



**Department of Business and Management**

*Master's Degree Thesis in Strategic Management [ENG]*

Chair of Financial Analysis

**M&A AND VALUATION OF DIGITAL STARTUPS:  
“THE GLICKON CASE”**

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**Academic Year 2022/2023**

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# ***INTRODUCTION***

In the contemporary era characterised by digital advancements, start-up enterprises have emerged as pivotal actors in driving economic and technical progress. These emerging enterprises, propelled by ground-breaking concepts and inventive resolutions, have garnered the attention of investors and established corporations. Consequently, the domain of mergers and acquisitions (M&A) has seen a noteworthy transformation, wherein transactions including digital start-ups have become increasingly prevalent. These transactions serve the purpose of augmenting technical capacities and ensuring competitiveness within a dynamic market environment.

The assessment of the value of digital start-ups has great importance within this particular environment, given the notable distinctions in their characteristics and financial operations when compared to conventional businesses. Within the confines of this particular setting, the primary objective of this master's thesis is to comprehensively investigate the intricate realm of mergers and acquisitions (M&A), specifically focusing on the valuation of digital start-ups. This exploration will be conducted through the examination of three pivotal chapters.

The first Chapter examines Mergers and Acquisitions in the Digital Environment. The initial chapter will analyse the significance of mergers and acquisitions within the digital domain. This study aims to analyse the adoption of acquisition methods by conventional corporations in order to sustain competitiveness in an era of growing digitalization. Additionally, it will explore how digital start-ups utilise mergers and acquisitions (M&A) as a strategic approach to broaden their market reach, get vital resources, and strengthen their market position. This chapter will present a comprehensive review of the distinct trends and difficulties that are arising in this particular context.

The subsequent chapter (Chapter 2) will go into an examination of the fundamental principles behind company valuation. This paper will explore conventional valuation techniques, including discounted cash flow (DCF) analysis and market comparables. Additionally, contemporary approaches to valuation, such as non-financial metric-based methodologies, will be examined. Comprehending these principles is crucial in establishing a robust groundwork for the assessment of digital start-ups.

The forthcoming chapter (Business valuation of digital startups) will provide an in-depth analysis and concentrate on the precise assessment of digital companies. This analysis will focus on the distinct difficulties that are inherent to these enterprises, encompassing the absence of consistent cash flows, the fast and unpredictable expansion, and the reliance on intangible resources such as intellectual property. This paper will propose specialised methodologies and models for the valuation of digital start-ups, considering their unique characteristics.

This thesis endeavours to present a complete framework for investors, firms, and researchers interested in the M&A dynamics and valuation of digital start-ups. By conducting a deep examination of three specific chapters, the objective is to provide an in-depth knowledge of this exciting and changing area.



# ***1. Mergers and acquisitions in the digital context***

## ***1.1 M&A definition and types***

The term "mergers and acquisitions" (hence referred to as M&A) refers to the merging of businesses or their key financial assets through business-to-business financial transactions. A business can completely buy out and absorb another business, combine with it to form a new business, take over some or all of its key assets, make a tender offer for its stock, or launch a hostile takeover. They are all M&A activities. The divisions of financial institutions that participate in such activity are referred to by the name M&A as well. Although the terms mergers and acquisitions are frequently used synonymously, they actually denote slightly different things.

An acquisition is a takeover in which one business buys another and positions itself as the new owner. On the other hand, a merger is the coming together of two businesses that are roughly the same size in order to continue forward as one new organization rather than continuing to be owned and run independently. This process is referred to as a merger of equals. Acquisitions are always considered to be unfriendly or hostile takeovers in which the target company do not want to be purchased. Depending on whether the acquisition is friendly or hostile and how it is announced, a transaction can be categorized as either a merger or an acquisition. In other words, the difference is in the way the board of directors, staff, and shareholders of the target company are informed about the sale.

In the business world, mergers and acquisitions (M&As) are common and frequently the main strategy for corporate growth and restructuring. In their history, most significant businesses have engaged in several M&A transactions. M&As cover a wide range of activities and types; they could be conglomerate transactions including firms from several industries, vertical transactions involving firms with various value-added activities, or horizontal transactions involving firms with similar products or services. Mergers are motivated by various objectives, including expectations for synergy that could be generated from expansion of sales and revenues, reduced cost, and lower cost of capital.

In an M&A, the top management of the target company often leaves following the merger and is replaced by a new management team, changing the ownership and control of a public organisation. Shares or assets of the target are bought for a variety of factors, including cash, stock, or a mix of both. Compared to regular capital expenditures, M&A transactions are more intricate and expensive. M&As are a major company financial decision because of their complexity and size, and they frequently include several professionals; it also involves a lot of legal work and are governed by several laws, rules, accounting requirements, and tax legislation.

A categorisation of the different types will be proposed below.

A horizontal merger takes place when two businesses that operate at the same level of the supply chain and in the same industry combine their operations. The goal is to grow market share, achieve economies of scale, or lessen competition.

When two distinct entities, each occupying distinct positions within the supply chain, namely a supplier and a customer, amalgamate their respective operations, it is commonly referred to as a vertical merger. The objective at hand entails assuming control over the supply chain, reducing expenditures, enhancing productivity, and optimizing coordination.

A conglomerate merger refers to the consolidation of two businesses that operate in distinct and unrelated industries. This type of merger is typically motivated by the imperative to achieve diversification, mitigate risk, and penetrate novel markets or industries.

A market expansion merger occurs when two enterprises operating within the same industry but in distinct geographic regions merge their operations. This type of merger enables companies to expand their consumer base, penetrate new markets, and benefit from distribution and marketing synergies.

A product extension merger is a strategic move in which two enterprises operating in the same industry and offering complementary products decide to merge their operations. Consequently, the merged entity has the capacity to expand its product portfolio, capitalize on cross-selling prospects, and augment its market presence.

A congeneric merger refers to the consolidation of two enterprises that operate within the same industry but possess distinct, interconnected, or mutually supportive product portfolios. This type of combination enables companies to expand their product portfolios, leverage research and development synergies, and enhance their competitive position in the market.

A reverse merger, also known as a reverse takeover (RTO), occurs when a privately held company acquires a publicly traded corporation. Private companies have the option to access public markets by means other than the conventional initial public offering (IPO) process, such as merging with a publicly traded corporation.

In the context of corporate acquisitions, a cash merger refers to a transaction in which the acquiring entity extends a monetary proposition to acquire all outstanding shares of the target company. The shareholders of the target company are provided with monetary compensation in return for the transfer of their shares.

In the context of a stock merger, the shareholders of the target company are provided with the opportunity to acquire shares of the acquiring company. In exchange for their stock, shareholders of the target company are allocated shares of the acquiring business.

A tender offer refers to the publicized proposal made by the acquiring entity to purchase the outstanding shares of the target company directly from its shareholders. This represents a form of corporate consolidation involving either a merger or an acquisition. Shareholders are afforded the opportunity to submit their shares for tender during a pre-established timeframe and at a pre-determined price.

A joint venture refers to a collaborative agreement established between two or more enterprises with the aim of collectively pursuing a specific project or business opportunity. Companies maintain their individual legal identities while pooling their resources, knowledge, and capital to achieve a unified objective.



A strategic alliance refers to a collaborative agreement established between two or more businesses with the aim of achieving shared objectives. These objectives may include joint marketing campaigns, collaborative research and development initiatives, or the formation of distribution agreements. By establishing strategic partnerships, businesses are able to gain entry into previously untapped markets, leverage each other's unique strengths, and enhance their market position.

A management buyout (MBO) refers to the acquisition of a majority ownership interest in a company by its existing management team, often in conjunction with external investors. This enables the management team to assume ownership and exercise authority over the organization.

In the context of corporate transactions, an asset acquisition refers to the process by which a company acquires specific assets from another company. These assets may include inventories, buildings, equipment, or intellectual property. This allows the acquiring company to acquire specific assets or capabilities without assuming the liabilities or business activities of the target company.

A merger of equals refers to the amalgamation of two enterprises that exhibit similarity in terms of their scale, financial stability, and market influence. This type of merger is characterized by a relatively balanced power dynamic and the objective of establishing a unified entity with collaborative decision-making and equitable representation.

A hostile takeover occurs when a corporate entity initiates an unsolicited proposal to acquire a target company, disregarding the preferences of the target's management and board of directors. In the context of hostile takeovers, a common strategy employed is engaging in direct communication with the shareholders of the target company, with the aim of persuading them to divest their stock.

A cross-border merger involves the consolidation of businesses from different nations. This type of merger requires adherence to regulations and legislation in multiple jurisdictions and often involves challenging negotiations to address operational, legal, and cultural matters.

An amalgamation refers to the process by which two or more businesses combine their operations, obligations, and resources to establish a novel entity. This newly formed organization assumes the functions, duties, and assets of the merging businesses. The business operations of the merging companies are perpetuated by the newly formed entity.

The primary objectives of acquisitions encompass various aspects such as bolstering growth, expanding into untapped markets, procuring novel products and technology, optimizing shareholder value through the utilization of operational and financial synergies, eliminating inefficient managerial personnel, and attaining market leadership. A fundamental premise in the field of acquisition is that, due to the expected synergistic effects, the collective outcome would surpass the mere aggregation of individual components.

In order to attain growth, corporations possess the choice of engaging in internal development or pursuing external investment opportunities through mergers and acquisitions (M&As).

There exist multiple theories regarding mergers and acquisitions (M&As), however, practitioners have developed models that encompass several variables. For instance, Bain & Company<sup>1</sup> formulates an M&A model that consists of five stages as follows:

- M&A strategy – make your M&A an extension of your growth strategy, identify the target and formulate how M&A will create value,
- Deal thesis – examine how each deal creates value, apply existing capabilities to enhance value to the target,
- Due diligence and valuation – test the deal rational, set a walk away price, determine where you can add value,
- Merger integration planning – plan your post-merger integration (PMI) and determine what’s needed to integrate, and integrate where it makes sense, and
- Merger integration execution.

McKinsey & Company<sup>2</sup> identifies the strategic rationale for an acquisition that creates values as follows:

- Improving performance of the target company
- Removing excess capacity from an industry
- Creating market access products
- Acquiring skills or market technology more quickly or at a lower cost than they could build in-house, and
- Picking winners early and help them develop their businesses.

## *1.2 Background and context on the role and importance of M&A in the global economy*

The long-term viability and success of corporations depend on their ability to achieve growth and advancement through the implementation of reorganization strategies and the redistribution of resources. Internal or endogenous corporate reorganization refers to the process of reallocating resources within a company from mature and declining business activities to new activities that offer greater growth potential. Alternatively, the process of restructuring can occur externally or in an inorganic manner, primarily through mergers and acquisitions.

Thus, there exist a multitude of motivations that can propel companies to partake in mergers and acquisitions (M&A) transactions. Several key motivations can be identified:

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<sup>1</sup>Harding, D., Leung, P., Jackson, R., & Meyer, M. (2013). The renaissance in mergers and acquisitions: The surprising lessons of the 2000s. In <https://www.bain.com/insights/the-renaissance-in-mergers-and-acquisitions/> (pp. 7–8). <https://www.bain.com/insights/the-renaissance-in-mergers-and-acquisitions/>

<sup>2</sup>Goedhart, M., Koller, T., & Wessels, D. (2017, May 10). The six types of successful acquisitions | McKinsey. [www.mckinsey.com](http://www.mckinsey.com). <https://www.mckinsey.com/capabilities/strategy-and-corporate-finance/our-insights/the-six-types-of-successful-acquisitions>

- Growth: It is common for companies to pursue business expansion and achieve growth by means of mergers and acquisitions (M&As). The acquisition of another company has the potential to offer opportunities for accessing new markets, customers, products, or services, thereby facilitating accelerated growth compared to what could be attained through internal expansion alone.
- Companies have the opportunity to achieve operational and economic synergies through the integration of their resources and expertise. This phenomenon has the potential to result in enhanced efficiency, decreased costs, the sharing of resources, and the optimisation of operational processes.
- Diversification can be achieved through mergers and acquisitions (M&As), which enable companies to expand their product or service portfolio and broaden their geographical reach. This approach can mitigate the potential risks associated with an overemphasis on a single market or sector.
- The acquisition of a company possessing specialised technologies, patents, or expertise can expedite the process of innovation and enhance the competitive advantage of the acquiring entity.
- Enhanced shareholder value: Mergers and acquisitions (M&As) have the potential to generate value for the shareholders of the entities involved, as evidenced by the potential for heightened share prices, dividend disbursements, or enhanced long-term growth prospects.
- The act of acquiring a competitor can result in a diminishment of competition within the industry, thereby enabling the acquiring company to augment its market share and attain enhanced pricing capabilities.
- The availability of financial resources: An organisation possessing substantial financial resources has the capacity to procure a company facing financial challenges or possessing untapped growth opportunities. By utilising its resources, the acquiring company can facilitate the growth and revitalization of the target company.
- Corporate restructuring refers to the strategic actions taken by companies to streamline their operations, eliminate redundancies, and enhance overall operational effectiveness. One approach that companies may adopt is engaging in mergers and acquisitions (M&A) transactions, which can facilitate the rationalisation of activities and lead to improved operational efficiency.
- Public market access can be achieved by a private company through the process of merging with or acquiring a public company. This strategic move enables the private company to tap into the public stock market, thereby facilitating the raising of capital necessary for funding future expansion initiatives.
- The pursuit of market opportunities can serve as a motivating factor for engaging in mergers and acquisitions (M&A) transactions. These opportunities may arise from various sources, including but not limited to regulatory modifications, shifts in consumer preferences, or the introduction of novel technologies.

These activities have emerged as a crucial mechanism for corporate transformation and have come to be recognized as a defining feature of the American economy since the late 19th century.

It can be observed a variety of mergers waves in the past century and a quarter:

- 
- 1897–1904: Horizontal mergers, 1<sup>st</sup> wave
  - 1916–1929: Vertical mergers, 2<sup>nd</sup> wave
  - 1960s: Conglomerate mergers, 3<sup>rd</sup> wave
  - 1981–1989: Big deals decade & LBOs, hostile takeovers, 4<sup>th</sup> wave
  - 1992–2007: Strategic mergers, 5<sup>th</sup> wave
  - 2009 to date: Emergence of the hedge funds and private equity, 6<sup>th</sup> wave<sup>5</sup>
- 

*Figure 1 source: Patrick A. Caughan, Mergers, Acquisitions, and Corporate Restructuring, 5th Ed., Wiley, 2011, Ch 2; Weston, J. Fred et al., Takeovers, Restructuring and Corporate Governance, 4th Ed., Prentice Hall, 2004, p. 7 and Ch 7.*

Mergers have predominantly been motivated by advantageous economic and financial circumstances, deregulation policies, technological advancements, shifts in corporate competitiveness, globalization, and reasonable valuation metrics since the late 1800s. Mergers and acquisitions encompass a wide range of transactional categories that facilitate businesses in promptly adapting to emerging challenges and opportunities, thereby enabling them to either sustain or achieve a competitive edge. Expansion through mergers and acquisitions (M&As), joint ventures, contraction through divestitures or sell-offs, changes in corporate control and ownership (such as going private and leveraged buyouts), and rearrangements through recapitalization and insolvency reorganization are examples of M&A activities that can be broadly categorized.

#### *M&A Data*

In the year 2015, there was a significant increase in mergers and acquisitions activity, reaching unprecedented levels. US companies alone announced transactions amounting to over \$2.1 trillion, while the global volume of mergers and acquisitions surpassed \$4.7 trillion. According to a survey conducted by Deloitte, a comprehensive analysis was carried out on a sample of approximately 2,300 executives and managers representing various US corporations and private equity firms. The findings of this study indicated that a significant majority of 87% of the respondents expressed their expectation that the level of merger and acquisition (M&A) deal activity in the upcoming period would either match or exceed the record set in 2015. Both Dealogic and EY also reported the same results. See Figure 2 and 3 for an overview of global and North American mergers and acquisitions.

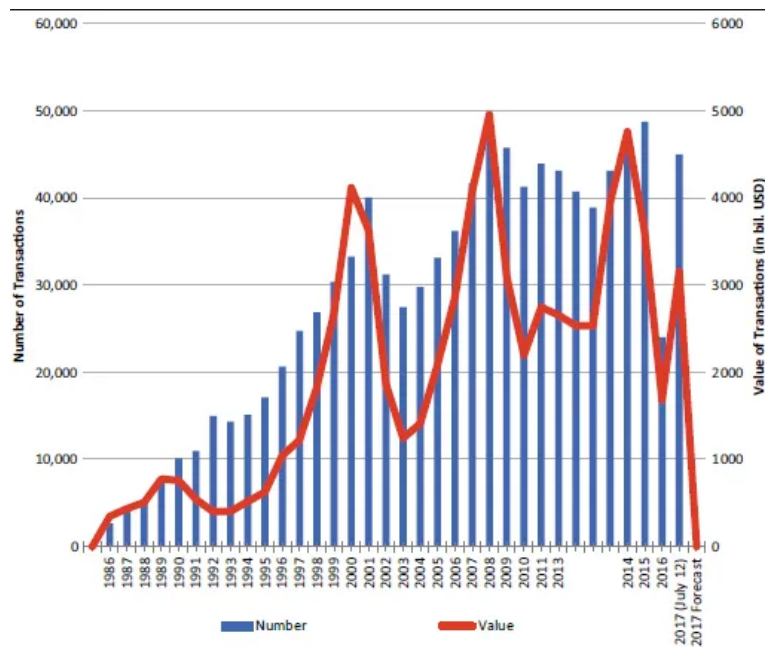


Figure 2 M&A worldwide<sup>3</sup>

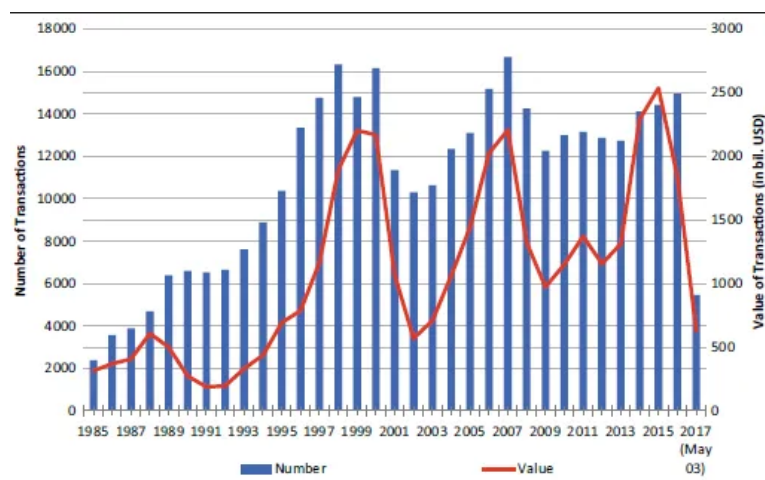


Figure 3 M&A North America<sup>4</sup>

Taking into account recent years as per the data provided by Thomson Reuters, the global merger and acquisition (M&A) endeavours escalated to \$3.6 trillion in 2021, exhibiting an increase from \$2.9 trillion in 2020. Furthermore, it is anticipated that the robustness of such activities will persist in the forthcoming years. According to a Bain report<sup>5</sup> the year 2022 consisted of two distinct periods. After experiencing a year of unprecedented merger and acquisition (M&A) activity in 2021, the initial five months of 2022 have demonstrated a continued and robust pace of dealmaking. The deal market experienced a notable shift on June 16, 2022, as a result of an interest rate hike by the US Federal Reserve Bank and heightened macroeconomic uncertainty. The execution of smaller agreements was postponed, whereas megadeals exceeding a value of \$10 billion were subject to a temporary suspension. The concept of dealing with tempered multiples is being

<sup>3</sup> IMAA. (2020). M&A Statistics - Worldwide, Regions, Industries & Countries. Institute for Mergers, Acquisitions and Alliances (IMAA). <https://imaa-institute.org/mergers-and-acquisitions-statistics/>

<sup>4</sup> IMAA. (2020). M&A Statistics - Worldwide, Regions, Industries & Countries. Institute for Mergers, Acquisitions and Alliances (IMAA). <https://imaa-institute.org/mergers-and-acquisitions-statistics/>

<sup>5</sup> Global M&A Report 2023. (2023). In <https://www.bain.com/it/>. [https://www.bain.com/globalassets/noindex/2023/bain\\_report\\_global\\_m\\_and\\_a\\_report\\_2023.pdf](https://www.bain.com/globalassets/noindex/2023/bain_report_global_m_and_a_report_2023.pdf)

discussed. The annual value of mergers and acquisitions (M&A) experienced a decline of 36%, reaching \$3.8 trillion, primarily due to the midyear correction. This information can be observed in Figures 4 and 5. Nonetheless, there was a mere 12% decline in volumes, which suggests the steadfastness and commitment of dealmakers.

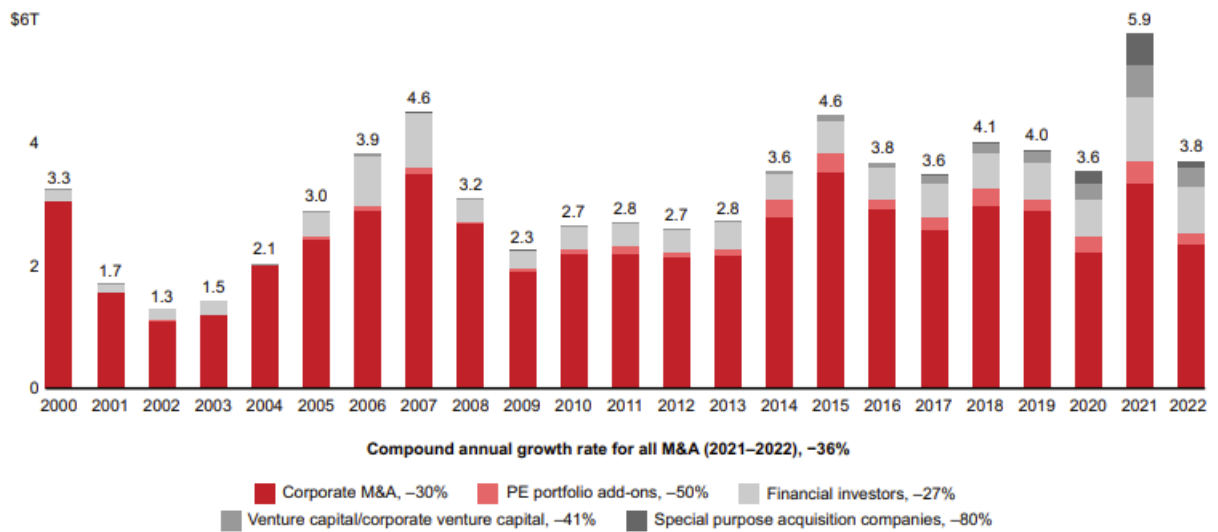


Figure 4 M&A deal market value (in trillion of US dollars)<sup>6</sup>

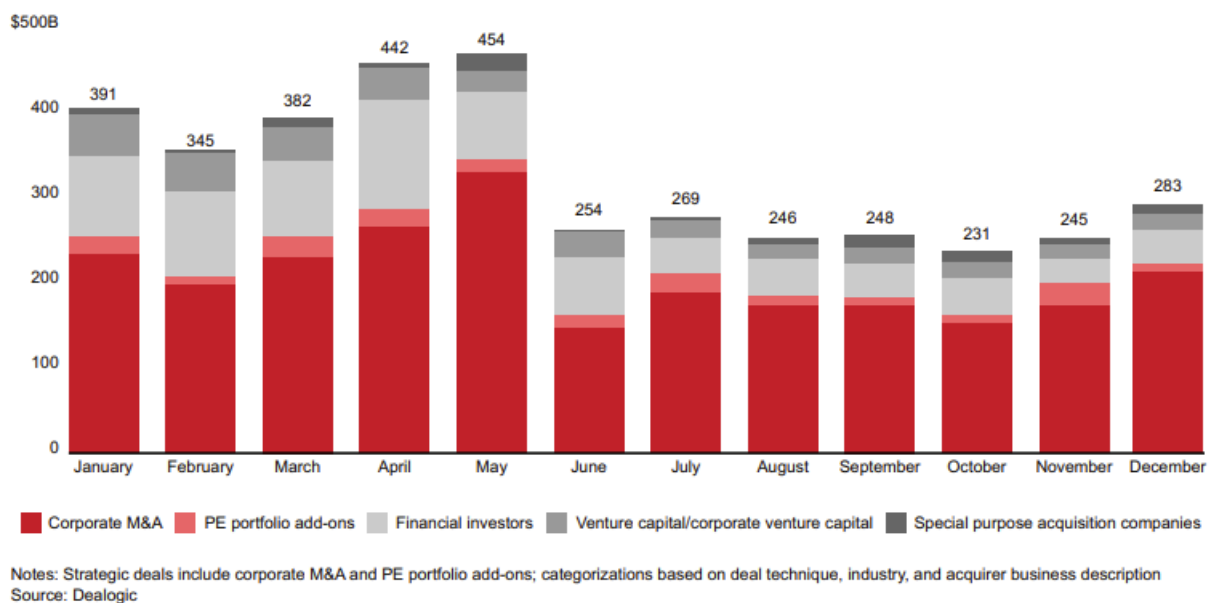


Figure 5 2022 M&A deal market value (in billions of US dollars)<sup>7</sup>

A subsequent research authored by Bain<sup>8</sup> provides an account of the present state of affairs within the mergers and acquisitions (M&A) sector, specifically focusing on the 12-month period after the onset of the pandemic.

<sup>6</sup> Global M&A Report 2023. (2023). In <https://www.bain.com/it/>. [https://www.bain.com/globalassets/noindex/2023/bain\\_report\\_global\\_m\\_and\\_a\\_report\\_2023.pdf](https://www.bain.com/globalassets/noindex/2023/bain_report_global_m_and_a_report_2023.pdf)

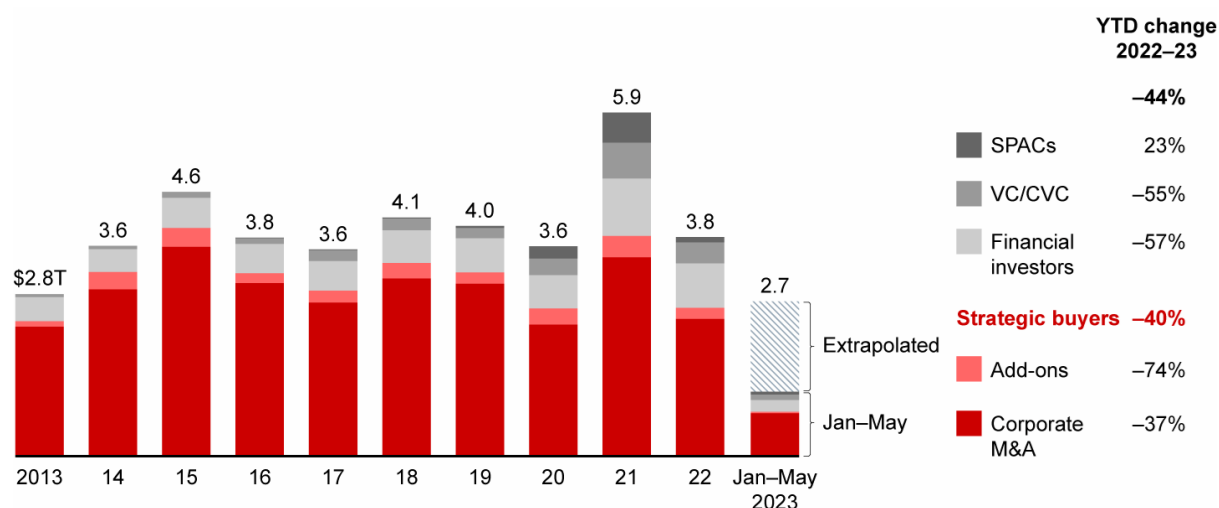
<sup>7</sup> Global M&A Report 2023. (2023). In <https://www.bain.com/it/>. [https://www.bain.com/globalassets/noindex/2023/bain\\_report\\_global\\_m\\_and\\_a\\_report\\_2023.pdf](https://www.bain.com/globalassets/noindex/2023/bain_report_global_m_and_a_report_2023.pdf)

<sup>8</sup> Harding, D., Stafford, D., & Kumar, S. (2023). M&A Midyear Report 2023: It Takes Two to Make a Market At a Glance. 7.

