more traded products and services** and sometime also a **new geographical area** (Table 4.9). More seldom, these companies prefer to use, instead of a Service Enlargement type, a **Platform Gemini** by creating a new platform with the same sides (still related to the core business) but that is more focused and characterized on a single service or trading product. The other types of expansion present are always closely related to the central marketplace: steps considered **Digital Service**, for example, are used to improve the experience and service of one or both sides already on the platform. Those classified **Orthogonal Client-as-a-Target Extension**

(**Advertising**), on the other hand, serve to make the Business Model sustainable leveraging **users' eyeballs**. Only in one case Etsy Inc., having a **customer-side search for complementary service**, decide to enhance its platform through a **Transactional Extension** (**Supply-side Addition**) strategy. Although all three companies decide to have a related evolution to take full advantage of the benefits that a marketplace Business Model generates. Each one chooses to evolve in an **Organic** way or through **Acquisition** depending on market opportunity and business strategy.

Table 4.9: E-commerce Idle Assets

Idle Asset	Count	%
E-commerce	**12**	
eBay Inc.	**6**	**100,00%**
More traded products and services	4	66,67%
More traded products, services, and new geographical area	2	33,33%
Etsy Inc.	**4**	**100,00%**
Customer-side searching for complementary services	1	25,00%
More traded products and services	2	50,00%
Users' eyeballs	1	25,00%
Copart Inc.	**2**	**100,00%**
More traded products and services	2	100,00%
Total	**12**	

4.2.2.3. Financial Market Service & Financial Market Technology

The cluster of companies grouped under the industry Financial Market Service and Financial Market Technology are **four**: **CME Group Inc.**, **Intercontinental Exchange Inc.**, **MarketAxess Holding Inc.**, and **Nasdaq Inc.** As in the case of the E-commerce industry, these companies show a strong correlation between Platform Strategy, Platform Innovation Tactic, and Relatedness while this correlation disappears in the domain of Evolution Strategy.

Table 4.10 shows how these companies primarily present **Transactional Exploitation** as a Platform Strategy, and secondarily a strong **Digital Service** presence in the other cases. CME Group Inc. for example has 100% of evolutionary steps listed as **Transactional Exploitation**. Intercontinental Exchange Inc. and Nasdaq Inc. present respectively 55.56% and 50% of **Transactional Exploitation** while 44.44% and 50% of **Digital Service**. Finally, MarketAxess Holding Inc. sees an equal split between Transactional Exploitation and Digital Service (40% both) and is the only **one** to present a case of **Transactional Extension**.

Table 4.10: Financial Market Platform Strategies

Platform Strategy	Count	%
Financial Market Service, Financial Market Technology		
CME Group Inc. Class A		
Transactional Exploitation	4	100,00%
CME Group Inc. Class A Total	**4**	**100,00%**
Intercontinental Exchange Inc.		
Digital Service	8	44,44%
Transactional Exploitation	10	55,56%
Intercontinental Exchange Inc. Total	**18**	**100,00%**
MarketAxess Holdings Inc.		
Digital Service	2	40,00%
Transactional Exploitation	2	40,00%
Transactional Extension	1	20,00%
MarketAxess Holdings Inc. Total	**5**	**100,00%**
Nasdaq Inc.		
Digital Service	4	50,00%
Transactional Exploitation	4	50,00%
Nasdaq Inc. Total	**8**	**100,00%**
Financial Market Service, Financial Market Technology Total	**35**	

Again, given the great correlation between Platform Strategy and Platform Innovation Tactic, Table 4.11 shows a large percentage of evolutionary steps generated by a **Service Enlargement** tactic. In this industry this dominance is even more explicit and flagrant than in the E-commerce industry (related to the fact that the concept of Digital Service is not considered in the Platform Innovation Tactic). CME Group Inc. and Nasdaq Inc. see 100% of the evolutionary steps named as **Service Enlargement**, four out of four for both. Intercontinental Exchange Inc. shows only **one** case of **Platform Gemini**, versus **nine** of **Service Enlargement.** Lastly, as expected from theory, MarketAxess Holding Inc. present 66,67% of its evolutionary steps classified as **Service Enlargement**, and 33,33% named as **Demand-side Addition** (related to the **Transactional Extension Case**).

Table 4.11: Financial Market Platform Innovation Tactics

Platform Innovation Tactic	Count	%
Financial Market Service, Financial Market Technology		
CME Group Inc. Class A		
Service Enlargement	4	100,00%
CME Group Inc. Class A Total	**4**	**100,00%**
Intercontinental Exchange Inc.		
Platform Gemini	1	10,00%
Service Enlargement	9	90,00%
Intercontinental Exchange Inc. Total	**10**	**100,00%**
MarketAxess Holdings Inc.		
Demand-side Addition	1	33,33%
Service Enlargement	2	66,67%
MarketAxess Holdings Inc. Total	**3**	**100,00%**
Nasdaq Inc.		
Service Enlargement	4	100,00%
Nasdaq Inc. Total	**4**	**100,00%**
Financial Market Service, Financial Market Technology Total	**21**	

Also referring to the Relatedness domain it is possible to see (Table 4.12) large similarities in the evolution of companies, as in the case of the E-commerce industry companies tend to focus on a single main business. CME Group Inc. and Nasdaq Inc., for example, present a **single core business** with 100% evolutionary steps related to each other. Very similar is the case of MarketAxess Holding Inc. which out of six evolutionary steps has **five** related ones (83,33%) and only **one** standing-alone (16,67%). Slightly different but still related is the case of Intercontinental Exchange Inc., the Group has **twelve** interconnected evolutionary steps (63.16%) and **seven** completely independent of each other.

Table 4.12: Financial Market Relatedness

Relatedness	Count	%
Financial Market Service, Financial Market Technology		
CME Group Inc. Class A		
A	6	100,00%
CME Group Inc. Class A Total	**6**	**100,00%**
Intercontinental Exchange Inc.		
A	12	63,16%
B	1	5,26%
C	1	5,26%
D	1	5,26%
E	1	5,26%
F	1	5,26%
G	1	5,26%
H	1	5,26%
Intercontinental Exchange Inc. Total	**19**	**100,00%**
MarketAxess Holdings Inc.		
A	5	83,33%
B	1	16,67%
MarketAxess Holdings Inc. Total	**6**	**100,00%**
Nasdaq Inc.		
A	9	100,00%
Nasdaq Inc. Total	**9**	**100,00%**
Financial Market Service, Financial Market Technology Total	**40**	

Even for this industry there is dissimilarity regarding Evolution Strategies (Table 4.13). CME Group Inc. and Intercontinental Exchange Inc. see the totality of steps occurred through **Acquisition** (100% both). While MarketAxess Holding Inc. and Nasdaq Inc. show a prevalence of **Organic** Growth in their expansion, respectively 80% and 75%.

Table 4.13: Financial Market Evolution Strategies

Evolution Strategy	Count	%
Financial Market Service, Financial Market Technology		
CME Group Inc. Class A		
Acquisition	4	100,00%
CME Group Inc. Class A Total	**4**	**100,00%**
Intercontinental Exchange Inc.		
Acquisition	18	100,00%
Intercontinental Exchange Inc. Total	**18**	**100,00%**
MarketAxess Holdings Inc.		
Acquisition	1	20,00%
Organic	4	80,00%
MarketAxess Holdings Inc. Total	**5**	**100,00%**
Nasdaq Inc.		
Acquisition	2	25,00%
Organic	6	75,00%
Nasdaq Inc. Total	**8**	**100,00%**
Financial Market Service, Financial Market Technology Total	**35**	

The evolution of the four companies in the Financial Market Service and Financial Market Technology industry is very similar to that presented for the three companies in the E-commerce industry. They also exploit a Business Model that can be considered a kind of marketplace where the traded objects are financial item. Therefore, the predominant type of evolutionary step is **Transactional Exploitation** (**Service Enlargement**) in order to improve the core business platform and enhance and enlarge the service to continue to take advantage of the great potential generated by the two sides. This kind of step ensures **more traded product, users, features, and new** (sometimes **international**) **deck** (Table 4.14) to the two sides. Rarely, these companies prefer to use a **Platform Gemini** tactic, creating a new platform leveraging the same sides (still related to the core business) but more focused and characterized on a single service or traded product. This strategy is used infrequently because for this type of marketplace the number of financial products that can be exchanged and the data collected regarding the trades are crucial. Even in this industry, the other types of expansion present are always closely related to the core business: for example, **Digital Service** steps, serve to enhance the experience and service of one or both parties on the platform. In this industry, additional services, such as real-time quotations, market trend forecasts, and anti-fraud adjustments, ensure competitive advantage.

There was only one case of Transactional Extension (Demand-side Addition) where the company has seen the possibility of **including smaller investors in the trade market** and decided to add a new feature that would allow this type of trades (always extremely related to the main business). Again, as in the E-commerce industry, the strategy of evolving in a related and tightly connected to the main business way is clear. Each company though decides whether to do it in an **Organic** way or through **Acquisition** depending on step characteristics and market opportunities.

Table 4.14: Financial Market Idle Assets

Idle Asset	Count	%
Financial Market Service, Financial Market Technology	**21**	
CME Group Inc. Class A	**4**	**100,00%**
More traded products, users, and new deck	3	75,00%
More traded products, users, and new international deck	1	25,00%
Intercontinental Exchange Inc.	**10**	**100,00%**
More traded products, users, and international deck new deck	1	10,00%
More traded products, users, and new deck	5	50,00%
More traded products, users, and new international deck	4	40,00%
MarketAxess Holdings Inc.	**3**	**100,00%**
Including smaller investors in the trading market	1	33,33%
More traded products, users, features and new deck	1	33,33%
More traded products, users, features and new international deck	1	33,33%
Nasdaq Inc.	**4**	**100,00%**
More traded products, users, and new deck	2	50,00%
More traded products, users, and new international deck	2	50,00%
Total	**21**	

4.2.2.4. Financial Services

Among the four proposed industries, Financial Services has the stronger correlations between its **two** companies: **Mastercard Incorporated** and **Visa**. The two companies present a strict correlation between Platform Strategy, Platform Innovation Tactic, and Relatedness and, differently from the two industries previously presented, it also exhibits a perfect correlation in the Evolution Strategy domain.

Almost all evolutionary steps in this industry are **Digital Service**, except for a single step classified **Network Platform** regarding Mastercard Incorporated. This is why the Platform Innovation Tactic column is not considered for this industry. As far as Platform Strategies are concerned (Table 4.15), therefore, it can be noted a totality of **Digital Service** regarding Visa (4/4), and an overwhelming majority referring to Mastercard Incorporated: 75% **Digital Service** versus 25% **Network Platform**.

Table 4.15: Financial Services Platform Strategies

Platform Strategy	Count	%
Financial Services		
Mastercard Incorporated		
Digital Service	3	75,00%
Network Platform	1	25,00%
Mastercard Incorporated Total	**4**	**100,00%**
Visa		
Digital Service	4	100,00%
Visa Total	**4**	**100,00%**
Financial Services Total	**8**	

At this point the similarities between the two companies become equalities. Regarding Relatedness (Table 4.16) both companies presented **five out of five** (100%) steps related to each other, placing great emphasis on the unique core business.

Table 4.16: Financial Services Relatedness

Relatedness	Count	%
Financial Services		
Mastercard Incorporated		
A	5	100,00%
Mastercard Incorporated Total	**5**	**100,00%**
Visa		
A	5	100,00%
Visa Total	**5**	**100,00%**
Financial Services Total	**10**	

In addition, both firms see company growth through only (100%) **Organic** evolutionary steps (Table 4.17). This industry, unlike the previous two, has total correlation with respect to all analysis domains (also Evolution Strategy).

Table 4.17: Financial Services Evolution Strategies

Evolution Strategy	Count	%
Financial Services		
Mastercard Incorporated		
Organic	4	100,00%
Mastercard Incorporated Total	**4**	**100,00%**
Visa		
Organic	4	100,00%
Visa Total	**4**	**100,00%**
Financial Services Total	**8**	

The two companies in the Financial Service industry evolve in a very definite and clear way. Once a sustainable and successful Business Model has been found, Visa and Mastercard Incorporated have decided to guide their own evolution by focusing solely on improving it through **Digital Service**. This evolutionary strategy allows companies to improve the service offered from time to time by pandering to the two sides' demands, and adapting to the market, but never distorting it in order to leave it seemingly simple and user-friendly. Both companies decided to follow the implementation of Digital Services internally, through **Organic Growth**. This is done to maintain a control over the company culture, get more customized and platform-compatible services, and to exploit best-practices and data mined during the operations. Since all steps are named Digital Service (except one named Network Platform) due to the database construction methodology (see Paragraph 3.1.) the Idle Asset table is not given.

4.2.2.5. Travel Technology

Also in the case of the Travel Technology industry there are only **two** companies (**Booking Holdings Inc.** and **Expedia Group Inc.**) and a great correlation is evident. As in the case of the Financial Services industry the interrelationships affect all domains (Platform Strategy, Platform Innovation Tactic, Relatedness, and Evolution Strategy).

Regarding Platform Strategy (Table 4.18), there are steps uniquely of the Transactional type with a majority of **Transactional Exploitation** over **Transactional Extension**. Respectively 62,50% versus 37,50% regarding Booking Holdings Inc. and 72,73% versus 27,27% regarding Expedia Group Inc.

Table 4.18: Travel Technology Platform Strategies

Platform Strategy	Count	%
Travel Technology		
Booking Holdings Inc.		
Transactional Exploitation	5	62,50%
Transactional Extension	3	37,50%
Booking Holdings Inc. Total	**8**	**100,00%**
Expedia Group Inc.		
Transactional Exploitation	8	72,73%
Transactional Extension	3	27,27%
Expedia Group Inc. Total	**11**	**100,00%**
Travel Technology Total	**19**	

Accordingly, only "Transactional" kind of Platform Innovation Tactic are present (Table 4.19). Indeed, Booking Holdings Inc. has the same 62.50% of **Platform Gemini** tactics and the same 37.50% of **Supply-side Addition** tactics. Similarly, Expedia Group Inc. presents the same 72,73% of **Platform Gemini** and the same 27,27% of **Supply-side Addition**.

Table 4.19: Travel Technology Platform Innovation Tactics

Platform Innovation Tactic	Count	%
Travel Technology		
Booking Holdings Inc.		
Platform Gemini	5	62,50%
Supply-side Addition	3	37,50%
Booking Holdings Inc. Total	**8**	**100,00%**
Expedia Group Inc.		
Platform Gemini	8	72,73%
Supply-side Addition	3	27,27%
Expedia Group Inc. Total	**11**	**100,00%**
Travel Technology Total	**19**	

With regard to Relatedness (Table 4.20) and Evolution Strategy (Table 4.21) these are two identical and very peculiar cases: each evolutionary step is added by Acquisition and remains a separated entity. Booking Holdings Inc. thus presents **nine** separate platforms while Expedia Group Inc. even **twelve**.

Table 4.20: Travel Technology Relatedness

Relatedness	Count	%
Travel Technology		
Booking Holdings Inc.		
A	1	11,11%
B	1	11,11%
C	1	11,11%
D	1	11,11%
E	1	11,11%
F	1	11,11%
G	1	11,11%
H	1	11,11%
I	1	11,11%
Booking Holdings Inc. Total	**9**	**100,00%**
Expedia Group Inc.		
A	1	8,33%
B	1	8,33%
C	1	8,33%
D	1	8,33%
E	1	8,33%
F	1	8,33%
G	1	8,33%
H	1	8,33%
I	1	8,33%
J	1	8,33%
K	1	8,33%
L	1	8,33%
Expedia Group Inc. Total	**12**	**100,00%**
Travel Technology Total	**21**	

Table 4.21:Travel Technology Evolution Strategies

Evolution Strategy	Count	%
Travel Technology		
Booking Holdings Inc.		
Acquisition	8	100,00%
Booking Holdings Inc. Total	**8**	**100,00%**
Expedia Group Inc.		
Acquisition	11	100,00%
Expedia Group Inc. Total	**11**	**100,00%**
Travel Technology Total	**19**	

The two companies in the Travel Technology industry have a strategy in opposition to the three industries already presented. The starting point in this case is a different Business Model, a travel metasearch engine that connects the end user to several companies offering differentiated services in the travel realm (airne tickets, hotels, car rental, etc.) and opened orthogonal services over time. In this case, although most of the steps are of the Transactional Exploitation type, they are characterized by **Platform Gemini** tactics. These two companies, through **Acquisitions** only, take over similar platforms and leave them as **Separated Entities**. They do this not only to eliminate possible competitors, but also mainly to exploit their **best practices**, collect more and more **data** from diversified sources, and sometimes reach a **new geographical area** (Table 4.22) with users expecting a slightly different type of service. Thus, the main business remains the same but, unlike the other cases, does not revolve solely around a single platform. The other type of evolutionary step is **Transactional Exploitation** (**Supply-side Addition**). In this case, the group realizes the **customer-side search for complementary service** and, again through **Acquisition**, purchases a platform offering that service. This new platform is both integrated into all the other platforms of the group and autonomously implemented with all other functionalities characteristic of the group's platforms. This operation effectively makes all platforms of the group extremely similar. This makes, as already made explicit, Booking Holdings Inc. a total of nine travel metasearch engine platforms and Expedia Group Inc. as many as twelve. The Travel Technology market is thus shared almost entirely by these two groups, even if the end user, thanks to this evolutionary strategy, is not always aware of it.

Table 4.22: Travel Technology Idle Assets

Idle Asset	Count	%
Travel Technology	**19**	
Booking Holdings Inc.	**8**	**100,00%**
Best practice, data	3	37,50%
Best practice, new geographical area, data	2	25,00%
Customer-side searching for complementary services	3	37,50%
Expedia Group Inc.	**11**	**100,00%**
Best practice, data	6	54,55%
Best practice, new geographical area, data	1	9,09%
Customer-side searching for complementary services	3	27,27%
Best practice, niche clients, data	1	9,09%
Total	**19**	

5 Discussion

5.1. Theoretical Implications

5.1.1. Preliminary Findings

Our examination is founded on a comprehensive analysis of **fifteen individual longitudinal case studies**, each covering the entire evolutionary history of a company, from its inception to maturity. Notably, these case studies are more than just narratives of corporate journeys; they provide a **basis for our analysis** and form the building blocks for the findings we subsequently present.

One of the theoretical advances of our research is the extension of the **analytical framework** established by Trabucchi and Buganza (2020; 2023a). This extension aims to make the framework adaptable to business groups and to consider features tangential to pure Platform Thinking. In this expansion, we introduce four new "quadrants" to the framework, allowing us to analyse aspects related to **Product Platforms**, **Industry-Wide Platforms**, **Digital Services**, and **Network Platforms**. We also introduce three new columns to our analytical table, which allow us to delve into evolutionary aspects somewhat unrelated to pure Platform Thinking but extremely interesting for analysis, including **Evolution Strategy**, **Type of Integration**, and **Relatedness**. This functional framework has not yet been used as the basis of actual papers or research; our study therefore not only expands it but also gives **practical relevance** to the model presented in the book.

Furthermore, our research builds upon the foundation laid by "*PLATFORM RENAISSANCE: How S&P 500 companies are innovating through Platform Thinking*" by Trabucchi and Buganza (2023b). However, utilizing a **complementary database**, we have been able to audit their results and augment them with novel insights. Despite the common misconception of the term “platform” with Digital Services, our research emphasizes the importance of **Digital Services** in the evolutionary journey of Born-as-a-Platform companies, contributing significantly to their innovation within and around their core platform, underlining their essential role in Platform Thinking realm.

Moreover, the study highlights the concept of **recurrence** and **replication** of Platform Strategies, underlining how linear value chain companies and Born-as-a-Platforms act similarly while talking about innovation. It does not matter if they are originally linear

value chain or Born-as-a-Platform companies. Linear value chain companies once successfully implemented Platform Thinking are prone to re-implement it in search of new form of success again and again. While Born-as-a-Platforms, go even more specific, and replicate not only Platform Thinking initiatives in general, but even the same **Platform Strategies.**

Thereafter, we delve into the intricate relationship between Born-as-a-Platform companies and the role of imitation in evolving their Business Models within the same industry. Our investigation is grounded in both theory and empirical analysis, shedding light on the nuances of **Business Model Innovation**, **competitive imitation**, and **industry relations** in the context of platform-based organizations.

From a theoretical standpoint, our research significantly contributes to the existing body of work on Business Models and innovation. Numerous researchers have explored the interplay between Business Model Innovation, imitation, and industry dynamics in their respective articles. These studies, while interconnected with our research, are often categorized based on whether they examine "standard" companies or platforms and whether they focus on imitation within the same industry or across industries. This document complements, validates, and enriches these articles by presenting key findings regarding the **main imitation strategies** employed in the evolutionary history of Born-as-a-Platform companies operating within the **same industry** (Zhao et al., 2020; Trabucchi and Buganza, 2023a), reasoning about the relationship with aspect as dominant design and value migration (Sanasi at al., 2021; Hacklin et al., 2018), competitors' external sources and global knowledge (Snihur and Wiklund, 2019; von Delft et al., 2018), relationship between new entrants and incumbents (Casadesus-Masanell and Zhu, 2013), and challenging the classical WTA approach (Cennamo and Santalò, 2013). Other papers have also analysed similar context arriving to the same results, findings patterns of imitation and innovation of product languages as a firms' innovation strategy (Dell'Era and Verganti, 2007) and highlighting the importance for firms to pursue a proactive, as opposed to reactive, innovation strategy by making proposals to the market (Dell'Era et al., 2008). This goes against the traditional view, where companies used to fight against each other to establish their dominant design (Tripsas, 1997). But at the same time, it is consistent with some previous studies that make explicit how innovations previously introduced by competitors represent the basis for further innovations (Tripsas, 1997; Norman and Verganti, 2014).

By conducting in-depth longitudinal analyses and subsequent cross-case studies, our research examines the applicability of these strategies in different industries, addresses past literature limitations, and offers valuable insights into the interplay between imitation and innovation. The final achievement is that large Born-as-a-Platform companies implement a main **imitation strategy** among firms in the same industry, and a subsequent smaller **innovation strategy** with differentiation aims. Specifically, we explore correlations between Industry and Platform Strategy, Platform Innovation

Tactic, and Relatedness, while no evidences related to Evolution Strategy, shedding light on the dynamic nature of these relationships.

Our dissertation, despite only considering the evolutionary history of Born-as-a-Platform companies, corroborates and enriches the guidelines for companies that want to take advantage of the **benefits** and **features** of multi-sided platforms (Hänninen et al., 2018; Libert et al., 2016). In fact, the study diminishes the generalizability problem of Dell'Era et al. (2021) by analysing in detail fifteen companies belonging to eight different industries that although being based in the United States are used globally. **Robust guidelines** are given through both a Global Perspective and an Industry Perspective. With the Global Perspective, regular companies can get an overall view of the available Platform Strategies, their characteristics, and their frequency of implementation by companies that are world leaders. They have learned the importance of replication of strategies within the platform realm for repeated success. This makes linear value chain companies realize that a complete transformation of their Business Model is necessary to reap the benefits of platforms. For the Industry Perspective, on the other hand, companies in the E-commerce, Financial Markets, Financial Services, and Travel Technology sectors are provided with a roadmap that makes explicit the patterns of Best-Practices used by platforms to become market leaders.

In essence, answering this research takes us on a journey through the evolution of Platform Thinking strategies within Born-as-a-Platform organizations and their profound implications for innovation. Moreover, we offer valuable insights into the interplay between imitation and innovation in the evolution of Born-as-a-Platform companies' Business Models within the same industry. We also developed a robust guideline for every kind of company who want to take advantage of the multisided platforms' benefit. We not only build upon existing research, while addressing key limitations, but also provide new insights and perspectives that shed light on the evolving landscape of platform-based businesses and their strategies for success.

5.1.2. Platform Thinking as Replication Strategy Enabler

The replication topic in the platform realm was first brought to light by Trabucchi and Buganza (2020) and then later revived to highlight a pattern of replication that characterizes linear value chain companies that seek innovation through Platform Thinking (Trabucchi and Buganza, 2023b). Our research shows a **strong pattern of replication** regarding Platform Strategies implemented by Born-as-a-Platform company, among the most important in each sector, seeking continuous innovation and repetitive success. The key to this repeated success given by the reimplementation of the Platform Strategy itself is embedded in the features, architecture, and Business Model typical of digital platforms.

The first rationale for a successful replication strategy lies in the definitions of the **architectural building blocks** of a platform's Business Model. The two or more typical sides represent the supply and demand sides (Täuscher and Laudien, 2018), despite this they are equally customers in the eyes of platform providers who offer a service to both (Evans, 2003). The presence of multiple sides, all seen as customers by the central platform means that the same evolutionary step, with proper customization, can be applied to each side with the confidence of renewed success. The opportunity to add several additional sides amplifies the effects of this approach.

We have also seen how the starting point of any Platform Strategy (except for Network Platform and Digital Services) starts with the identification of an **Idle Asset** (Trabucchi et al., 2021b) and how through specific tools (Trabucchi and Buganza, 2023a) it is possible to identify them for each player on the platform. Obviously the larger the platform analysed, the larger the number of players involved, and the larger the number of Idle Assets present. For each of these Idle Assets it will then be possible to implement a new evolutionary step leveraging **past knowledge** and **best-practices**. Moreover, large companies are often in the form of groups, which makes the number of Idle Assets that can be leveraged even higher. Regarding Network Platforms, we have seen how one side is sufficient to implement them and how they bring a great result in terms of satisfaction and cohesion within the single side. This strategy is therefore **replicable** as many times as the sides present, always trying to consider whether it can bring added value to the customer. Digital Services, which simply leverage **technology tools** (already existing or newly deployed), within digital Business Models are able to be implemented at convenience without strong restrictions. This easiness of implementation is underscored by the results of our research, being these among the firsts Platform Strategies implemented.

Another key point in favor of the proliferation of numerous and similar strategies within the same platform is the possibility for established companies to leverage pre-existing **relationships**, **assets** or **networks**, avoiding **challenges** like the chicken-and-egg paradox (Caillaud and Julien, 2003; Dell'Era et al, 2021; Trabucchi, 2020). The presence of sides that are already onboard and have reached a significant number of users no longer limits the creation of new value for the platform but simplifies it. In fact, we have already seen (Trabucchi and Buganza, 2023a) how half of the available strategies take advantage of the sides already present (Exploitation), and the other half instead consists of bringing new players on board (Extension). The former encounters no problems in getting people on board. Regarding the latter, once the platform has at least one side already present it can leverage it to replicate the same strategy and bring new different players on board without running into the classic difficulties of platforms entering the market for the first time.

The addition of all these sides and thus the continuous transformation of a platform, its Business Model, and its value proposition(s) can be expected to erode or even wipe out users in the sides already present and established. This belief is actually wrong for

several reasons. Each platform does have a **strong** central **value proposition**, but each side subsequently has its own (always linked to the main one). These drives users first to get on board and then to continue using the service. Each added side will therefore have its own new value proposition which will not affect, except sometimes enhance, that of the existing sides. Muzellec et al. (2015) also emphasise that during its lifecycle, from inception to maturity, a platform tends to **change** its value propositions **several times** and that customers are accustomed to and delighted by this continuous change. It is the end-users themselves, through the continuous **co-creation mechanism** of the new services offered by the platform, who personally alter the value proposition as they desire. These mechanisms explain why a platform can implement and re-implement innovative strategies by going through ever-increasing evolutionary steps without the concern of losing its customer base.

Finally, one must consider the factor that most heavily motivates men's and especially managers' decisions: costs. The digital Business Model, used by the platforms among others, marks a revolution that is driving the **marginal costs** of products and services (almost) to **zero** (Rifkin, 2014). The main costs of a platform once it has been developed are mainly fixed and more specifically those of infrastructure and hosting, security, and maintenance. The cost of a new service, adding a new side, or implementing a new revenue stream, for example, is therefore negligible. This is a great incentive for decision-makers to continue innovating and especially to reiterate evolutionary steps that have been successful.

All the arguments for a platform Business Model to act as an enabler for a replication strategy are also amplified, in the sample of platforms analysed, by their nature of **groups of companies.** Not only can a group replicate the same strategy for each side of the platform, but it can replicate it for each side of each individual company belonging to the group. A similar argument can be made concerning Idle Assets. Having emphasised that with the growth of players onboard, increases the number of Idle Assets that can be exploited, this number grows exponentially if one goes to consider several platforms under the same entity. Groups have a greater number of relationships, assets, and resources at their fingertips than a single platform and can therefore achieve greater value without worrying about classical issues (such as the chicken-and-egg paradox). Finally, the characteristics of value propositions ensure that individual users do not lose value as the group grows, and at the same time the zero marginal cost structure of digital platforms places no limits on its magnitude.

5.1.3. Platform Thinking as Innovation Enabler

Thanks to its characteristics, it has been shown that Platform Thinking is a facilitator when it comes to implementing the same evolutionary strategies repeatedly. The Platform Business Model, thanks to its (already exposed and new) attributes, is able to

be an enabler of all kinds of **Business Innovation**. In this section, innovation is considered as the creation of substantial new value for customers and the firm by creatively changing one or more dimensions of the business system. In this perspective, therefore, technological innovation is not seen as a goal but as a starting point, a new tool to enable innovation (Evans et al., 2006; Gawer, 2011). A Business Innovation is in fact defined not as a new thing but a **new value**, which can come in many flavours, and which follows a systematic approach. Sawhney et al. (2007) map all the possible ways a company can innovate by clustering them through four dimensions (What, Who, How, Where) and their intersections. By showing how Platform Thinking simplifies these four drivers, we show how it is an **enabler** of all kinds of innovation. Furthermore, we would like to add another very important driver of the recent literature that has triggered many innovations in recent times: the "Why" and thus the innovation of meaning (Morillo et al., 2015; Dell'Era et al., 2017; Verganti, 2017).

The first dimension analysed is the "**What**", the offering a company creates. Innovation along this dimension requires the creation of new products and services and is relevant only if it creates value for customers. The main offer a platform provides is a **matchmaking service** (Trabucchi et al., 2021c; Evans and Schmalensee, 2016). This service therefore serves to solve a **market friction** and does not require physical assets (Chu and Wu, 2023; Bai et al., 2020). The creation of a new service therefore always starts from a gap in the market and thus through a mechanism of co-creation with the customer. Moreover, thanks to the previous use of the platform and its technology, it is possible to clearly identify what these market gaps are. There is therefore no limit to what a platform can offer if there are new, or already existing sides, that can create and capture value through a coherent value proposition. Booking.com integrating Rentalcar.com, giving a chance to travellers to also rent cars, is a clear example of an innovation strategy driven by the "What". The step starts from a market friction for the customer and through a new offering goes to satisfy it, generating massive value for the overall platform.

The second dimension concerns the customers that the platform serves, the "**Who**". Concerning customers, we have seen that there are basically two innovation strategies, Exploitation and Extension (Trabucchi and Buganza, 2020). The first consists of delivering a new value to customers already present on the platform and thus basically falls under "What". On the other hand, in case of Extension strategies, it is the acquisition of a new customer that drives innovation. With this Extension, you can bring a new value proposition to the platform, create and capture new value, introduce new revenue stream to make the business model sustainable, and so on. As we mentioned in the previous paragraph, several features of the platforms facilitate the **addition** of new sides to the original building blocks. A fitting example of this strategy is certainly Facebook Ads. Meta, back in the day Facebook, was indeed able to leverage

its resources to bring in a new side (advertisers), adding a new revenue stream to the platform and thus making its Business Model more sustainable.

The third dimension, the "**How**", represents the process that innovation requires. Business Innovation must be **systemic** (Shawney et al., 2007). The innovation process is broken down, structured, and explained in detail by Trabucchi and Buganza (2023a) thanks also to the introduction of specific **supporting tools**. This innovation process is based on four steps. The first is to use the Value Map to analyse the current state of the company. Then through the Idle Asset Canvas, assets that can be exploited through Platform Thinking are sought. Subsequently it is necessary to understand how to exploit these Idle Assets, and what value proposition and methods you want to choose to get people on board. And finally, to understand whether the idea is feasible, interesting, and consistent with the platform. Innovating along this dimension, a platform can redesign its processes for **greater efficiency**, **higher quality**, or **faster cycle time**, leveraging its internal or an adjacent value chain. A perfect example for this kind of innovation is the one put in place by Expedia Group Inc. The Travel Metasearch Engine has covered a huge slice of the market in the past few years by acquiring similar companies (through Transactional Exploitation). The aims were to leverage its best-practices in the world of Travel Technology and be able to access ever increasing amounts of data, which gives a huge competitive advantage in a digital environment.