Although there has been a decrease in both transaction value and volume compared to the levels observed at the onset of the epidemic, the signals for dealmakers remain inconclusive. The values of transactions have experienced a decrease, however they still above the level of drop typically observed during a recession. Central banks are now implementing a policy of increasing interest rates, however, the presence of an inverted bond market indicates the potential occurrence of a forthcoming reversal. Despite the occurrence of layoffs, the work market continues to demonstrate resilience. The rate of inflation has experienced a decline, yet, it continues to endure. In light of the anticipated economic downturn, managers are currently adopting cost containment initiatives.

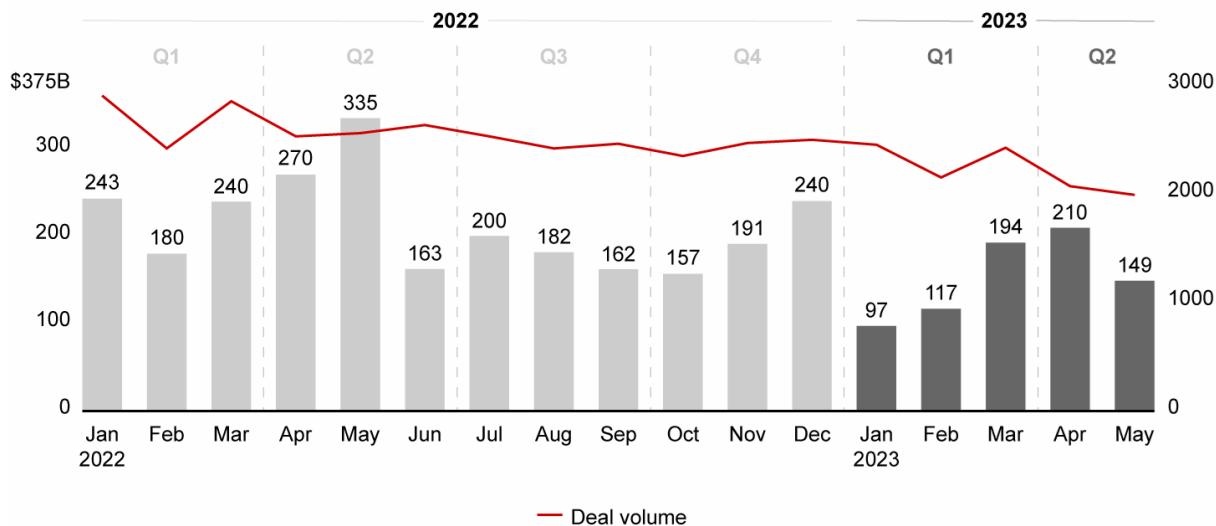
The global value of mergers and acquisitions had a substantial decline of 44% during the initial five months of 2023, mostly driven by a notable decrease in leveraged transactions. The pace of strategic acquisitions has decelerated, as seen by the lowest deal value in the first quarter of 2023, a record low not seen in the past two decades. The complexity of the problem is exacerbated by the occurrence of an inverted yield curve in government bonds, so introducing a heightened level of uncertainty inside the market.

Ultimately, the values of transactions exhibited disparate responses, characterized by a notable decline within the technology sector, whilst valuations within other sectors exhibited relative stability or marginal growth.



Notes: Data as of announcement date; strategic M&A includes corporate M&A deals (which includes PE exits) and add-ons, and excludes VC, PE, and SPAC-sponsored deals  
 Source: Dealogic as of June 13, 2023

Figure 6: Global M&A deal market value (\$T)



Note: Strategic M&A includes corporate M&A deals (which includes PE exits) and add-ons, and excludes VC, PE, and SPAC-sponsored deals  
 Source: Dealogic, as of June 13, 2023

Figure 7: Strategic M&A deal value (\$B)

### 1.3 Digitalisation: phenomena and impacts on the M&A world

The advent of the digital era has brought about significant transformations in various domains, including the realm of mergers and acquisitions (M&A). Consequently, the M&A landscape has undergone corresponding adaptations and advancements.

The emergence of the concept of digital transformation can be traced back to the late 20th century, coinciding with the introduction of the internet and digital technologies. Digital transformation refers to the comprehensive incorporation of digital technology across various aspects of a business, resulting in significant changes to its operations and the delivery of value to its clientele.

The significance of Industry 4.0 has grown in contemporary economies due to the rapid advancement of technology and the imperative for businesses to sustain competitiveness and adapt to evolving customer requirements.

The advent of digital disruption has facilitated the optimization of business operations, enhancement of operational efficiency, and elevation of customer experiences. For example, enterprises have the capability to employ digital tools in order to automate monotonous tasks, analyze data for the purpose of making well-informed decisions, and offer customized experiences to their clientele.

Furthermore, the advent of digital transformation has given rise to novel business models and sectors, including electronic commerce, virtual marketplaces, and the collaborative economy. The emergence of these novel models has caused significant disruptions within conventional industries, thereby compelling established entities to undertake necessary adaptations and foster innovation in order to sustain their competitiveness.



Because digital technologies are typically more easily accessible and inexpensive than conventional tools and infrastructure, digital transformation has also opened up new chances for small and medium-sized firms to compete with larger enterprises.

In conclusion, digital transformation has become an essential engine for economic growth, development, and competitiveness. Businesses nowadays need to undergo digital transformation if they want to survive and thrive in the ever-changing technological landscape.

There are several avenues via which enterprises and organisations across all industries may derive financial gains by adopting digital transformation and fostering innovation.

The main driving factors are the availability of data and insights, increased efficiency and productivity, and the capacity to recruit and retain highly skilled individuals.

Digital technologies provide organisations with the opportunity to access a vast amount of data and valuable insights, enabling them to improve decision-making processes and optimise their operational activities.

Digital transformation enables organisations to automate laborious tasks, optimise operational processes, and augment overall efficiency, hence enabling organisations to allocate additional resources and time towards endeavours that directly impact their financial performance.

In conclusion, companies that allocate resources towards digital transformation see a comparative advantage in attracting and maintaining highly skilled employees.

Furthermore, there are other favourable features that need consideration. Businesses might potentially enhance their decision-making capabilities by leveraging the real-time data and insights facilitated by digital transformation. The enhanced agility provided by digital technology may lead to businesses exhibiting more responsiveness towards market opportunities and dangers.

#### *1.4 Definition and distinctive traits of traditional firms vs. "digital firms"*

The purpose of this thesis, as stated above, is to catalogue and compare different approaches to valuation. After comparing the available options, the analysis will look deeper into the reasons why traditional approaches to valuing may or may not apply to IT startups. This means that the distinction between traditional businesses and digital businesses will come first.

#### *1.5 Definition of traditional company*

The firm can be defined either economically or legally. The first definition describes a system of people and things working together to carry out a production or consuming activity, or both. When items are coordinated to form the business complex, their value changes from what it was as standalone products to what it is as

"cogs" in the whole system. Human resources must also be optimally allocated for the complex of assets to thrive and the business system to function.

However, the definition of a corporation under Italian law may be found in Article 2555, which states, "A company is the complex of assets organized by the entrepreneur for the operation of the business." For this reason, the company can continue to achieve its goals even if some or all of its constituent assets are alienated, as long as the company as a whole is able to do so through the use of other assets or services, which is what the law considers it to be.

### *1.6 Definition of Digital Firm (DF)*

Unlike the type of company previously described, increasingly there is a growing need for companies to have digital features as part of their business processes.

A digital firm, alternatively referred to as a digital-first organisation or a genuine digital business, is an entity that extensively utilises digital technologies to facilitate and streamline its fundamental business procedures, as well as its engagements with customers, suppliers, and employees. In the contemporary era characterised by rapid advancements and reliance on technology, digital enterprises have emerged as trailblazers, harnessing digital capabilities to attain strategic advantages, unlock both immediate and enduring benefits, and secure their viability within a fiercely competitive environment.

The primary distinguishing characteristic of a digital firm is its ability to effectively incorporate digital networks and technologies throughout the entirety of its organisational structure. These networks serve as a means of enabling communication and collaboration, both within the organisation itself and with external entities such as other businesses and the global community. A digital firm adopts the utilisation of the internet as a catalyst for its operational procedures, thereby revolutionising its business practises and creating avenues for enhanced efficiency and novel prospects.

The distinguishing features of a digital startup diverge significantly from those of a conventional enterprise. One notable distinction lies in the utilization of a sales channel exclusively through the internet, which fundamentally shapes the operational framework of the enterprise. According to Eleonora Chioda, Giancarlo Donadio, Luca Ingrosso, and Tiziana Tripepi, a startup can be defined as a transitory entity that endeavours to establish a business model that is both replicable and capable of substantial growth, ultimately leading to profitability<sup>9</sup>.

#### *1.6.1 Characteristics of Digital Firms*

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<sup>9</sup> Chioda, E., Donadio, G., Ingrosso, L., & Tripepi, T. (2016). Startup. Hoepli

The above-mentioned parts highlight the value of IT in contemporary business and encourage contemporary enterprises to make every effort to turn into DFs. However, it is essential to give managers and IT specialists in modern businesses more detailed instructions so they can better grasp what needs to be done to make their companies digital and how successful they are at it. To assess a modern company's performance in going digital, the authors of [2]<sup>10</sup> offer certain characteristics of the digital firm. The four qualities they identified for the DF are listed below, followed by an explanation of how they can be attained utilizing IT resources.

1. Managing all assets through digital means:

In a digital business, data and software are used to oversee all aspects of operations. This entails taking inventories and other physical assets and converting them into digital representations for storage. The optimization, tracking, and monitoring of assets are also included in this. Enterprise resource planning (ERP) systems, asset management software, and cloud-based storage solutions are all examples of IT products that facilitate this quality.

2. Availability of data at any time anywhere:

The availability of information at any time and from any location is a defining feature of a digital enterprise. To this end, we make use of IT resources for information storage, management, and retrieval. Databases, data warehouses, and analytics systems might also fall into this category. Using these methods, businesses can make sure that their data is safe and can be accessed by the right people at all times and from any device.

3. Flexibility to adapt to changes in the business environment quickly:

A digital company is one that embraces change and adapts quickly to its surroundings. The significance that IT technologies play in making this possible cannot be overstated. For instance, businesses can improve workflow efficiency and adaptability with the use of business process automation solutions. Businesses can also increase or decrease their allocation of resources in response to fluctuating demand with the use of cloud-based infrastructure and virtualization technologies. Communication and project management software are only two examples of collaboration solutions that help teams work together effectively and make decisions quickly.

4. Effective 24/7 work mode, anywhere:

A digital business can function efficiently 24/7/365, regardless of location. This quality is facilitated by IT technologies, which permit remote work and guarantee the constant availability of systems and services. Teams may now successfully interact across time zones and geographic regions with the use of cloud-based productivity suites, video conferencing tools, and project management software. In addition, the availability of services is guaranteed by a solid IT infrastructure that features redundant servers, data backups, and disaster recovery solutions.

5. Flatter organization and less hierarchical culture:

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<sup>10</sup> Laudon, K. C., & Jane Price Laudon. (2014). Management information systems : managing the digital firm (13th ed.). Pearson.

Digital firms often exhibit a flatter organisational structure and a less hierarchical culture, which contributes to a work environment that is characterised by increased agility and dynamism. The substantial allocation of resources towards digital platforms, particularly those dedicated to internal collaboration and communication, cultivates a corporate environment that promotes unrestricted communication and transparency across all hierarchical levels within the organisation. This not only expedites the process of decision-making but also fosters innovation by granting employees the authority to take proactive measures and explore novel concepts.

#### 6. Culture of digital innovation:

The culture of digital innovation is cultivated by digital firms that position themselves at the forefront of digital transformation. The organisation consistently engages in the exploration of novel approaches to the development and distribution of goods and services, capitalising on the advantages presented by digital advancement. An environment that is helpful to innovation serves as a motivating factor for employees to engage in experimentation and creative thinking, thereby cultivating a culture of innovation that becomes deeply ingrained within the organization's core essence.

#### 7. Embracing the power of digital:

The successful operation of digital firms is contingent upon the leadership's complete embrace of the potential offered by digital technologies. These leaders exhibit a strong sense of conviction in their vision for digital transformation and actively promote the utilisation of digital platforms both within their organisations and in their interactions with external stakeholders. The organisation comprehends the strategic significance of digitization and integrates it as a fundamental component of their business strategies, cultivating an environment that promotes ongoing digital business transformation.

#### 8. Digital upskilling and literacy:

Acknowledging the significance of a proficient and digitally literate labour force, companies that prioritise digital platforms allocate resources towards continuous support, education, and development for their employees. The presence of digital literacy among employees is crucial in enabling them to effectively employ digital tools and enhance customer experiences, thereby resulting in heightened productivity and diminished workplace obstacles.

#### 9. Process hyper-automation:

The integration of Artificial Intelligence (AI) and Automation is a crucial factor contributing to the achievement of digital enterprises. Through the process of digitising manual processes and implementing continuous automation, these organisations are able to improve efficiency, save time, and decrease expenses. The enhanced process optimisation described here leads to enhanced services and overall productivity, resulting in collective benefits derived from hyper-automation.

#### 10. Optimized digital employee experience:

Digital organisations recognise the significant correlation between employee experience and customer satisfaction, thereby emphasising the importance of optimising the digital employee experience. By making significant investments in enhancing the digital employee experience, organisations can ensure streamlined

internal operations, leading to increased levels of customer satisfaction. The emphasis placed on the well-being and productivity of employees has been found to have a positive influence on the overall performance of organisations.

#### 11. Customer-centric approach:

The core of a digital business strategy revolves around a steadfast commitment to improving customer satisfaction through a customer-centric approach. Digital enterprises engage with customers through a multitude of digital touchpoints, thereby acquiring significant data to enhance their comprehension of customer requirements. The utilisation of a data-driven approach empowers organisations to create customised experiences, customise products and services, and establish enduring relationships with their clientele.

In conclusion, digital enterprises are at the forefront of technological progress, utilising digital networks and technologies to transform business operations, improve efficiency, and provide tailored customer experiences. Digital firms possess several key characteristics that enable them to maintain a competitive edge in the contemporary digital era. These characteristics encompass a flat organisational structure, a culture that fosters innovation, and a strong emphasis on customer-centricity. The increasing adoption of digital transformation by companies has resulted in a dynamic evolution of the business landscape, wherein digital firms are at the forefront of driving future progress.

### *1.7 The importance of being digital*

According to a report by Goldman Sachs Research<sup>11</sup>, advancements in generative artificial intelligence possess the capacity to instigate profound transformations inside the worldwide economy. The integration of natural language processing advancements into many industries and societal contexts has the potential to contribute to a substantial 7% rise in global GDP, amounting to about \$7 trillion. Furthermore, this integration might also result in a 1.5 percentage point boost in productivity growth over a span of ten years.

Having said that, AI's impact on labor productivity depends on its capability and adoption timeline.

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<sup>11</sup> Goldman Sachs. (2023, April 5). Generative AI Could Raise Global GDP by 7%. Goldman Sachs. <https://www.goldmansachs.com/intelligence/pages/generative-ai-could-raise-global-gdp-by-7-percent.html>

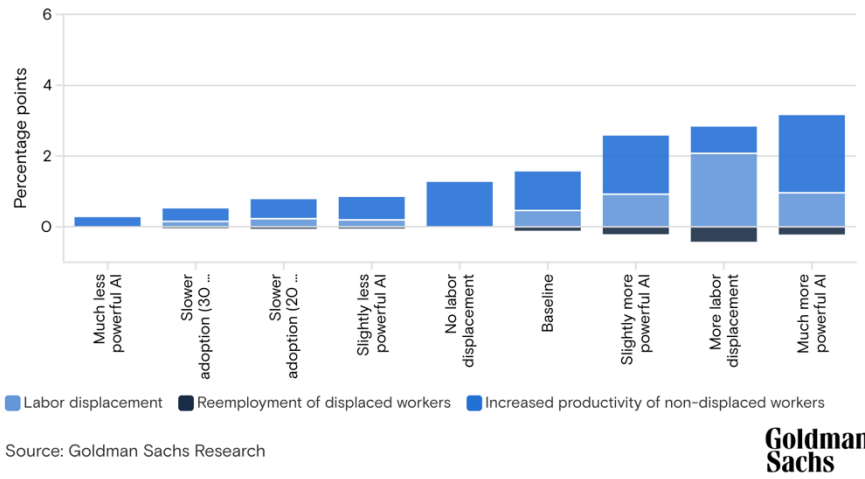
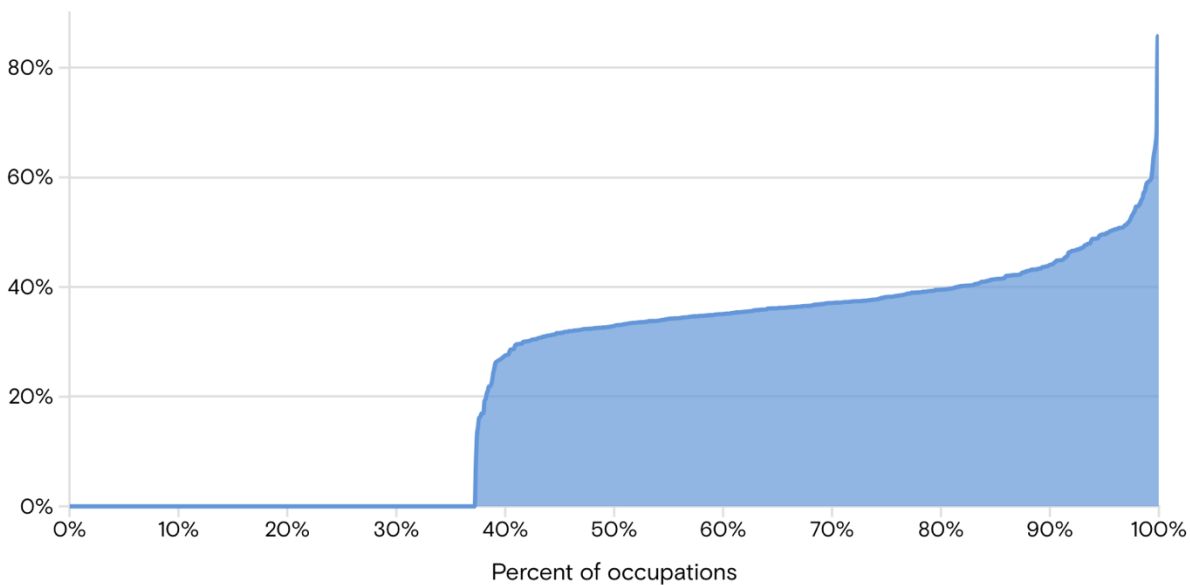


Figure 8: Effect of AI adoption on annual labor productivity growth, 10-year adoption period

The emergence of novel AI systems is poised to exert a significant influence on global labour markets. According to Briggs and Kodnani, the advancements in technology have the potential to result in significant changes in workflows, which might lead to the automation of around 300 million full-time employment. Based on an analysis of databases containing comprehensive information on the work content of more than 900 occupations, it has been estimated that around two-thirds of occupations in the United States are susceptible to varying degrees of automation facilitated by artificial intelligence (AI). The authors further project that, among the occupations that are susceptible, around 25% to 50% of their tasks might potentially be substituted. However, according to the research, it is important to note that not all automated tasks will result in employee layoffs. The authors assert that while the influence of artificial intelligence (AI) on the labour market is expected to be substantial, the majority of occupations and industries are only partially susceptible to automation. Consequently, these employment and sectors are more inclined to be augmented by AI rather than completely replaced.



Source: Goldman Sachs Research

Goldman Sachs

Figure 9: Share of occupational workload exposed to automation by AI

Furthermore, the paper states that throughout history, the displacement of jobs caused by automation has been counterbalanced by the generation of new jobs. The bulk of long-term employment growth can be attributed to the formation of novel vocations resulting from technical advancements. For instance, the advent of information technology has given rise to novel employment opportunities, including roles such as webpage designers, software developers, and digital marketing specialists. Additionally, the job creation had subsequent consequences, since the increase in aggregate income indirectly stimulated the need for service sector workers in other areas such as healthcare, education, and food services.

According to a source, economist David Autor's latest study revealed that a significant proportion of the current workforce, namely 60%, is engaged in jobs that were non-existent in the year 1940. According to our economists, it can be inferred that the technology-driven generation of new job opportunities accounts for roughly 85% of the overall increase in employment during the past eight decades.

Notwithstanding what was previously stated, the precise mechanisms underlying the emergence, evolution, and ultimate realisation of innovative ideas into tangible products and services remain ambiguous. Arora et al. (2020)<sup>12</sup> contend that the United States has experienced a deceleration in total factor productivity growth since the 1970s, despite witnessing a significant surge in scientific investment in terms of public funding, the training of highly educated individuals, and the publication of research articles. Simultaneously, prominent American corporations, including AT&T, Xerox, and IBM, have progressively transitioned from scientific research endeavours to prioritise commercial development, resulting in a gradual decentralisation of technical leadership.

The increasing disparity between scientific research and commercial applications is partially addressed through the support of technology ventures funded by venture capital (VC). However, it is worth noting that VC investments tend to be concentrated in specific sectors, notably information and communication technologies and life sciences. This issue may arise if other technologies are not sufficiently developed or if venture capital-backed technologies are not accessible to all sectors of the economy that could potentially derive advantages from them.

Theoretically, mergers and acquisitions within the technology sector (henceforth "tech M&A") particularly those involving established incumbents acquiring venture capital-backed startups, have the potential to serve as an effective means of spreading and monetizing technology. On one hand, established incumbents possess a greater understanding of market demand compared to emerging startups, and they may have established procedures for integrating new technologies into their new products and services.

On the contrary, younger technology ventures are frequently propelled by the original ideas of their innovative founders and are not burdened by the same level of inertia experienced by large corporations. Consequently, the acquisition of technology ventures by established incumbents has the potential to accelerate the

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<sup>12</sup> Zhe, G., Leccese, J., & Wagman, L. (2023). NBER WORKING PAPER SERIES M&A AND TECHNOLOGICAL EXPANSION.

dissemination of technology from innovators to broader commercial applications. Illustrative instances encompass the acquisition of FriendFeed by Facebook, the acquisition of Quip by Salesforce, and the acquisition of Vudu by Walmart. Moreover, the process of technology mergers and acquisitions (M&A) can also facilitate an established company's advancement into novel technology domains, consequently altering the competitive landscape among existing firms.

Simultaneously, the field of technology mergers and acquisitions (M&A) has garnered significant policy scrutiny, particularly from the standpoint of antitrust regulation. There is a growing apprehension regarding the potential actions of established industry leaders, who may engage in the acquisition of emerging start-ups operating in early-stage markets with the intention of eliminating competition, pre-empting market entry, or stifling innovation in the long term. Numerous policy reports within this domain primarily concentrate on a select number of prominent technology platforms, namely Alphabet/Google, Apple, Facebook/Meta, Amazon, and Microsoft, collectively referred to as GAFAM. These reports highlight the exceptional magnitude and rapidity of mergers and acquisitions undertaken by these entities. In both the United States and the European Union, there have been instances of antitrust complaints being filed and legislative efforts being undertaken to address a limited number of entities referred to as "gatekeepers" or "covered platforms." This indicates that mergers and acquisitions within the technology sector may be regarded as distinct activities applicable primarily to a select group of prominent technology firms. This perspective contradicts the notion that the acquisition of technology start-ups by incumbents has the potential to widely distribute and commercialise technology across various sectors of the economy.

Having said that, it is essential for today's organizations to reap all the benefits that information technology has to offer. Company who doesn't use IT technologies to run their company will eventually fall behind to competitors who do it.

Digitization and AI-driven automation significantly enhance operational efficiency across diverse business domains. These technologies replace labor-intensive tasks with digital solutions and algorithms, enabling efficient resource allocation, cost reduction, and heightened productivity. Automation technology finds application in various business processes, including data analysis, customer service, and supply chain management, resulting in streamlined operations.

Furthermore, digitization and AI foster innovation in product offerings, services, and business models. Leveraging cutting-edge technologies such as the Internet of Things (IoT), cloud computing, big data analytics, and robotics, businesses can create and enhance novel products and services. AI-driven capabilities encompass personalized marketing, recommendation systems, predictive maintenance, autonomous vehicles, and healthcare diagnostics, empowering complex data analysis, predictive modeling, natural language processing, and machine learning.



To remain competitive in the contemporary interconnected marketplace, organizations must wholeheartedly embrace digital transformation and artificial intelligence. These tools empower organizations with data-driven insights, data-informed decision-making, and rapid response capabilities to adapt to market dynamics swiftly. Additionally, digitalization and AI enable businesses to elevate customer experiences by tailoring services to individual preferences, differentiating themselves, bolstering customer retention, and enhancing overall performance.

Companies use a variety of methods to adopt digital and AI technologies, including:

A data-driven strategy refers to a business approach where decisions are made by leveraging insights derived from the examination of extensive datasets. Data management methods such as data mining, data warehousing, and data visualization are employed to facilitate decision-making processes by extracting valuable insights from extensive datasets.

Business enterprises embrace technological advancements by allocating resources towards the development of digital infrastructure and the integration of artificial intelligence. This encompasses the utilization of artificial intelligence frameworks and algorithms to facilitate automation and enhance intelligent decision-making processes, the integration of cloud computing platforms to establish a flexible and expandable infrastructure, the implementation of Internet of Things (IoT) devices to collect and analyze real-time data, and other related advancements.

The process involves the recruitment and training of individuals who possess expertise in the fields of data science, machine learning, and artificial intelligence. Organizational units or specialized teams may be established with the explicit purpose of undertaking digitalization initiatives. Furthermore, it is common for companies to provide training programs aimed at enhancing the proficiency of their employees in utilizing digital resources and artificial intelligence (AI) systems.

Partnerships and collaborations afford businesses the opportunity to gain access to cutting-edge tools and resources provided by vendors, startups, and academic institutions. Organizations have the potential to expedite their digital transformation initiatives and leverage external expertise by establishing collaborative partnerships.