In the "**Where**" are embedded the points of presence the company uses to take its offerings to market. Backed by technological advancements and their digital Business Model, platforms have a **global presence** with little effort. Thanks to the globalization of technologies such as internet, cloud, and hardware, every platform is potentially accessible to every person on the planet (Stallkamp and Schotter, 2018; Trabucchi et al., 2021c; Iefimova and Pashchenko, 2022). In this case, the innovator's skill is not to reach a specific geographical group, but to serve it with the most suitable service within his portfolio according to the characteristics and expectations of his users. The choice of the "Where" is not always easy but is certainly facilitated by the characteristics of digital platforms. It is the example of one of the most famous and widespread marketplaces in the world and its quest to open up to the Asian market. To do this, eBay Inc. acquires Giosis's Japan Business, and thanks to the modularity of the platforms and their underlying technology, it succeeds in applying its best-practices in a short period of time while maintaining the identity and features of the Asian company.

The final driver of innovation that is greatly enhanced by Platform Thinking is "**Why**". The world of platforms and their evolution is closely related to the evolution of meaning. Indeed, digital platforms give companies the possibility to leverage on their basic architecture to foster innovation in **multiple, coexisting directions** (Gawer and Cusumano, 2014). At the same time given the **co-creational nature** of the service experience (Ramaswamy and Ozcan, 2018), users may take part to the innovation of

the service itself by customizing the way they experience it and autonomously introducing innovations according to their needs (Oliveira and von Hippel, 2011). For instance, many platform evolution steps are based on the same customer sides, the same services, and the same technologies used by the platform or its competitors. Indeed, the factor that distinguishes them and ensures their success is the discovery of a new meaning for the end-user. New motivation that pushes the same customer to use the same service, but releasing a renewed value for him, and thus for the company. One of the platform-related industries where the innovation of meaning is being most exploited and implemented is the Social Media one (Sanasi et al., 2021). In our research we have observed many innovation streams and examples related to this industry. We have observed plenty of innovation streams and examples related to this industry where the same platform was getting started to be used for different meanings. Starting with Facebook, users began to use Messenger with messaging purpose, with Instagram people no longer wanted to simply let their friends know their status but wanted to share uniquely their photos and visual content, through Facebook Live the user began to use the platform to get real-time content, and finally all platforms in the industry had to adapt to ephemeral content such as Facebook and Instagram Stories.

5.1.4. Platform Thinking as Agile Experimentation Enabler

Another interesting result of our study shows how the Platform Business Model, given its characteristics, allow to move from a rigid to a flexible product development model (Cooper and Sommer, 2016) leveraging **agile innovation** approaches enabled by digital technologies (Downes and Nunes, 2014). Here agility is intended as "the ability to detect and seize market opportunities with speed and surprise" (Sambamurthy et al., 2003). The Platform Business Model becomes perfectly suitable for both new ventures and established firms trying to compete, with limited resources, in an **ever-evolving environments** characterized by unforeseeable conditions (Brown and Eisenhardt, 1997; Baker and Nelson, 2005; Sosna et al., 2010). To demonstrate this, we show how the characteristics of digital platforms facilitate all the four main macro-phases of the entrepreneurial experimentation process in Business Model dynamics (Sanasi, 2023), and its most important and relevant steps. According to this logic, Business Model experimentation can be broken down in Business Model Innovation, aimed at discovering new value creation and capture opportunities (Zott et al., 2011), Business Model Validation, accomplished to ensure the viability of a firm's Business Model choices (Shepherd and Gruber, 2021; Silva et al., 2021), Business Model Scaling, to grow the Business Model following its market validation (Nielsen and Lund, 2018; Picken, 2017), as well as the Pivots firms set in place in their Business Model to face adverse events (Berends et al., 2021; Kirtley and O'Mahony, 2023).

The first phase (**Business Model Innovation**) consists of discovering new opportunities for value creation and capture through the modification of specific

elements of the Business Model and the architecture connecting them (Foss and Saebi, 2017). This phase is characterised by two main behaviours: **Detect** and **Copycat** (Sanasi et al., 2022). A continuous benchmarking is carried out within the reference sector in terms of the innovation introduced, with the aim of depicting possible game-changer elements. Followed by the adoption of Business Model innovations that have already been successfully introduced by other market players. The evidence and results obtained from our research show that the world of platforms is rich in these instances. Indeed, the characteristics of the platform make it possible to **quickly adapt** the Business Model to the actions of external competitors. In all the analysed instances, an initial strategy of **imitation** is denoted in order to quickly adapt to the change, followed by a smaller **innovation** one to differentiate themselves. The **modularity** of platforms allows them to add a new piece (side) to the Value Map without undermining the building blocks already in place (Kostakis, 2019; Dai, 2023). Being based on a digital model and therefore not based on **physical assets** (Meyer and Cennamo, 2018), a platform can decide to innovate in a particular direction without taking away budget from other streams of its business. The ability of these to innovate at **zero marginal costs** (Rifkin, 2014) serves at the same time as a great motivator, seeing on the horizon only the possibility of large profits and never actual losses. Finally, the ability to investigate in search of **Idle Assets** (Trabucchi et al., 2021b) also enables platforms to gain innovation insights starting even from inside their own boundaries and not only through reaction and imitation to external change. These characteristics allow a company, especially those already established, greater serenity in going through a process of **intensive experimentation**, that is at the basis of agile innovation (Ghezzi and Cavallo, 2020).

The second phase (**Business Model Validation**) encompasses the actions undertaken by firms to evaluate the viability of their Business Model choices (Ghezzi, 2019; Silva et al., 2021). Companies validate their Business Model looking for evidence to verify or falsify their **underlying hypotheses** leveraging market feedback and testing (Camuffo et al., 2020; Sull, 2004). These hypotheses are tested through a series of **minimum viable products** (**MVPs**), which are "the smallest set of activities needed to disprove a hypothesis" (Eisenmann et al., 2012). Actually, an MVP is a is a version of a product with just enough features to be usable by early customers who can then provide feedback, validate an idea, and guarantee the future product development. The **digital technology** behind the platform model means that the validation phase of a hypothesis can be easily rolled out, for example, through beta testing (Mäkinen et al., 2013). The creation of a new MVP within the platform can be achieved with a very **minimum cost**, if not zero (Rifkin, 2014, Sanasi et al., 2023), allowing several innovative projects to be carried out in parallel, studying the reactions of different segments of customers. Additionally, having a limited cost, the MVP will not just be a product with enough features to prove or falsify a hypothesis, but will be basically the reflection of the actual service that will be brought to market.

Therefore, in the Platform Thinking realm the final customer does not validate a hypothesis but the final product. The technology behind the platforms also ensures the collection of an impressive amount of all types of **data**, able to collect and analyse even the smallest, particular, and targeted customer interaction with the service (Buganza et al., 2015; Trabucchi et al., 2017). The feedback and the insights gathered to validate the hypotheses and thus the service is extremely accurate and truthful, ensuring that the platform provider only delivers to the market the product that generates the greatest value and satisfaction for the end user, resulting in the **perfect market-fit**.

On the basis of the validation outcomes, companies face three main options: scale up their proposed Business Model, pivot to a revised Business Model, or give up the innovative idea (Ghezzi and Cavallo, 2018). In the first case once assessed its market validation, the Business Model may be ready to be grown to a wider audience, for example expanding the customer segments it is targeting, entering in the phase of **Business Model Scaling** (Sanasi, 2023). This is probably the stage in which the digital platform model provides the largest and most immediate benefits to companies. Multi-sided platforms indeed are characterized by **network effects** (Katz and Shapiro, 1985; Eisenmann et al., 2006) and **critical mass** (David et al., 2020; Palomaki, 2020). These two peculiarities of the platforms, strongly linked together, ensure that once the service is implemented it takes off very quickly. Established platforms are those that see market acceptance in a shorter period of time since they have already reached a customer base for which the effects unleashed by reaching critical mass are immediate, ensuring great value and success of the new service. This is one of the most critical phases, and companies need to monitor whether scaling is going in the right direction by choosing the **proper growth metrics** (Sanasi et al., 2023). Again, the technology and features behind the platforms ensure that decision-makers always have all the necessary data resulting in the perfect collection of indicators and metrics to monitor growth.

In the Lean Startup approach (Blank, 2013; Ries, 2011), pivots are one among the array of potential decisions to be made as a result of the process of experimentation on the firm's Business Model, as opposed to the decisions to persevere with the Business Model as-is, or alternatively perish and abandon the endeavour completely (Frederiksen and Brem, 2017; Sanasi and Ghezzi, 2022). If the assumptions in the validation phase fail to be validated, the **Business Model Pivot** phase begins (Berends et al., 2021; Kirtley and O'Mahony, 2023), which require companies to revise their Business Model's core assumptions (Pillai et al., 2020). The nature of pivots is inherently experimental (Pillai et al., 2020), the result of this process constitutes the so-called "**validated learning**" (Shepherd and Gruber, 2021). The attributes for a successful pivot are the ability to understand and interpret user feedback and a flexible and adaptable architecture (Rigby et al., 2016). Digital platforms, as already made explicit, make these characteristics their point of strength. The amount of **data** they are able to collect (Trabucchi et al., 2017) leaves decision-makers in no doubt about

customer needs, and the **modularity** of their architecture (Kostakis, 2023; Dai, 2023) does not impose constraints and limitations on new ideas to innovate the current Business Model. A typical example of a pivot among the companies we investigated in this study is that of Instagram. Initially known as Burbn, the app allowed users to check-in at locations, plan meetings, and share photos. However, the creators noticed that the photo-sharing feature was becoming increasingly popular while other functionalities were less utilized. Based on user feedback and the observation of shifting user habits, they strategically decided to pivot. In 2010, Burbn was removed, and Instagram was officially launched as a mobile application focused solely on photo sharing (Bajwa et al., 2017).

5.1.5. From Multi-sided to Product Platform

Finally, the outlined traits that make a multi-sided platform an enabler of replication strategy, innovation, and entrepreneurial experimentation incorporate a key concept of Platform Thinking by transforming these into a new variant of the so-called Product Platform (Meyer and Lehnerd, 1997). Indeed, the **modularity** of these platforms (Kostakis, 2023; Dai, 2023) ensures that the same architecture or part of it can be used as the basis for launching new products, reincarnating the **product family** concept (Christensen, 1997). They are thus able to easily manage the product lifecycle, allowing companies to introduce new features or changes without having to completely redesign the product from scratch. This modularity, together with the presence of numerous **Idle Assets** (Trabucchi et al., 2021b), offers the possibility of repurposing the same components (sides), reducing the development costs and time to market of the new service, fostering innovation within the same company (Gawer and Cusumano, 2014). Good product platforms as well as multi-sided platforms are **highly scalable**, allowing the range of products derived from the platform to be extended without having to make major changes in the basic structure. Product Platforms are designed to be **flexible** and **adaptable**, enabling companies to respond quickly to market needs and to introduce variations or improvements in products efficiently; features we have seen are also common to multisided ones (Cooper and Sommer, 2016). Likewise, they must be agile to ensure a high level of experimentation by enabling companies to respond quickly to changes in consumer preferences, emerging technologies, or economic conditions (Sanasi et al., 2022; Sanasi, 2023). Both multi-sided and Product Platforms, through component reuse and standardization, manage to reduce production and development costs, enabling companies to achieve economies of scale and almost **zero marginal costs** (Rifkin, 2014). Finally, multi-sided such as Product Platforms are designed to foster interoperability between various systems or components (Meyer and Lehnerd, 1997), simplifying integration and compatibility between different products by ensuring that companies can grow

exponentially while keeping their nature and value proposition cohesive, even creating groups of companies.

5.2. Managerial Implications

Our research not only reinforces and corroborates the work of numerous scholars in the field of platforms and Business Model Innovation, but also serves as an inspiration for managers and entrepreneurs. It provides a knowledge base on which to build innovative strategies, offering a valuable resource for those who strive to stay on the cutting edge of industry trends and best practices. In this section we explore the practical implications of our study for managers and entrepreneurs operating in the ever-changing landscape of **platforms** and **Business Model Innovation**. We outline key insights and strategies that can guide those seeking to create or innovate their businesses, focusing particularly on **Born-as-a-Platform** companies striving to renew their Business Models or entrepreneurs venturing into the world of platforms.

Managers of Born-as-a-Platform companies can gain valuable insights by examining how best-in-class platforms have navigated their **evolution journey**. Our research incorporates a comprehensive longitudinal case-by-case analysis of fifteen platforms across eight different industries. The analysis covers **all stages** of platform development, from market entry to growth, maturity, and revitalization. By studying these cases, managers can gain insights into the effective strategies, tactics, and methods used by **successful platforms**.

Born-as-a-Platform managers can benefit from a deep understanding of **Platform Strategy**, **Platform Innovation Tactics** and other **additional methods**. Our research not only provides theoretical knowledge but also offers numerous practical examples for each strategy. This practical guidance can help managers make informed decisions when it comes to strengthening their relationships with stakeholders and expanding their Business Model. Practitioners now have a theoretical and practical guideline of how to upgrade from a pure **two-sided Transactional** or **Orthogonal Platform** to a more complex **multi-sided Hybrid Platform**.

This study offers insights not only to Born-as-a-Platform managers but also to those of **linear value chain companies** who want to take advantage of the characteristics of this particular Business Model. It offers a "**user's manual**" and provides practical examples of how to leverage the platform attributes to create new value. These best practices can therefore be used by any manager seeking innovation through Platform Thinking. Moreover, given the full lifecycle analysis a linear value chain once it becomes Platform can identify itself within its lifecycle and industry and begin to leverage these reference points.

Moreover, a two-pronged approach is recommended for managers seeking to enhance their platform's position in the market. First, an **imitation strategy** can be employed to

align with the best platforms in their market (Points of Parity). Subsequently, an **innovation strategy** can be leveraged to differentiate the platform and gain a competitive advantage (Points of Difference). This dual strategy can prove highly effective in gaining market share and maintaining relevance.

From a practical point of view, our research underscores the critical distinction between **Platforms** and **Digital Services** while emphasising the importance of integrating them side by side. This approach enhances competitiveness and customer orientation. Furthermore, the research advocates the complementary use of **Network Platforms** to strengthen the effectiveness of a "pure" platform, helping it gain a competitive advantage in the market.

In the platform realm, we highlight the significance of a **replication strategy**. Managers and entrepreneurs who have previously implemented a specific Platform Strategy are likely to find success by implementing it again in the future. Replication often leads to renewed success, allowing businesses to build upon their prior achievements and adapt to changing market conditions.

In conclusion, this section provides a **roadmap** for managers and entrepreneurs navigating the complex world of platforms and Business Model Innovation. Our research not only contributes to the academic discourse, but also offers tangible strategies and insights to **guide professionals** in their quest for sustained success in an ever-changing business landscape.

6 Conclusion and Future Developments

6.1. Synthesis

Conducting our study, we have initially been able to explore what are the Platform Thinking strategies used by Born-as-a-Platform companies during their innovation journey. The survey was conducted through a sample of fifteen firms initially defined as Born-as-a-Platform companies and belonging to the S&P 500. Data collection was mainly done through desk research and subsequent mapping of strategies and data analysis was accomplished through a custom board tailored specifically for these type of companies. Through this framework, a longitudinal case-by-case analysis was initially performed to learn the evolutionary history of each individual company throughout all its lifecycle. Finally, a transcription of these data within a database and subsequent analysis with a global perspective made it possible to extract interesting and relevant insights from these data. This general analysis is carried out primarily to provide a comprehensive perspective of the database: to obtain an overview of the overall trends in order to have a point of reference so that future analyses can be addressed more easily.

It is immediately appeared that the **Transactional Exploitation** strategy covers almost half of the 109 alternatives and that there is a large disparity between Transactional and Orthogonal strategies. As **Platform Strategy** and **Platform Innovation Tactics** are theoretically closely related it is interesting to observe how the results reflect this relationship. The most widely option outside of the traditional matrix is Digital Service. Regarding **Evolution Strategy** there is a substantial balance between Acquisition and Organic and looking at the **Type of Integration** there is not a predominant category.

As previously demonstrated, linear value chain companies often misuse the term "platform", resulting in a proliferation of **Digital Services** related to Platform Thinking. Born-as-a-Platform firms understand the distinction, but Digital Services are still prevalent in this sphere, as part of their Platform Strategy. Many Born-as-a-Platform companies, after their inception and market entry, incorporate Digital Services to sustain and enhance their competitive edge. These services can be **integrated** within the platform itself, such as Copart 360 for Copart Inc. or Safety Check for Meta, or operate **independently** and complement the platform, like Braintree for PayPal Holdings Inc. or Credit Market Analysis for Intercontinental Exchange Inc.

Furthermore, there is a strong pattern of **repetition** regarding the **Platform Strategy** implemented by Born-as-a-Platform companies. Thus companies, after successfully implementing a Platform Strategy, tends to replicate the same strategy several times with successful outcomes.

This research identifies two core strategies referring to **Relatedness** and **Type of Integration**. One approach is grounded on a single platform or a dominant platform with related smaller ones. The other approach involves a decentralized portfolio with multiple platforms of similar importance. Companies like Booking Holdings Inc. and Expedia Group Inc. exemplify the latter strategy, continually adding platforms. In contrast, companies like Visa and Copart innovate within their core platform. The absence of a dominant strategy in business stems from the **centralization-decentralization trade-off**. **Centralization** offers specialization, faster profits, and lower complexity but higher market risk. **Decentralization** reduces risk, boosts long-term stability, but may increase costs and complexity, potentially lowering profits.

Starting from the created database, through the longitudinal case-by-case analysis, our study then tackled a cross-case investigation with an industry perspective. Using specific visualization tools, we were able to verify whether Born-as-a-Platform companies also employed **copycat strategies** among players in the same sector to innovate their Business Models. This examination allowed us to positively answer the research question and has been used as a basis for the uncovering of further interesting results.

Examining the companies in the database by comparing them according to their industry, clear correlations were found between Industry type and Platform Strategy, Platform Innovation Tactic, and Relatedness. While mixed results were found regarding the relationship between Industry and Evolution Strategy. These correlations lead to a main **imitation strategy** employed in the evolutionary history of Born-as-a-Platform companies operating within the same industry, and a subsequent smaller **innovation strategy** with differentiation aims.

The three **E-commerce** companies have embraced the digital marketplace model, acting as intermediaries for transactions between customers and sellers. This platform model, once it attains critical mass, yields substantial potential and value. These companies predominantly follow an evolutionary path of Transactional Exploitation, particularly through Service Enlargement, expanding their core marketplace. Occasionally, they opt for a Platform Gemini approach, creating a focused platform for specific services. Other strategies employed are still connected to their central marketplace, such as Digital Service improvements and Orthogonal Client-as-a-Target Extension (Advertising). The choice between Organic Growth and Acquisition depends on market opportunities and business strategy.

In the **Financial Market Service and Financial Market Technology industry**, companies follow a Business Model similar to E-commerce, acting as intermediaries

for financial item transactions. Their primary evolutionary path is Transactional Exploitation, mainly through Service Enlargement, to enhance the core business platform and offer more products, features, and international reach. They occasionally opt for a Platform Gemini approach for more targeted services. Other expansion types are linked to their focal platform, including Digital Service improvements and rare Transactional Extensions. Evolution is always related to the core business, with Evolution Strategies chosen based on step characteristics and market opportunities.

The companies in the **Financial Service industry**, focus on evolving their successful Business Model by consistently improving it through Digital Service. This approach allows them to adapt to market demands without complicating their user-friendly platform. Both companies implement Digital Services internally through Organic Growth to maintain control, enhance services, and leverage best practices and data. This strategy ensures their continued success without major deviations from their core Business Model.

In the **Travel Technology industry**, two companies follow a distinct strategy by operating travel metasearch engines that connect users to various travel service providers. Their approach includes almost only Transactional Exploitation steps, characterized by Platform Gemini tactics achieved through acquisitions. These companies acquire similar platforms and maintain them as separate entities, primarily to leverage best practices, collect diverse data sources, and expand into new geographical areas. Another evolutionary step involves Supply-side Addition through Acquisitions, resulting in an array of similar platforms within each company. These two groups dominate the Travel Technology market, offering various services and remaining fairly inconspicuous to end users.

6.2. Theoretical and Managerial Contributions

This research delves into the emergence of Platform Thinking strategies within Born-as-a-Platform organizations, investigating their impact on fostering innovation. The research extends the **analytical framework** proposed by Trabucchi and Buganza (2020; 2023a), adding practical relevance to it. Contrary to the misconception between Digital Services and "platforms" (Trabucchi e Buganza, 2023b), we underscore the formers' pivotal role in Born-as-a-Platform companies' fostering innovation. The research revisits a concept of **recurrence** and **replication** of successful Platform Thinking Strategies, emphasising similarities between linear value chain and Born-as-a-Platform companies. Furthermore, the study investigates the relationship between Born-as-a-Platform companies and the role of **imitation** in evolving their Business Models within the same industry. The research contributes significantly to the existing body of work on Business Model Innovation, imitation, and industry dynamics (Hacklin et al., 2018; Snihur and Wiklund, 2019; von Delft et al., 2018; Cennamo and Santaló, 2013).

Born-as-a-Platform companies operating within the **same industry** tend to implement a main **imitation strategy** and a subsequent smaller innovation one with differentiation aims. Specifically, the study highlights clear correlations between **Industry** and **Platform Strategy**, **Platform Innovation Tactic**, and **Relatedness**.

Our research shows a **strong pattern of replication** regarding Platform Strategies implemented by Born-as-a-Platform company seeking continuous innovation and repetitive success. The key to this repeated success is embedded in the features, architecture, and Business Model typical of digital platforms. The study highlights the pivotal role of **platform architecture** and the presence of multiple sides, all seen as customers by the provider (Evans, 2003), allowing for successful replication across various sides within the same platform. The identification and utilization of **Idle Assets** (Trabucchi et al., 2021b), through specific **digital tools**, and leveraging **past relationship**, **knowledge** and **best-practices** (Dell'Era et al., 2021) streamline the implementation of new evolutionary steps, avoiding **challenges** like the chicken-and-egg paradox (Caillaud and Julien, 2003). The study emphasizes the misconception of eroding existing user bases with continuous transformation, clarifying how each new side, through **co-creation mechanisms**, brings its unique **value proposition** without diminishing existing ones (Muzellec et al., 2015). Moreover, the digital Business Model's near-**zero marginal costs** (Rifkin, 2014) incentivize ongoing innovation and strategy replication. Grouping of companies further amplifies these benefits, enabling **replication strategies** across multiple platforms within the same entity, leveraging a wealth of resources and relationships without constraints.

The Platform Business Model, thanks to its attributes, is able to be an enabler of all kinds of **Business Innovation**, intended as the creation of substantial new value for both customers and the firm. By mapping innovation dimensions (Sawhney et al., 2007):**What** (product offering), **Who** (customer base), **How** (innovation process), **Where** (market presence), and **Why** (meaning) (Dell'Era et al., 2017; Verganti, 2017), the text illustrates how Platform Thinking simplifies innovation drivers. Platform innovation's "What" dimension focuses on creating new matchmaking services solving **market frictions** (Trabucchi et al., 2021c; Evans and Schmalensee, 2016). Platforms, address customer needs, leveraging **co-creation** and **technology** to identify market gaps and offer value without limitations. The "Who" dimension in platform innovation involves the customers (Exploitation vs Extension) (Trabucchi and Buganza, 2023a). With Extension, you can bring a new **value proposition** to the platform, create and capture new **value**, introduce new **revenue stream** to make the Business Model sustainable, and so on. The third dimension, "How," focuses on **systemic innovation processes** within Platform Thinking. Trabucchi and Buganza (2023a) detail a structured four-step innovation process using **specific supporting tools.** Innovating along this dimension, a platform can redesign its processes for **greater efficiency**, **higher quality**, or **faster cycle time**, leveraging its internal or an adjacent value chain. The "Where" dimension in platform innovation refers to market presence. Digital

platforms possess a **global reach** due to **technological advancements** (Stallkamp and Schotter, 2018; Trabucchi et al., 2021c). Platform Thinking enhances the "Why" of innovation. Digital platforms give companies the possibility to leverage on their basic architecture to foster innovation in **multiple, coexisting directions** (Gawer and Cusumano, 2014). At the same time given the **co-creational nature** of the service experience (Ramaswamy and Ozcan, 2018), users may take part to the innovation of the service itself (Oliveira and von Hippel, 2011).

The Platform Business Model enables a shift from rigid to flexible product development (Cooper and Sommer, 2016) leveraging **agile innovation** approaches enabled by digital technologies (Downes and Nunes, 2014). It facilitates Business Model Innovation, Validation, Scaling, and Pivots. In the first phase it allows Innovation through **Copycat** (Sanasi et al., 2022), **modularity** (Kostakis, 2019; Dai, 2023), and **zero marginal cost**. The platform's **digital nature** empowers companies in phases of validation, providing **accurate customer insights**, and enabling **cost-efficient MVPs** (Sanasi et al., 2023). It facilitates scaling due to **network effects** (Eisenmann et al., 2006) and **critical mass** (David et al., 2020), allowing rapid market acceptance. Digital platforms excel in "**validated learning**" (Shepherd and Gruber, 2021) by collecting great amount of any kind of **data**, aiding decision-making, and providing **adaptable architecture** for successful pivots.

Finally, the outlined traits that make a multi-sided platform an enabler of replication strategy, innovation, and entrepreneurial experimentation incorporate a key concept of Platform Thinking by transforming these into a new variant of the so-called **Product Platform** (Meyer and Lehnerd, 1997). Both types of platforms enable companies to introduce variations efficiently, achieve economies of scale, and reduce **marginal costs** (Rifkin, 2014) through component reuse and standardization. They promote **interoperability**, **scalability**, and **agile experimentation** (Cooper and Sommer, 2016; Sanasi et al., 2022; Sanasi, 2023), allowing companies to maintain a cohesive value proposition while growing exponentially and even forming groups of companies, enhancing their nature and leveraging the **product family** concept (Christensen, 1997).

The study not only contributes to the academic discourse, but also offers tangible strategies and insights to guide professionals in their quest for lasting success in an ever-changing business landscape. With the work, both **Born-as-a-Platform** and **linear value chain companies'** managers can benefit from an in-depth understanding of Platform Strategy, Platform Innovation Tactics and additional methods that help them make informed decisions about strengthening stakeholder relationships and expanding their Business Model. In fact, they may learn about the **best practices** of many market-leading platform companies looking at examples of innovative steps in all their **evolutionary lifecycle**. As already mentioned, it has been emphasised the importance of a **replication strategy.** Replication often leads to renewed success, allowing companies to build on previous achievements and adapt to changing market conditions. Furthermore, managers wishing to improve their platform's market

position should use a double strategy. An **imitation** one might be used to align with the leading platforms in their industry, and a subsequent **innovative** one could be implemented to differentiate the platform and acquire a competitive advantage. Finally, the section provides a **roadmap** for managers and entrepreneurs navigating the complex world of platforms and Business Model Innovation.

6.3. Limitations and Future Research

The work expressed in this document does not come without limitations. These limitations are due to several factors such as the way the companies are selected, certain characteristics of these holdings, the methodology used to gather information, and the highly focused scope of analysis.

As explained in the methodology, the companies have not been selected at will to achieve specific results but were taken from a complementary study. This decision regarding the cluster of companies on which the research should be based is at the heart of several limitations. The number of companies considered is plenty for a case study type of research, but it is just **sufficient** if one wants to extrapolate insights and correlations between the data collected. The large number of evolutionary steps considered for each company partially mitigates this restriction. Furthermore, as explained in the cross-case analysis section, companies have been clustered according to the industry they belong to. However, the constrained selection of these companies meant that some of them were found to be the **only player** in the specific industry and were therefore excluded from this type of analysis.

Similarly, companies taken from the S&P 500 list are often in the form of groups of companies instead of individual firms. This company-specific characteristic can have a strong impact on the type of growth strategy implemented. Groups often tend to make different strategic choices than the company would make for itself. These groups are often driven by **economic-financial decisions** or by **market opportunities** (such as eliminating a possible competitor), while stand-alone companies make growth choices with a more internal perspective and innovate the Business Model. Given the search for innovation-based evolutionary steps on which this paper is based, the presence of groups can certainly be a limitation for this work.

Accordingly, the presence of groups causes both many evolutionary steps that enlarge the conglomerate, e.g., Acquisitions and Organic Growth, but also many actions that downsize the group, such as divestitures, sales, and spinoffs. In this research, however, it had been decided, with the logic of an innovation-based study, to map only those steps that brought growth and enlargement to the group. Therefore, **divestments**, **sales**, and **spinoffs** have not been considered along with those steps that aimed to grow the group but failed over the years.

Another major limitation relates to the difficulty of obtaining information regarding **companies' use of data** through search engine research. This methodology is extremely useful in terms of researching a large amount of information, mapping all the evolutionary steps and is capable of being fittable for every company considered. At the same time, only in a few cases is it able to provide useful information regarding the actual use that companies make of the data collected and how data drive their evolutionary choices. This limitation gives rise to a bias between the number of evolutionary choices reported to have occurred through transactional logic versus those that occurred with orthogonal one.

Being the paper based on longitudinal case-by-case studies, cross-case analysis is mainly used for better visualization of results and extrapolation of macro-level insights. In order to evaluate the actual correlation between data within a database, it is necessary to perform a **proper statistical analysis**.

For cross-case analysis, in fact, correlation coefficients and statistical software such as R and Python, or specialized tools such as SPSS have not been involved. Instead, the Excel tool of pivot tables, supported by a specific database, has been used to better observe the results of the various case analyses. Indeed, these outcomes, given the large amount of data on the evolutionary steps, are difficult to absorb without this expedient. Thanks to the pivot tables, it became possible to visualize the results, filter, group them, and put constraints so that new knowledge could be extracted from the data hidden in the storytelling and longitudinal analysis board.

The limitations of this work may serve as a starting point for future research. Regarding longitudinal analysis, it would also be interesting to analyse and map those steps that lead groups and companies to strategies as **divestment**, **buy-outs**, and **spinoffs**. This broadening of the research would lead the work to examine the evolutionary history of companies and groups with a **strategic** instead of a purely innovation perspective as used for this paper. This new research, however, would lead to a more detailed review of strategies used by Born-as-a-Platform companies but would deviate from the intrinsic meaning of Platform Thinking.

In the context of longitudinal analysis, the methodology related to the **orthogonal side** of the research could be improved and expanded in order to obtain even broader and more detailed results. A successful approach could be interviews. At least one interview with at least one employee from each company would thus be necessary. Indeed, the information sought for an orthogonal analysis can often be obtained solely through this modality of data collection.

It would also be interesting to take as a starting point for mapping evolutionary steps not only companies belonging to the S&P 500 but also those belonging to other lists and markets **broadening the analysis sample**. This would make it possible to see whether the main patterns are the same or vary depending on the lists and mainly served markets.

The most promising future research to come out from this paper, however, concerns cross-case analysis. Through an extension of what has been only a data visualization modality for this paper, a **statistical correlation** between type of evolutionary strategy implemented and belonging industry can be undertaken. To do this, the first step must be to expand the **source dataset**. For industries that already had two companies or more within it, it will be necessary to find other companies to make the results more reliable and robust. For those companies that were the only ones considered for a given industry, other Born-as-a-Platform firms will have to be found to verify this correlation. In addition, it will obviously not be possible to base results solely on pivot tables or similar visualization tools. A real **statistical analysis** will need to be performed with the newly collected data through the use of statistical software such as R and Python (with libraries such as pansdas and numpy), and calculate correlation coefficients (e.g., Pearson, Spearman) to quantify the relationship's strength and direction. Similar to the longitudinal analysis, once the analysis sample has been enlarged, it would also be interesting to study the **differences** and **similarities** of correlations in **different markets**.