The implementation of digital and artificial intelligence technologies in organizations requires the implementation of structural adjustments in order to effectively manage organizational change. Organizations employ change management strategies to mitigate employees' apprehension towards unfamiliar circumstances, impart comprehensive knowledge regarding the newly introduced system, and foster a positive and proactive mindset.

In its entirety, enterprises are increasingly adopting digitization and artificial intelligence (AI) as means to enhance productivity, expedite innovation, and establish a unique market position. In the digital era, enterprises seek to enhance operational efficiency, broaden their range of products, and effectively respond to evolving customer demands through the strategic utilization of these technologies.

## *1.8 Main concepts related to AI and Generative AI, impact and use cases*

When analysing digital transformation in a generic way, it is also of utmost importance to analyse some of the main technologies that are increasingly invading companies in all aspects of their lives.

Artificial intelligence (AI) has garnered significant attention in the domain of digital technology in recent times. Artificial intelligence (AI) refers to the ability of machines to acquire knowledge, address complex issues, make informed choices, and employ natural language processing, tasks that were traditionally associated with human intelligence. The utilization of algorithms and statistical models within artificial intelligence systems facilitates the analysis and interpretation of extensive quantities of data. This capability empowers machines to acquire knowledge from errors made and subsequently enhance their performance as time progresses.

AI is utilized in various domains and functions within organizations. For instance, in customer service, AI-powered chatbots and virtual assistants are employed to handle customer inquiries and provide support. Similarly, in finance and accounting, AI aids in recruitment and talent management, as well as in analyzing employee performance and engagement. Additionally, AI facilitates training and development programs in this field. Lastly, in product development, machine intelligence is leveraged to assist with product design and development. Thus, AI finds extensive application across a diverse range of business contexts.

The proliferation of Artificial Intelligence (AI) within corporations is on the rise, primarily driven by a multitude of significant factors and advancements. To begin with, the topic of discussion pertains to market growth and potential. The AI industry is currently undergoing significant expansion, as evidenced by the projected global AI market size of \$196.6 billion by 2023. This growth is primarily fuelled by substantial investments and widespread adoption of AI technologies across diverse sectors. The potential ramifications of artificial intelligence (AI) on technology, business, and society are substantial, rendering it an appealing resource for organisations in search of revolutionary resolutions<sup>13</sup>.

Furthermore, there have been significant advancements in the field of AI technologies. By the year 2023, a significant transformation is anticipated in numerous industries due to the advent of emerging artificial intelligence (AI) technologies, namely **generative AI**, edge AI, and explainable AI<sup>14</sup>.

### *1.8.1 Generative AI's potential impact on knowledge work*

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<sup>13</sup> Carmiel, Y. (2023, January 9). Artificial intelligence: 3 trends to watch in 2023. Enterprisersproject.com. <https://enterprisersproject.com/article/2023/1/artificial-intelligence-3-trends-watch-2023>

<sup>14</sup> Carmiel, Y. (2023, January 9). Artificial intelligence: 3 trends to watch in 2023. Enterprisersproject.com. <https://enterprisersproject.com/article/2023/1/artificial-intelligence-3-trends-watch-2023>

The preceding era of automation technologies shown notable efficacy in automating data management operations associated with the acquisition and manipulation of data. The natural-language capabilities of generative AI contribute to a moderate rise in the possibility for automation in these activities.

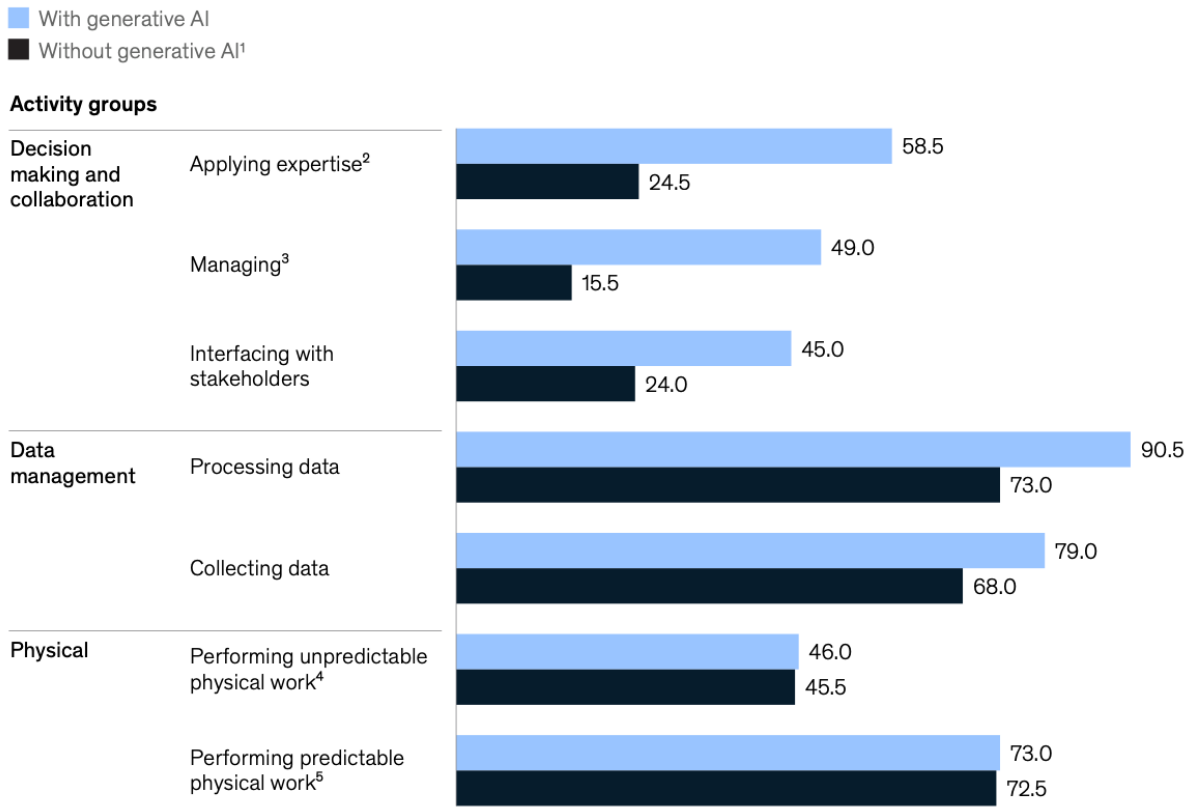
However, the influence of AI on physical labour activities exhibited a comparatively smaller shift, which is to be expected given that its capabilities are primarily designed for cognitive tasks.

Consequently, it is anticipated that generative AI will significantly influence knowledge work, namely tasks that entail decision-making and cooperation, which were previously seen to have little potential for automation (see Figure 8). According to research conducted by McKinsey<sup>15</sup>, there has been a significant increase in the estimated technological potential for automating the application of knowledge. Specifically, this estimate has risen by 34 percentage points. Additionally, the potential for automating management and talent development has also experienced a substantial increase, growing from 16 percent in 2017 to 49 percent in 2023.

The significant increase in automation potential may be partly attributed to the advanced capabilities of generative artificial intelligence (AI) systems in comprehending and effectively utilising natural language across a wide range of activities and jobs. Approximately 40% of the tasks carried out by workers in the economy need a minimum level of human comprehension of natural language.

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<sup>15</sup> Chui, M., Hazan, E., Roberts, R., Singla, A., Smaje, K., Sukharevsky, A., Yee, L., & Zimmel, R. (2023). The economic potential of generative AI The next productivity frontier. In <https://www.mckinsey.com/it/overview>.



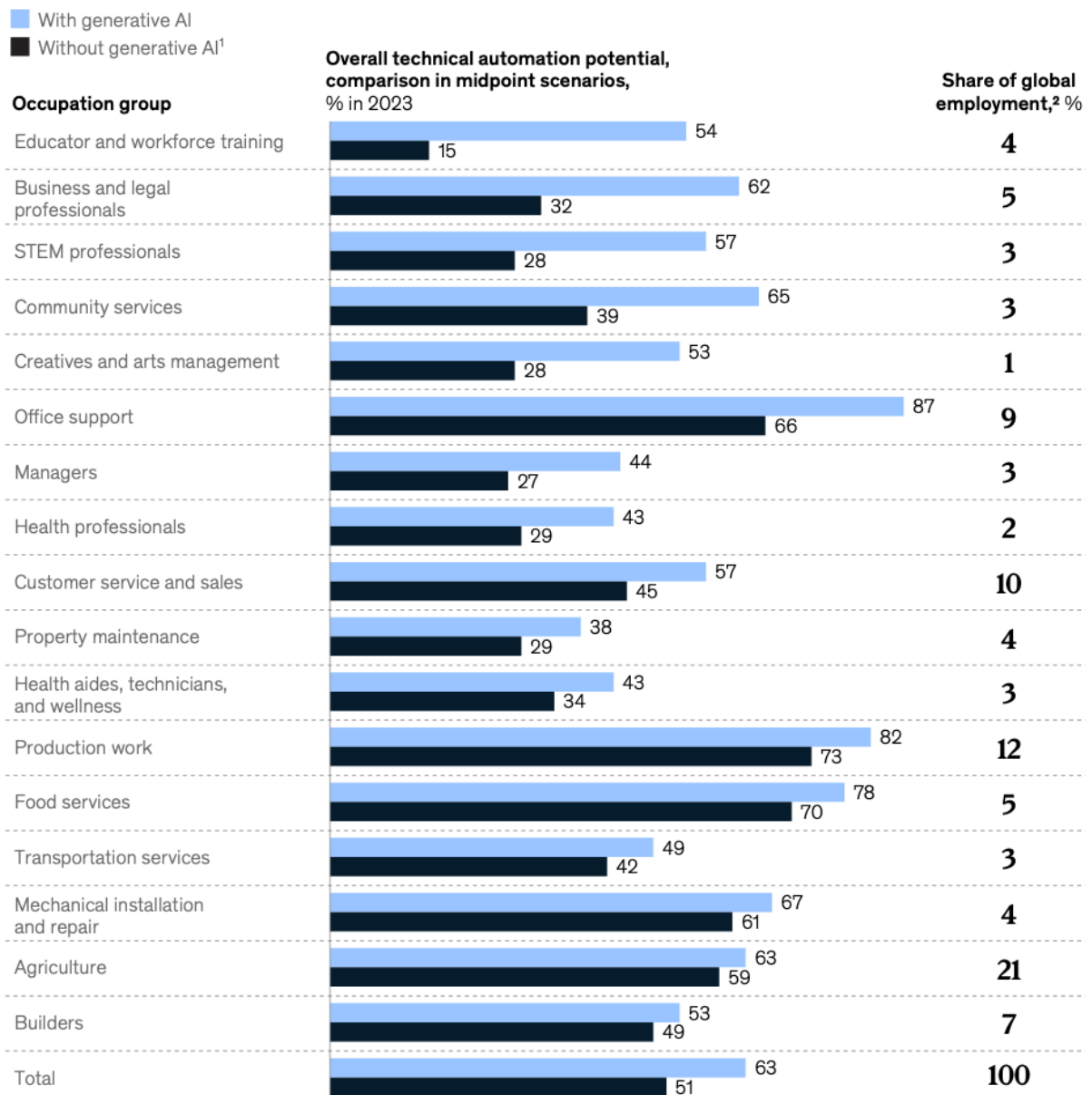
Note: Figures may not sum, because of rounding.  
<sup>1</sup>Previous assessment of work automation before the rise of generative AI.  
<sup>2</sup>Applying expertise to decision making, planning, and creative tasks.  
<sup>3</sup>Managing and developing people.  
<sup>4</sup>Performing physical activities and operating machinery in unpredictable environments.  
<sup>5</sup>Performing physical activities and operating machinery in predictable environments.  
Source: McKinsey Global Institute analysis

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Figure 10: Overall technical automation potential, comparison in midpoint scenarios, % in 2023

Consequently, a considerable number of work tasks that encompass communication, supervision, documentation, and interpersonal interaction possess the capacity to be automated through the utilisation of generative artificial intelligence. This phenomenon expedites the process of work transformation in fields such as education and technology, which were previously projected to experience automation advancements at a later stage (see Figure 9).

<sup>16</sup> Chui, M., Hazan, E., Roberts, R., Singla, A., Smaje, K., Sukharevsky, A., Yee, L., & Zimmel, R. (2023). The economic potential of generative AI The next productivity frontier. In <https://www.mckinsey.com/it/overview>. (p-40)



Note: Figures may not sum, because of rounding.  
<sup>1</sup>Previous assessment of work automation before the rise of generative AI.  
<sup>2</sup>Includes data from 47 countries, representing about 80% of employment across the world.  
 Source: McKinsey Global Institute analysis

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Figure 11: Impact of generative AI on technical automation potential in midpoint scenario, 2023

### 1.8.2 Use Cases

One of the key distinctions between conventional AI and Generative AI is in the ability of the latter to generate original output that closely resembles human-generated content.

The production of data by Generative AI models, which exhibit both coherent text and hyper-realistic graphics, has garnered significant attention from the public and corporate sectors. These models have demonstrated the

<sup>18</sup> Chui, M., Hazan, E., Roberts, R., Singla, A., Smaje, K., Sukharevsky, A., Yee, L., & Zempel, R. (2023). The economic potential of generative AI The next productivity frontier. In <https://www.mckinsey.com/it/overview>. (p-41)

ability to generate outputs that were previously assumed to be exclusive to human cognition, creativity, and labour.

Based on a paper published by Deloitte, it has been observed that Generative AI models had the capability to generate outputs across six distinct modalities.

- Text: The written language outputs are presented in a manner that is easily understood and of high quality, with the level of depth and complexity tailored to meet the specific requirements of the user. Illustrative instances encompass condensing written resources, composing customer-oriented content, and elucidating intricate subjects in a conversational manner.
- Code: The proposed system involves computer code written in many programming languages, which possesses the ability to independently condense, provide documentation for, and add explanatory notes to the code for the benefit of human developers. Illustrative instances encompass the process of converting natural language descriptions into executable code and the independent management of code across diverse platforms.
- Audio: Similar to written texts, audio may be produced in a natural, conversational, and even colloquial manner, allowing for quick transitions between languages, tones, and levels of sophistication. Illustrative instances encompass the utilisation of Generative Artificial Intelligence (AI) in contact centres, as well as the provision of troubleshooting help to technicians operating in remote locations.
- Image: The use of textual or visual prompts leads the model to generate pictures that exhibit different levels of realism, variety, and artistic expression. Illustrative instances encompass the utilisation of computer-generated simulations to visualise the potential appearance of a product inside a customer's domestic environment, as well as the reconstruction of an accident scene for the purpose of evaluating insurance claims and determining culpability.
- Video: In the realm of visual representation, Generative AI models has the capability to generate movies in response to human requests. These videos consist of fabricated scenes, individuals, and objects, all of which are exclusively generated by the model. Illustrative instances encompass the autonomous generation of marketing films aimed at presenting a novel product and the simulation of perilous events for the purpose of safety training.
- 3D/ specialized :3D modelling techniques allow for the generation of three-dimensional representations of things by extrapolating and generating data from textual or two-dimensional inputs, such as photographs. Illustrative instances encompass the generation of virtual representations inside an omniverse milieu and the use of AI-assisted techniques for prototyping and design in a wholly virtual domain.

Generative AI use cases have the potential to generate value across six distinct dimensions: cost reduction, process efficiency, growth, innovation, discovery and insights, and government citizen services. It is worth noting that a single use case has the potential to generate several value captures. However, in order to illustrate

the potential of Generative AI in enhancing competitive differentiators and operational excellence, the use cases presented in this document are each linked to a major value capture.

- Cost reduction: The primary approach to achieving cost reduction, often exceeding 30%, is the automation of job functions followed by the implementation of work substitutes.
- Process efficiency: Enhance operational efficiency by implementing automation techniques to streamline routine processes and minimise the need for manual interventions.
- Growth: Enhance income creation by implementing hyper-personalized marketing strategies tailored specifically to the preferences and characteristics of the target consumer segment.
- Government and citizen services: Enhance the precision of diverse federal and local initiatives while facilitating improved accessibility for vulnerable groups.
- Accelerating innovation: Enhance the rate of new product or service creation and expedite the process of bringing them to market.
- New discovery and insights: Facilitate the exploration of novel concepts, perspectives, and inquiries, so fostering the expression of imaginative thinking.

## ***2. Business valuation***

### *2.1 What is a business valuation, when is it conducted and what are the main valuation methods*

This section will explore the main evaluation methods, which will be taken up and examined in the following chapter in greater detail.

First, we define what a valuation and evaluation is and what are the differences.

Valuation activities encompass the systematic procedure of ascertaining the intrinsic worth of a given asset. Valuation refers to the process of ascertaining the present market value of economic assets in monetary terms. In alternative terms, it can be characterized as the recognition and assessment of the worth of a company's complete holdings, encompassing current assets (such as inventory), fixed assets or non-current assets (such as land, buildings, properties, machinery, plants, equipment, and vehicles), as well as intangible assets (such as goodwill and other intangible assets). Valuation entails the examination of a fixed asset, intangible asset, or service to assess the extent to which it delivers the anticipated benefits, and to provide an informed judgment regarding its characteristics in order to ascertain its value.

The concepts of "valuation" and "evaluation" are also noteworthy in this context. The concepts of "valuation" and "evaluation" possess distinct meanings. Valuation pertains to the process of determining the economic value of an asset, whereas evaluation involves the analysis of an asset's performance. The term "firm value" typically denotes the aggregate value derived from the market values of a firm's liabilities and equity. From the perspective of shareholders, the determination of equity value involves subtracting the present value of the company's debts from the aggregate present value of all its assets. The determination of firm valuation is a highly intricate matter in financial management, primarily due to the relative nature of value, which makes it challenging to ascertain with precision<sup>19</sup>.

The economic interpretation of the value concept, as well as its significance for firms, value drivers, and various measurements, is a subject of considerable complexity and ongoing scholarly debate. The determination and computation of a company's value are based on the economic fundamentals of value, which encompass factors such as cost and utility. These factors include cash flows, profit, and dividends that the company is projected to generate in the future.

Moreover, the purpose of this analysis is to emphasise the significance of evaluating digital start-ups. This is due to the fact that the valuation of startups is becoming increasingly important in the modern economy. Estimating the value of high-tech companies is a relatively novel field of study. Marom and Lussier (2014) observed that over 50% of new businesses perish within five years of inception, primarily because of funding issues. The majority of entrepreneurs do not maintain financial documents, which makes it difficult for

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<sup>19</sup> Derindere Köseoğlu, S., & Awad Almeany, S. S. (2020). Introduction to Business Valuation. *Advances in Business Information Systems and Analytics*, 1–23. <https://doi.org/10.4018/978-1-7998-1086-5.ch001>



entrepreneurs and investors to estimate the value of their businesses or evaluate the value of potential investments.

There exist various fundamental financial, economic, logical, and psychological principles that provide a robust framework for analyzing the concept commonly known as the "World of Value"<sup>20</sup>. The designation of these principles as the organizing principles of business valuation stems from their ability to establish a logical and coherent framework for the examination of challenges and issues related to company valuation.

The realm of value encompasses the diverse array of markets wherein valuation and investment choices are undertaken by real investors, including individuals, corporations, institutions, and governmental entities. The realm under consideration encompasses the publicly traded stock and bond markets, the private placement markets catering to debt and equity securities, as well as the private equity markets.

According to the Mercer and Harms, there are six organizing principles include:

- Principle of expectations, meaning that value is expectational (not historical) in nature.
- Principle of Growth. Value today is influenced by expectations for future growth.
- Principle of risk and reward. Value is impacted by the relationship between risk and reward.
- Present value principle. Business value is based on the present value of expected future cash flows, discounted to the present at a rate reflecting the risks of receiving those cash flows.
- Principle of alternative investments. Businesses and business investments are valued in relationship to reasonable alternative and competing investments.
- Principle of rationality. The world of value is one of inherent rationality, sanity, and consistency.

Those organizing principles are a meant to describe and discuss the world of value. The following will be discussed individually.

#### 1. The principle of expectations.

The fundamental organizing principle of the World of Value is predicated on future expectations, as value is inherently derived from such expectations. Valuation typically involves an assessment of a company's historical performance in order to ascertain its prospective earnings capacity. The calculation of capitalised earnings can be determined by either employing a straightforward average of earnings from recent years or by utilizing a weighted average of those earnings. One possible alternative approach is to annualize or capitalize the outcomes obtained in the present fiscal year. It is feasible to make a detailed forecast of earnings for the forthcoming year. However, the objective of historical analysis is to generate accurate forecasts for the future trajectory of a company.

Implementing this principle poses the greatest challenge. Based on the efficient market hypothesis, the valuation of a company's stock at a given moment is a reflection of the collective market information available

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<sup>20</sup>Christopher Mercer, & W. Harms. (2020). Business Valuation by Z. Christopher Mercer | Perlego. Wwww.perlego.com; Wiley. <https://www.perlego.com/book/2010419/business-valuation-an-integrated-theory-pdf>

about the company, which in turn shapes expectations regarding its future performance. When considering this information, it is necessary to take into account the expectations pertaining to the company's industry and economic conditions. Put simply, the market determines the price of a stock by finding a point of equilibrium that considers both the anticipated performance and the perceived risk, taking into account the projected future performance of the security in relation to the general consensus on risk assessment. Individuals involved in the field of interest are required to navigate through situations characterized by unpredictability, as per the principle of expectations.

Expectations can sometimes be dichotomous. One of two outcomes, A or B, will occur. A proposed pricing level for a corporation is determined in the event that condition A occurs. An alternative pricing level is proposed in the event of occurrence B. Investors employ a range of probability analysis techniques to address the potential occurrence of binary or multiple future events.

## 2. Principle of growth

The global landscape is experiencing growth and expansion. The domains of nature, economics, and business are intrinsically reliant on the processes of change and growth. Investors carefully analyse various factors such as the overall economy, global conditions, specific companies, and particular assets, with the intention of identifying potential opportunities for future expansion. Potential drawbacks may arise from economic, industrial, or corporate expansion. However, within the present economic context, growth is commonly perceived as a favourable phenomenon. Throughout centuries, the economies of both individual nations and the global community have exhibited a pattern of uneven yet consistent expansion. All firm valuations consider the contexts of population growth, productivity growth, and inflation. Equity securities are acquired based on their perceived capacity for capital appreciation.

A business that is experiencing growth possesses greater value in comparison to a similar business that is not undergoing development, assuming all other factors remain constant. The rationale behind this is that the anticipated cash inflows from the expanding enterprise are expected to surpass those generated by the non-growing business. Assuming all other variables remain unchanged, an increase in future cash flows corresponds to a greater present value.

The principle of growth postulates the existence of a fundamental correlation between growth and value, which can be comprehended in nonmathematical language as a dynamic relationship that develops over a period of time. The correlation mentioned above is observed indirectly in the Exhibit provided, which displays the historical performance of the S&P 500 Index over a fifty-year period until December 2019. The index has demonstrated a compound annual growth rate of 7.3% during the specified period, mainly due to the rise in corporate earnings and the presence of higher valuation multiples.

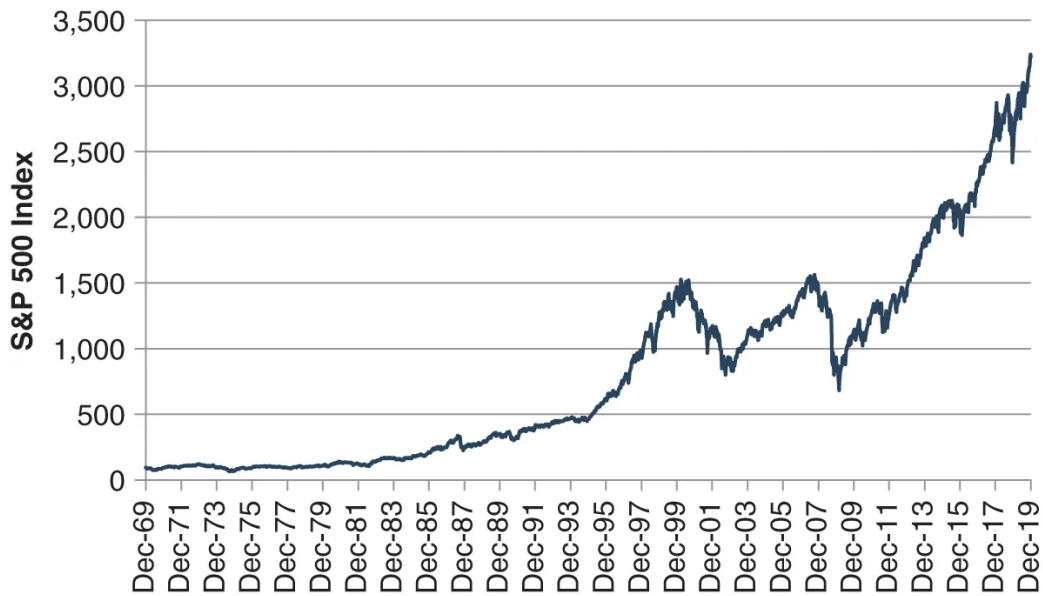


Figure 12 S&P 500 Index: December 1969 through December 2019

This exhibition demonstrates that although there is a general upward trajectory in asset values over the long term, this ascent is intermittently interrupted by reversals, which entail declines in valuation. In practice, the valuation of companies is typically conducted at specific instances. Valuation decisions at any given moment are influenced by the level and direction of movement observed in pertinent markets.

### 3. The principle of Risk and Reward

Within the realm of value, there exist discernible connections between anticipated future risks and rewards. Different discount rates or required returns reflect different expectations or requirements for returns. Investments characterized by a higher level of risk necessitate commensurate returns. The utilization of the Principle of Risk and Reward in Exhibit 4 is exemplified by the correlation between required returns (referred to as discount rates) and investments characterized by increasing levels of risk.

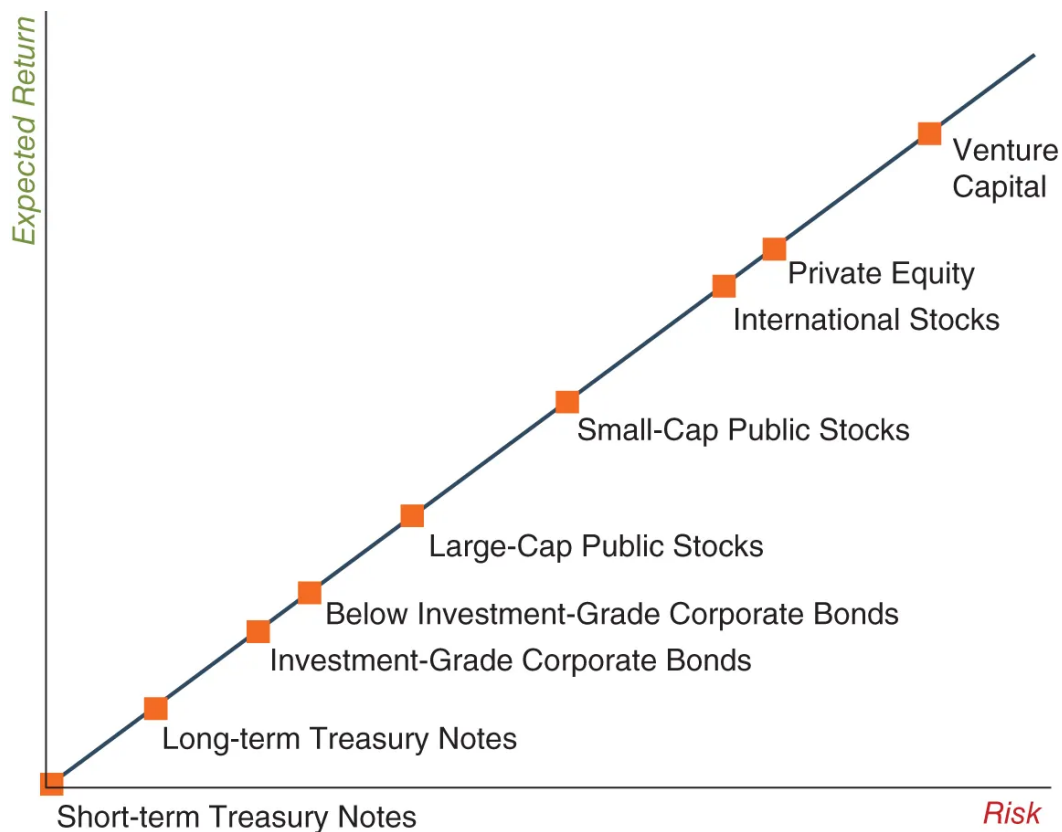


Figure 13 Relationship between Risk and Expected Return<sup>21</sup>

The impact of these return expectations on value is determined by the application of the Present Value Principle, which will be discussed in the subsequent section.