Bibliography

Papers

1) Amaral, D., & Orsato, R. (2022). Digital platforms for food waste reduction: The value for business users. *Business Strategy and the Environment*. 32. 10.1002/bse.3193.
2) Amit, R., & Zott, C. (2001). Value creation in e-business. *Strategic Management Journal*, 22, 493–520.
3) Anderson, P. (2021). 15 fastest-growing software companies. *Yahoo Finance*.
4) Baden-Fuller, C., & Haefliger, S. (2013). Business Models and Technological Innovation. *Long Range Planning*, 46(6), 419-426.
5) Baden-Fuller, C., Morgan, M.S., (2010). Business models as models. *Long. Range Plan*ning, 43, 156–171.
6) Bai, J., Chen, M., Jin, L., Mu, X., & Xu, D. Y. (2020). Search and Information Frictions on Global E-Commerce Platforms: Evidence from AliExpress.
7) Bajwa, S. S., Wang, X., Duc, A. N., Chanin, R., Prikladnicki, R., Pompermaier, L. B., & Abrahamsson, P. (2017). Start-Ups must be ready to pivot. *IEEE Software*, 34(3), 18–22.
8) Baker, T., & Nelson, R. E. (2005). Creating Something from Nothing: Resource Construction through Entrepreneurial Bricolage. *Administrative Science Quarterly*, 50(3), 329–366.
9) Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management,* 17(1): 99–120.
10) Berends, H., van Burg, E., & Garud, R. (2021). Pivoting or persevering with venture ideas: Recalibrating temporal commitments. *Journal of Business Venturing*, 36(4), 106126.
11) Blank, S. (2013). Why the Lean start-up changes everything. *Harvard Business Review*, 91(5), 63–72.
12) Brown, S. L., & Eisenhardt, K. M. (1997). The Art of Continuous Change: linking complexity theory and Time-Paced evolution in relentlessly shifting organizations. *Administrative Science Quarterly*, 42(1), 1.
13) Brynjolfsson, E., & McAfee, A. (2015). The second machine age: work, progress, and prosperity in a time of brilliant technologies. *Choice Reviews Online*, 52(06), 52–3201.
14) Buganza, T., Dell'Era, C., Pellizzoni, E., Trabucchi, D., & Verganti, R. (2015). Unveiling the potentialities provided by new Technologies: A process to pursue

technology epiphanies in the smartphone app industry. *Creativity and Innovation Management*, 24(3), 391–414.

15) Caillaud,B.,& Jullien,B. (2003). Chicken & Egg: Competition among intermediation service providers. *The RAND Journal of Economics*,309–328.
16) Camuffo, A., Cordova, A., Gambardella, A., & Spina, C. (2020). A scientific approach to entrepreneurial decision making: Evidence from a randomized control trial. *Management Science*, 66(2), 564–586.
17) Casadesus-Masanell, R., Zhu, F., 2013. Business model innovation and competitive imitation: the case of sponsor-based business models. *Strateg. Manag. J*. 34 (4), 464–482.
18) Cennamo, C. (2019). Competing in Digital Markets: A Platform-Based Perspective. *Social Science Research Network*.
19) Cennamo, C., Santaló, J., (2013). Platform competition: strategic trade-offs in platform markets. *Strateg. Manag. J*. 34 (11), 1331–1350.
20) Chesbrough, H. (2010) Business model innovation: opportunities and barriers. *Long Range Planning*, 43, 354–363.
21) Choudary, S. P., Van Alstyne, M. W., & Parker, G. G. (2016). Platform Revolution: How networked markets are transforming the economy--and how to make them work for you.
22) Christensen, C. (1997). The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail. *Harvard Business Review Press*.
23) Chu, L. Y., & Wu, B. (2023). Designing online platforms for customized goods and Services: A Market Frictions–Based Perspective. *Academy of Management Review*, 48(1), 78–99.
24) Cooper, R. G., & Sommer, A. F. (2016). The Agile–Stage-Gate hybrid model: a promising new approach and a new research opportunity. *Journal of Product Innovation Management*, 33(5), 513–526.
25) Corbin, J., & Strauss, A. (2008). Basics of qualitative research: Techniques and procedures for developing grounded theory (3rd ed.). *Thousand Oaks, CA: Sage Publications*.
26) Correani, A., De Massis, A. V., Frattini, F., Petruzzelli, A. M., & Natalicchio, A. (2020). Implementing a Digital Strategy: Learning from the Experience of Three Digital Transformation Projects. *California Management Review*, 62(4), 37–56.
27) Cortimiglia, M. N., Ghezzi, A., & Frank, A. G. (2016). Business model innovation and strategy making nexus: Evidence from a cross-industry mixed-methods study. *R&D Management*, 46(3), 414–432.
28) Dai, Q. (2023). Understanding how platform modularity enhances network effects. *Electronic Markets*, 33(1).
29) David, R., Aubert, B. A., Bernard, J., & Luczak-Roesch, M., (2020). Critical Mass in Inter-Organizational Platforms. *AMCIS 2020 Proceedings*. 21.
30) Dell'Era, C., Altuna, N., Magistretti, S., & Verganti, R. (2017). Discovering quiescent meanings in technologies: exploring the design management

practices that support the development of Technology Epiphanies. *Technology Analysis & Strategic Management*, 29(2), 149–166.

31) Dell'Era, C., Marchesi, A., Verganti, R., & Zurlo, F. (2008). Language mining: analysis of the innovation of dominant product languages in design-intensive industries. *European Journal of Innovation Management*, 11(1), 25–50.
32) Dell'Era C, Trabucchi D, Magistretti S (2021) Exploiting incumbents' potentialities: from linear value chains to multisided platforms. *Creativity and Innovation Management*, 30(1): 31–46.
33) Dell'Era, C., & Verganti, R. (2007). Strategies of innovation and imitation of product languages. *Journal of Product Innovation Management*, 24(6), 580–599.
34) De Reuver, M., Sørensen, C., & Basole, R. C. (2018). The Digital Platform: a research agenda. *Journal of Information Technology*, 33(2), 124–135.
35) Doganova, L. & Eyquem-Renault, M. (2009) What do business models do? Innovation devices in technology entrepreneurship. *Research Policy*, 38, 1559–1570.
36) Downes, L., & Nunes, P. (2014). Big bang disruption: Strategy in the age of devastating innovation. *New York: Penguin*.
37) Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review*, 14, 532–550.
38) Eisenmann, T., Parker, G.G., Van Alstyne, M.W., (2006). Strategies for two-sided markets. *Harvard Business Review* 84 (10), 92–101.
39) Eisenmann, T. R., Ries, E., & Dillard, S. (2012). Hypothesis-driven entrepreneurship: The lean startup. *Harvard Business School Entrepreneurial Management Case*, 812–095.
40) Evans, D.S. (2003). Some empirical aspects of multi-sided platform industries. *Review of Network Economics*, Vol. 2 No. 3.
41) Evans, D. S., Hagiu, A., & Schmalensee, R. (2006). Invisible Engines: How software platforms drive innovation and transform industries.
42) Evans, D. S., & Schmalensee, R. (2016). Matchmakers: The New Economics of Multisided Platforms. *Harvard Business Review Press*.
43) Fichman, R. G., Santos, B. L. D., & Zheng, Z. (2014). Digital innovation as a fundamental and powerful concept in the information systems curriculum. *Management Information Systems Quarterly*, 38(2), 329–343.
44) Filistrucchi, L., Geradin, D., Van Damme, E., & Affeldt, P. (2014). Market definition in two-sided markets: Theory and practice. *Journal of Competition Law and Economics*, 10, 293–339.
45) Foss, N. J., & Saebi, T. (2017). Fifteen years of research on business model innovation: How far have we come, and where should we go? *Journal of Management*, 43(1), 200–227.
46) Frederiksen, D. L., & Brem, A. (2017). How do entrepreneurs think they create value? A scientific reflection of Eric Ries' Lean Startup approach. *International Entrepreneurship and Management Journal*, 13(1), 169–189.

47) Fu, X., Ghauri, P. N., Ogbonna, N., & Xing, X. (2023b). Platform-based business model and entrepreneurs from Base of the Pyramid. *Technovation*, 119, 102451.
48) Fuerstenau, Daniel & Klein, Stefan & Vogel, Amyn & Auschra, Carolin. (2021). Multi-sided platform and data-driven care research: A longitudinal study on business model innovation for improving care in complex neurological diseases. *Electronic Markets*.
49) Galunic, D. C., & Eisenhardt, K. M. (2001). Architectural innovation and modular corporate forms. *Academy of Management Journal*, 44, 1229–1249.
50) Gatautis, R. (2017). The rise of the platforms: business model innovation perspectives. *The Engineering Economics*, 28(5).
51) Gawer, A. (2011). Platforms, markets and innovation. *Edward Elgar Publishing*.
52) Gawer, A. (2021). Digital platforms' boundaries: The interplay of firm scope, platform sides, and digital interfaces. *Long Range Planning*, 54(5), 102045.
53) Gawer, A., & Cusumano, M. A. (2014). Industry Platforms and Ecosystem Innovation. *Journal of Product Innovation Management*, 31(3), 417–433.
54) Ghezzi, A. (2019). Digital startups and the adoption and implementation of lean startup approaches: Effectuation, bricolage and opportunity creation in practice. *Technological Forecasting and Social Change*, 146, 945–960.
55) Ghezzi, A., & Cavallo, A. (2020). Agile Business Model Innovation in Digital entrepreneurship: Lean Startup Approaches. *Journal of Business Research*, 110, 519–537.
56) Ghezzi, A., Cortimiglia, M.N., & Frank, A.G. (2014), Strategy and business model design in dynamic telecommunications industries: a study on Italian mobile network operators. *Technological Forecasting & Social Change*, 90, 346–354.
57) Hacklin, F., Björkdahl, J., Wallin, M.W., (2018). Strategies for business model innovation: how firms reel in migrating value. *Long. Range Plan*. 51 (1), 82–110.
58) Hänninen, M., Smedlund, A., & Mitronen, L. (2018). Digitalization in retailing: Multi-sided platforms as drivers of industry transformation. *Baltic Journal of Management*, 13(2), 152–168.
59) Hauke-Lopes, A., Wieczerzycki, M., & Ratajczak-Mrozek, M. (2022). Extra-industry imitation of digital platform business models. *Entrepreneurial Business and Economics Review*, 10(4), 91-105.
60) Iefimova, G., Pashchenko, O., (2022). Digital Platform in the Global Economy.
61) Jocevski, M., Ghezzi, A., & Arvidsson, N. (2020). Exploring the growth challenge of mobile payment platforms: A business model perspective. Electronic Commerce Research and Applications, 40, 100908.
62) Jacobides, M. G. (2019). In the Ecosystem Economy, What's Your Strategy?. *Harvard Business Review*.
63) Katz, M. L. (1985). Network externalities, competition, and compatibility. *The American Economic Review*, 75(3), 424–440.

64) Kirtley, J., & O'Mahony, S. (2023). What is a pivot? Explaining when and how entrepreneurial firms decide to make strategic change and pivot. Strategic Management Journal, 44(1), 197–230.
65) Klemperer, P. (2008). Network Goods (Theory). In: *The New Palgrave Dictionary of Economics.* Palgrave Macmillan, London.
66) Kostakis, V. (2019). How to reap the benefits of the "digital revolution"? Modularity and the commons. *Administrative Culture*, 20(1), 4–19.
67) Lantano, F., Petruzzelli, A. M., & Panniello, U. (2022). Business model innovation in video-game consoles to face the threats of mobile gaming: Evidence from the case of Sony PlayStation. *Technological Forecasting and Social Change*, 174, 121210.
68) Leijon, E., Svenheden, J., & Svahn, F. (2017). Platform thinking in incumbent firms: From concept to capability. *Proceedings of the Annual Hawaii International Conference on System Sciences*.
69) Li, X., Zhang, L., & Cao,J. (2023). Research on the mechanism of sustainable business model innovation driven by the digital platform ecosystem. *Journal of Engineering and Technology Management*, 68, 101738.
70) Libert, B., Beck, M., & Wind, J. (2016). The network imperative: How to survive and grow in the age of digital business models. *Harvard Business Review Press*.
71) Magretta, J. (2002) Why business models matter. *Harvard Business Review*, 80, 86–92.
72) Mäkinen, S. J., Kanniainen, J., & Ilkka, P. (2013). Investigating adoption of free beta applications in a Platform-Based business ecosystem. *Journal of Product Innovation Management*, 31(3), 451–465.
73) Mancha, R., & Gordon, S. (2021). Multi-sided platform strategies for organisations: Transforming the business model. *The Journal of Business Strategy*, 43(3), 175–183.
74) Matthias, T., Meier, P., & Trabucchi, D. (2021). Digital Platform Tactics: How to implement platform strategy over time. *Journal of Business Models*, 9(1), 67–76.
75) McIntyre, D. P., & Srinivasan, A. (2016). Networks, platforms, and strategy: Emerging views and next steps. *Strategic Management Journal*, 38(1), 141–160.
76) McIntyre, D. P., Srinivasan, A., & Chintakananda, A. (2021). The persistence of platforms: The role of network, platform, and complementor attributes. *Long Range Planning*, 54(5), 101987.
77) Meyer, M. H., & Lehnerd, A. P. (1997). The power of product platforms: building value and cost leadership. *Free Press eBooks*.
78) Meyer, T., & Cennamo, C. (2018). Digital transformation and the value of incumbents' complementary assets: the substitution effect of digital platforms. *Social Science Research Network*.
79) Morillo, M., Dell'Era, C., & Verganti, R. (2015). Exploring the role of "outsider" interpreters in the development of design-driven innovations. *International Journal of Technology Intelligence and Planning*, 10(3/4), 222.

80) Muzellec, L., Ronteau, S., & Lambkin, M. (2015). Two-sided internet platforms: A business model lifecycle perspective. *Industrial Marketing Management*, 45, 139–150.
81) Nambisan, S., Lyytinen, K., Majchrzak, A., & Song, M. (2017). Digital Innovation Management: Reinventing innovation management research in a digital world., 41(1), 223–238.
82) Nielsen, C., & Lund, M. (2018). Building scalable business models. *MIT Sloan Management Review*, 59(2), 65–69.
83) Norman, D. A., & Verganti, R. (2014). Incremental and Radical Innovation: Design Research vs. Technology and Meaning Change. *Design Issues*, 30(1), 78–96.
84) Oe, H., & Thuy, L. L. (2020). The innovative organisation of Airbnb: Business model innovation and holacracy structure to enhance innovative business behaviour coping with the impact of the COVID-19. *International Journal of Business Innovation and Research*, 1(1).
85) Oliveira, P., & Von Hippel, E. A. (2011). Users as service innovators: The case of banking services. *Research Policy*, 40(6), 806–818.
86) Ostapenko, G. (2019). Creating a Platform Based Business Model In Dental Industry. *International Journal of Professional Business Review*, 4(1), 22–31.
87) Palomaki, A. (2020). Multi-Sided Platforms - How to Attain Critical Mass? *Aalto University School of Business.*
88) Parker, G., & Van Alstyne, M. W. (2016). Two-Sided Network Effects: A Theory of Information Product design. *Management Science*, 51(10), 1494–1504.
89) Parker, G., & Van Alstyne, M. W (2018). Innovation, openness, and platform control. *Management Science*, 64(7), 3015–3032.
90) Picken, J. C. (2017). From startup to scalable enterprise: Laying the foundation. *Business Horizons*, 60(5), 587–595.
91) Pillai, S. D., Goldfarb, B., & Kirsch, D. A. (2020). The origins of firm strategy: Learning by economic experimentation and strategic pivots in the early automobile industry. *Strategic Management Journal*, 41(3), 369–399.
92) Porter, M. E., & Millar, V. A. (1985). How information gives you competitive advantage. *Harvard Business Review*, July.
93) Presenza, A., Panniello, U., & Petruzzelli, A. M. (2020). Tourism multi-sided platforms and the social innovation trajectory: The case of Airbnb. *Creativity and Innovation Management*, 30(1), 47–62
94) Priem, R. L., Wenzel, M., & Koch, J. (2018). Demand-side strategy and business models: Putting value creation for consumers center stage. *Long Range Planning*, 51(1), 22–31
95) Pussinen, Pasi & Wallin, Arto & Hemilä, Jukka. (2023). The hope of exponential growth - Systems mapping perspective on birth of platform business. *Digital Business*. 3.

96) Ramaswamy, V., & Ozcan, K. (2018). What is co-creation? An interactional creation framework and its implications for value creation. *Journal of Business Research*, 84, 196–205.
97) Ries, E. (2011). The lean startup: How today's entrepreneurs use continuous innovation to create radically successful businesses. *Currency*.
98) Rifkin, J. (2014). The zero marginal cost society: the Internet of things, the collaborative commons, and the eclipse of capitalism. *Choice Reviews Online*, 52(03), 52–1529.
99) Rigby, D., Sutherland, J., Takeuchi, H. (2016). Embracing Agile: how to master process that's transforming management. *Harvard Business Review*, 40-48,50.
100) Rizk, A., Ståhlbröst, A., & Elragal, A. (2020). Data-driven innovation processes within federated networks. *European Journal of Innovation Management*, 25(6), 498–526.
101) Roberts, N. and Kim, I. (2023). Organizational mission and digital platform evolution: an investigation of entrepreneurial organizations in nascent markets. *Internet Research*
102) Rochet, J. C., & Tirole, J. (2003). Platform competition in Two-Sided markets., 1(4), 990–1029.
103) Samavi, R., Yu, E., & Topaloglou, T. (2008). Strategic reasoning about business models: a conceptual modeling approach. *Information Systems and E-business Management*, 7(2), 171–198.
104) Sambamurthy, V., Bharadwaj, A., & Grover, V. (2003). Shaping Agility through Digital Options: Reconceptualizing the Role of Information Technology in Contemporary Firms. *Management Information Systems Quarterly*, 27(2), 237.
105) Sanasi, S. (2023). Entrepreneurial experimentation in business model dynamics: Current understanding and future opportunities. *International Entrepreneurship and Management Journal*, 19(2), 805–836.
106) Sanasi, S., & Ghezzi, A. (2022). Pivots as strategic responses to crises: Evidence from Italian companies navigating COVID-19. *Strategic Organization*, in press.
107) Sanasi, S., Ghezzi, A., & Cavallo, A. (2023). What happens after market validation? Experimentation for scaling in technology-based startups. *Technological Forecasting and Social Change*, 196, 122839.
108) Sanasi, S., Manotti, J., & Ghezzi, A. (2022). Achieving Agility in High-Reputation Firms: Agile experimentation revisited. *IEEE Transactions on Engineering Management*, 69(6), 3529–3545.
109) Sanasi, S., Trabucchi, D., Pellizzoni, E., & Buganza, T. (2021). The evolution of meanings: an empirical analysis of the social media industry. *European Journal of Innovation Management,* 25(6), 97–121.
110) Sanderson, S. W., & Uzumeri, M. (1995). Managing product families: The case of the Sony Walkman. *Research Policy*, 24(5), 761–782.

111) Sawhney, M. (1998). Leveraged High-Variety Strategies: from portfolio thinking to platform thinking. *Journal of the Academy of Marketing Science*, 26(1), 54–61.

112) Sawhney, M., Wolcott, R. C., & Arroniz, I. (2007). The 12 different ways for companies to innovate. *IEEE Engineering Management Review*, 35(1), 45.

113) Scheepers, C. B., & Bogie, J. (2020). Uber Sub-Saharan Africa: contextual leadership for sustainable business model innovation during COVID-19. *Emerald Emerging Markets Case Studies*, 10(3), 1–18.

114) Schneider, S. and Spieth, P. (2013) *International Journal of Innovation Management*, 17(01).

115) Shepherd, D. A., & Gruber, M. (2021). The lean Startup Framework: Closing the Academic–Practitioner divide. *Entrepreneurship Theory and Practice*, 45(5), 967–998.

116) Silva, D. S., Ghezzi, A., de Aguiar, R. B., Cortimiglia, M. N., & ten Caten, C. S. (2021). Lean startup for opportunity exploitation: Adoption constraints and strategies in technology new ventures. *International Journal of Entrepreneurial Behavior & Research*, 27(4), 944–969.

117) Snihur, Y., Wiklund, J., 2019. Searching for innovation: product, process, and business model innovations and search behaviour in established firms. *Long. Range Plan*. 52 (3), 305–325.

118) Song, P., Xue, L., Zhang, C., & Rai, A. (2017). APIs in Software Platform: Implications for Innovation and Imitation. *ICIS 2017 Proceedings*. 2.

119) Sosna, M., Trevinyo-Rodríguez, R. N., & Velamuri, S. R. (2010). Business Model Innovation through Trial-and-Error Learning. *Long Range Planning*, 43(2–3), 383–407.

120) Stallkamp, M., & Schotter, A. (2018). Platforms without borders? The international strategies of digital platform firms. *Global Strategy Journal*, 11(1), 58–80.

121) Subramaniam, S., Manchanda, P., Esteban-Bravo, M., Chu, J., Ma, L., Song, M., Shriver, S. K., & Subramanian, U. (2014). Platforms: a multiplicity of research opportunities. *Marketing Letters*, 26(2), 141–152.

122) Sull, D. N. (2004). Disciplined entrepreneurship. *MIT Sloan Management Review*, 46(1), 71.

123) Täuscher, K., & Laudien, S. M. (2018). Understanding platform business models: A mixed methods study of marketplaces. *European Management Journal*, 36, 319–329.

124) Teece, D. J. (2010). Business models, business strategy and innovation. *Long Range Planning*, 43, 172–194

125) Teece, D. J. (2012). Next-Generation Competition: New Concepts for Understanding how Innovation Shapes Competition and Policy in the Digital Economy. *Journal of Law, Economics & Policy*, 9(1), pp. 97-118.

126) Trabucchi, D. (2020). Let's get a two-sided platform started: tactics to solve the chicken and egg paradox. *Journal of Business Ecosystems (JBE)*, Vol. 1 No. 1, pp. 63-77.

127) Trabucchi, D., & Buganza, T. (2019). Data-driven innovation: switching the perspective on Big Data. European Journal of Innovation Management, 22(1), 23–40

128) Trabucchi, D., & Buganza, T. (2020). Fostering digital platform innovation: From two to multisided platforms. *Creativity and Innovation Management*, 29(2), 345-358.

129) Trabucchi, D., & Buganza, T. (2021). Entrepreneurial dynamics in two-sided platforms: the influence of sides in the case of Friendz. *International Journal of Entrepreneurial Behaviour & Research*, 28(5), 1184–1205.

130) Trabucchi, D., & Buganza, T. (2023a). Platform thinking: Read the Past. Write the Future. *Business Expert Press*.

131) Trabucchi, D., & Buganza, T. (2023b). PLATFORMS RENAISSANCE. How S&P 500 companies are innovating through Platform Thinking. *Digital Innovation Observatories of the School of Management*.

132) Trabucchi, D., Buganza, T., Muzellec, L., & Ronteau, S. (2021a). Platform-driven innovation: Unveiling research and business opportunities. *Creativity and Innovation Management*, 30(1), 6–11.

133) Trabucchi, D., Buganza, T., & Pellizzoni, E. (2017). Give away your digital services: Leveraging big data to capture value. *Research-technology Management*, 60(2), 43–52.

134) Trabucchi, D., Gastaldi, L., Pellizzoni, E., Buganza, T., & Corso, M. (2018). Launching a Two-Sided Platform: The Role of Platform Enhancers.

135) Trabucchi, D., & Magistretti, S. (2020). The battle of superheroes: the rise of the knowledge platform strategy in the movie industry. *Journal of Knowledge Management*, 24(8), 1881–1898.

136) Trabucchi, D., Muzellec, L., Ronteau, S., & Buganza, T. (2021c). The platforms' DNA: drivers of value creation in digital two-sided platforms. *Technology Analysis & Strategic Management*, 34(8), 891–904.

137) Trabucchi, D., Sanasi, S., Ghezzi, A., & Buganza, T. (2021b). Idle Asset Hunters—The Secret of Multi-sided platforms. *Research-technology Management*, 64(1), 33–42.

138) Trabucchi, D., Talenti, L., & Buganza, T. (2019). How do Big Bang Disruptors look like? A Business Model perspective. *Technological Forecasting and Social Change*, 141, 330–340.

139) Trimi, S., & Berbegal-Mirabent, J. (2012). Business model innovation in entrepreneurship. *International Entrepreneurship and Management Journal*, 8(4), 449–465.

140) Tripsas, M. (1997). Unravelling the process of creative destruction: complementary assets and incumbent survival in the typesetter industry. *Strategic Management Journal*, Vol. 18, pp. 119-142.

141) Utesheva, A., Simpson, J. R., & Cecez-Kecmanovic, D. (2016). Identity metamorphoses in digital disruption: a relational theory of identity. *European Journal of Information Systems*, 25(4), 344–363.

142) Verganti, R. (2017). Overcrowded. Designing Meaningful Products in a World Awash with Ideas. *Il Project Manager*, 34, 48.

143) von Delft, S., Kortmann, S., Gelhard, C., Pisani, N., forthcoming, 2018. Leveraging global sources of knowledge for business model innovation. *Long. Range Plan*.

144) Wang, Q., Li, B., and Singh, P.V. (2017). Copycats vs Original Mobile Apps: A Machine Learning Detection Method and Empirical Analysis. *Information Systems Research*, forthcoming.

145) Xie, X., Han, Y., Anderson, A. R., & Ribeiro-Navarrete, S. (2022). Digital platforms and SMEs' business model innovation: Exploring the mediating mechanisms of capability reconfiguration. *International Journal of Information Management*, 65, 102513.

146) Yin, R. K. (2013). Case study research: Design and methods. *Thousand Oaks*, CA: Sage Publications.

147) Zhao, Y., Von Delft, S., Morgan-Thomas, A., & Buck, T. (2020b). The evolution of platform business models: Exploring competitive battles in the world of platforms. *Long Range Planning*, 53(4), 101892.

148) Zhu, F., & Furr, N. (2016). Products to platforms: Making the leap. *Harvard Business Review*, 94(4), 18.

149) Zott, C., & Amit, R. (2010). Business Model Design: an Activity system perspective. *Long Range Planning*, 43(2–3), 216–226.

150) Zott, C., Amit, R., & Massa, L. (2011). The business model: recent developments and future research. *Journal of Management*, 37(4), 1019–1042.

Articles

1) Booking Holdings. (2023). Wikipedia. https://en.wikipedia.org/wiki/Booking_Holdings [Online].
2) Booking Holdings History: Founding, Timeline, and Milestones (2023). https://www.zippia.com/booking-holdings-careers-1411750/history/ [Online].
3) Booking Holdings Official Web Page (2023). https://www.bookingholdings.com/about/history/ [Online]
4) CME Group. (2023). Wikipedia. https://en.wikipedia.org/wiki/CME_Group [Online].
5) CME Group Official Web Page (2023). https://www.cmegroup.com/company/history/timeline-of-achievements.html [Online].
6) Copart. (2023). Wikipedia. https://en.wikipedia.org/wiki/Copart [Online].
7) Copart History: Founding, Timeline, and Milestones (2023). https://www.zippia.com/copart-careers-2931/history/ [Online].
8) Copart Official Web Page (2023). https://www.copart.com/content/us/en/about-copart/our-history [Online].
9) eBay. (2023). en.wikipedia.org. https://en.wikipedia.org/wiki/EBay [Online].
10) eBay Completes Acquisition of Giosis' Japan Business. (2018). https://www.ebayinc.com/stories/news/ebay-completes-acquisition-of-giosis-japan-business/ [Online].
11) eBay History: Founding, Timeline, and Milestones (2023). https://www.zippia.com/ebay-careers-3708/history/ [Online].
12) eBay Official Web Page (2023). https://www.ebayinc.com/company/our-history/ [Online].
13) Etsy. (2023). Wikipedia. https://en.wikipedia.org/wiki/Etsy [Online].
14) Etsy History: Founding, Timeline, and Milestones (2023). https://www.zippia.com/etsy-careers-4074/history/ [Online].
15) Expedia's 23-Year Evolution in Online Travel. (2019). https://skift.com/2019/12/04/expedias-23-year-evolution-in-online-travel/ [Online].
16) Expedia Group. (2023). Wikipedia. https://en.wikipedia.org/wiki/Expedia_Group [Online].
17) Expedia Group History: Founding, Timeline, and Milestones (2023, July). https://www.zippia.com/expedia-group-careers-4145/history/ [Online].
18) Expedia Official Web Page (2023). https://www.expediagroup.com/who-we-are/our-story/default.aspx#module-tabs_item--1 [Online].
19) How Tinder and Hinge owner Match Group grew to dominate the country's online dating market — but let Bumble get away (2021). https://l1nq.com/akQyq [Online]

20) Intercontinental Exchange. (2023). Wikipedia. https://en.wikipedia.org/wiki/Intercontinental_Exchange [Online].
21) Intercontinental Exchange Official Web Page (2023). https://www.ice.com/about/history [Online].
22) Live Nation Entertainment. (2023). Wikipedia. https://en.wikipedia.org/wiki/Live_Nation_Entertainment [Online].
23) Live Nation Entertainment History: Founding, Timeline, and Milestones (2023). https://www.zippia.com/live-nation-entertainment-careers-6885/history/ [Online].
24) MarketAxess. (2023). Wikipedia. https://en.wikipedia.org/wiki/MarketAxess [Online].
25) MarketAxess History: Founding, Timeline, and Milestones (2023). https://www.zippia.com/marketaxess-careers-7114/history/ [Online].
26) MarketAxess Official Web Page (2023). https://www.marketaxess.com/timeline_milestone [Online].
27) Mastercard. (2023). Wikipedia. https://en.wikipedia.org/wiki/Mastercard [Online].
28) Mastercard Official Web Page (2023). https://www.mastercard.com/brandcenter/en/brand-history [Online].
29) Mastercard History: Founding, Timeline, and Milestones. (2023). https://www.zippia.com/mastercard-careers-7164/history/ [Online].
30) Match Group. (2023). Wikipedia. https://en.wikipedia.org/wiki/Match_Group [Online].
31) Match Group History: Founding, Timeline, and Milestones (2023). https://www.zippia.com/match-group-careers-7169/history/ [Online].
32) Match Group Official Web Page (2023). https://mtch.com/ourcompany [Online].
33) Meta History: Founding, Timeline, and Milestones (2023). https://www.zippia.com/meta-careers-4188/history/ [Online].
34) Meta Official Web Page (2023). https://www.meta.com/it/ [Online].
35) Meta Platforms. (2023). Wikipedia. https://en.wikipedia.org/wiki/Meta_Platforms [Online].
36) MOOCS 1: Platform Thinking: what's beyond Uber?. https://www.coursera.org/learn/platform-thinking-whats-beyonduber [Online].
37) MOOCS 2: Platform Thinking: designing a Platform. https://www.coursera.org/learn/platform-thinking-designing-aplatform [Online].
38) MOOCS 3: Platform Thinking: exploiting data through platforms. https://www.coursera.org/learn/platform-thinking-exploitingdata-through-platforms [Online]
39) Nasdaq. (2023). Wikipedia. https://en.wikipedia.org/wiki/Nasdaq [Online].

40) Nasdaq History: Founding, Timeline, and Milestones (2023). https://www.zippia.com/nasdaq-careers-7872/history/ [Online].
41) PayPal. (2023). Wikipedia. https://en.wikipedia.org/wiki/PayPal [Online].
42) PayPal History: Founding, Timeline, and Milestones (2023). https://www.zippia.com/paypal-careers-8863/history/ [Online].
43) PayPal Official Page (2023). https://about.pypl.com/who-we-are/history-and-facts/default.aspx [Online].
44) The Ultimate History of Etsy (2023). https://thriveonetsy.com/etsy-history/ [Online].
45) Visa Inc. (2023). Wikipedia. https://en.wikipedia.org/wiki/Visa_Inc [Online].
46) Visa History: Founding, Timeline, and Milestones (2023). https://www.zippia.com/visa-careers-12486/history/ [Online].
47) What is Platform Thinking? (2020). https://www.linkedin.com/pulse/what-platform-thinking-erich-joachimsthaler-ph-d-/ [Online].