#### 4. The Present Value principle

The concept of present value posits that a monetary sum in the present holds greater worth than an equivalent sum in the future. The principle of present value encompasses four key dimensions pertaining to investments: It is expected that equity investments will experience appreciation in value, in accordance with the growth principle.

Investments possess characteristics associated with the generation and management of cash flow. Valuation experts must possess a comprehensive understanding of the temporal dynamics of a company's cash flows and the potential for substantial disparities between the cash flows available to the company and those accessible to its minority shareholders.

Investments possess a specific time period during which they are held. They persist over a prolonged period. Investors make decisions between alternative options or opt to defer immediate consumption in order to realize the advantages of their investments in the future.

Investments exhibit varying characteristics. Risk serves as a significant equalizing factor in the realm of present value, as it influences investors' discount rates or required rates of return.

<sup>21</sup> Christopher Mercer, & W. Harms. (2020). Business Valuation by Z. Christopher Mercer | Perlego. [www.perlego.com](http://www.perlego.com); Wiley. <https://www.perlego.com/book/2010419/business-valuation-an-integrated-theory-pdf>

The application of the present value principle allows for the evaluation and comparison of investments that possess varying durations, growth projections, cash flow patterns, and levels of risk. Present value calculations are utilized to quantify the worth of various investments in current dollar terms, thereby offering a framework for making informed investment or valuation choices.

The principles of organization offer a valuable framework for understanding the concept of value. In the field of business, the evaluation of worth is reliant on the appraisals conducted by investors who possess or actively seek information pertaining to their prospective investments. The aggregation of diverse pieces of information contributes to the formation of a mosaic. When these fragments are systematically arranged, they constitute the indispensable knowledge required for making well-informed decisions regarding investments and their prospective performance, particularly when confronted with uncertain circumstances. Business valuation analysts and market participants can acquire the knowledge required for formulating, substantiating, and defending valuation conclusions through various avenues provided by the principles of organization. Individuals who demonstrate a comprehensive understanding of these principles are in a favourable position when it comes to formulating robust valuation conclusions. In addition, legal professionals and other consultants who provide guidance to business proprietors can streamline and improve deliberations pertaining to valuation matters by employing these principles as a structured approach to tackle fundamental concerns. In general, the value of a business differs depending on the buyer, and it might also differ depending on the buyer and the seller. Value should not be confused with price<sup>22</sup>, which refers to the amount determined by the seller and the buyer when a company is sold. The reason for this variation in a particular company's value could be for a variety of factors.

From the buyer's standpoint, the main goal is to determine the maximum value that it should be prepared to pay for the potential contributions of the company it intends to acquire. From the seller's standpoint, the aim is to ascertain the lowest possible cost at which it should agree to undertake the transaction. The negotiation process involves the placement of two Exhibits in opposition to each other, with the aim of reaching a final price that generally falls at the midpoint between the two extremes. Corporations may possess distinct values for different customers as a result of economies of scale, economies of scope, or divergent perspectives pertaining to the business and its industry.

#### When to do a business evaluation

As previously stated, a business valuation is conducted during the merger and acquisition (M&A) phase. Companies have two primary methods of expanding their operations: organic growth and growth through mergers and acquisitions (Barbara and Kenneth, 2013: 3). The objective of a merger and acquisition is to enhance the value of the newly formed entity beyond the combined value of the individual firms, as a consequence of the synergy effect (Ercañ et al., 2006: 1-2). The terms "merger" and "acquisition" are

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<sup>22</sup> Fernández, Pablo. "Company Valuation Methods. The Most Common Errors in Valuations." SSRN Electronic Journal, vol. 2004, 2004, media.iese.edu/research/pdfs/DI-0449-E.pdf, <https://doi.org/10.2139/ssrn.274973>.

commonly used in the business context to describe the process of consolidating companies. The determination and concentration of the transaction lies in the actual worth of the companies involved in mergers and acquisitions.

In addition to mergers and acquisitions (M&A), business valuation can be conducted in various other contexts. For the sake of completeness, it is necessary to elucidate the various contexts in which this phenomenon occurs.

The first aspect to consider is Portfolio Management and Valuation, wherein the significance of firm valuation can differ based on the distinction between active (short-term) and passive (long-term) investors. The significance of portfolio management for a passive investor is minimal. However, valuation holds significant importance for an investor who actively engages with market conditions. The equity value derived from the application of firm valuation methodologies is juxtaposed with the market's share value. Shares are included in the portfolio if their market value is lower than the estimated value. The determination of a firm's value based on realistic assumptions serves as an indicator to assess whether stocks are overvalued or undervalued in the market. According to Ercan vd. (2006: 9-10) and Damodaran (2002: 8),

Secondly, given that the primary goal of financial management is to optimize corporate value, it is crucial to ascertain the actual value of the firm and enhance it. Financial decisions, such as determining the capital structure of a firm, selecting the financing mix, establishing a dividend policy, making new investments, and refinancing, should be undertaken with the objective of maximizing the value of the firm. The financial manager should ensure that all decisions made are aligned with the objective of enhancing the firm's value. The process of firm valuation provides managers with valuable insights and tools to effectively manage their business operations.

Thirdly, an examination of the global economies in the recent period reveals a notable decline in the share of the United States, particularly within certain specific sectors. Privatization refers to the process of diminishing the government's involvement in the economy by attracting investments from both domestic and international investors. This is achieved by transferring ownership of state institutions to the private sector, with the aim of enhancing overall efficiency. In certain instances, state-controlled enterprises may undergo a transition to the private sector with the aim of enhancing operational effectiveness. In this context, the transfer of public assets to the private sector is being implemented with the aim of facilitating market mechanisms and enhancing operational efficiency. The findings of the valuation studies indicate the appropriate value to be considered in the associated privatization procedure (Kissin ve Zulli, 1989: 39).

Moreover, the assessment of value is a requisite for corporations that are compelled to terminate their activities as a result of various circumstances. In the event of corporate insolvency, it becomes imperative to initiate the liquidation process, wherein the entirety of the company's assets is evaluated, and their value determined. The liquidation value of assets refers to the minimum amount that can be obtained through the expeditious sale of said assets. The assessment of the accurate monetary worth of the company's assets, specifically the liquidity

value, is crucial at this juncture to safeguard the rights of all stakeholders during the liquidation process (Ercan et al., 2006: 12).

In addition, the assessment of value is essential in addressing various aspects such as conflicts pertaining to shareholder rights, challenges arising from dissenting shareholders and minority shareholders, the protection of minority shareholder rights, the determination of compensation calculations, resolution of property disputes, and the determination of the value to be paid to non-consenting counterparties in the context of a sale.

Furthermore, one of the methods employed by companies to secure financing through equity is by conducting a public offering, wherein they sell their shares to the general public and acquire funds from the capital markets. The public is summoned to sell their own shares, thereby generating company finances through the sale of said shares. Companies have the capacity to facilitate the financing of new investments through the provision of financial resources in this manner. Currently, the transaction is primarily concerned with the valuation and pricing of the shares that are publicly traded. During the process of conducting a public offering, it is crucial to ensure that the valuation of a company's shares accurately reflects the underlying reality, particularly in relation to individual investors who engage in public trading. The fair value of a stock is contingent upon the assessment of its cash flow, which encompasses future capital gains and dividends. This evaluation necessitates the application of an appropriate discount rate to accurately discount these cash flows. Similarly, Credit Institutions, which extend loans to firms, engage in decision-making processes regarding lending, wherein they consider factors such as the firm's value, its capacity to repay debt, and its potential for generating future cash flows. The business valuation can be conducted by both the lender and the firm in this particular process. In order to secure the loan, it is imperative to ascertain the valuation of the asset, asset group, or the entire firm (Ercan et al., 2006: 11).

Ultimately, the process of valuation is undertaken in order to ascertain the monetary worth of Intellectual Property Rights, encompassing trademarks, patents, copyrights, and other related assets. Numerous corporations possess a multitude of intellectual property rights, encompassing trademarks, patents, know-how, and copyrights. The proportion of these intellectual property rights in relation to the overall value of the firm can be substantial. In situations where the significance of intellectual property rights becomes relevant, it is necessary to assess the distinct value generated by these rights. The significance of this matter is heightened, particularly when a substantial proportion of the firm's worth is attributed to the brand value it has established. The analysis of these elements' contribution to value is of utmost importance, particularly within the domains of company sales, mergers, and acquisitions.

## *2.2 Review of valuation methods of traditional firm*

The estimation of market value for companies encompasses various approaches, which can be categorised into empirical and analytical methodologies.

Empirical methodologies rely on the pragmatic observation of market prices pertaining to assets that exhibit a satisfactory level of similarity, thereby rendering them amenable to meaningful comparison.

Analytical approaches, in contrast, are grounded in a more rigorous scientific foundation, employing a revenue-financial framework to determine the present value of an asset. This valuation is based on anticipated future returns, or an estimation of the expenses involved in reproducing or replacing the asset.

The primary methodologies employed in the evaluation of companies, which are widely utilised in practical settings, include the following:

1. The balance sheet-based approach, which encompasses both simple and complex methods.
2. The income approaches.
3. The mixed capital-income approach.
4. The financial approach, utilising discounted cash flow (DCF) analysis.
5. Market approaches and valuation through the application of multiples.

Balance sheet-based methodologies are infrequently employed by certain well-established companies, yet they are scarcely suitable for startup enterprises.

The primary factor in assessing the worth of a startup is the projection of its prospective capacity to generate a sufficient cash flow or income that can adequately compensate its shareholders following the repayment of debts.

The financial and income approaches are considered the most suitable methods for determining the market value of a startup, as they accurately reflect the anticipated equitable compensation for shareholders. The balance sheet-based approach assigns value to tangible and intangible resources by aggregating the individual assets, whereas the income and financial approaches view these resources as integral components that contribute to the overall value creation within a broader context. The market value of a startup is determined by the interplay of internal factors pertaining to its tangible and intangible assets, as well as external factors associated with the market. The simultaneous examination of both factors enables the projection of a startup's prospective outcomes and the evaluation of its level of risk (for additional details, please consult Chapter 7).

### *2.3 The balance sheet-based approach*

The valuation of the market value using the balance sheet approach is based on the most recent available balance sheet's current equity value<sup>23</sup>.

Three approaches exist:

- Simple approach based on the balance sheet.
- Complex approach based on the balance sheet, grade I.

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<sup>23</sup> Fernandez, P., de Apellániz, E., & Acín, F. J. (2020). Survey: Market risk premium and risk-free rate used for 81 countries in 2020 (March 25). IESE Business School Working Paper No. WP-1244-E. Available at SSRN: <https://ssrn.com/abstract=3560869>.



- Complex approach based on the balance sheet, grade II.

This strategy has historically been more prevalent in continental Europe than in Anglophone nations. As anticipated, this technique is nearly inapplicable to entrepreneurs.

The use of the balance sheet-based strategy, whether it is basic or complex, commences with the shareholders' equity as depicted in the financial statements, including the net profit for the year after deducting the amounts authorised for distribution. An examination of the financial statements necessitates an evaluation of assets and liabilities, focusing on non-monetary assets such as technical fixed assets, inventories of goods, securities, and potentially intangible fixed assets. This evaluation should be conducted using current values to identify any implicit capital gains or losses in relation to the accounting data (Lev & Gu, 2016<sup>24</sup>). The determination of current values for assets that possess a substantial exchange market, such as real estate or traded securities, often relies on the prices documented during the most recent discussions. In the absence of a reference market, it is possible to utilise estimates derived from rebuilding or training expenses as an alternate approach.

The use of a basic balance sheet-based approach has significance in the context of organisations that possess a substantial amount of equity, such as real estate companies and holding corporations. In corporations of this nature, the comprehensive assessment of profitability and risk may encompass the amalgamation of patterns that are either implicitly or expressly taken into account during the evaluation of individual assets.

This technique aligns the capital value with the discrepancy between the present value of the assets and the value of the liabilities that play a role in defining the assets of the business. The asset value is representative of the net investment required to establish a new firm with an identical asset configuration as the one under evaluation. Hence, the basic asset value does not represent the assets' liquidation value, but rather signifies their worth in terms of rebuilding within the context of company operations.

The importance of accurately accounting for liabilities cannot be overstated, and it is crucial that their valuation aligns with their recorded value or is conservative.

The formula is:

$$\text{Enterprise value} = \text{book equity} + \text{assets adjustments} - \text{liability adjustments} = \text{adjusted equity} = K_1$$

where assets and liability adjustments are defined as capital gains and losses net of the tax impact.

The basic valuation approach involves the consideration of tangible assets, loans, and liquidity in order to assess the value of equity companies.

The valuation process entails a comprehensive assessment of the assets based on their current replacement values, with a specific focus on:

- Assets at current repurchase value.
- Assets and liabilities based on settlement values.

The “first-grade complex balance sheet-based approach”, diffused in Continental Europe, also considers intangible assets that are not accounted for but have a market value. In formulae:

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<sup>24</sup> Baruch Lev, & Feng Gu. (2016). The end of accounting and the path forward for investors and managers. Hoboken, N.J. Wiley.

$K_1$  + intangible assets not accounted for but with market value =  $K_2$

(e.g., bank deposits, insurance premium portfolio, shop licenses, and large-scale distribution) where  $K_1$  is the value of assets determined according to the principles of the simple balance sheet-based approach.

Finally, the complex Tier II balance sheet-based approach also refers to intangible assets that are not accounted for and do not have a specific market value, bringing to the “second-grade complex balance sheet-based approach”.

$K_2$  + unrecognized intangible assets without market value =  $K_3$

(e.g., product portfolio, patents and industrial concessions, know-how, market shares and corporate image sales network, management, the value of human capital).

where  $K_2$  is the value of assets determined according to the complex grade I balance sheet-based approach.

Intangible assets that are not accounted for and do not have a market value are:

- Strategy, concerning products and life cycle, customers, markets, market positioning, and market share achieved, orientation toward growth and partnership policies.
- Customers and market.
- Processes and innovation.
- The organization, which includes all the elements related to corporate governance.
- Human resources.

## *2.4 The income approach*

The assessment of profitability, in alignment with the prediction of income, may be suitable in cases where the company exhibits a well-established tendency of profitability or where the chosen method is considered dependable for projecting startup outcomes. Alternatively, if there exists a substantial intangible element that exerts an impact on the revenue.

The income technique enables the estimation of market value by considering the anticipated earnings that the startup is expected to generate in future periods.

This technique is appropriate for assessing cyclical enterprises characterised by highly fluctuating earnings, however with a propensity to offset these fluctuations over time. Normalisation is a procedural approach that may be employed to discern a consistent trend line that underlies the fluctuating income streams observed in cyclical businesses over different management eras.

The essential components in the assessment of an income strategy are:

- The estimate of normalized income.
- The choice of the capitalization rate.
- The choice of the capitalization formula, based on the adopted valuation time horizon.

### 2.4.1 *Estimated Normalized Income*

With regards to the determination of the income utilised for valuation purposes, the focus is placed on the average normalised value of income that the startup is projected to generate consistently in subsequent years. Hence, it is not seen as a sequence of forthcoming revenues, but rather as the anticipated mean standardised worth capable of representing the startup's average long-term earning potential, within a time frame that aligns with the company plan.

Normalised income can be calculated by:

- Study of the income statement (historical and perspective).
- Analysis of the financial structure (leverage).
- Consistency between the normalized operating result and the equity evaluation process.
- Normalized income, i.e., average perspective income.

In addition, the evaluator may also take into account several financial metrics such as operating result/EBIT, pre-tax result, net income, and operating or net cash flow (if applicable as a supplementary financial measure). It is imperative to convert the net profit (income) into a "normalised and integrated value" that may effectively represent the startup's capacity to create money. This can be achieved through three corrective procedures:

1. Normalization: this is an articulated process aimed primarily at:
  - Redistribute "extraordinary" income and expenses over time.
  - Eliminate "non-operating" income and expenses.
  - Neutralization of the effects caused by budgetary policies.
2. The integration of changes in the stock of intangible assets.
3. Neutralization of the distorting impacts of inflation, to avoid fictitious losses or profits that could affect the valuation process.

As the duration of the evaluation scenario increases, the probability of distortions occurring also increases. The objective of the normalisation procedure is to deduct a set of income components from random variation, in order to restore them to a suitable level of consistency (accrual) with the reference period.

Extraordinary revenue and costs are notable and occasionally non-recurring elements of operational income. Extraordinary income can encompass the realisation of significant assets, such as real estate, on the assets side. However, this scenario is unlikely for fledgling firms.

Costs encompass the financial implications of extraordinary occurrences, such as expenses related to organisational restructuring, costs resulting from the impacts of natural calamities, and expenditures associated with the dismantling of facilities.

In order to accurately represent a standardised measure of revenue, it is necessary to appropriately allocate these parts throughout a certain period of time, excluding any components that deviate from the typical appearance. The aim of the redistribution is to replace a variable size with a mean value in order to mitigate the potential underrepresentation of certain firms and the overestimation of others. Assessing normalisation

becomes more challenging in situations where historical patterns are few or non-existent, as is often the case in the context of most startup ventures.

The adjustment of revenue and expenses that are not directly connected to regular business activities should be conducted to align the figures in the income statement with market or industry norms. Regarding the neutralisation of budgetary policies, the focus is on the core estimations, including amortisation and depreciation, inventories, provisions for risks in industrial and commercial starts, and fiscal policies. The integration process is predicated on the recognition that the dynamics of some intangible asset values, whether appropriately documented in financial records or not, play a significant role. The process of neutralising the distorting impact of inflation enables the differentiation between actual outcomes and those that may appear or be deceptive, since they arise from the aggregation of values that are not consistent in monetary terms. The corrections that are most often utilised are as follows:

- The adjustment of the depreciation rates of fixed technical assets at reconstruction costs, i.e., to the update values of recent estimates.
- Adoption of the LIFO procedure in the valuation of inventories of products, semi-finished products, and raw materials.
- Determination of economic results.

#### *2.4.2 Choice of the Capitalization Rate*

The capitalization rate of normalised revenue signifies the economic cost of capital utilised.

The determination of this rate is contingent upon the anticipated yield of risk-free assets and the risk premium (Fernandez et al., 2020)<sup>25</sup> that the market is anticipated to demand for the specific investment being assessed. The anticipated yield on risk-free securities is commonly associated with the yield on government bonds. The term "market return" encompasses all forms of hazardous investments that are accessible inside the market. This aligns with the Capital Asset Pricing Model (CAPM), which is employed to evaluate the suitable anticipated rate of return for a publicly traded securities, relative to its level of risk, in order to inform decisions on the inclusion of assets in a diversified portfolio.

One potential alternate approach for evaluating the capitalization rate might involve considering the cost of invested capital from the buyer's standpoint.

In this scenario, the valuation of the startup is conceptualised as a stream of forthcoming revenues that necessitate a reduction in value by considering the prevailing cost of capital for the buyer. Consequently, the valuation of the startup is no longer contingent upon its level of risk.

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<sup>25</sup> Fernandez, P., de Apellániz, E., & Acín, F. J. (2020). Survey: Market risk premium and risk-free rate used for 81 countries in 2020 (March 25). IESE Business School Working Paper No. WP-1244-E. Available at SSRN: <https://ssrn.com/abstract=3560869>.

The initial method for calculating the capitalization rate entails a theoretical-practical framework of significant significance. However, it relies on the assumption of efficient financial markets, as the whole assessment is founded on indicators that may be directly linked to such markets.

#### 2.4.3 *Choice of the Capitalization Formula*

The valuation of market value, achieved by discounting revenue streams, is commonly performed using the perpetual annuity formula due to the enduring nature of startups as institutions.

The assumption that the creation of income has a limited duration, ranging from 3-5 to 8-10 years, lacks verification in the context of business reality and might be considered arbitrary, given the uncertainty in determining the time boundary. Hence, it is feasible to proceed with the computation of the startup's valuation by utilising the mean normalised value of the synthetically calculated income streams created over extended time periods.

Depending on the selected capitalization period, one of the two alternative formulae may be used:

- The limited capitalization:

$$W_2 = R a_{n-i}$$

- The unlimited capitalization:

$$W_1 = R/i$$

Where:

- $W$  is the market value of the startup;
- $R$  is the integrated normalized income;
- $i$  is the income capitalization rate;
- $n$  is the period (years) of limited capitalization.

When the capitalization time is infinite, the Terminal Value converges to zero. The terminal value refers to the valuation of a firm or project that extends beyond the projected timeframe, during which it becomes challenging to estimate future cash flows. The concept of terminal value posits that a corporation will have perpetual growth at a predetermined pace subsequent to the forecasted time. In certain instances, particularly in nascent firms with potential, the Terminal Value constitutes a significant proportion of the total projected value.

#### 2.5 *The Mixed Capital-Income approach*

The mixed method, as proposed by Fernandez (2019)<sup>26</sup>, operates under the premise that a company's asset worth is ultimately manifested in its earnings. This technique is founded on the idea that the utilisation of assets yields an average normalised return over an extended period of time.

The hybrid strategy is deemed appropriate for organisations that possess substantial stock holdings and are now experiencing a temporary absence of consistent income generation. In these instances, the mixed criterion might encompass the value associated with the transient capacity for disparate revenue, relative to the standard, assuming that the compensation of the assets thereafter reverts to its usual state.

The estimation of market value involves the consideration of adjusted equity, which is determined using either a basic or complicated balance sheet-based technique. Additionally, the value of surplus revenue, often known as goodwill, generated by the startup in comparison to the sector average of similar firms is taken into account. Previous research has demonstrated that the balance sheet-based strategy is largely inappropriate for new companies. Therefore, it is improbable that the mixed strategy produced from it will be employed.

The mixed method encompasses several analytical metrics, such as net book value, liabilities, goodwill, and specialised intangible assets like brands, technology, and customer lists. Goodwill refers to the prospective economic advantages that arise from a firm, an ownership stake in a business, or the utilisation of a collection of assets that have not been individually acknowledged as a distinct asset. In broad terms, goodwill can be defined as the remaining amount that is derived after subtracting the value of all identifiable tangible, intangible, and monetary assets, adjusted for actual or potential liabilities, from the overall value of a business. It is commonly represented as the surplus of the price paid in an actual or hypothetical acquisition of a startup over the value of the startup's other identified assets and liabilities<sup>27</sup>.

This technique facilitates the integration of the equity component's characteristic objectivity and verifiability with the rationality conveyed through the estimation of expectations pertaining to the future revenue potential of the company.

The incorporation of the equity assessment with the valuation of goodwill (positive/goodwill or negative/badwill) can prove to be advantageous in cases where the profitability of the startup deviates (positively or negatively) from the level deemed normal by investors, as indicated by the rate of return.

Hence, the market value has both an equity component and an income component.

The valuation of the business is consistently encompassed within a range, with the lower limit being the net assets at liquidation value and the upper limit being the value of the startup established by the income strategy.

The mixed-income strategy encompasses two distinct formulations:

- (a) average value.
- (b) independent (autonomous) goodwill estimate.

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<sup>26</sup> Fernández, P. (2001). Company Valuation Methods. The Most Common Errors in Valuations. SSRN Electronic Journal. <https://doi.org/10.2139/ssrn.274973>

<sup>27</sup>INTERNATIONAL VALUATION STANDARDS COUNCIL IVS 210: INTANGIBLE ASSETS EXPOSURE DRAFT. (n.d.). Retrieved September 25, 2023, from <https://www.ivsc.org/wp-content/uploads/2021/10/IVS210IntangibleAssets.pdf>

### (a) The average value

The market value is determined as the average of the adjusted assets and the value obtained for the capitalization of income, using the perpetual capitalization formula.

$$W = \frac{1}{2} (K + R/i) = K + \frac{1}{2} (R/i - K)$$

Where:

- K is the equity expressed at replacement cost according to the balance sheet-based approach. It is an adjusted capital measure, including intangible assets and capital gains, and considering any higher market values compared to the accounting data.
- R is the normalized income expected to the accounting data
- i is the normalized rate of return for equity, concerning both the level of operational risk born by the startup and the level of risk deriving from the financial structure chosen.

### (b) autonomous goodwill estimate

The technique that combines balance sheet analysis with an independent estimation of goodwill offers several options. These options are developed based on different assumptions used for projecting and discounting the excess returns in order to estimate the value of goodwill.

#### b.1. Limited capitalization of average profit

This technique takes into account the market valuation of the company, which is determined by the adjusted equity and the limited capitalization of the average profit. The average profit is calculated as the difference between the projected revenue and the return on equity, also known as goodwill. This calculation is based on the following formula:

$$W = K + a n - i * (R - iK)$$

Where:

- i = normalized rate concerning the type of investment. It expresses the measure of the return considered normal, considering the levels of risk incurred by the startup.
- i\* = discount rate of the over-income
- n = number of years, defined and limited

#### b.2 Unlimited capitalization of average profit

The market value may be determined by combining the adjusted net asset value with the concept of goodwill, which is computed as the perpetual annuity of excess earnings. The assumption is made that the company has the ability to produce further revenues indefinitely. However, it is important to approach this assumption with caution due to the inherently transient nature of goodwill, which tends to diminish with time. The formulation is presented in the following manner:

$$W = K + [(R - iK)/i*]$$

And provides for the replacement of  $a_{n-i*}$  with  $1/i*$ .

## 2.6 The Financial approach

The financial methodology is founded on the idea that the market valuation of a startup is equivalent to the present value of the cash flows it has the potential to create, emphasising the significance of cash flow in this context. The calculation of cash flows has significant relevance in the use of this technique, as does the consistency of the discount rates utilised. This approach is commonly employed in the context of startup ventures.

The ideology, particularly the Anglo-Saxon perspective, posits that the financial approach represents the "optimal" method for determining market value within specific timeframes. Reliable projections of cash flows over extended timeframes are unattainable. The approaches that are theoretically accurate are those that rely on cash flow discounting. The author briefly provides commentary on alternative methodologies, acknowledging their extensive usage despite their conceptual inaccuracies.