A Appendix A

A.1. Cross-case Analysis Database

S&P 500 Rank	Name	Industry	#	Evolution	Idle Asset	Platform Innovation Tactic	Evolution Strategy	Type of Integration	Relatedness	Platfrom Strategy
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	0	Facesmash	-	-	-	-	A	-
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	1	TheFacebook	-	-	Organic	Integrated	B	Network Platform
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	2	Facebook API	-	-	Organic	Integrated	B	Industry-Wide Platform
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	3	Facebook Ads	Users' eyeballs	Advertising	Organic	Integrated	B	Orthogonal Extension (CaaT)
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	4	Facebook Pages	Customer base	Supply-side Addition	Organic	Integrated	B	Transactional Extension
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	5	Messenger	-	-	Organic	Separated entity	B	Network Platform
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	6	Instagram	-	-	Acquisition	Separated entity	C	Network Platform
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	7	WhatsApp	-	-	Acquisition	Separated entity	D	Network Platform
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	8	Oculus	-	-	Acquisition	Separated entity	E	Industry-Wide Platform
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	9	Safety Check	-	-	Organic	Integrated	B	Digital Service
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	10	Facebook Live	Customer base	Service Enlargement	Organic	Integrated	B	Transactional Exploitation
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	11	Facebook Marketplace	Users as potential new buyers	Supply-side Addition	Organic	Integrated	B	Transactional Extension
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	12	Workplace by Facebook	Best practice, data	Platform Gemini	Organic	Separated entity	F	Transactional Exploitation
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	13	Instagram Shopping	Users as potential new buyers	Supply-side Addition	Organic	Separated entity	C	Transactional Extension
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	14	WhatsApp Business	Users as potential clients	Supply-side Addition	Organic	Separated entity	D	Transactional Extension
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	15	WhatsApp Payments	Customer base	Service Enlargement	Organic	Separated entity	D	Transactional Exploitation
13	Meta	Social Media, Social Network Advertising, Consumer Electronics, Virtual Reality	16	Horizon Workrooms	-	-	Organic	Integrated	G	Digital Service
14	Visa	Financial Services	0	BankAmericard	-	-	-	-	A	-
14	Visa	Financial Services	1	Visa Debit	-	-	Organic	Integrated	A	Digital Service
14	Visa	Financial Services	2	Automated Teller Machines (ATM) Network	-	-	Organic	Integrated	A	Digital Service
14	Visa	Financial Services	3	PayWave (Visa Contactless)	-	-	Organic	Integrated	A	Digital Service
14	Visa	Financial Services	4	mVisa	-	-	Organic	Integrated	A	Digital Service
17	Mastercard Incorporated	Financial Services	0	Credit Card Provider	-	-	-	-	A	-
17	Mastercard Incorporated	Financial Services	1	Priceless Cities Program	-	-	Organic	Integrated	A	Digital Service
17	Mastercard Incorporated	Financial Services	2	QkR	-	-	Organic	Integrated	A	Digital Service
17	Mastercard Incorporated	Financial Services	3	MasterPass	-	-	Organic	Integrated	A	Digital Service
17	Mastercard Incorporated	Financial Services	4	Mastercard Send	-	-	Organic	Integrated	A	Network Platform

Figure A.1: Cross-case Analysis Database (Part 1)

S&P 500 Rank	Name	Industry	#	Evolution	Idle Asset	Platform Innovation Tactic	Evolution Strategy	Type of Integration	Relatedness	Platfrom Strategy
81	Booking Holdings Inc.	Travel Technology	0	Priceline.com	-	-	-	-	A	-
81	Booking Holdings Inc.	Travel Technology	1	Booking.com	Best practice, data	Platform Gemini	Acquisition	Separated entity	B	Transactional Exploitation
81	Booking Holdings Inc.	Travel Technology	2	Rentalcars.com	Customer-side searching for complementary services	Supply-side Addition	Acquisition	Both	C	Transactional Extension
81	Booking Holdings Inc.	Travel Technology	3	Agoda	Best practice, new geographical area, data	Platform Gemini	Acquisition	Separated entity	D	Transactional Exploitation
81	Booking Holdings Inc.	Travel Technology	4	Kayak.com	Best practice, data	Platform Gemini	Acquisition	Separated entity	E	Transactional Exploitation
81	Booking Holdings Inc.	Travel Technology	5	OpenTable	Customer-side searching for complementary services	Supply-side Addition	Acquisition	Separated entity	F	Transactional Extension
81	Booking Holdings Inc.	Travel Technology	6	Cheapflights	Customer-side searching for complementary services	Supply-side Addition	Acquisition	Both	G	Transactional Extension
81	Booking Holdings Inc.	Travel Technology	7	Momondo	Best practice, data	Platform Gemini	Acquisition	Separated entity	H	Transactional Exploitation
81	Booking Holdings Inc.	Travel Technology	8	Mundi	Best practice, new geographical area, data	Platform Gemini	Acquisition	Separated entity	I	Transactional Exploitation
86	PayPal Holdings Inc.	Financial Technology	0	PayPal	-	-	-	-	A	-
86	PayPal Holdings Inc.	Financial Technology	1	Bill Me Later (PayPal Credit)	-	-	Acquisition	Integrated	A	Digital Service
86	PayPal Holdings Inc.	Financial Technology	2	Braintree	-	-	Acquisition	Separated entity	B	Digital Service
86	PayPal Holdings Inc.	Financial Technology	3	Venmo	Best practice, data	Platform Gemini	Acquisition	Separated entity	C	Transactional Exploitation
86	PayPal Holdings Inc.	Financial Technology	4	Xoom (Xoom a PayPal service)	-	-	Acquisition	Separated entity	D	Network Platform
86	PayPal Holdings Inc.	Financial Technology	5	PayPal.me	-	-	Organic	Integrated	A	Network Platform
86	PayPal Holdings Inc.	Financial Technology	6	iZettle	-	-	Acquisition	Separated entity	E	Digital Service
86	PayPal Holdings Inc.	Financial Technology	7	Hyperwallet (Hyperwallet a PayPal service)	-	-	Acquisition	Separated entity	F	Network Platform
86	PayPal Holdings Inc.	Financial Technology	8	Simility	-	-	Acquisition	Integrated	A	Digital Service
86	PayPal Holdings Inc.	Financial Technology	9	Honey	Money transaction to gather coupons, innovative way of doing marketing for the business	Service enlargement	Acquisition	Separated entity	G	Transactional Exploitation
86	PayPal Holdings Inc.	Financial Technology	10	Checkout with Crypto	-	-	Organic	Integrated	A	Digital Service
86	PayPal Holdings Inc.	Financial Technology	11	Passkeys	-	-	Organic	Integrated	A	Digital Service
112	CME Group Inc. Class A	Financial Market Service, Financial Market Technology	0	Chicago Mercantile Exchange (CME)	-	-	Merger	Separated entity	A	-
112	CME Group Inc. Class A	Financial Market Service, Financial Market Technology	0	Chicago Board of Trade (CBOT)	-	-	Merger	Separated entity	A	-
112	CME Group Inc. Class A	Financial Market Service, Financial Market Technology	1	New York Mercantile Exchange (NYMEX)	More traded products, users, and new deck	Service Enlargement	Acquisition	Integrated	A	Transactional Exploitation
112	CME Group Inc. Class A	Financial Market Service, Financial Market Technology	2	Commodity Exchange (COMEX)	More traded products, users, and new deck	Service Enlargement	Acquisition	Integrated	A	Transactional Exploitation
112	CME Group Inc. Class A	Financial Market Service, Financial Market Technology	3	Kansas City Board of Trade (KCBT)	More traded products, users, and new deck	Service Enlargement	Acquisition	Integrated	A	Transactional Exploitation
112	CME Group Inc. Class A	Financial Market Service, Financial Market Technology	4	NEX Group	More traded products, users, and new international deck	Service Enlargement	Acquisition	Integrated	A	Transactional Exploitation

Figure A.2: Cross-case Analysis Database (Part 2)

S&P 500 Rank	Name	Industry	#	Evolution	Idle Asset	Platform Innovation Tactic	Evolution Strategy	Type of Integration	Relatedness	Platfrom Strategy
126	Intercontinental Exchange Inc.	Financial Market Service, Financial Market Technology	0	The Intercontinental Exchange	-	-	-	-	A	-
126	Intercontinental Exchange Inc.	Financial Market Service, Financial Market Technology	1	International Petroleum Exchange (IPE) (ICE Futures Europe)	More traded products, users, and new international deck	Service Enlargement	Acquisition	Integrated	A	Transactional Exploitation
126	Intercontinental Exchange Inc.	Financial Market Service, Financial Market Technology	2	New York Board of Trade (NYBOT)	More traded products, users, and new deck	Service Enlargement	Acquisition	Integrated	A	Transactional Exploitation
126	Intercontinental Exchange Inc.	Financial Market Service, Financial Market Technology	3	ChemConnect	More traded products, users, and new deck	Service Enlargement	Acquisition	Integrated	A	Transactional Exploitation
126	Intercontinental Exchange Inc.	Financial Market Service, Financial Market Technology	4	Winnipeg Commodity Exchange (ICE Futures Canada)	More traded products, users, and new international deck	Service Enlargement	Acquisition	Integrated	A	Transactional Exploitation
126	Intercontinental Exchange Inc.	Financial Market Service, Financial Market Technology	5	Creditex Group	More traded products, users, and new deck	Platform Gemini	Acquisition	Separated entity	B	Transactional Exploitation
126	Intercontinental Exchange Inc.	Financial Market Service, Financial Market Technology	6	Climate Exchange PLC	More traded products, users, and new international deck	Service Enlargement	Acquisition	Integrated	A	Transactional Exploitation
126	Intercontinental Exchange Inc.	Financial Market Service, Financial Market Technology	7	European Climate Exchange (ECX)	More traded products, users, and new international deck	Service Enlargement	Acquisition	Integrated	A	Transactional Exploitation
126	Intercontinental Exchange Inc.	Financial Market Service, Financial Market Technology	8	NYSE Euronext	More traded products, users, and international deck new deck	Service Enlargement	Acquisition	Integrated	A	Transactional Exploitation
126	Intercontinental Exchange Inc.	Financial Market Service, Financial Market Technology	9	SuperDerivatives	-	-	Acquisition	Integrated	A	Digital Service
126	Intercontinental Exchange Inc.	Financial Market Service, Financial Market Technology	10	Interactive Data Corporation (IDC)	-	-	Acquisition	Integrated	A	Digital Service
126	Intercontinental Exchange Inc.	Financial Market Service, Financial Market Technology	11	Standard & Poor's Securities Evaluations, Inc. (SPSE)	-	-	Acquisition	Separated entity	C	Digital Service
126	Intercontinental Exchange Inc.	Financial Market Service, Financial Market Technology	12	Credit Market Analysis	-	-	Acquisition	Separated entity	D	Digital Service
126	Intercontinental Exchange Inc.	Financial Market Service, Financial Market Technology	13	BofA Merrill Lynch Global Research Index Platform (BofAML)	-	-	Acquisition	Separated entity	E	Digital Service
126	Intercontinental Exchange Inc.	Financial Market Service, Financial Market Technology	14	Virtu BondPoint	-	-	Acquisition	Separated entity	F	Digital Service
126	Intercontinental Exchange Inc.	Financial Market Service, Financial Market Technology	15	Chicago Stock Exchange (CHX)	More traded products, users, and new deck	Service Enlargement	Acquisition	Integrated	A	Transactional Exploitation
126	Intercontinental Exchange Inc.	Financial Market Service, Financial Market Technology	16	TMC Bonds LLC	More traded products, users, and new deck	Service Enlargement	Acquisition	Integrated	A	Transactional Exploitation
126	Intercontinental Exchange Inc.	Financial Market Service, Financial Market Technology	17	risQ	-	-	Acquisition	Separated entity	G	Digital Service
126	Intercontinental Exchange Inc.	Financial Market Service, Financial Market Technology	18	Black Knight	-	-	Acquisition	Separated entity	H	Digital Service
253	Copart Inc.	E-commerce	0	Copart Online Auction	-	-	-	-	A	-
253	Copart Inc.	E-commerce	1	CrashedToys	More traded products and services	Service Enlargement	Acquisition	Integrated	A	Transactional Exploitation
253	Copart Inc.	E-commerce	2	Copart 360°	-	-	Organic	Integrated	A	Digital Service
253	Copart Inc.	E-commerce	3	National Powersport Auctions (NPA)	More traded products and services	Service Enlargement	Acquisition	Separated entity	B	Transactional Exploitation
271	eBay Inc.	E-commerce	0	eBay.com	-	-	-	-	A	Transactional Exploitation
271	eBay Inc.	E-commerce	1	eBay Motors	More traded products and services	Service Enlargement	Organic	Integrated	A	Transactional Exploitation
271	eBay Inc.	E-commerce	2	iBazar	More traded products, services, and new geographical area	Service Enlargement	Acquisition	Integrated	A	Transactional Exploitation
271	eBay Inc.	E-commerce	3	Deals	More traded products and services	Service Enlargement	Organic	Integrated	A	Transactional Exploitation
271	eBay Inc.	E-commerce	4	Ticketbis	More traded products and services	Service Enlargement	Acquisition	Integrated	A	Transactional Exploitation
271	eBay Inc.	E-commerce	5	Giosis's Japan Business	More traded products, services, and new geographical area	Platform Gemini	Acquisition	Separated entity	B	Transactional Exploitation
271	eBay Inc.	E-commerce	6	TCGplayer	More traded products and services	Platform Gemini	Acquisition	Separated entity	C	Transactional Exploitation

Figure A.3: Cross-case Analysis Database (Part 3)