This technique holds practical significance for assessing the worth of individual investors or startups with substantial cash flows, such as leasing enterprises, retail trade, public and highway services, financial trading, and project financing special purpose vehicles (SPVs).

The use of financial evaluation is especially relevant in cases where a startup's capacity to create cash flow for investors differs dramatically from its ability to generate income. In such instances, it is crucial that credible and provable projections can be developed.

There exist two factors that are utilised in the determination of cash flows:

### I. **the cash flow available to shareholders**

The initial arrangement takes into account the sole flow that is accessible for the compensation of members. Levered cash flow is a metric that takes into account the financial composition of a company in assessing its cash flow. The residual cash flow is what remains after the settlement of interest payments, the redemption of equity shares, and the covering of equity expenditures required for asset maintenance and fostering company expansion.

In the context of mergers and acquisitions (M&A), it is customary to compute the Free Cash Flow to the Firm, which represents the operational cash flow, as a means of approximating the Enterprise Value, which encompasses debt. The residual equity value is obtained by the subtraction of the net financial position.

The determination of cash flow for shareholders starts with the net profit.

Net profit (loss)

+ amortization/ depreciation and provisions

+ divestment (- investments) in technical equipment

+ divestments (- investments) in other assets

+ decrease (- increase) in net operating working capital

+ increase (- decrease) in loans

+ equity increases (- decreases)



= cash flows available to shareholders (Free cash flow to equity).

The discounting of the free cash flow for the shareholders takes place at a rate equal to the cost of the shareholders' equity. This flow identifies the theoretical measure of the startup's ability to distribute dividends, even if it does not coincide with the dividend paid.

## II. The cash flow available to the startup (Free Cash Flow to the firm)

The second configuration of cash flows is commonly employed in the field of startup valuations due to its relative ease of implementation as compared to the technique relying on residual cash flows to partners. It is important to note that the convergence of the two alternatives often occurs in cases when the company has no outstanding debt.

The evaluation of startups with significant amounts of indebtedness or lacking a debt strategy may be effectively conducted using a metric called unlevered cash flows. This measure assesses the cash flows of a company independently of its financial structure. In these instances, the determination of the cash flow accessible to shareholders becomes more intricate due to the inherent instability arising from the projection of debt repayment methods.

The approach employed in this study is derived from the operational cash flows created by the standard management practises of the company. These cash flows are used to compensate for the use of both internal and external resources, after accounting for the associated tax implications.

Unlevered cash flows are ascertained through the utilisation of operational income prior to taxes and financial costs.

Net operating income

- taxes

+ amortization/depreciation and provisions (non-monetary operating costs)

+ technical divestments (- investments)

+ divestments (- investments) in other assets

+ decrease (- increase) in operating net working capital

= cash flow available to shareholders and lenders (operating cash flow).

The cash flow accessible to the startup is calculated by considering the cash flow available to shareholders, adjusted for financial charges after tax, loan repayments, and equity repayments, while accounting for new borrowings and flows resulting from equity growth.

Hence, the disparity between the two methodologies is determined by the distinct interpretations of cash flows linked to the reimbursement of debt and equity.

The cash flows derived from operational operations are discounted to their current value using the weighted average cost of capital.

This arrangement of flows provides an assessment of the entire startup, irrespective of its financial framework. In order to reconcile the market value of a startup, it is necessary to deduct the amount of debt from its overall

worth. This adjustment ensures that the market value accurately reflects the cash flows available to shareholders.

The relationship between the two concepts of cash flow is as follows:

Cash flow available to the startup = cash flow available to shareholders + financial charges (net of taxes) + loan repayments – new loans.

Cash flow projections may be utilised for several categories of assets. The duration of the differential element is used to represent them. Several assets have a specified time horizon, whilst others are assumed to have a perpetual time horizon, such as shares.

Cash flows (CF) can be calculated by utilising a normalised prediction of cash flows employed by the entity in question, or by employing an alternative method:

- Unlimited capitalization:  $W_1 = CF/i$
- Limited capitalization:  $W_2 = CF \cdot a_{n-i}$

Where  $W_1$  and  $W_2$  represent the present value of future cash flows.

The determination of the discount rate for predicted cash flows involves the aggregation of the cost of equity and the cost of debt, with appropriate weighting based on the leverage of the company, which is the ratio between financial debt and equity. The aforementioned calculation yields the Weighted Average Cost of Capital (WACC).

$$WACC = k_i(1 - t) \frac{D}{D + E} + k_e \frac{E}{D + E}$$

Where:

$k_i$  = cost of debt;

$t$  = corporate tax rate;

$D$  = market value of debt;

$E$  = market value of equity;

$D+E$  = raised capital;

$k_e$  = cost of equity (estimated with the CAPM or the Dividend Discount Model).

Determining the cost of borrowed capital is a straightforward task, since it can be deduced from the financial accounts of the firm. The determination of the cost of equity or share capital, which signifies the minimum rate of return demanded by investors for equity investments, is a multifaceted process that may involve the utilisation of either the Capital Asset Pricing Model or the Dividend Discount Model. The latter is a valuation technique employed to assess the stock price of a startup by considering the aggregate value of its future dividend payments, which are then discounted to their present value. The valuation of stocks is determined by assessing their worth through the net present value of anticipated future dividends.

After the determination of the present value of the cash flows, the calculation of the market value  $W$  of the startup may align with the following:

(a) The unlevered cash flow approach:

$$W = \sum \frac{CF_0}{WACC} + VR - D$$

(b) The levered cash flow approach:

$$W = \sum \frac{CF_0}{k_e} + VR - D$$

Where:

$\sum \frac{CF_0}{WACC}$  = present value of operating cash flows

$\sum \frac{CF_0}{k_e}$  = present value of net cash flows

VR = terminal (residual) value

D = initial net financial position (financial debt – liquidity)

The residual value is derived by discounting the value at time n, where the cash flows are calculated analytically prior to this point. As expected, the intangible assets, particularly in firms that heavily rely on them, constitute a significant portion of the global value. Moreover, it is observed that the value of these assets diminishes to zero when the capitalization time horizon is infinite ( $VR/\infty = 0$ ).

The two alternatives, namely levered and unlevered, provide identical outcomes when the valuation of the company is obtained by subtracting the value of net financial indebtedness from the cash flows accessible to the lenders.

The determination of operating cash flows (unlevered) and net cash flows for shareholders (levered) involves comparing the last two balance sheets to account for changes in operating Net Working Capital, fixed assets, financial liabilities, and shareholders' equity. This analysis is supported by the income statement from the previous year, as depicted in Figure 12, which illustrates the accounting structure of the cash flow statement (Figure 13).

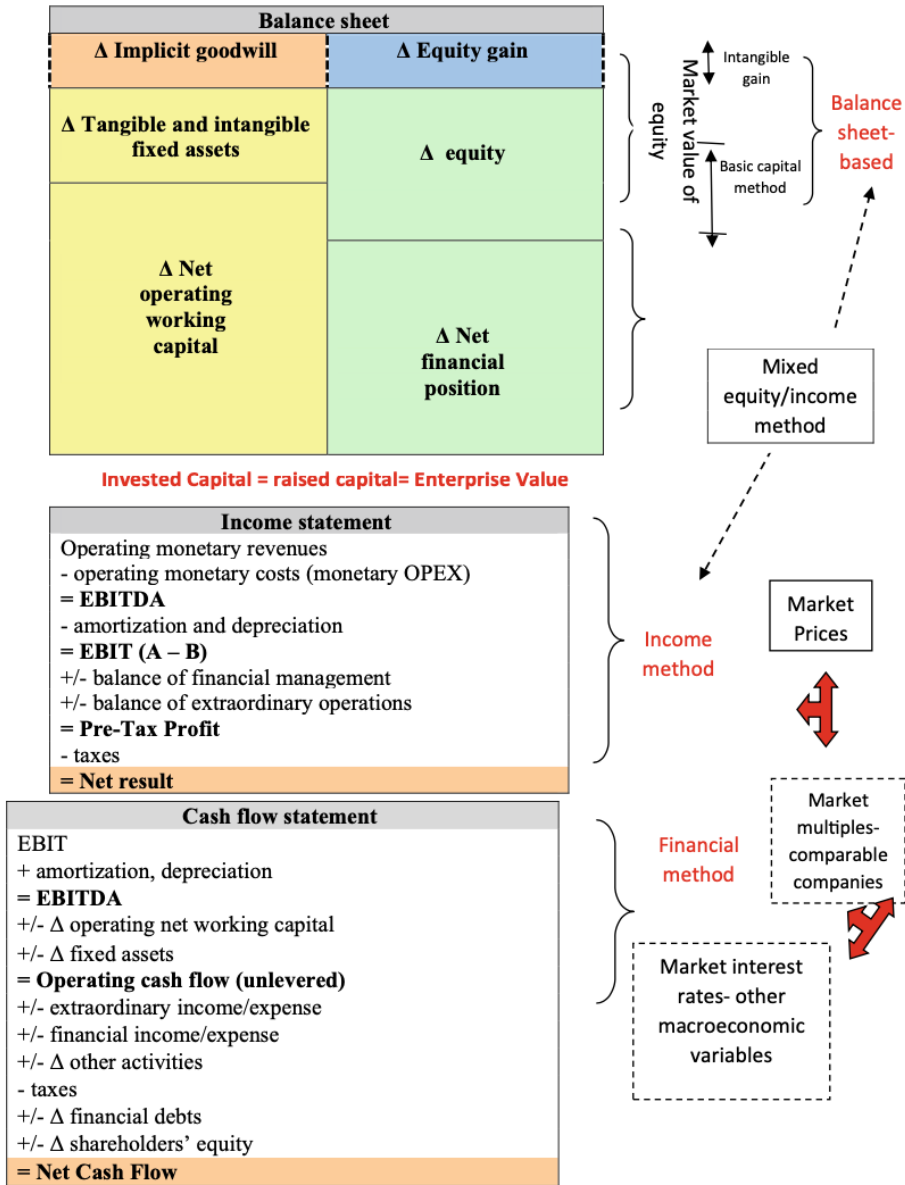
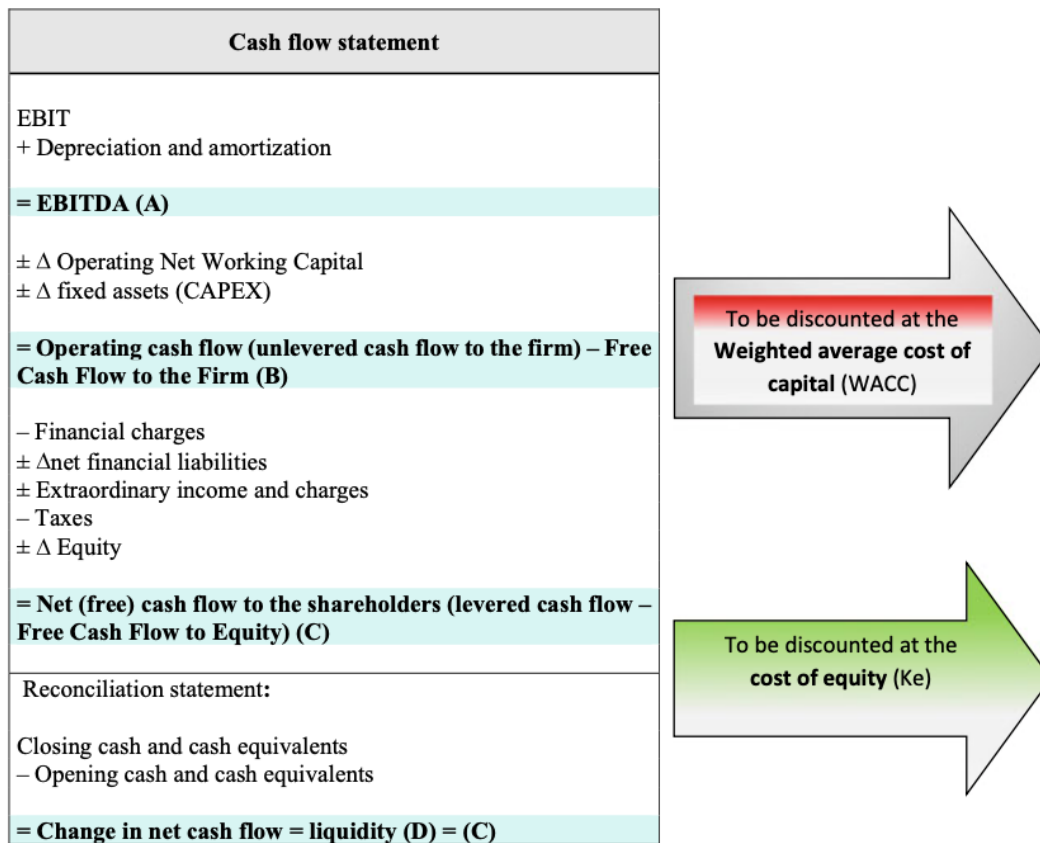


Figure 14 The integrated equity - economic - financial - empirical and market valuation



*Figure 15 cash flow statement and link with the cost of capital*

The net cash flow available to shareholders aligns with the free cash flow to equity and, subsequently, with the dividends that can be distributed, provided that sufficient internal liquidity resources are retained inside the startup. This characteristic, which is linked to the capacity to get equity from external parties and shareholders, enables the company to obtain sufficient financial support for the investments required to sustain the startup's operations and ensure its presence in the market in various economic circumstances (minimum goals). The allowance for the generation of incremental value should prioritise the interests of shareholders, who are the residual claimants. Shareholders, as providers of risky capital, are the sole recipients of variable net returns. These returns are considered residual and are subordinate to the fixed remuneration received by other stakeholders.

The estimation of cash flows has the potential to be used to a wide range of activities.

The differential aspect under consideration pertains to the service life. Various activities possess a specific time frame, but others operate under an indefinite time frame, such as the case with startup shares.

The integration of real options, which account for intangible-driven flexibility in the projections, can serve as a valuable supplement to the discounted cash flow (DCF) methodology.

The Discounted Cash Flow (DCF) method is widely used in financial valuation and is considered a fundamental component of modern valuation theory (Singh, 2013). The model's robustness and compliance with the traditional two-dimensional risk-return framework of investment evaluation make it well-suited for a

wide range of assessment purposes. The effectiveness of this paradigm is acknowledged by accounting standards worldwide, which endorse its use wherever feasible. FAS 141 and 142 in the United States, as well as IAS 39, pertain to the accounting treatment of intangible assets. These standards advocate the use of the discounted cash flow (DCF) approach as a means to assign a monetary value to those assets.

## *2.7 Empirical Approaches*

Comparative methodologies are frequently employed in the analysis of startups that may be suitably evaluated against established enterprises.

The concept of market value serves to identify:

- (a) The value attributable to a share of the equity, expressed at stock exchange prices.
- (b) The price of the controlling interest or the entire share equity.
- (c) The traded value for the controlling equity of comparable undertakings.
- (d) The value derived from the stock exchange quotations of comparable undertakings.

In some instances, it is common practise to employ comparative analysis of organisations within the same product category, possessing analogous attributes such as cash flows, sales, expenses, and other relevant factors.

In practical application, conducting an analysis of the pricing employed during discussions with firms operating within the same industry facilitates the quantification of average characteristics.

- Price/EBIT
- Price/cash flow
- Price/book-value
- Price/earnings
- Price/dividend

These ratios aim to approximate the average rate that should be applied to the startup. Nevertheless, it is important to acknowledge that prices might be subject to misleading influences such as special interest rates, historical circumstances, and challenges associated with making accurate comparisons.

The multiples approach is commonly utilised in financial market practise. The valuation of the company is determined by considering many factors, including market price profit, which is assessed by comparing it to similar publicly traded firms. These factors may include net profit, pre-tax operational profit, cash flow, equity, and turnover.

The appeal of the multiples strategy lies in its simplicity, as it allows for rapid yet approximate valuations of startups. This method is particularly valuable in situations when several comparable firms are publicly traded, and the market effectively determines their accurate pricing on average.

Due to the inherent simplicity of the calculation method, these indicators are prone to manipulation and vulnerable to misuse, particularly when used to companies that lack complete comparability. Given the

absence of equivalent firms in terms of entrepreneurial risk and growth rate, it is important to note that relying solely on multiples for valuation purposes might be deceptive, potentially resulting in the use of inaccurate multipliers.

The utilisation of multiples can be effectively included via:

A. Use of fundamentals

B. Use of comparable data:

a. Comparable companies.

b. Comparable transactions.

The initial methodology establishes a connection between many factors and the core elements of the evaluated business, namely profit growth, cash flow, dividend distribution ratio, and risk. The utilisation of cash flow discounting methodologies is tantamount to this.

Discount factors are influenced by the presence of risk. As to the findings of the Organisation for Economic Co-operation and Development (OECD) in 2017<sup>28</sup>:

- *“When identifying risks in relation to an investment with specificity, it is important to distinguish between the financial risks that are linked to the funding provided for the investments and the operational risks that are linked to the operational activities for which the funding is used, such as for example the development risk when the funding is used for developing a new intangible” (par. 6.61).*
- *“Particular types of risk that may have importance in a functional analysis relating to transactions involving intangibles include:*
  - (i) *risks related to development of intangibles, including the risk that costly research and development or marketing activities will prove to be unsuccessful, and considering the timing of the investment (for example, whether the investment is made at an early stage, mid-way through the development process, or at a late stage will impact the level of the underlying investment risk);*
  - (ii) *the risk of product obsolescence, including the possibility that technological advances of competitors will adversely affect the value of the intangibles;*
  - (iii) *infringement risk, including the risk that defense of intangible rights or defense against other persons’ claims of infringement may prove to be time-consuming, costly and/or unavailing;*
  - (iv) *product liability and similar risks related to products and services based on the intangibles;*
  - (v) *exploitation risks, uncertainties in relation to the returns to be generated by the intangible” (par. 6.65).*
- In some sectors, the viability and competitiveness of goods safeguarded by intangible assets might diminish rapidly if there is a lack of ongoing development and refinement of those intangibles. Consequently, the availability of updates and upgrades can significantly impact the distinction between obtaining a temporary advantage from intangible assets and obtaining a more enduring advantage.

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<sup>28</sup> OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations 2022. (2022). In OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations. OECD. <https://doi.org/10.1787/0e655865-en>

- The following types of risks, among others, should be considered:

The potential risks associated with the future advancement of intangible assets. This encompasses an assessment of the correlation between the intangibles and commercially feasible products, the potential of the intangibles to contribute to commercially viable products in the future, the anticipated expenses associated with future development and testing, the probability of successful outcomes from such development and testing, and other relevant factors. The potential hazards associated with product obsolescence and the decline in the value of intangible assets. This encompasses an assessment of the probability that rival companies may release offerings in the foreseeable future that might significantly diminish the market for items reliant on the intangible assets under examination. The potential risks associated with the violation of intangible rights. The potential risks associated with product responsibility and other comparable concerns pertaining to the prospective use of intangible assets (paragraph 6.128).

In the second method, it is important to differentiate between the value of similar firms and comparable transactions.

The issue of comparability pertains to various companies and is also linked to their respective contents. Comparatively, intangible assets can pose challenges in terms of comparability.

According to the Organisation for Economic Co-operation and Development (OECD) in 2017<sup>29</sup>:

- *“Unique and valuable” intangibles are those intangibles (i) that are not comparable to intangibles used by or available to parties to potentially comparable transactions, and (ii) whose use in business operations (e.g., manufacturing, provision of services, marketing, sales or administration) is expected to yield greater future economic benefits than would be expected in the absence of the intangible” (par. 6.17)*
- *“intangibles often have unique characteristics, and as a result have the potential for generating returns and creating future benefits that could differ widely. In conducting a comparability analysis with regard to a transfer of intangibles, it is, therefore, essential to consider the unique features of the intangibles” (par. 6.116).*
- *“In conducting a comparability analysis, it may be important to consider the stage of development of particular intangibles” (par. 6.123).*

When considering comparable organisations, the technique involves estimating multiples by examining companies that share similar characteristics. The issue at hand is to the identification and definition of related firms. Theoretically, it is expected that the analyst will examine all the variables that exert an impact on the multiple.

In practical application, it is advisable for firms to make an estimation of the most probable valuation for a non-listed company by taking into account comparable listed companies that operate within the same industry and exhibit similar characteristics. Two firms can be classified as homogenous when they exhibit comparable features and expectations, given the same level of risk.

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<sup>29</sup> OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations 2022. (2022). In OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations. OECD. <https://doi.org/10.1787/0e655865-en>



The calculation is:

- A startup whose price is known ( $P_1$ )
- A variable closely related to its value ( $X_1$ )

The ratio  $(P_1)/(X_1)$  is assumed to apply to the startup to be valued, for which the size of the reference variable ( $X_2$ ) is known.

Therefore:

$$(P_1)/(X_1) = (P_2)/(X_2)$$

So that the desired value  $P_2$  will be:

$$P_2 = X_2 [(P_1)/(X_1)]$$

According to widespread estimates, the main factors to establish whether a startup is comparable are:

- Size;
- Belonging to the same sector (see for instance the Statistical Classification of Economic Activities in the European Community, commonly referred to as NACE.Rev.2);
- Financial risks (leverage); see Huffman (1983);
- Historical trends and prospects for the development of results and markets;
- Geographical diversification;
- Degree of reputation and credibility;
- Management skills;
- Ability to pay dividends.

The foundation of valuation is derived from comparable transactions, which involves using facts pertaining to real agreements or acquisitions involving similar firms.

The use of profitability criteria is commonly regarded as the most indicative of startup dynamics.

The multiplier approach of EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortisation) is a commonly used empirical criterion. It involves algebraically adding the net financial position to estimate the enterprise value, which represents the total value of the startup. This estimation is then used to determine the equity value, which represents the value of the net assets. The formulation is presented in the following manner:

$W = \text{average perspective EBITDA} * \text{Enterprise Value} / \text{sector EBITDA} = \text{Enterprise Value of the startup}$

And then:

$\text{Equity Value} = \text{Enterprise Value} \pm \text{Net Financial Position}$

## *2.8 Challenges in applying traditional evaluation methods to digital startups*

There are several reasons why traditional methods of business valuation may not be appropriate for the valuation of digital start-ups. To begin with, it is common for digital start-ups to face difficulties in utilizing methods that depend on revenue, profits, and cash flows due to the absence of historical financial data. Some

companies in question may not have generated any revenue yet or have generated very little revenue, which poses a challenge when attempting to utilize valuation methods such as earnings multiples or discounted cash flows that rely on accurate financial data. Additionally, the unpredictable future outlook for digital start-ups, which operate within dynamic and rapidly changing markets, poses challenges in accurately projecting future cash flows and growth rates. Disruptive business models, innovative technologies, or unique value propositions possessed by certain entities can pose challenges for traditional valuation methods in terms of accurate assessment. Moreover, digital start-ups exhibit substantial intangible resources, including intellectual property, proprietary algorithms, user bases, and network effects. Traditional valuation methods often fail to accurately capture the value of certain assets, as they tend to prioritize tangible assets and financial metrics. The process of assigning value to intangible assets necessitates the utilization of specialized expertise and methodologies, such as the estimation of the prospective market worth of intellectual property or the evaluation of the value of a user base. Moreover, digital start-ups frequently exhibit the capacity for swift expansion and scalability as a result of their utilization of technology and the amplification of network effects. Conventional valuation methodologies may not comprehensively encompass the value derived from these expansion prospects, as they generally presuppose more consistent and predictable growth trajectories. Valuation techniques that are tailored to start-ups, such as stage valuation or market comparable within the digital sector, are frequently employed to incorporate the distinctive growth potential exhibited by digital start-ups.

When evaluating the worth of a start-up, it is imperative to consider and incorporate several significant factors, including:

- The inherent and considerably elevated entrepreneurial risk associated with a start-up compared to a well-established corporation.
- The duration of the average 'return on investment' period is generally significantly longer in a start-up as compared to an established company.
- Start-up enterprises typically encounter initial challenges during their early years, often resulting in negative cash flow.

Another relevant aspect to be taken into consideration is that startups are characterized by their growth potential that is mostly due to the presence of **intangibles**.

According to IVS 210:

20.1 An intangible asset is a non-monetary asset that manifests itself by its economic properties. It does not have physical substance but grants rights and economic benefits to its owner.

20.2 specific intangible assets are defined and described by characteristics such as their ownership, function, market position, and image.

20.3 there are many intangible assets, but they are often considered to fall into one of the following five categories (goodwill):

- marketing related: marketing-related intangible assets are used primarily in the marketing or promotion of products or services. Examples include trademarks, trade names, unique trade design, and internet domain names
- Customer related: customer-related intangible assets include lists, backlog, customer contracts, and contractual and non-contractual customer relationship,
- artistic-related: artistic-related intangible assets arise from the right to benefits such as royalties from artistic works such as plays, books, films, and music, and from non-contractual copyright protection,
- contract-related: contract-related intangible assets represent the value of rights that arise from contractual agreements. Examples include licensing and royalty agreements, service or supply contracts, lease agreements, permits, broadcast rights, servicing contracts, non-competition agreements, and natural resource rights, and
- technology-based: technology-related intangible assets arise from contractual or non-contractual rights to use patented technology, unpatented technology, databases, formulae, designs, software, processes, or recipes.

## *2.9 From the accounting to the Book value*

Intangibles present an ongoing challenge for accountants, and their recording is a constant source of contention. This has problematic effects on market and performance valuation, as evidenced by the widening gap between market and book values, which is largely attributable to relevant but inadequately accounted intangibles. The international adoption of a uniform accounting treatment for intangibles remains a formidable objective.

Intangible value is more readily discernible in the income or cash flow statement, whereas it is concealed in the balance sheet due to inadequate accounting.

As intangibles are non-material assets without a physical form, it is challenging to discover proof of their existence. If future economic benefits are anticipated, intangible assets may be classified as assets on the balance sheet.

An intangible asset is identifiable when it is separable (able to be separated and sold, transferred, licensed, rented, or exchanged, either individually or in conjunction with a related contract) or arises from contractual or other legal rights, regardless of whether those rights are transferable or separable from the entity or other rights and obligations (IAS 38.12).

The requirement that an intangible asset be "identifiable" distinguishes it from (internally generated) goodwill, which cannot be recorded.

Numerous intangibles will be excluded from the financial statements because they do not satisfy the definition of an asset or the recognition criteria.

Staff training, brand-building through advertising, and the creation of new business processes are examples. Due to the fact that no asset is recognized as a result of expenditures on such activities, they will be reported as an expense, even if they are implemented to improve financial returns in future accounting periods (Lennard, 2018).

According to the IASB's Conceptual Framework, financial statements can only deal with intangibles that meet the definition of assets and the recognition criteria.