S&P 500 Rank	Name	Industry	#	Evolution	Idle Asset	Platform Innovation Tactic	Evolution Strategy	Type of Integration	Relatedness	Platfrom Strategy
253	Copart Inc.	E-commerce	0	Copart Online Auction	-	-	-	-	A	-
253	Copart Inc.	E-commerce	1	CrashedToys	More traded products and services	Service Enlargement	Acquisition	Integrated	A	Transactional Exploitation
253	Copart Inc.	E-commerce	2	Copart 360°	-	-	Organic	Integrated	A	Digital Service
253	Copart Inc.	E-commerce	3	National Powersport Auctions (NPA)	More traded products and services	Service Enlargement	Acquisition	Separated entity	B	Transactional Exploitation
271	eBay Inc.	E-commerce	0	eBay.com	-	-	-	-	A	Transactional Exploitation
271	eBay Inc.	E-commerce	1	eBay Motors	More traded products and services	Service Enlargement	Organic	Integrated	A	Transactional Exploitation
271	eBay Inc.	E-commerce	2	iBazar	More traded products, services, and new geographical area	Service Enlargement	Acquisition	Integrated	A	Transactional Exploitation
271	eBay Inc.	E-commerce	3	Deals	More traded products and services	Service Enlargement	Organic	Integrated	A	Transactional Exploitation
271	eBay Inc.	E-commerce	4	Ticketbis	More traded products and services	Service Enlargement	Acquisition	Integrated	A	Transactional Exploitation
271	eBay Inc.	E-commerce	5	Giosis's Japan Business	More traded products, services, and new geographical area	Platform Gemini	Acquisition	Separated entity	B	Transactional Exploitation
271	eBay Inc.	E-commerce	6	TCGplayer	More traded products and services	Platform Gemini	Acquisition	Separated entity	C	Transactional Exploitation
330	Nasdaq Inc.	Financial Market Service, Financial Market Technology	0	Nasdaq Stock Market	-	-	-	-	A	-
330	Nasdaq Inc.	Financial Market Service, Financial Market Technology	1	Nasdaq SMART	-	-	Organic	Integrated	A	Digital Service
330	Nasdaq Inc.	Financial Market Service, Financial Market Technology	2	Nasdaq Clearing	-	-	Organic	Integrated	A	Digital Service
330	Nasdaq Inc.	Financial Market Service, Financial Market Technology	3	Nasdaq Baltic	More traded products, users, and new international deck	Service Enlargement	Organic	Integrated	A	Transactional Exploitation
330	Nasdaq Inc.	Financial Market Service, Financial Market Technology	4	Nasdaq Nordic	More traded products, users, and new international deck	Service Enlargement	Organic	Integrated	A	Transactional Exploitation
330	Nasdaq Inc.	Financial Market Service, Financial Market Technology	5	North Pool Spot Exchange (Nasdaq Commodities)	More traded products, users, and new deck	Service Enlargement	Acquisition	Integrated	A	Transactional Exploitation
330	Nasdaq Inc.	Financial Market Service, Financial Market Technology	6	Nasdaq Market Replay	-	-	Organic	Integrated	A	Digital Service
330	Nasdaq Inc.	Financial Market Service, Financial Market Technology	7	Second Market (Nasdaq Private Market)	More traded products, users, and new deck	Service Enlargement	Acquisition	Integrated	A	Transactional Exploitation
330	Nasdaq Inc.	Financial Market Service, Financial Market Technology	8	Nasdaq IR Insight	-	-	Organic	Integrated	A	Digital Service
351	Expedia Group Inc.	Travel Technology	0	Expedia.com	-	-	-	-	A	-
351	Expedia Group Inc.	Travel Technology	1	Hotels.com	Customer-side searching for complementary services	Supply-side Addition	Acquisition	Both	B	Transactional Extension
351	Expedia Group Inc.	Travel Technology	2	Hotwire.com	Best practice, data	Platform Gemini	Acquisition	Separated entity	C	Transactional Exploitation
351	Expedia Group Inc.	Travel Technology	3	Egencia	Best practice, niche clients, data	Platform Gemini	Acquisition	Separated entity	D	Transactional Exploitation
351	Expedia Group Inc.	Travel Technology	4	CarRentals.com	Customer-side searching for complementary services	Supply-side Addition	Acquisition	Both	E	Transactional Extension
351	Expedia Group Inc.	Travel Technology	5	Expedia Cruises	Customer-side searching for complementary services	Supply-side Addition	Acquisition	Both	F	Transactional Extension
351	Expedia Group Inc.	Travel Technology	6	Trivago	Best practice, data	Platform Gemini	Acquisition	Separated entity	G	Transactional Exploitation
351	Expedia Group Inc.	Travel Technology	7	Wotif	Best practice, new geographical area, data	Platform Gemini	Acquisition	Separated entity	H	Transactional Exploitation
351	Expedia Group Inc.	Travel Technology	8	HomeAway/Vrbo	Best practice, data	Platform Gemini	Acquisition	Separated entity	I	Transactional Exploitation
351	Expedia Group Inc.	Travel Technology	9	Orbitz	Best practice, data	Platform Gemini	Acquisition	Separated entity	J	Transactional Exploitation
351	Expedia Group Inc.	Travel Technology	10	CheapTickets	Best practice, data	Platform Gemini	Acquisition	Separated entity	K	Transactional Exploitation
351	Expedia Group Inc.	Travel Technology	11	Travelocity	Best practice, data	Platform Gemini	Acquisition	Separated entity	L	Transactional Exploitation
355	Etsy Inc.	E-commerce	0	Etsy.com	-	-	-	-	A	-
355	Etsy Inc.	E-commerce	1	Etsy Wholesale	More traded products and services	Service Enlargement	Organic	Integrated	A	Transactional Exploitation
355	Etsy Inc.	E-commerce	2	Etsy Manufacturing	Customer-side searching for complementary services	Supply-side Addition	Organic	Integrated	A	Transactional Extension
355	Etsy Inc.	E-commerce	3	Reverb	More traded products and services	Service Enlargement	Acquisition	Separated entity	B	Transactional Exploitation
355	Etsy Inc.	E-commerce	4	Etsy Ads	Users' eyeballs	Advertising	Organic	Integrated	A	Orthogonal Extension (CaaT)

Figure A.4: Cross-case Analysis Database (Part 4)

S&P 500 Rank	Name	Industry	#	Evolution	Idle Asset	Platform Innovation Tactic	Evolution Strategy	Type of Integration	Relatedness	Platfrom Strategy
417	Match Group Inc.	Online Dating Services	0	Match.com	-	-	-	-	A	-
417	Match Group Inc.	Online Dating Services	1	OkCupid	-	-	Acquisition	Separated entity	B	Network Platform
417	Match Group Inc.	Online Dating Services	2	Meetic	Users' eyeballs	Advertising	Acquisition	Separated entity	C	Orthogonal Extension (CaaT)
417	Match Group Inc.	Online Dating Services	3	PlentyOfFish	Users' eyeballs	Advertising	Acquisition	Separated entity	D	Orthogonal Extension (CaaT)
417	Match Group Inc.	Online Dating Services	4	Tinder	Users' eyeballs	Advertising	Acquisition	Separated entity	E	Orthogonal Extension (CaaT)
417	Match Group Inc.	Online Dating Services	5	Hinge	-	-	Acquisition	Separated entity	F	Network Platform
417	Match Group Inc.	Online Dating Services	6	Ship	-	-	Organic	Separated entity	G	Network Platform
418	MarketAxess Holdings Inc.	Financial Market Service, Financial Market Technology	0	MarketAxess Trading Platform	-	-	-	-	A	-
418	MarketAxess Holdings Inc.	Financial Market Service, Financial Market Technology	1	MarketAxess European Platform	More traded products, users, features and new international deck	Service Enlargement	Organic	Integrated	A	Transactional Exploitation
418	MarketAxess Holdings Inc.	Financial Market Service, Financial Market Technology	2	MarketAxess Rates	More traded products, users, features and new deck	Service Enlargement	Organic	Integrated	A	Transactional Exploitation
418	MarketAxess Holdings Inc.	Financial Market Service, Financial Market Technology	3	Trax	-	-	Acquisition	Separated entity	B	Digital Service
418	MarketAxess Holdings Inc.	Financial Market Service, Financial Market Technology	4	MarketAxess Open Trading™	-	-	Organic	Integrated	A	Digital Service
418	MarketAxess Holdings Inc.	Financial Market Service, Financial Market Technology	5	MarketAxess Xpress	Including smaller investors in the trading market	Demand-side Addition	Organic	Integrated	A	Transactional Extension
447	Live Nation Entertainment Inc.	Entertainment	0	Live Nation	-	-	Merger	Separated entity	A	-
447	Live Nation Entertainment Inc.	Entertainment	0	TicketMaster	-	-	Merger	Separated entity	B	-
447	Live Nation Entertainment Inc.	Entertainment	1	Live Nation Productions	Artists, Knowledge, Data	Platform Oriented e-ethnography	Organic	Separated entity	C	Orthogonal Exploitation (CaaS)

Figure A.5: Cross-case Analysis Database (Part 5)

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Ringraziamenti

Ringraziamenti Matteo

Vorrei ringraziare i Professori Tommaso Buganza e Daniel Trabucchi per la loro disponibilità e pazienza nel rispondere alle nostre domande e nel fornire consigli che hanno arricchito la mia comprensione del tema, rendendo il mio percorso accademico più stimolante e significativo.

Vorrei fare un ringraziamento speciale al mio compagno di tesi, Tommaso. Grazie per la tua costante disponibilità, per le lunghe sessioni di lavoro e per la tua capacità di affrontare insieme le sfide che abbiamo incontrato lungo il percorso. La tua positività e il tuo spirito collaborativo hanno reso più leggeri anche i momenti più impegnativi.

Desidero dedicare un profondo ringraziamento ai miei genitori, Daniela e Massimo. Il vostro sostegno incondizionato e la vostra costante ispirazione sono stati i pilastri che hanno reso possibile questo traguardo. Grazie per avermi sempre incoraggiato a perseguire i miei sogni e per avermi sostenuto in ogni fase del percorso accademico. Un ringraziamento speciale va anche a mia sorella, Martina. La tua presenza e il tuo supporto costante sono stati una fonte di forza in ogni momento. Grazie per essere sempre stata lì per me, per i tuoi consigli saggi e per la tua capacità di condividere gioie e sfide. Vorrei ringraziare anche te Matteo perché sei un membro prezioso della mia famiglia e mi hai aiutato ad affrontare le situazioni ed i momenti difficili che ho incontrato sul mio cammino.

A tutti i miei amici dell'università, grazie per aver condiviso le sfide e i successi di questo viaggio con me. Al mio amico interista Fede, in cui ho trovato una persona sincera, disponibile e che nei momenti difficili è sempre riuscita a strapparmi un sorriso. Nadia, la tua gentilezza e la tua empatica natura hanno reso ogni giornata universitaria più luminosa e senza pensieri, non cambiare mai. Manny, ti ho conosciuto così, per caso, una fredda giornata di settembre e da quel momento non ci siamo più lasciati. Grazie per tutti i momenti che abbiamo passato insieme al difuori del Politecnico e a quel "4 bianchi" forse non così tanto leggero. Al mio amico veneto DOC, Matteo, il tuo impegno e dedizione sono stati eccezionali. Grazie per la tua capacità di affrontare le sfide con grande determinazione, non dimenticandoci però di un "buon" spritz in BL27 dopo ogni esame. Nick, non posso che esserti infinitamente grato perché senza di te non avrei mai potuto scrivere questa parte. Grazie per la tua empatia e per la tua prospettiva unica, e ricordati di comprare un nuovo materassino a Manny.

Non posso che fare un grande ringraziamento al mio amico e compagno in Parker, Pie. Il tuo senso dell'umorismo unita alla tua dedizione del lavoro hanno reso gli ultimi mesi particolarmente divertenti, anche mentre spostavamo i tubi con il muletto. Non posso dimenticarmi di ringraziare la più bionda del gruppo, Marty. Il tuo spirito combattivo e la tua presenza hanno reso ogni lavoro e ogni momento un grande successo, senza dimenticarmi di quale sia il corretto modo per bere un cappuccino. Luchino, la tua passione e la tua natura amichevole mi hanno permesso di vedere in modo diverso l'università e anche la cucina italiana. Alla mia amica pugliese più milanese che conosca Maggiu, la tua generosità e la tua gentilezza sono esemplari. Grazie per essere un modello di impegno e determinazione e per avere aperto le porte della "Casa del Trenta" anche a me. Al più pazzo di tutti Jack, il tuo approccio scherzoso ma allo stesso tempo pragmatico hanno arricchito ogni momento che ho passato con te. Grazie per essere un amico prezioso e affidabile, e ricordati che non si può bere il Montenegro alle tre di pomeriggio in aula. Miky, il tuo sostegno e la tua determinazione hanno reso il nostro percorso più stimolante e ricco. Grazie per le tue idee e il tuo spirito instancabile, senza di te non sarei mai riuscito a superare TMQ. Cb, dietro al tuo essere scherzoso e sempre allegro si nasconde un ragazzo di grande intelligenza che ha arricchito ogni progetto che abbiamo svolto in questi anni. Grazie per il tuo impegno e per la tua precisione. Insegna a Luchino come si mangia una vera "Stapa alla Stope". Non posso che fare un grande ringraziamento veramente dal più profondo del mio cuore a due delle persone più simpatiche e importanti del mio percorso, Gio e Caspi. La nostra amicizia è iniziata come tutte le più grandi amicizie: insultandoci. Da quel giorno ne abbiamo passate tante, alcune più belle altre un po' meno, ma voi due siete sempre stati insieme a me nell'affrontarle. Siete due amici fedeli che vorrei aver conosciuto fin dall'inizio e non solo questi ultimi due anni.

Desidero dedicare un sincero ringraziamento ai miei amici di Eupilio e non, Angi, Maggio, Rebe, Luca, Giussa e Potto. Avete reso ogni momento trascorso insieme un capitolo prezioso della mia vita che non potrò mai scordare, e a voi dedico questo "Iappa Iappa iuiuiu, Iappa Iappa iuiuie".

Desidero dedicare un caloroso ringraziamento ai miei amici straordinari di Erba. Grazie di cuore a ognuno di voi per essere parte integrate della mia vita. A Gio, grazie per la tua allegria contagiosa e la tua capacità di rendere ogni momento unico. In te ho conosciuto un amico fidato sempre pronto ad ascoltarmi ed aiutare il prossimo. Bea, la tua gentilezza e la tua lealtà sono tesori inestimabili. Grazie per essere sempre lì nei momenti di gioia e nelle sfide, facendo sì che ogni esperienza sia indimenticabile, anche se hai dei gusti musicali discutibili. Al mio amico ingegnere matematico Andre. Grazie per le nostre chiacchierate e per le belle giornate che abbiamo passato insieme. Non passare troppo tempo sui libri e goditi di più i weekend perché tanto sei una delle persone più intelligenti che conosca. Gizzo, la tua energia positiva e il tuo spirito instancabile hanno reso ogni momento un'esperienza indimenticabile. Non è sempre stata rose e fiori la nostra amicizia, me ne rendo conto, ma è anche da queste situazioni

che si capisce il vero legame che ci unisce e ti voglio ringraziare anche per questo. Che dire ti te Sangio, grazie per la tua creatività e il tuo senso dell'umorismo. Ai weekend passati in giro insieme e alle nostre dubbie merende che hanno reso il tutto più leggero e spensierato. Clara, la tua dolcezza e la tua generosità hanno reso ogni occasione speciale. Non sono una persona facile con cui avere a che fare, lo so, ma tu mi sei sempre stata vicina anche nei momenti no. Grazie per esserci sempre. Al gymbro certificato che spanca facilmente 100kg Alfred. La tua sincerità e il tuo spirito sono davvero encomiabili. Grazie per i consigli preziosi e per la tua amicizia autentica, ti prometto che riuscirò a fare una trazione da rendere fiero anche il buon Danny Lazzarin. A colei con cui festeggerò la mia laurea insieme Marghe. Grazie per il tuo sorriso e per la tua gentilezza. La tua positività è contagiosa e ha reso ogni giorno più luminoso. Alla coppia di fratelli ingegneri più simpatici che io conosca, Paolo e Davide. Anche se la distanza ci separa siete sempre stati parte del mio cammino che mi ha portato fino a questo momento. Grazie per essere degli amici straordinari e non vedo l'ora di vedere anche voi al mio posto. Chiara, non posso non ringraziare anche te che mi hai sostenuto in questi duri anni di università. Senza di te sarebbe stato tutto più noioso e privo di divertimento. Anche tu stai affrontando un percorso pieno di sfide e altrettanto complesso, ma sono sicuro che riuscirai a vedere la cima di questa montagna e capire che tutto quello che hai fatto non è stato tempo perso. Non posso certamente dimenticarmi di te Lucio. Grazie per la tua autenticità e il tuo carisma. Abbiamo avuto dei momenti no tra di noi, è normale, ma ci siamo sempre ritrovati e siamo sempre tornati a ridere insieme come se nulla fosse successo. Ad altri cento di questi momenti, con meno ketchup questa volta.

Devo dedicare uno spazio a quelle che sono state due delle persone che mi hanno maggiormente supportato e sopportato in questi anni: Edo e Ale. Edo, abbiamo passato molti momenti sui libri, ma sempre insieme siamo riusciti ad andare avanti anche quando tutto sembrava perduto. In te ho trovato un amico sincero di grande cuore che non si è ma fatto fermare dalle difficoltà che ha incontrato, ma le ha sempre affrontate con grande fermezza e serenità. Alla fine mi sono laureato anche io, hai visto?. Ale, noi due siamo come cane e gatto, a volte ci amiamo e altre volte, invece, non ci sopportiamo. In te ho trovato una persona vera che non ha paura di dire le cose come stanno e di farti notare che stai sbagliando. Mi sei stata vicina in questi ultimi mesi in cui sono stato particolarmente pesante e noioso, me ne rendo conto, sempre con la tua gentilezza e infondendomi fiducia quando anche io non la avevo. Nonostante ti prenda in giro, sei una delle persone più importanti della mai vita. Non cambiare mai e continua così.

Vorrei concludere questi miei lunghi ringraziamenti citando Madre Teresa di Calcutta: "*Se qualcuno ti resta accanto nei momenti peggiori, allora merita di essere con te nei momenti migliori*".

Ringraziamenti Tommaso

Un caloroso ringraziamento a mia mamma, le mie sorelle, i miei amici e Margherita che mi hanno supportato durante tutto il percorso.