Intangibles can be acquired by:

- a. separate purchase
- b. being part of a business combination
- c. government grant
- d. exchange of assets, and
- e. self-creation (internal generation)

IAS 38 permits the recognition of intangible assets at fair value, as determined by reference to an active market. While such markets may exist for assets such as "freely transferable taxi licences, fishing licenses, and production quotas," it is uncommon for intangible assets to have active markets. It is challenging to estimate the fair market value of an intangible due to the lack of an active market. According to Lev<sup>30</sup>

- the majority of the strategic, value-creating resources of business firms, such as patents, IT, or brands, are currently expensed and, as a result, are not recognized as assets in financial reports, thereby understating the earnings and assets of intangibles-growing firms and overstating the earnings and assets of intangibles-declining firms.
- The fundamental inconsistency between the accounting treatment of internally generated intangibles (expensed) and functionally similar acquired intangibles (capitalized) prevents meaningful performance comparisons between peer companies with different innovation strategies (internal generation versus acquisition).
- In financial reports, the disclosure of intangible expenditures is severely deficient. All other intangible expenditures, excluding R&D, are typically aggregated within significant expense elements, such as the cost of sales and Selling General & Administrative expenses.

The presence of such inconsistencies significantly hampers the capacity to deduce the market worth of intangible assets based on accounting information, even in the case of publicly traded corporations. However, it is essential to consider the accounting treatment as a necessary requirement for the process of valuation. The complexity of the issue arises from the fact that intangible assets are often not explicitly recognized in the balance sheet and may only be reflected as operational expenses (OPEX) in the income statement.

To assign a specific value to intangible assets, it is imperative to take into account their capacity to generate revenue. Otherwise, the task of determining their worth becomes challenging.

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<sup>30</sup> Baruch Lev, & Feng Gu. (2016). The end of accounting and the path forward for investors and managers. Hoboken, N.J. Wiley.

The accounting methodology employed and the resulting inadequate reflection of the true worth of intangible assets on the balance sheet frequently necessitate the evaluation of inherent growth prospects associated with these intangibles.

Another accounting issue pertains to the calculation of the net present value of growth opportunities (NPVGO). This metric quantifies the net present value of all forthcoming cash flows associated with the firm's growth prospects. The Net Present Value of Growth Opportunities (NPVGO) is not explicitly reported in the financial statements, specifically the balance sheet. However, it serves as a useful metric for approximating the inherent worth of these opportunities. By assessing the extent to which the firm's present per share value is influenced by these growth prospects, the NPVGO aids in evaluating their significance.

According to Damodaran (2018), firms possessing intangible assets exhibit the subsequent attributes:

- a. The presence of inconsistent accounting rules that prudently restrict the capitalization of a majority of operating expenses (OPEX);
- b. The adoption of conservative financing strategies due to the absence of tangible collateral for intangible assets;
- c. The extensive utilisation of stock options as a means of compensating management;
- d. The accelerated life cycle of technology firms characterized by rapid growth and shorter periods of maturity (Damodaran, 2018).

In the field of accounting, it is common to categorize intangible assets into **two distinct groups**:

- a. Intangible assets in the strict sense.
- b. Intangible assets not represented by assets.

The first group comprises intangible assets that strictly adhere to the conventional definition of intangibility. The second group encompasses intangible assets that do not possess a physical representation. The initial classification encompasses patents, intellectual property rights (IPR), concessions or rights, licenses, and trademarks. The subsequent classification comprises capitalized expenses, such as startup and expansion expenses, bond issue discounts, study and research expenses, design expenses, advertising and promotional expenses, and representation expenses.

Capitalized costs refer to intangible assets that are not represented by physical assets. These assets encompass elements that cannot be identified with certainty and are not separable from the company. Consequently, they do not qualify as conventional intangible assets due to their lack of independent transferability. The assessment of intangible assets necessitates the consideration of their categorization into specific and generic types, with the latter not being represented by physical assets. Specific intangibles typically require a distinct estimation approach, primarily employing the cost of reproduction or the incremental income generated by the intangible asset as the main criteria.

Intangible assets are distinguished by their inherent lack of physical presence. These costs are comprised of expenses that do not deplete their utility within a singular timeframe, but rather demonstrate economic advantages over multiple years. Intangible fixed assets encompass various categories, such as deferred charges (including startup and expansion costs, as well as development costs), intangible assets (such as industrial

patents and intellectual property rights, concessions, licenses, trademarks, and similar rights), goodwill, intangible assets in progress, and advances.

According to Haskel and West-lake (2018), potential economic advantages that may arise in the future as a result of an intangible asset encompass the generation of revenue through the sale of products or services, cost reductions, and other benefits derived from the utilization of said intangible asset by the company.

### ***3. Business valuation of startups***

#### *3.1 Introduction*

The determination of a startup's worth adheres to the established principles of appraisal as discussed in the preceding chapter, but with certain modifications proposed to accommodate the unique characteristics of early-stage enterprises. However, identifying a suitable approach for evaluating their value is a challenging task. The determination of a startup's value is a complex task due to several factors<sup>31</sup>, including the novelty of the business and sector, as well as the inherent characteristics of the business structure. Traditional valuation methodologies are frequently deemed inappropriate for fledgling enterprises. As a result, academic research and seasoned investors have developed different and novel valuation models over the course of time.

The various appraisal methods include:

- The Discount Cash Flow (DCF) Method.
- Market Multiple Approach (considering comparable).

These two methodologies are commonly employed for assessment purposes of traditional, but they may also be applied to assess start-up ventures. In contrast, the subsequent approaches primarily serve the purpose for assessing start-up ventures that have not yet generated income (pre-revenue phase).

- Berkus Approach, considering five key success factors: (1) Basic value, (2) Technology, (3) Execution, (4) Strategic relationships in its core market, and (5) Production, and consequent sales.
- Risk Factor Summation Method, an evolved version of the Berkus Method.
- Scorecard Valuation Method
- Venture Capital Valuation Method.

And others

- Reproduction Cost Approach. The cost to duplicate from scratch is a variant of the cost methodologies illustrated by the International Valuation Standard 210 (§ 130.1): the value [of an intangible asset] is determined based on the replacement cost of a similar asset or an asset providing similar service potential or utility.
- Fair value — defined in IFRS 13 as “the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (an exit price).”

In the subsequent analysis, several valuation approaches for start-ups will be examined in depth, excluding the previously discussed Discounted Cash Flow method.

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<sup>31</sup> Ali, S. B., & Khalidi, M. A. (2020). Valuation of equity securities, private firms, and startups. *IBT Journal of Business Studies*, 16, 125–140.

### 3.1.1 Berkus approach

During the 1990s, the Berkus model<sup>32</sup> was initially created by Dave Berkus. Over the course of time, it has emerged as one of the most effective and widely utilised pre-revenue strategies. The Berkus model is a concise framework utilised for assessing the worth of a firm prior to generating income. It offers entrepreneurs and early-stage investors a basic instrument to appraise the value of a startup in its pre-revenue stage, emphasising risk considerations rather than financial forecasts.

The Method studies five crucial areas of a startup and indicates a value ranging from zero to \$500,000 for each area. These areas are:

- Sound idea
- Quality management team
- Prototype
- Strategic Relationships
- Product Rollout or sales.

The pre-money valuation for the startup is determined by the aggregate of all the designated values. The Primary Berkus technique encompassed five distinct categories, each with a maximum allocation of \$500,000. Consequently, this allocation structure resulted in a theoretical upper limit for the pre-money valuation of \$2.5 million.

Therefore, a crucial adaptation to the Berkus Method involves the change of the theoretical maximum. The purpose of this adjustment is to enhance the flexibility of both the locations and the sums involved. The area refers to the specific geographic location, whereas the quantity is the mean value assigned to a certain startup. As an illustration, the mean value for a certain startup amounts to \$6 million, and subsequently, each of the five sectors would receive a proportionate allocation of up to 20% of the aforementioned \$6 million. This would yield a sum of \$1.2 million per individual, as opposed to \$500,000 each individual.

The five areas mentioned above will be discussed in more detail below.

The inception of a business is often marked by the formulation of an idea or a strategic plan. A startup is ultimately a concept that originates from the creator. The consideration of an idea arises when it demonstrates the capacity to address a previously unresolved issue. Additionally, it has the potential to modernise the existing business model within the specific sector. A common error made by startups throughout the process of idea validation is the allocation of substantial financial resources. The startup is required to carry out a comprehensive assessment including a broader range of individuals comprising the target audience. The startup is required to do an assessment of the following factors. The proprietary character of a concept is an essential aspect for a commercial venture, since it should have the capacity to be protected through patents or copyrights and have the ability to generate substantial financial gains.

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<sup>32</sup> Valuation, S. | | B. M. of, & Valuation, S. (2021, July 22). Berkus Valuation Method for Startups. Eqvista. <https://eqvista.com/berkus-valuation-method-for-startups/>



Investors exhibit a discerning perspective towards their investment activities, emphasising the need of a well-crafted blueprint for the future. Therefore, ensuring the sustained success of a business through strategic planning becomes imperative.

The concept of scalability pertains to the ability of a firm to grow its operations while incurring little additional expenditures. Therefore, in order for a business to endure in a highly competitive industry, it is imperative that it have a concept that is capable of scalability.

The socio-political significance of the startup concept is a crucial factor in determining its attractiveness to the broader audience, since it is greatly influenced by the current socio-political atmosphere. Hence, the concept of relevance is crucial.

Idea validation is a crucial step in mitigating risks during the implementation phase. To ensure comprehensive assessment, it is important to expose the idea to extensive testing with a sizable audience.

The second area deals with the prototype. The prototype holds significant importance in the evaluation of startups according to the Berkus technique. A prototype is a faithful representation of a given concept or product, designed to assess its feasibility and functionality. The fundamental concept underlying prototyping is to address recognised deficiencies prior to making substantial investments in resources such as energy, finances, and time. Start-up companies should not underestimate the significance of the prototype, since it serves as empirical evidence of the product's functionality. Furthermore, it serves as a strategic approach to mitigate technology risks encountered by companies. There are several technological hazards that are linked to IT products, such as the unauthorised access of sensitive information, disruptions in system or service functionality, cyber-attacks, and other similar incidents. These risks can significantly impact the reputation of a firm.

Furthermore, in the realm of management valuation, it is customary for a venture capitalist or angel investor to initially assess the founder's domain experience or track record. If the firm founder has established a strong reputation inside the startup industry, it would have greater significance in terms of the value by the management. This conveys a perception of assurance in relation to the effectiveness of the management. Effective team management is crucial for the successful operation of a team. The valuation increases in direct proportion to the capacity of the administration.

In addition, strategic connections are often seen as crucial in the field of business, since the success of one's firm is believed to be contingent upon the efficacy of relationship-building efforts. Strategic connections may be characterised as cooperative endeavours involving two or more entities with the aim of attaining shared advantages. Startups commonly develop strategic partnerships with large and established entities in order to use their knowledge and resources. In the context of startups, it is frequently observed that manufacturing and distribution chains exhibit incompleteness, prompting entrepreneurs to strategically use these linkages in order to facilitate a more seamless rollout and operational efficiency.

The product rollout is the last phase of the development process. The determination of a startup's success or failure is contingent upon a crucial component. The success of the product launch is contingent upon the first

market size in which it is introduced, whether it be a restricted or worldwide market. This study entails an examination of the internal factors that influence a startup's capacity to effectively advertise and sell its product. The rollout process encompasses a series of actions that span from the pre-launch phase through the post-launch phase. The creator of the firm must meticulously strategize the rollout process, ensuring the development of a product protocol that effectively caters to the needs and preferences of the target audience. The successful implementation of a rollout serves as an indicator for the prospective growth and expansion of the organisation.

The primary advantages of the Berkus valuation approach encompass the subsequent aspects. The Berkus Method is a simplified framework that focuses exclusively on qualitative factors. This approach renders pre-revenue startups as being valued in a conventional manner. The methodology provides an approximate assessment of value.

Additionally, the model may be simply adjusted to accommodate your specific conditions.

Furthermore, this approach pushes the user to contemplate matters pertaining to corporate governance and risk management, encompassing aspects such as the strengths and weaknesses of the firm, the proficiency and capabilities of the management team, the strategies employed by the startup to address disagreements among its founders, and so on.

Finally, this strategy offers creators and early-stage investors, such as business angels, venture capital firms, and crowdfunding supporters, a rapid and uncomplicated approach to determining valuation.

One of the primary drawbacks of the approach is its inherent simplicity, which may be viewed as both a strength and a weakness. Hence, it is imperative for founders and investors to acknowledge that the assessment of a startup's worth is subject to inherent constraints. Moreover, it is worth noting that founders and investors often possess divergent objectives while engaging in negotiations pertaining to a prospective investment agreement. Entrepreneurs endeavour to maximise their financial gains through the attainment of elevated values, whilst investors stand to gain from valuations that are comparatively lower. The completion of a Berkus valuation exercise can potentially be achieved within a short span of time. However, it is vital to comprehend the business risk profile, primary threats, and risk mitigating factors of the organisation.

Moreover, the methodology fails to consider the potential challenges faced by entrepreneurs, particularly in terms of financial risk. Although there exists much data supporting this strategy, it is imperative for each organisation to develop a comprehensive financial plan in order to evaluate its capital needs and get a deeper comprehension of its operational intricacies.

### *3.1.2 Risk Factor Summation Method*

Value in the context of entrepreneurial ventures frequently prompts inquiries pertaining to the assessment of nascent startups, their operational mechanisms, the substantiation of startup value for the purpose of securing financial resources, and several other related matters. At the onset of their fundraising endeavours, a significant

proportion of entrepreneurs express concerns over various inquiries. Different valuation methods are utilised in this context, with the risk factor summing approach being one example.

In essence, the risk factor summation technique<sup>33</sup>, also referred to as the RFS method, serves as a rudimentary approach to determining the pre-money valuation of nascent firms. The risk factor summation approach involves the use of a baseline value derived from a comparable startup in order to determine the valuation of the firm. The initial value is modified based on a set of 12 prevalent risk variables. This suggests that your business is being assessed relative to other startups in order to determine if it has a greater or lesser degree of risk. The subsequent procedures will elucidate the operational mechanisms of the risk factor summing approach, hence enhancing its comprehensibility. Commence by establishing the average valuation of a firm, which is determined based on the valuation of comparable enterprises within the same area and region. Please allocate a certain amount of time for this particular task. Acquiring pertinent data from a comparable organisation will need a certain amount of time. Subsequently, undertake an examination of the many risk indicators associated with your startup, spanning from a minimal to an elevated spectrum. The valuation of a corporation is positively influenced by reduced risks, whilst increased risks have a negative impact on the valuation. In order to augment the worth of your firm, it is imperative to address and mitigate risks through strategic risk management.

The 12 factors are as follows:

1. Management Risk
  2. Stage of Business Risk
  3. Manufacturing Risk
  4. Sales and Marketing Risk
  5. Funding/Capital Risk
  6. Technology Risk
  7. Competition Risk
  8. Litigation Risk
  9. International Risk
  10. Reputation Risk
  11. Political, Regulatory, and Legal Risks (PRL)
- i. Government Regulations - Laws and Regulations that may affect the operations of a company or industry;  
Example: Health and Safety Legislation, Taxation Laws, etc.;

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<sup>33</sup> Sarath. (2021, August 23). Risk Factor Summation Method: Everything you need to know. Eqvista. <https://eqvista.com/risk-factor-summation-method/>

Deshmukh, S. (2022, October 28). 2022 Risk Factor Summation Valuation: What, Why, How, Advantages and Disadvantages. Datakatalyst. <https://www.datakatalyst.com/post/2022-risk-factor-summation-valuation-what-why-how-advantages-and-disadvantages#viewer-db9co>

- ii. Political, Regulatory, and Legal Risks - risks that are outside of the control of management, but which nevertheless have a significant impact on a company's ability to perform its business activities; Examples include foreign exchange fluctuations, changes in government policies, industrial disputes, etc.

## 12. Potential lucrative exit Risk

### 3.1.3 Scorecard Valuation Method

The use of scorecard company valuation<sup>34</sup> aids angel investors in determining the mean valuation of companies that have potential for growth, although lacking any income at present. This approach uses weighted percentages and market data to ascertain a suitable mean value.

The scorecard valuation technique, sometimes referred to as the Bill Payne valuation method, is a commonly favoured approach among angel investors. This approach involves doing a comparative analysis of the target firm, which is actively seeking investment, and other comparable businesses that have already secured funding. The scorecard value model assesses these enterprises by considering many aspects such as their stage of development, market characteristics, and geographical location. These elements exert a direct influence on the company's valuation. These factors also have an impact on the overall worth of the organisation.

The scorecard approach is employed to conduct a comparative analysis between the target firm and other comparable companies within the same industry. The criteria utilised for comparing the organisations encompass their developmental stage, industry sector, and geographical location. Prior to revising the median of the appraisal, the investor will conduct a comparative analysis of the target firm against other entities based on several parameters. This will enhance the firm's valuation and aid in determining the magnitude of their investment in the company.

When a business seeks financial backing from angel investors, the valuation of the startup is assessed by investors using this process. The scorecards emphasise the factors that contribute to the varying valuation of a business. The primary determinants influencing an investor's decision are the calibre of the management team, the magnitude of the market, and the specific industrial sector.

Understanding the significance of company value is crucial for entrepreneurs and investors. There are two primary forms of valuation in the context of investments: pre-money valuation, which occurs before to the investment, and post-money valuation, which takes place after to the investment.

Periodically, the organisation conducts a valuation process to ascertain the extent to which it is willing to divest in order to get more money. Conversely, angel investors frequently employ the company valuation approach. The significance of their computation is important in determining the efficacy of the investment. Investment in a firm will occur once individuals have developed a level of comfort and familiarity with the pre-money scorecard valuation model.

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<sup>34</sup>Valuation, S. | | C., & Valuation, S. (2021, February 26). Scorecard Valuation Method Explained. Eqvista. <https://eqvista.com/scorecard-valuation-method-explained/>

The process of determining the value of a company is a subject of considerable interest, particularly due to the fact that a significant proportion of companies lack an income stream. There exists a fundamental disparity between the valuation of established firms and startups, as seen by investors. Established corporations not only suffer running expenditures, but also produce revenue and experience occasional financial losses.

Investors consistently exhibit a propensity to assign a greater degree of importance to the management team and the entrepreneur associated with a certain firm. This is due to the inherent limitations of financial predictions and quantitative research in accurately forecasting the future trajectory of a firm during its early stages.

There exist several methodologies for determining the pre-money valuation of a business. It is vital to have comprehensive information and extensive understanding of valuation procedures. One effective approach entails reaching out to fellow angel investors and entrepreneurs. The pre-money valuation refers to the monetary worth of a business prior to receiving any external investments.

The initial stage in this procedure is calculating the median of the pre-money valuation utilising the scorecard valuation approach. The median is derived by utilising the pre-money value of pre-revenue companies within the same business sector and location as the target firm.

In order to ascertain the pre-money valuation of pre-revenue enterprises, the subsequent stage entails employing the scorecard valuation approach to compare the target firm with similar transactions conducted within the same geographical area.

The scorecard technique is often utilised as the predominant approach for determining a pre-money valuation.

The primary factors determining the sequence of the scorecard approach are as follows:

- Board, entrepreneur, the management team – 25%
- Size of opportunity – 20%
- Technology/Product – 18%
- Marketing/Sales – 15%
- Need for additional financing – 10%
- Others – 10%

The aforementioned percentages have the capacity to be modified in accordance with the investor's own inclinations; nonetheless, the crucial aspect lies in the prospective value of the business. The aforementioned factors are subjectively rated, and for new businesses, this represents the customary sequence for an investor's evaluation. A notable observation that frequently surprises individuals is the prioritisation of the management team over the technology and product, which in turn are ranked lower than the scale of the potential by investors.

The success of a firm is enhanced by the quality of its management team, which serves to complement both the product and the whole organisation. An effective management team will diligently address any initial deficiencies in the product. The importance of scalability lies in its direct correlation with investment returns. Within a corporate setting, the possession of intellectual property and a commendable product is undeniably

crucial. However, of more significance is the calibre and expertise exhibited by the management team, as it serves as the primary determinant of the product's triumph.

#### *3.1.4 Venture Capital Valuation Method*

The determination of the value of a novel business endeavour is sometimes seen as a contentious aspect of negotiation between venture investors and entrepreneurs.

The assessment of a new venture's worth has significant importance in the realm of entrepreneurial funding. The value of a new company during its early phases of growth is considerably and favourably influenced by factors such as the industry's desirability, the calibre of the founder and top management team, and the external ties it establishes. These elements play a crucial role in determining the level of interest and investment from venture capitalists seeking to provide venture capital financing.

The assessment of startup value within the venture capital (VC) framework is frequently seen as a subjective process that relies heavily on intuition and judgement rather than objective and quantifiable metrics.

The Venture Capital (VC) technique is a valuation approach utilised to determine the worth of start-up and high-growth enterprises. The valuation of the firm is determined by estimating its future profits at a specific period, considering the desired rate of return and the money multiple that the investor aims to achieve. This estimation assumes that the investor would leave the investment at a predetermined future date.

The valuation approach employed by venture capitalists (VCs) involves determining the exit valuation of a firm at a predetermined future date. This is accomplished by utilising the observed multiples, such as EV/Sales, EV/EBITDA, EV/EBIT, and P/E, of comparable publicly traded companies and comparable transactions. These multiples are then applied to the projected future profits of the target company.

By considering this exit value, the system calculates the present investment price required for the investor to attain their desired money multiple and related Internal Rate of Return (IRR).

The default multiple is determined by calculating the average of the median values of comparable listed firms. The standard time frame typically ranges from 3 to 5 years. The selected multiple is utilised to evaluate the projected profits of the target firm at the designated projection year in order to ascertain the exit value.

In addition, it is necessary for the user to explicitly indicate the monetary factor that an investor would want throughout the designated period of time. The money multiple is a metric that is utilised to calculate the internal rate of return (IRR). The IRR is subsequently employed as the discount rate to ascertain the present value of the exit value, hence determining the valuation as of the specified valuation date.

The fundamental terms employed in this valuation methodology encompass:

- Harvest year: the designated temporal point (year) at which the investor intends to divest from the business;
- Pre-money valuation refers to the assessment of a company's worth before to the infusion of any investment capital.

- Post-money valuation, on the other hand, pertains to the valuation of a business subsequent to the injection of investment funds.

The pre-money valuation is calculated by discounting the Exit Value at the specified future year  $t_e$  at the IRR, as follows:

$$PMV = R_e \times M(1 + IRR)^{-(t_e - t_0)} - I$$

- PMV: Pre-money valuation
- $R_e$ : Revenue at the time of exit
- M: market multiple
- $T_e$ : date of exit
- $T_0$ : today
- I: money invested

Pre-money valuation is proportional to Revenues and Market Multiple and inversely proportional to discount rate (IRR), time to exit and dilution (money invested).

Limitations of using a traditional method like a Discounted Cash Flow to value a new business are the fact that while the DCF also discounts future cash flows to a present value today, it does so using discount rates typically calculated using the Capital Asset Pricing Model (either Weighted Average Cost of Capital – WACC or Cost of Equity – CoE). The calculation of these discount rates are based on the observed betas of similar listed peer companies. These companies, being listed, are mostly large, mature companies which means that the WACC that is calculated is normally very low (reflecting the lower risk of large, listed companies compared to the start-up in question).

For growth or mature SMEs, this discrepancy between the WACC of listed vs private companies is accounted for with a Cost of Equity Premium. The CoE Premium is meant to capture the additional risk between the peer group of listed companies and the target company. When valuing startups, the challenge is that, in order to arrive at a realistic valuation, the CoE Premium can become very large (sometimes resulting in a doubling or even tripling of the original WACC). It can therefore be a much simpler analysis to do away with the WACC as a discount rate and focus on the IRR of what a potential investor would like to achieve when making a VC or early-stage investment.

### *3.2 The IPEV Valuation Method*

The process of determining the value of a company under the Venture Capital framework is notably complex due to the inherent characteristics of startup investments, which encompass substantial risk, significant financial expenditures, and asymmetrical knowledge. It is vital to comprehend the many factors that influence the values of beginning enterprises.

The International Private Equity and Venture Capital Valuation (IPEV) Guidelines provide suggestions that aim to reflect the most up-to-date and effective practises for valuing Private Capital Investments.

The valuation guidelines are applicable to a wide range of alternative funds, including seed and startup venture capital, buyouts, growth/development capital, infrastructure, credit, and other financial instruments often owned by such funds.

In addition, the Valuation Guidelines have been formulated with the objective of ensuring that Fair Value measures obtained via their application adhere to both the International Financial Reporting Standards (IFRS) and the United States Generally Accepted Accounting Principles (US GAAP).

Based on the guidelines established by the European Private Equity and Venture Capital Association (EVCA), Fair Value refers to the monetary amount that would be obtained from the sale of an asset under normal market conditions, namely through a transaction conducted between willing and knowledgeable buyers and sellers at the designated date of measurement. The term "fair market value" refers to the monetary worth at which an item may be transferred between parties who possess sufficient knowledge and are ready to engage in a transaction under normal market conditions. The concept of Fair Value assessment is predicated on the assumption that an asset would be hypothetically sold in either the Principal Market or, if the Principal Market is not available, the Most Advantageous Market for that particular asset. The calculation of Fair Value for similar instruments in actively traded (quoted) Investments relies exclusively on accessible market pricing.

In the context of unquoted investments, the determination of fair value necessitates the valuer to make an assumption that the investment will be realised or sold on the measurement date, regardless of whether the instrument or the investee startup is actively being readied for sale or if its shareholders have immediate intentions to sell.

The estimation of Fair Value should be conducted using consistent Valuation Techniques throughout the period between the Measurement Date and the subsequent Measurement Date, unless there is a change in market conditions or Investment-specific circumstances that would necessitate a modification in the approach employed by a Market Participant to evaluate value. It is envisaged that investments with comparable features, sectors, and/or locations would be subject to the adoption of consistent valuation techniques.

The fair value of a recent investment is typically reflected by its price when acquired in a well-organized transaction. In the context of following Measurement Dates, it may be deemed suitable to utilise the Price of a Recent Investment as an initial reference point for the estimation of Fair Value. Nevertheless, it is important to thoroughly assess the present realities and conditions, encompassing, though not restricted to, alterations in the market or variations in the Investee Startup's performance.

The inputs utilised in valuation techniques have to be appropriately calibrated with the price of a recent investment, as deemed suitable.

The determination of a startup's value is contingent upon its capacity to generate anticipated cash flows. This research study explores this concept by examining both debt-free and leveraged scenarios.



The International Private Equity and Venture Capital Valuation (IPEV) Guidelines provide suggestions that aim to reflect the most up-to-date and effective practises for valuing Private Capital Investments.

When determining the suitable Valuation Technique, the Valuer should employ one or more of the Valuation Techniques listed below, taking into account the assumptions made by Market Participants on the determination of Value at each Measurement Date:

1. Market Approach:
  - Multiples
  - Industry Valuation Benchmarks
  - Available Market Prices
2. Income Approach:
  - Discounted Cash Flows
  - Replacement Cost Approach
  - Net Assets

Discounted Cash Flows (DCF) are typically employed for startups, notwithstanding the inherent challenges associated with projecting liquidity. The fundamental concepts are applicable even in the context of new enterprises. Laitinen (2019) asserts that the discounted cash flow (DCF) technique is commonly regarded as the most prevalent approach for valuing startups, with the internal rate of return (IRR) and payback period approaches being the subsequent choices. Nevertheless, the examination of the repercussions associated with the utilisation of this approach in the assessment of startup worth is infrequently explored within the realm of financial scholarship. The use of discounted cash flow (DCF) methodology tends to provide preferential treatment to businesses that have a gradual growth trajectory, possess a little term for recouping initial investments, and concurrently display a notable internal rate of return (IRR). The significance of the internal rate of return (IRR) in discounted cash flow (DCF) analysis tends to increase as the time series of the startup being analysed becomes longer.

### *3.3 The FAIR VALUE of the investment in the target firms*

The assessment of target firms assumes an initial valuation of the company. The nomenclature of the evaluation approach should correspond to the specific category of startup under consideration. In the majority of instances when the assessment pertains to industrial, commercial, or service enterprises, the methodology employed for evaluation, while varying based on the nature of the startup, will generally align with those commonly utilised for such enterprises.

The preceding chapter discussed many methodologies, including balance sheet-based, income, mixed (capital-income), and market (empirical) approaches. These approaches may also be used to startups, but with some modifications that necessitate an initial examination of:

- Various business models are employed over time, which have implications for value drivers, the value chain, strategic considerations, and market dynamics (...).
- Financial statements, including the balance sheet, income statement, and cash flow statement, are utilized.
- Accounting parameters such as EBIT, EBITDA, and the Net Financial Position are significant for valuation purposes.

When assessing the target startup, particularly in the estimation of enterprise value, it is crucial to thoroughly account for the alterations in the financial structure that arise from the involvement of private equity funds. Leveraged buyouts are an often-seen phenomenon in which a fund provides financial support for a portion of its investment, resulting in the target company assuming a significant level of debt. The determination of a startup's total risk level and subsequent impact on its value is heavily influenced by the sustainability of its debt, contingent upon the startup's capacity to generate sufficient cash flows and the prevailing market interest rates.

In the context of private equity buyouts, it is common practise to modify the composition and duration of debt in order to align it with the revised business strategies developed in collaboration with the investment fund. These strategies typically prioritise the creation of value and involve extending the maturity of debt obligations.

Within the realm of fair value estimation, it is important to consider the significance of the following approaches:

- Price of recent investments, including those made by others (a reasonable estimate of fair value, the validity of which erodes rapidly over time);
- Income and market multiples (appropriate, sustainable and equitable, usually applicable to consolidated businesses): P/E; EV/EBIT; EV/EBITDA;
- Discounted cash flows, including terminal value;
- Sector benchmarks, whenever applicable (e.g., rate of occupancy of hotel rooms; the price per hospital bed; the price per subscriber to cable TV...);
- Market prices if the subsidiary is eventually listed.

When the estimation of fair value poses difficulties, it is common practise to rely on the fair value stated in the prior report as the most accurate estimate. This estimate may be updated, if deemed necessary, by conducting an impairment test.

### *3.4 The FAIR VALUE of the investments in the portfolio companies*

The assessment of the investment portfolio holds paramount importance and serves as a key need for evaluating the target startup. The assessment should primarily focus on the current assets held in the portfolio

and should not wisely take into account anticipated future investments or the capacity to extend the portfolio, since this pertains solely to speculative goodwill.

The estimation process involves the comprehensive evaluation of both the investee company and its underlying business. Subsequently, the fund's investment in the startup is appraised in accordance with this assessment. Accurately assessing the periodic performance of private equity funds has significant importance in establishing portfolio benchmarks, ensuring fair compensation for asset managers, and analysing the level of efficiency and intelligence exhibited by investors in relation to unlisted firms.

After doing evaluations on the individual investee firms, the estimation of investments in these companies is carried out by a system that may be succinctly summarised as follows:

- a. The starting point is the gross equity value of the investee startup, adjusted to consider the surplus assets and estimated by applying the approaches described above;
- b. The pro-rata share of this Equity Value, based on the fund's percentage shareholding in the startup; the percentage is adjusted to consider the minority discount or majority premium; the net Equity Value is estimated.

In the event that the objective is to assess the worth of a loan, specifically bridge financing or mezzanine loan, as opposed to an equity stake, it becomes necessary to evaluate the market value of this financial loan.

In accordance with the established principles of valuation, it is customary in the realm of private equity to realise the value through the divestment of the whole investment portfolio, as opposed to the individual sale of assets. The determination of the fund's market value involves the estimation of the adjusted Enterprise Value of each startup through the use of suitable valuation methodologies. Subsequently, an estimation of the fair value of all investments is derived.

### *3.5 The Break-up value of Venture-backed companies*

The majority of venture-backed investments are allocated to firms that have challenges in achieving significant growth and are unlikely to pursue an initial public offering (IPO), which is the key exit strategy for venture capitalists. Moreover, these companies often encounter difficulties in liquidating their assets. In instances where the sale of the investment occurs, it is common for the venture capitalist to realise a substantial reduction in value relative to their initial investment.

This scenario may be applicable to businesses that have garnered the attention of a private equity fund. However, it is important to note that in such instances, the targeted company is often at a more mature phase of its life cycle. Consequently, it is more inclined to mitigate potential declines in value due to the presence of a stable and well-established business model. When the viability of a continuing business is severely damaged and there is a lack of willingness among shareholders to provide more capitalization for the company, which is commonly impacted by excessive cash outflows and equity depletion, many alternative possibilities arise. The range of scenarios encompasses liquidation, which involves disposing of profitable business units or

selling individual assets, as well as insolvency, which occurs when the market value of the assets realised is insufficient to cover the liabilities. Insolvency is typically characterised by equity burnout, where the shareholders' equity reaches zero or becomes negative. The break-up value of assets denotes the minimum threshold in their valuations and pertains to the potential of selling them to external entities.

Venture-backed enterprises are commonly characterised by a combination of assets, wherein intangible assets, which contribute significantly to the current value of growth prospects, hold a prominent place.

The presence of intangible assets, particularly when they are not accounted for on the balance sheet, constrains the borrowing potential of a startup due to the challenges associated with establishing a secure ownership claim and determining their sometimes ambiguous or non-existent market worth. The notion that the ability to incur debt is enhanced when there are tangible assets possessing collateral value that can be used as a guarantee has been substantiated by several research investigations. The presence of intangible assets in the portfolio of venture-backed startups, which have both a book value and a market value, significantly restricts their borrowing capacity. However, this also reduces the likelihood of conflicts arising between shareholders and external creditors, which are commonly observed during insolvency or in the early stages of a crisis (Moro Visconti, 2015).

The shift from a state of operational continuity to a state of dissolution signifies the cessation of the startup's anticipated revenue prospects. The evaluation just takes into account the market worth of the individual assets, including intangible assets. In many cases, the market value of an asset is typically lower than its operational value, and in other instances, it may even be lower than the book value. This is particularly true for intangible assets that lack a market value. This phenomenon may be explained by Adam Smith's idea, wherein the exchange value of an object holds greater significance than its worth in use. The inclusion of highly specialised activities that are specific to the firm within a startup amplifies the disparity between the value in use and the value in exchange. This, in turn, renders the sale of these activities more arduous. However, it also diminishes agency costs between shareholders and creditors. This is because shareholders will encounter greater obstacles in substituting these activities with others, making it more difficult (yet less imperative) to use them as collateral (Smith & Warner, 1979).

The valuation of both intangible and tangible assets is significantly influenced by the presence of a robust and established secondary market for the commodities being exchanged. According to Titman and Wessels (1988), the secondary market experiences a decrease in size as the level of specificity of the intangible asset increases, despite the normal presence of higher value added.

The value of the investment in the venture-backed business includes the internally produced goodwill of the venture capitalist, which is not accounted for as the startup has not made any payment in this respect. When confronted with evil intentions associated with a struggling startup, there arises a necessity to declare the investment as a loss, resulting in a substantial influence on the shareholders' equity of the intermediary. The erosion of equity can be significant, particularly when a write-off is high in relation to a portfolio of

investments in various assets that are unable to compensate for the loss incurred by certain efforts with the gains achieved by others.

### *3.6 Stock exchange listing and other exit procedures*

The conventional method for venture capitalists to divest their investments is through the initial public offering (IPO) of venture-backed startups on the stock exchange.

The presence of a minority representative as an intermediary in the sale of a share package, particularly during an Initial Public Offering (IPO) or afterwards, serves to facilitate the transaction. This arrangement does not contribute to any perception of market distrust, as the market is already aware of the intermediary's role and purpose.

In instances when the valuation of a business is significantly impacted by the continued presence of key management, often those who have been long-term owners of the startup, it may be necessary to impose a lock-up period on them. The aforementioned reasons and the diminished strategic significance of intermediaries have led to the absence of this restraint on them. The stock market ensures the availability of financial resources, and if needed, external consultation may be sought to maintain the advisory services provided by intermediaries. The behaviour of key managers, who possess privileged knowledge, when they exercise their divestiture options inside the specified time periods stipulated by lock-up provisions, raises concerns and typically elicits a negative reaction from the stock market.

The departure of some shareholders and, in a broader sense, the transactions of buying and selling are impacted by the level of liquidity of the stock. Liquidity refers to the capacity to facilitate substantial purchases or sells without causing a substantial impact on the price. In an illiquid market, which is characterised by thin stocks and is commonly observed in technical businesses that exhibit high growth and recent history, it is customary for the price to change unfavourably for the shareholder doing the transaction.

The involvement of intermediaries in the listing process of startups is significant, as it not only contributes to the success of the operation but also leverages their advantageous relationships with the financial community and the intermediary responsible for the initial public offering (IPO) (Aggarwal et al., 2009).

The quotation on the stock exchange, also known as going public, leads to a division in the structure of stakeholders. This process of fragmentation entails a transition from concentrated stockholders to a higher degree of fragmentation. This transformation has the potential to maintain the involvement of some reference shareholders, who may express their influence either individually or, more commonly, through the formation of coalitions via syndicate agreements, particularly when the membership of the shareholders' group expands. The application of a public company model is possible, wherein numerous small shareholders coexist, each lacking the ability to exert substantial influence over the initial startup. In this scenario, the power of management is increasing, potentially resulting in a decline in value. However, this is offset by the value derived from the contestability of control.

The controlling ownership in a public corporation gradually diminishes the majority premium until it approaches zero when the equity is divided. The process of listing on a stock exchange generates inherent value not only by enabling shareholders, including intermediaries and those with lock-up constraints, to sell their entire or partial holdings, but primarily by facilitating the identification of a counterparty. This process is made anonymous and, in a liquid market, devoid of any implicit costs.

The inclusion of the listing eliminates the commonly applied marketability discount, which is a reduction in value often associated with unlisted enterprises. Consequently, unlisted firms have conventionally received a discount due to the absence of marketability.

Empirical evidence allows identifying a range of variation of the discount for lack of marketability (Novak, 2016).

### *3.7 Valuation of the investment portfolio with a Net Asset Value*

The determination of venture capital or private equity fund valuation necessitates the consideration of the book value of equity, supplemented by the inclusion of market value of investments and the deduction of the book value of investments.

The determination of investments' market value relies on their Net Asset Value, and any increase in value above their recorded value should be represented, where appropriate (except cases where the participation exemption does not apply), after accounting for prospective tax liabilities. In mathematical expressions:

Net Asset Value = NAV = Market Value of the Fund = Book value of the Fund + (market value – book value of the investments) (1 – tax rate)

The application of international accounting standards (IAS/IFRS) in valuing equity investments at fair value aims to reduce the disparity between the market value and book value of such investments. Additionally, the book value of shareholders' equity already incorporates the market value of venture capital or private equity funds.

When evaluating venture capital or private equity funds, it is important to take into account the following factors:

- The value of each subsidiary must be estimated by discounting it at the cost of capital that incorporates the systematic risk of the most similar stock index (Nasdaq, Numtel ...), increased by a firm-specific risk premium, as to include the lack of marketability, the volatility of economic and financial flows (higher in startups ...);
- The valuation of the shareholding must sometimes consider the size of the package, which may be subject to a minority discount (i.e., less frequently—a specular majority premium) in the absence of co-sale options, non-participation in syndicate agreements, etc.;
- The financial flexibility of the intermediary, which may or may not intervene in the event of cash or equity burnout of the investee startup, with the possibility of retaining at least part of its value (post-equity

recapitalization burnout involves a reshuffling of the shareholding structure, in the event of failure by all shareholders to exercise the option right);

- There may be a synergistic value of the investment portfolio (if it relates to vertically integrated companies operating in contiguous segments of the value chain ...), such that the market value of that portfolio is higher than the sum of the NAVs per share of each holding. This concept of synergistic value represents the intangible benefits that are not quantified but are taken into consideration when estimating the market value.
- Owning a stake can result in the provision of management consulting services, placement fees, and intermediation, which need to be evaluated separately.
- The intrinsic value of an intermediary is connected to its portfolio of holdings but is also contingent upon its reputation, which is a crucial asset for any financial intermediary.

### 3.8 Unicorns

Within the realm of venture capital, the term "unicorn" pertains to a technological company that was established subsequent to the year 2003 and has achieved a market valuation of one billion dollars. This valuation is determined by investments made by private or public entities. The proliferation of unicorns has experienced significant growth since the phrase was introduced by Aileen Lee, the founder of Cowboy Ventures, in 2013.

The Economist<sup>35</sup> (2019) reported that there are currently 156 unicorns globally. Among these, the top five unicorns based on their valuations are as follows: Uber, valued at \$68 billion; Didi Chuxing, valued at \$56 billion; Xiaomi, valued at \$46 billion; Meituan Dianping, valued at \$30 billion; and Airbnb, valued at \$29.3 billion.

The distinguishing feature of these innovative firms mostly lies in their role as data suppliers and disruptors of innovation, which is attributed to their business strategies that are centred around the Internet. In the current century, digital data has emerged as a catalyst for development and transformation, akin to the role that oil played in the preceding century.

Digital information possesses distinct characteristics that differentiate it from any preceding resource. Its extraction, refinement, valuation, acquisition, and exchange processes exhibit unique attributes. The capacity for digital scalability in unicorn enterprises is substantiated by their capability to provide clients equivalent products and services as conventional firms, while reducing costs associated with physical infrastructure, personnel, and other expenditures through the implementation of online digital platforms.

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<sup>35</sup> Economist. (2019). Herd instincts—The wave of unicorn IPOs reveals Silicon Valley's groupthink. Available at <https://www.economist.com/briefing/2019/04/17/the-wave-of-unicorn-ipos-reveals-silicon-valleys-groupthink>

One illustrative instance was the emergence of Uber as a ride-sharing application, which subsequently attained recognition as the preeminent and most valuable startup due to its possession of an extensive reservoir of data pertaining to the availability of drivers (supply) and the preferences of passengers (demand) in the realm of personal transportation. Uber's business strategy is predicated on a digital platform that enables anyone to conveniently request a cab to their precise location with a just tap on their smartphone, resulting in expedited arrival times. Based on this novel business-to-consumer (B2C) model, Uber patrons would assume the dual role of reserving a transportation service as passengers and providing rides as non-professional drivers, distinct from licenced taxi operators.

According to Kenney and Zysman (2019), there exists a contemporary paradigm shift in the establishment of companies. The process of designing and manufacturing unicorns has experienced a progressive shift towards industrialization, with the availability of necessary components being facilitated by internet platforms. Smartphones enable enterprises to disseminate their products and services both domestically and internationally, while social media platforms provide them with the means to promote their offerings. Additionally, cloud computing facilitates the scalability of their operations in response to increasing demand. While unicorns are often seen as an ideal representation of entrepreneurial success, there is a degree of apprehension over their dependability.

While the manufacturing of unicorns experienced an increase in efficiency and proficiency, the management of their disposal failed to keep pace. There has been a deceleration in the pace at which venture-backed firms initiate public offerings.

Following the fall of the dot-com bubble, novel regulatory measures were introduced to safeguard investors and expand the threshold at which businesses are required to disclose financial information, therefore heightening the level of risk associated with going public. The user's text is too short to be rewritten in an academic manner.

Furthermore, there existed a notable absence of a substantial deficit in private capital that displayed a willingness, and even enthusiasm, to contribute towards that endeavour. According to Komisar, a venture investor at Kleiner Perkins, the inclination of Silicon Valley to prioritise scalability may be attributed mostly to the interests of money rather than the requirements of fostering innovation.

A convergence of several variables has contributed to the conclusion of this period characterised by restraint. As an illustration, several venture-capital funds were established in 2010, primarily characterised by a duration of ten years, prompting investors' current inclination towards divestment.

Multiple public offerings in the year 2018 have demonstrated a heightened inclination of markets towards technology shares. The potential for a global economic collapse might result in a diminishing opportunity for investors, so reducing their interest and posing significant challenges to the business models of unicorns. A similar outcome might potentially occur in the event that many initial public offerings (IPOs) fail to meet the expectations generated by their publicity. Once again, the incentives lie in pursuing ambitious and expeditious actions. In order to gain an understanding of the prevailing conditions, The Economist (2019) conducted an



analysis of a group consisting of twelve past and present Internet-centric unicorns located in Silicon Valley and other regions. This compilation encompasses a majority of the prominent opportunities and encompasses a diverse array of sectors. Uber and Lyft operate in the transportation industry, Spotify is a prominent player in the music-streaming sector, WeWork specialises in real estate, while Meituan and Pinduoduo are prominent Chinese e-commerce companies.

These enterprises, which constitute a portion of their industry, may aspire to achieve dominance in the near future by using more inventive and efficient methods while providing similar opportunities as their predecessors. In addition to the aforementioned concerns, a notable deficiency observed is the absence of financial gains. According to the study conducted by Gao et al. (2013), the current percentage of firms embarking on initial public offerings (IPOs) without generating profits is at 84%. This figure represents a significant increase from the corresponding proportion of 33% seen a decade earlier. In the event that the accumulated growth, which has been acquired at some expense, fails to generate profits, what are the potential consequences that may ensue? Potential solutions for enhancing the performance of unicorns may include increased expansion, heightened expenditure from current clients, and improved profit margins. However, the first proposition lacks plausibility.

In 2018, a deceleration in growth was observed among organisations that provided information regarding their client base in the United States, with a rate of 9%. Furthermore, only a few numbers of companies have barriers to entry that are as formidable as the ones safeguarding Alibaba, Facebook, and Google. Organisations have the potential to both acquire and lose clients. Numerous property firms possess the capability to lease office premises, akin to the operations undertaken by WeWork. Spotify users have the ability to access music via Apple's platform as well. Frequent use of both the Lyft and Uber applications is commonly observed among drivers, as well as passengers. There exists a multitude of prominent Chinese e-commerce enterprises available for selection.

None of these arguments inherently imply that unicorn startups are inherently poor business ventures. However, manufacturers are able to create an appearance that resembles high-end products.

Another emerging worry pertains to the potential lack of societal benefits resulting from the innovation generated by certain unicorn companies. There are tangible advantages associated with these platforms, but detractors highlight notable drawbacks such as heightened congestion and environmental burdens, a deterioration of public transportation networks, and the precarious circumstances faced by platform labour.

### *3.9 Key person Discounts, Founder Control, and Governance Implications*

Another notable attribute of nascent enterprises is their tendency to rely heavily on the founder/owner and a select few individuals until the organisation achieves a level of stability and growth.

The potential consequences of the departure of important individuals on organisational value can be substantial, particularly in cases when finding suitable replacements proves to be difficult.

According to Damodaran's (2018) research, the estimation of the key person discount may be derived using the following methodology:

$$\text{key person discount} = \frac{(\text{value of Firms}_{\text{status quo}} - \text{Value of firm}_{\text{key person lost}})}{\text{Value of firm}_{\text{status quo}}}$$

Accurately determining the discount is a challenging task in practical terms, and the departure of key personnel poses a significant risk to the ongoing operations of a firm, so exerting a substantial influence on its overall worth.

To what extent does the level of control retained by founders impact the valuation of their startups? According to Wasserman (2017), there exists a "control dilemma" for founders, wherein the reliance on external resources by a company creates a disconnect between the business's value and the founder's capacity to maintain decision-making authority.

The demographic makeup of equity-holders, the diminishing influence of founders, and their interactions with new shareholders (including family and friends, business angels, crowdfunding underwriters, venture capital firms, private equity firms, and potentially the stock market if the company goes public) significantly affect governance dynamics and the extent to which information imbalances are disclosed. The altering regulatory rules also have an impact on managerial control and monitoring.

The allocation of control rights is influenced by several factors, including negotiating power, monitoring costs, private advantages, and risk aversion (Wang et al., 2017).

### 3.10 Networked Digital Platforms

The growth of digital entrepreneurship is heavily dependent on securing external sources of finance. Networked platforms play a crucial role in accelerating the growth of startups by enhancing their strategic posture within the ecosystem and facilitating their access to growth prospects.

Digital platforms encompass the virtual space in which software applications are implemented, commonly via web browsers, therefore facilitating online functionality. Platforms may be understood as intermediary nodes that establish connections between various virtual or physical nodes. For instance, an e-Commerce platform serves as an intermediary between a seller and a buyer in a business-to-consumer transaction.

According to Mattila and Seppala (2015)<sup>36</sup>, platforms refer to frameworks that enable many collaborators, including users, peers, and suppliers, to engage in a wide array of activities. These platforms often give rise to unofficial standards and establish comprehensive ecosystems for the generation and acquisition of value.

Networks possess significant potential as facilitators of interactive activities, such as the sharing of information and transactions. This potential may be enhanced and expanded through the process of digitization.

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<sup>36</sup> Mattila, J., & Seppala, T. (2015, May 18). Machines in a Cloud – or a Cloud in Machines? Emerging New Trends of the Digital Platforms in Industry and Society. ETLA Reports; The Research Institute of the Finnish Economy. <https://ideas.repec.org/p/rif/report/44.html>

Platforms do not represent a specific industry or business segment; they are rather a comprehensive business process that spans across many sectors and involves a range of goods.

Digital technologies have several key characteristics, including the homogeneity of data, the capacity to be edited, the potential for reprogramming, distributed functionality, and self-referential capabilities (Yoo et al., 2010; Kallinikos et al., 2013)<sup>37</sup>. These characteristics have the potential to result in the occurrence of numerous inheritances within distributed environments, wherein there is an absence of a sole proprietor who possesses ownership over the platform core and exercises control over its design hierarchy (Henfridsson et al., 2014)<sup>38</sup>. The reliance on IT platforms is becoming increasingly crucial for achieving digital scalability (Moro Visconti, 2020, chapter 3)<sup>39</sup>. According to Spagnoletti et al. (2015, p. 364)<sup>40</sup>, the concept of a digital platform may be defined as a fundamental component inside a technological system that fulfils a crucial function and serves as a basis for the development of supplementary goods, technologies, or services.

The integration of digital platforms and supply chains is inherently interconnected with the concept of the networked company, resulting in an amplified scaling factor that is further augmented by the Metcalfe's effect. Figure 8.1 illustrates an example. Platforms serve as intermediaries for the exchange of products, services, and information among many stakeholders who would otherwise be unable to communicate with one another. Transactions are facilitated by interdependent participants who participate in a network ecosystem (Rochet & Tirole, 2003)<sup>41</sup>.

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<sup>37</sup> Valuation, S. | | B. M. of, & Valuation, S. (2021, July 22). Berkus Valuation Method for Startups. Eqvista. <https://eqvista.com/berkus-valuation-method-for-startups/>

<sup>38</sup> Henfridsson, O., Mathiassen, L., & Svahn, F. (2014). Managing Technological Change in the Digital Age: The Role of Architectural Frames. *Journal of Information Technology*, 29(1), 27–43. <https://doi.org/10.1057/jit.2013.30>

<sup>39</sup> Moro Visconti, R. (2020). The Valuation of Digital Intangibles. <https://doi.org/10.1007/978-3-030-36918-7>

<sup>40</sup> Spagnoletti, P., Resca, A., & Lee, G. (2015). A Design Theory for Digital Platforms Supporting Online Communities: A Multiple Case Study. *Journal of Information Technology*, 30(4), 364–380. <https://doi.org/10.1057/jit.2014.37>

<sup>41</sup> OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations 2022. (2022). In OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations. OECD. <https://doi.org/10.1787/0e655865-en>

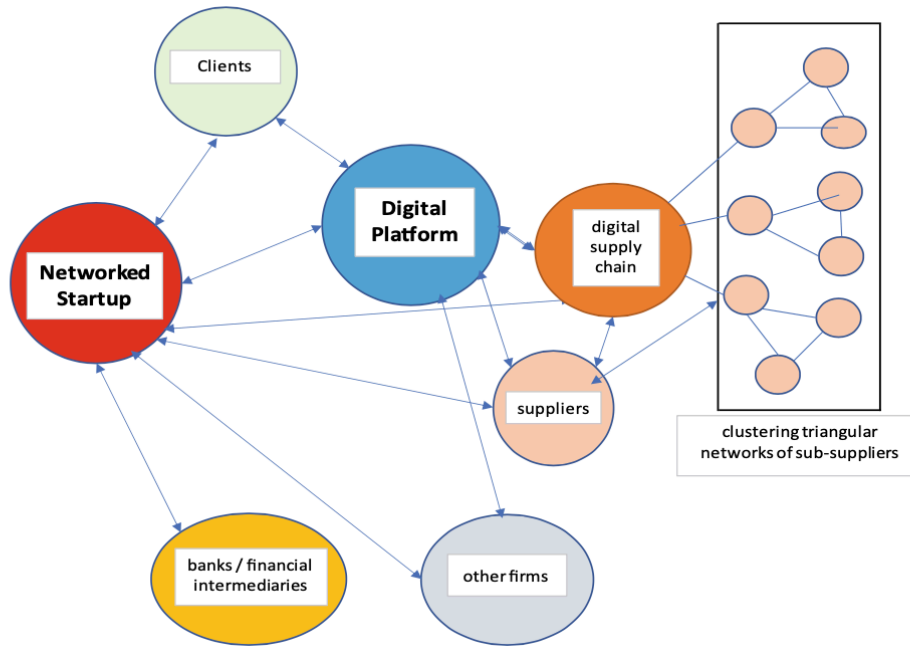


Figure 16 Networked Digital Platforms

Digital platforms refer to complex digital frameworks that have the ability to influence and determine the conditions under which individuals engage and interact with each other. Digital platforms encompass a complex amalgamation of software, hardware, operational processes, and interconnected networks (de Reuven et al., 2018; Gawer, 2014)<sup>42</sup>. A range of users are offered a collection of commonly utilised techniques, technologies, and interfaces. Online platforms frequently serve as intermediaries for social and commercial interactions, generally facilitated by applications.

According to Tiwana et al. (2010)<sup>43</sup>, digital platforms can be described as software-based external platforms that consist of a software-based system's extensible codebase. These platforms provide core functionality that is shared by the modules that interact with it, as well as the interfaces through which they interact. Software platforms serve as a technical nexus where application developers and end-users come together (Evans et al., 2006)<sup>44</sup>.

Multisided platforms continue to disrupt long-established industries and have governance structures ranged from a very centralistic and auto- cratic organization to a more split approach with an empowerment on the user side.

<sup>42</sup> de Reuver, M., Sørensen, C., & Basole, R. C. (2018). The Digital Platform: A Research Agenda. *Journal of Information Technology*, 33(2), 124–135. <https://doi.org/10.1057/s41265-016-0033-3>

<sup>43</sup> Tiwana, A., Konsynski, B., & Bush, A. A. (2010). Research Commentary—Platform Evolution: Coevolution of Platform Architecture, Governance, and Environmental Dynamics. *Information Systems Research*, 21(4), 675–687. <https://doi.org/10.1287/isre.1100.0323>

<sup>44</sup> Evans, D. S., Hagi, A., & Schmalensee, R. (2016, March 13). *Invisible Engines: How Software Platforms Drive Innovation and Transform Industries*. Papers.ssrn.com. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2747032](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2747032)

Additionally, the level of accessibility ranges from a significant level of inclusivity to stringent background checks that users must successfully undergo in order to engage in the platform. These aforementioned attributes have the potential to significantly influence digital platforms in the healthcare sector.

The use of digital platforms has emerged as a prominent means of facilitating many human endeavours, including economic, social, and political engagements. Platforms utilise networked technology to promote commercial transactions, ease the movement of information, and establish connections among individuals (Fenwick et al., 2019)<sup>45</sup>. Scholars who adhere to this perspective concentrate on the technological advancements and functionalities that serve as the fundamental basis for the creation of supplementary products and services. Specifically, they emphasise the utilisation and expansion of the technical core provided and facilitated by the owner of a platform. This viewpoint is supported by various studies conducted by Tiwana et al. (2010), Ghazawneh and Henfridsson (2015), and Ceccagnoli et al. (2012).

Platforms possess a high degree of adaptability, making them well-suited to serve as intermediary nodes that connect various intangible elements. These elements include large amounts of data obtained from the Internet of Things (IoT), which is then transmitted through mobile applications (M-Apps), stored in cloud-based systems, shared across interoperable databases, verified using blockchain technology, and analysed using patterns generated by artificial intelligence. This integration of diverse components facilitates the creation of value through collaborative patterns.

### *3.11 Network Theory*

The field of network theory, as explored by several scholars, focuses on the examination of graphs as a means to express either symmetric or asymmetric relationships among discrete entities. Within the fields of computer science and network science, network theory is considered a fundamental component of graph theory. Specifically, a network may be formally characterised as a graph whereby nodes and/or edges possess distinct qualities.

The diagram presented in Figure 8.1 illustrates the interconnectedness between networks and digital platforms, which collectively contribute to the development of a virtual ecosystem that facilitates the growth and evolution of startups.

Networks are an intrinsic characteristic of intricate systems, wherein their interconnected configuration offers a novel perspective on the interactions among associated stakeholders. The field of network theory finds its applications in a wide range of academic fields, encompassing statistical physics, particle physics, computer science, electrical engineering, biology, economics, finance, operations research, climatology, ecology, and sociology. Network theory has a wide range of applications in several fields such as logistical networks, the World Wide Web (WWW), the Internet, gene regulatory networks, epidemiology (including the study of

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<sup>45</sup> Fenwick, J. (2018). In Memoriam. *CSA News*, 63(10), 21. <https://doi.org/10.2134/csa2018.63.1019>

pandemic patterns like as those observed in the Covid-19 coronavirus), metabolic networks, social networks, and epistemic networks, among others.

The stakeholding nodes illustrated in Figure 12.2 are commonly characterised as symmetric, meaning they are bidirectional or undirected. This characteristic enhances the informative and decision-making significance of the network, especially in the presence of digital platforms, which directly facilitate the interactions between various stakeholders.

One important characteristic of a node is its degree, which refers to the number of connections it has with other nodes. The degree of a parameter holds significance within the realm of corporate governance, as it serves to establish and delineate the relationships between stakeholders and the level of their involvement.

The use of network theory may significantly enhance our understanding of the operations and interactions of startups, shedding light on their connections with external environments inside their inventive ecosystem.

### *3.12 The impact of Digital Platforms on Supply and Value Chain*

Suppliers, partners, enterprises, and dealers throughout supply chains engage in the generation, use, and dissemination of information among various stakeholders. These affiliations give rise to a plethora of issues and possibilities inside the supply chains. According to Büyüközkan and Göçer (2018)<sup>46</sup>, a Digital Supply Chain refers to an intelligent and efficient procedure that aims to provide additional sources of income and commercial value for organisations. It also involves the use of innovative technology and analytical methodologies to adopt new approaches. Stakeholders engage in interactions and collaborate to collectively generate value inside the chain.

The examination of the interactions between the networked company, the digital platform, and external stakeholders may be conducted through the use of a value chain analysis, which delineates the networked and digital characteristics of these entities.

The platform economy pertains to the commercial and social activities that are enabled via the use of platforms. These platforms are sometimes referred to as online matchmaking services or technological frameworks. The prevailing categories that are frequently seen are referred to as "transaction platforms," or alternatively, "digital matchmakers." Prominent instances of transaction platforms encompass Amazon, Airbnb, Uber, and Baidu. Another category is referred to as the "innovation platform," which serves as a shared technological infrastructure that enables external entities, including several autonomous developers, to create applications and services on top of it. This is shown by the multitude of independent developers that contribute to Microsoft's platform (Moazed, 2016)<sup>47</sup>.

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<sup>46</sup> Büyüközkan, G., & Göçer, F. (2018). Digital Supply Chain: Literature review and a proposed framework for future research. *Computers in Industry*, 97(1), 157–177. <https://doi.org/10.1016/j.compind.2018.02.010>

<sup>47</sup> Moazed, A. (2016). *Modern monopolies*. Cham: Palgrave Macmillan.

The exchanges facilitated by digital platforms contribute to a higher level of connectivity inside the network, resulting in an overall rise in its value, as per Metcalfe's definition.

Metcalfe's law pertains to a fundamental aspect of scalability and posits that the impact of a telecommunications network is directly proportionate to the square of the total number of users connected to the system ( $n^2$ ). The formulation of Metcalfe's rule, as stated by George Gilder in 1993 and credited to Robert Metcalfe, the creator of Ethernet, was initially introduced around 1980. However, the original presentation of the idea did not focus on users, but rather on "compatible communicating devices" such as fax machines and telephones. The rule in question was first intended to define Ethernet purchases and connections, but it was only later, with the globalisation of the Internet, that it began to apply to users and networks. The intersection of law, economics, and business management becomes particularly salient in the context of competing firms seeking to engage in mergers.

Metcalfe's law serves as a framework for understanding the network effects observed in communication technologies and networks, including but not limited to the Internet, social networking platforms, and the World Wide Web. Metcalfe's law pertains to the mathematical expression of the quantity of distinct potential connections inside a network of nodes. If a network consists of a group of  $n$  individuals, and each individual provides a value to the network based on the number of other members, the collective value assigned by all  $n$  individuals to the network may be determined as follows:

$$n * (n - 1) = n^2 - n$$

The concept of the law is frequently elucidated through the analogy of outdated fax machines. Individually, a single fax machine holds little utility, but the value of each fax machine escalates in proportion to the overall quantity of fax machines within the network. This is due to the expanded potential for document exchange between users, which grows with the cumulative number of fax machines. Similarly, within the realm of social networks, the value of a service to the community increases proportionally with the size of its user base.

Digital markets and platforms serve as catalysts for scalability.

### *3.13 Evolution Multilayer Startups*

Conventional investigations of networks often operate under the assumption that nodes are linked by a singular form of unchanging edge, which encompasses all connections between them. The aforementioned assumption frequently exhibits a tendency towards simplifying, hence engendering the potential for findings that are deceptive and, in certain cases, rendering some problems unaddressable. For instance, disregarding the temporal aspect disregards the sequential nature of interpersonal contacts in the spread of diseases. Similarly, neglecting the existence of multiple types of connections, also referred to as "multiplexity," hinders the ability

to account for the concurrent presence and significance of various modes of transportation or communication (De Domenico et al., 2013)<sup>48</sup>.

Multilayer networks refer to networks that encompass various types of relationships, characterised by multiplex or multidimensional arrangements. In a multiplex network, nodes are connected by numerous types of links, hence improving scalability.

In the majority of real-world systems, an individual network is a constituent element within a significantly bigger and intricate multi-level network, so forming a network of networks. According to Kennet et al. (2015), a significant characteristic of real-world network systems is their ongoing interaction with other networks.

In the actual world, several systems exist whereby individual components are unable to operate autonomously. Instead, these components engage with one another through various channels of connectedness and dependencies. Complex Networks theory serves as a formal framework for the description and analysis of various fields, including sociology (such as social networks, acquaintances, and collaborations among individuals), biology (including metabolic and protein networks, as well as neural networks), and technology (such as phone call networks and computers within telecommunication networks) (Boccaletti et al., 2015).

Numerous networks in the real-world exhibit interdependence and connectedness with other networks, giving rise to the concept of "networks of networks." The study conducted by Liu et al. (2015) reveals that the interconnectedness of networks significantly amplifies the susceptibility of interconnected systems. In the event of a node failure in one network, it often triggers the failure of dependent nodes in other networks. Consequently, this can lead to additional harm to the initial network and initiate a chain reaction of failures, occasionally resulting in severe and catastrophic outcomes.

Digital platforms serve as virtual stakeholders (Moro Visconti, 2019) that facilitate the connection of distinct layers, each of which represents a separate network. The platform serves as a connecting node that is present in each layer, facilitating the connection between nodes located in various levels.

Figure 11 presents an illustration of a multilayer network as an exemplification.

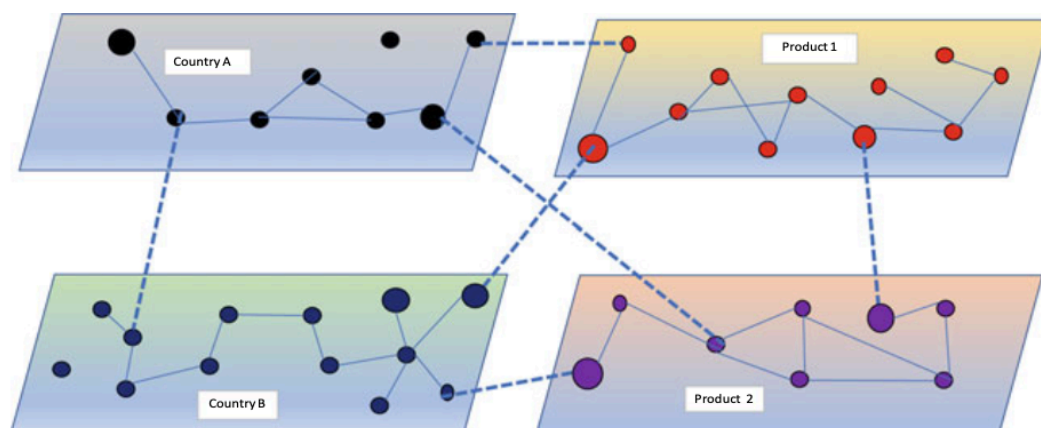


Figure 17 Multilayer networks

<sup>48</sup> De Domenico, M., Solé-Ribalta, A., Cozzo, E., Kivela, M., Moreno, Y., Porter, M. A., Gómez, S., & Arenas, A. (2013). Mathematical Formulation of Multilayer Networks. *Physical Review X*, 3(4). <https://doi.org/10.1103/physrevx.3.041022>



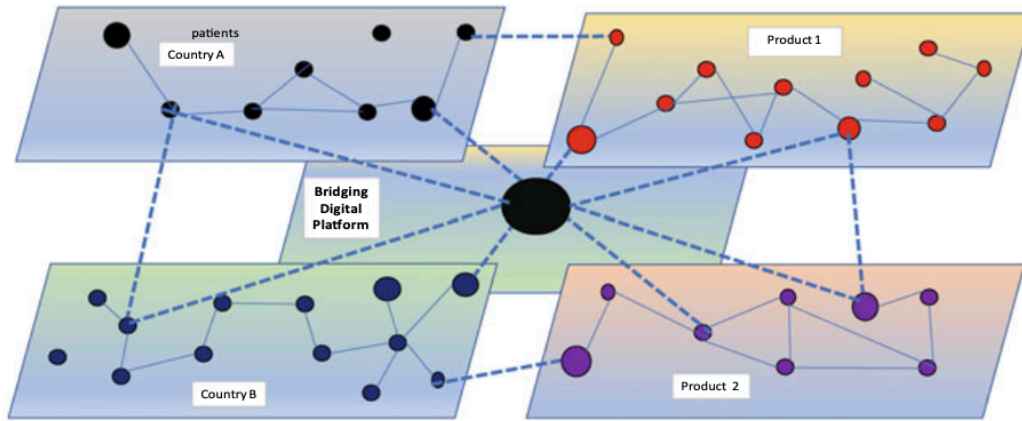


Figure 18 Superimposed multilayer networks with a bridging platforms

When networks (Barabási, 2016) approach one other and overlap, the depiction of Figure 11 undergoes modest modifications, as seen in Figure 11. The bridging digital platform functions as a comprehensive network.

Multilayer networks are compatible with platforms that interact with other platforms, such as Internet platforms that facilitate the functioning of social media applications. Weighted networks are characterised by the measurement of the intensity of each interaction between nodes, which might include factors such as flow of data and transactions. Bridging digital platforms sometimes need significant computational resources, hence enhancing the total worth and operational capabilities of the network's ecosystem, in accordance with Metcalfe's law.

Multilayer networks might potentially provide insights into the evolutionary dynamics of startups, elucidating the intricate interdependencies that shape their development. Temporal networks refer to networks that exhibit dynamic changes throughout time. These networks have multilayer patterns, wherein the stakeholders involved in the interactions demonstrate adaptability and undergo changes. In the initial stage, many entities such as business angels, family and friends club, and crowdfunding equity-holders participate. However, in subsequent rounds of financing, these entities may experience dilution when venture capital and private equity investors become involved. As the business progresses and enters a more advanced stage of development, it may begin to accumulate debt, leading to the involvement of financial institutions such as banks.

An illustration of this historical progression may be shown in Figure 8.4.

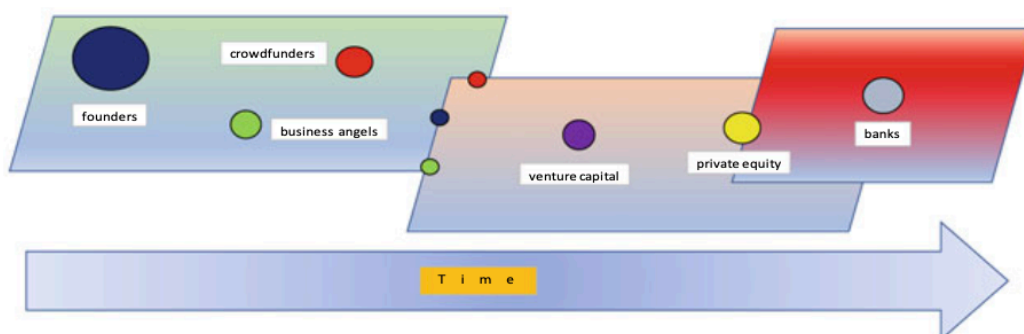


Figure 19 Multilayer evolution of startup stakeholders



## *4. Case study*

In this chapter, the research delves into the strategic decision-making processes of start-ups within the technology sector, with a particular focus on the acquisition strategy employed by Glickon, a pioneering player in the field. An integral part of this investigation involves an in-depth interview conducted with key representatives from Glickon, which unveiled invaluable insights into their acquisition of Teamsight. This strategic move garnered significant attention within the industry, raising pertinent questions about the evaluation methods employed in such transactions. The interview presented an opportunity to delve into the intricacies of Glickon's evaluation framework, shedding light on the key performance indicators, financial metrics, and qualitative criteria that guided their decision-making process. This chapter seeks to elucidate the nuanced approach taken by Glickon in evaluating the acquisition of Teamsight, contributing to a comprehensive understanding of the strategic dynamics at play within the start-up ecosystem.

### *4.1 General description of the company and the industry*

Glickon, established in 2014, is a prominent Italian enterprise operating within the human resources software industry. The firm was formed by Filippo Negri, Matteo Corte, Davide Griffon, and Matteo Bersanelli, and is characterized by its motto, "Work better, Live better."

The underlying concept is gamifying the talent selection and acquisition process. They achieve success in this undertaking due to three primary instruments. The initial platform is known as Seek, which serves as a means to identify the latent abilities possessed by individuals seeking employment within organisations. The second aspect is Flow, which facilitates the ability of HR experts to perform rapid and automated tasks, utilizing an Artificial Intelligence system that generates texts with exceptional speed.

Ultimately, the introduction of Glow provides firms with the chance to allocate individual individuals the level of suitability they truly merit. This comprehensive approach incorporates the utilisation of People Analytics to provide engaging and efficient training, onboarding processes, as well as the evaluation of employee wellness and organizational environment.

The HR software industry is characterized by its dynamic nature and continuous evolution, providing a diverse array of solutions aimed at enhancing human resources management inside enterprises.

The subsequent discourse presents an elaborate exposition on the HR software industry. Primarily, this category pertains to HR administration and comprises software designed to oversee personal information of employees, including contact details, employment background, talents, and training. These technologies facilitate the management of employees and allow organisations to uphold precise documentation.

Furthermore, recruiting and hiring processes are facilitated by recruitment solutions, which assist firms in effectively managing the entirety of the recruitment process, encompassing the dissemination of job postings

and the subsequent selection of potential applicants. Frequently, such software has functionalities for curriculum vitae screening, conducting online interviews, and analyzing talents.

In addition, performance management systems play a crucial role in facilitating several aspects of employee performance, such as performance evaluation, goal setting, feedback provision, and career planning. They contribute to enhancing individual performance and fostering staff engagement.

Time and attendance management is a significant concern in the HR software industry. These software applications facilitate the process of documenting attendance, tracking hours worked, and overseeing holiday and leave management. Ensuring proper management of employees' time is crucial.

Skills development and training systems are designed to provide ongoing employee training and the enhancement of their skill sets. Potential components of this framework encompass the integration of online courses, the use of competency evaluation technologies, and the implementation of individual development plans.

**Compensation and Benefits:** These software applications facilitate the administration and oversight of compensation policies and employee benefits packages. Additionally, they contribute to the alignment of pay practices with business objectives.

HR analytics solutions leverage data from many sources to deliver strategic insights to organisations. Customised reports may be generated and trends and difficulties in HR procedures can be identified through their utilisation.

The integration of technology such as artificial intelligence (AI) and automation is having a profound impact on the field of human resources (HR). These technologies enhance operational effectiveness by automating monotonous processes and doing sophisticated data analysis.

The current trend in HR solutions is the use of cloud-based platforms, which offer the advantage of remote accessibility and streamlined updating processes. Nevertheless, several organisations continue to choose on-premises solutions due to concerns over security or adherence to legal requirements.

Customization and scalability are crucial factors to consider when implementing HR solutions, since they need to be adaptable to meet the unique requirements of individual organisations. Additionally, it is imperative that these solutions have the ability to scale in order to accommodate the growth of the organisation.

In brief, the HR software industry provides a diverse array of solutions aimed at streamlining human resources administration, enhancing employee productivity, and fostering a conducive work environment. The expansion and innovation of the technology industry are anticipated to persist as advancements in technology continue to emerge, in order to cater to the demands of contemporary enterprises.

## *4.2 Results and evidences*

The aforementioned start-up, established in the early months of 2020, included a team of four founders, consisting of two individuals who possessed expertise in financial disciplines and two others who possessed talents in the field of information technology. The first endeavour was positioned in a sector closely connected to Glickon, referred to as People Analytics. This field focuses on enabling communication between employees and enterprises, while also measuring key performance indicators (KPIs) produced from the use of business technologies.

The primary focus of this start-up revolved around the implementation of a technology referred to as a "anonymiser," as elucidated throughout the interview. The integration of this technology, in conjunction with the organisational framework of the start-up, served as the primary impetus and driving force for the acquisition by Glickon, as will be further elaborated upon in subsequent analysis.

In the present examination, it is crucial to thoroughly contemplate two essentially significant technological facets. The anonymizer utilised by the start-up Teamsight is of significant importance. In comparison to its rivals, the latter exhibits a notable capacity to effectively filter and anonymize a distinct and limited segment of the data, so assuring its compliance with the rigorous standards mandated by the General Data Protection Regulation (GDPR). In contrast, alternative firms choose to pursue a strategy centred on complete eradication of data, so circumventing any problems associated with regulatory compliance. However, this approach simultaneously undermines the significance of the conducted study.

Another crucial factor contributing to the success of the purchase deal is the technical convergence between the start-up being bought and Glickon. The study reveals that both entities employed the identical programming language in the development of the anonymiser. The technical convergence played a pivotal role in configuring the final product as 'ready-to-go,' so obviating the necessity for Glickon to undertake a prolonged post-acquisition integration procedure. The synergy between the entities involved significantly aided the process of acquisition, hence expediting the seamless integration of the technology into Glickon's business environment.

Another factor of significance within this framework pertains to the organisational structure of the start-up entity that is the focus of the acquisition. It is important to highlight that this transaction was not just characterised as an acquisition, but rather implemented through a strategy sometimes referred to as "acqui-hiring." Acqui-hiring is a form of corporate acquisition when the primary objective of the acquiring business is to recruit or assimilate the target company's talents and people capital, rather than focusing on acquiring its products, services, or assets. The phrase "acqui-hiring" is a neologism that combines the words "acquisition" and "hiring". It is frequently employed within the realm of technology firms and start-ups.

During an acquisition-hiring deal, the acquiring business places its primary emphasis on the human resources of the target company. This may encompass a diverse range of highly specialised people, including engineers, developers, designers, managers, and other pivotal individuals, whose knowledge and competencies are pertinent to the operating requirements of the purchasing organisation. The primary aim of this approach

frequently entails expeditiously expanding the organization's personnel and hastening the advancement of novel items or services.

Nonetheless, it is imperative to underscore that although acqui-hiring presents a symbiotic opportunity for all parties concerned, it can pose difficulties pertaining to the assimilation of cultures and the potential erosion of critical skills within the workforce of the company being acquired. Consequently, it necessitates meticulous and deliberate management.

Hence, the Chief Financial Officer (CFO) underscored the intricate nature of the purchase transaction throughout the conducted interview. The intricacy primarily stemmed from the intention to prevent excessive inflexibility in delineating the pricing criteria and acquisition terms, taking into account the strategic significance of the human resources involved, who would later establish a close working relationship with the purchasing business.

The valuation method refers to the approach used to determine the worth or value of an asset, investment, or company.

The valuation technique utilised in this study is the 'Venture Capital technique,' which has been extensively addressed in earlier literature. According to M. Corte, the Chief Financial Officer of Glickon, the valuation process for start-ups exhibits notable distinctions compared to that of conventional companies. These disparities primarily arise from the absence of a well-established financial revenue history and the inclusion of intangible assets in the valuation procedure. In the specific domain of People Analytics, the use of indicators such as the EBITDA multiple would be unsuitable due to Glickon's historical trend of negative EBITDA over a span of nine years, as well as its projected continuation of negative EBITDA for the subsequent three years, as stated by M. Corte. The aforementioned circumstance is an intrinsic characteristic of a start-up enterprise that is supported by an investment fund, necessitating the reallocation of financial resources within the company's operational framework.

During the process of acquisition, a scenario with a dual perspective was delineated. One hypothetical scenario, characterised as a "worst-case" scenario, was the consideration of the circumstances that might have transpired had Glickon not pursued the acquisition of Teamsight. Furthermore, an alternative scenario, referred to as the 'best-case' scenario, envisioned Glickon's intention to procure Teamsight and incorporate it into its existing operational framework. This strategic move would involve leveraging the acquiring company's client resources and marketing strategies, resulting in a substantial estimated value growth of approximately 50%.

Regarding the due diligence pertaining to this transaction, it is noteworthy that Glickon successfully concluded the acquisition within a relatively little period, namely less than one year subsequent to its prior acquisition by the investment fund. Nevertheless, it is important to highlight that the nature of the due diligence process in this particular instance differed, as it encompassed the purchase of one firm by another. Consequently, the focus of the due diligence operations was directed towards identifying elements that may potentially pose significant risks. As a consequence, there was a restriction on doing comprehensive technical analysis. The sole modification made after the completion of due diligence pertained to the anonymiser, which posed a non-

compliance issue in relation to a mandatory certification. As a result, a mutually agreed upon decrease in the buying price was negotiated, commensurate with the projected expenses associated with implementing the necessary alteration to ensure adherence to the specified standards.

## ***CONCLUSION***

In the concluding section of this master's thesis, it can be asserted that the digital startup ecosystem and mergers and acquisitions (M&A) within this domain constitute a captivating and perpetually developing landscape, significantly shaped by the inexorable progression of technology. During the course of this study, an in-depth examination was conducted on several aspects of the technical realm, including artificial intelligence and its progression, Generative Artificial Intelligence, as well as its applications and practical implementations. The aforementioned elements have been identified as significant catalysts for the value dynamics observed in startups throughout the digital era.

In the subsequent section of the thesis, an exploration was conducted on several methodologies for assessing the value of start-up enterprises. These methodologies encompassed the Berkus approach, the risk factor summation technique, and the venture capital method. The latter has demonstrated a prevailing presence in the startup ecosystem as a result of its capacity to effectively capture the distinctive characteristics of these enterprises. The venture capital approach is predicated upon the notion that venture capitalists actively pursue substantial financial gains. The valuation of a startup involves the assessment of potential future exit scenarios, such as acquisition or initial public offering (IPO), while also incorporating a risk premium to account for the inherent volatility commonly associated with startups. The proposed approach provides a precise and dynamic assessment, which effectively captures the anticipations of investors and accounts for the intricate nature of startup ventures.

The examination of a particular case study, which pertains to the acquisition of Teamsight by Glickon, offers a tangible illustration of the significant significance of the venture capital approach (VC method) in the realm of startup valuation. This particular scenario underscored the significance of the VC method's flexibility and adaptability as crucial instruments in attaining a precise value, particularly in situations when conventional methodologies would be insufficient.

The utilisation of the venture capital (VC) strategy proved to be an essential approach in tackling the distinct and dynamic issues linked to the purchase of Teamsight by Glickon. The utilisation of the VC technique has facilitated the ability to effectively assess the development prospects of the firm and forecast probable financial outcomes, such as the purchase by Glickon. This aspect has significant relevance due to the fact that the assessment of a start-up's value frequently encompasses several potential exit scenarios, and the venture capital (VC) technique provides a robust framework for thoroughly evaluating these alternatives.

Moreover, the adaptability of the venture capital (VC) strategy was apparent in its consideration of the particular circumstances surrounding the transaction. Teamsight, the subject of analysis, possessed a technology that was characterized by a high degree of innovation. However, it was seen that the start-up was in its nascent phase of advancement. This implies that conventional valuation methods, which frequently depend on past financial information, would have been inappropriate.

This thesis provides a comprehensive analysis of artificial intelligence (AI) and generative artificial intelligence (GAI), delving into their possible implications for the global economy and corporate entities upon its integration into operational workflows. Consequently, the study conducted a comprehensive analysis of the intricate dynamics associated with the acquisitions of digital start-ups. These start-ups possess intangible assets, such as artificial intelligence, that form the foundation of their value. However, traditional valuation methods, which were scrutinized during the research, do not adequately capture the emergence of these assets. Consequently, it has become evident that in a dynamic and evolving global landscape, the adoption of agile and adaptable valuation methodologies, such as the venture capital technique (VC method), is crucial for making well-informed judgements and facilitating successful merger and acquisition (M&A) deals within this fiercely competitive industry.



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