

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
UKRAINIAN-AMERICAN CONCORDIA UNIVERSITY

School of Management and Business
Department of International Economic Relations, Business & Management

Bachelor's Qualification Work
Entrepreneurship in tech-related innovation business

(based on Business Media Network case)

Bachelor's student of the 4th year study
Field of Study 29 – International Relations
Specialty 292 – International Economic Relations
Educational program – International Business

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Kyiv – 2023

Abstract

The work is devoted to the subject of entrepreneurship in the tech-related innovation business in Ukraine and other countries of emerging economies in the context of the “BMN” and “Grammarly” companies. The study explores the implications of digital technology entrepreneurship for both theory and practice and analyses the effects of entrepreneurship in the digital technology sector. The evaluation of the company’s technological innovation foundation and its plans for technological and innovative improvement, to understand the peculiarities of technology and innovation activity, is conducted. The research assesses “BMN” company’s efficiency and scope for improvement of its technology and innovation enhancement plans. The ideas for the expansion of tech-related enterprises through innovation by experimenting with various methods and strategies are investigated with offered recommendations.

Keywords: entrepreneurship, innovative business, digital technology entrepreneurship, technology and innovation activity, digital technologies.

Анотація

Робота присвячена темі підприємництва в інноваційному бізнесі, пов'язаному з технологіями, в Україні та інших країнах з перехідною економікою на прикладі компаній “BMN” та “Grammarly”. У дослідженні вивчається значення підприємництва у сфері цифрових технологій як для теорії, так і для практики, а також аналізуються наслідки підприємництва в секторі цифрових технологій. Проведено загальний аналіз, що включає оцінку технологічної інноваційної бази компанії та її планів щодо технологічного та інноваційного вдосконалення, для розуміння особливостей технологічної та інноваційної діяльності. Проведено оцінку ефективності та можливостей для вдосконалення планів технологічного та інноваційного вдосконалення компанії “BMN”. Розглянуто ідеї щодо розширення технологічних підприємств за рахунок інновацій шляхом експериментів з різними методами та стратегіями, а також запропоновано відповідні рекомендації.

Ключові слова: підприємництво, іноваційний бізнес, підприємництво у сфері цифрових технологій, технологічна та інноваційна діяльність, цифрові технології.

PHEE-institute «Ukrainian-American Concordia University»

School of Management and Business

Department of International Economic Relations, Business and Management

Educational level: **bachelor degree**
Specialty: **292 “International Economic Relations”**
Educational Program **“International Business”**

APPROVED

Head of Department Prof. Liubov Zharova



**TASK
FOR BACHELOR’S QUALIFICATION WORK**

Kateryna Bondar

(Name, Surname)

1. Topic of the work:

Entrepreneurship in tech-related innovation business (based on Business Media Network case)

Supervisor of the work *Natalia Chaplynska, Ph.D. in Economics.*

Which approved by Order of University from “22” September 2022 № 22-09/2022-2c

2. Deadline for bachelor’s qualification work submission **“23” April 2023**

3. Data-out to the bachelor’s qualification work_

**Materials from internship received during consultation with representatives of the company.
Information from open resources in the Internet, official reporting of financial and economic activities of the enterprise.**

4. Contents of the explanatory note (list of issues to be developed).

There are three main issues a student should develop in this work:

1. To define technology entrepreneurship, investigate its core components, and examine the implications for digital technology entrepreneurship theory and practice.

2. To evaluate “BMN’s” technological and innovative endeavours, including its company technological innovation foundation and technological and innovative improvement plans, assess its strengths and weaknesses; analyse the efficiency and scope for improvement of the “BMN” company’s technology and innovation enhancement plans.

3. Propose the ways of the expansion of tech-related enterprises through innovation on national and international markets, offer recommendations for growing of tech-related innovative enterprises in emerging economies and give pieces of advice for their progression.

5. List of graphic material (with exact indication of any mandatory drawings)

Graphs and figures for analysis of economical and statistical information on the company and its development, visualization of mechanism of development, etc.

6. Consultants for parts of the work

Part of the project	Surname, name, position	Signature	
		Given	Accepted
1	<i>Natalia Chaplynska, Ph.D. in Economics</i>	+	+
2	<i>Natalia Chaplynska, Ph.D. in Economics</i>	+	+
3	<i>Natalia Chaplynska, Ph.D. in Economics</i>	+	+

7. Date of issue of the assignment

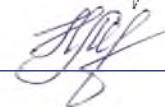
Time Schedule

№	The title of the parts of the bachelor's qualification work	Deadlines	Notes
1.	I chapter	<i>31.12.2022</i>	<i>In time</i>
2.	II chapter	<i>20.02.2023</i>	<i>In time</i>
3.	III chapter	<i>11.04.2023</i>	<i>In time</i>
4.	Introduction, conclusions, summary	<i>23.04.2023</i>	<i>In time</i>
5.	Pre-defense	<i>26.04.2023</i>	<i>In time</i>

Student



Supervisor



Conclusions:

The Bachelor's qualification work is designed at the high level, and its content and structure fully meet the methodological requirements. The study provided a meticulous analysis of the enterprises in tech-related innovation sphere. The work contains all the necessary parts of scientific research with empirical and theoretical recommendations. The paper includes a well-developed theoretical approaches to the entrepreneurship, discover the bases of technological innovations, describe very deeply theoretical and practical aspects of digital technology entrepreneurships, provide analysis of these aspects on the case of Business Media Network. The practical recommendations were formulated correctly and focused on the main goal and tasks of the work. In general, if successful defense, the thesis can claim to be "excellent".

Supervisor



(signature)

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INTRODUCTION

Relevance of the topic. Modern business is heavily reliant on technology entrepreneurship, with an increasing number of tech-based businesses driving innovation, generating employment, and boosting the economy. With an emphasis on managing innovation and entrepreneurship in the context of a technology-based organization, this bachelor's thesis intends to study the fundamental aspects of technological entrepreneurship.

In the quickly changing digital world of today, technology entrepreneurship has become a vital engine of economic growth, job creation, and innovation. The number of tech-based businesses has significantly increased in recent years, and many of them have developed novel goods, services, and business models that have completely altered numerous industries. The COVID-19 pandemic has additionally accelerated the use of digital technologies, emphasizing the significance of technology entrepreneurship for competitiveness and economic resilience. In recent years, technology entrepreneurship has increased significantly in Ukraine, a nation with a long history of invention and technological achievement. The IT Ukraine Association's 2020 report states that over the previous five years, the Ukrainian IT sector has expanded by 20% annually, bringing in \$5.4 billion in total revenue in 2019. The rising number of IT businesses and qualified workers in Ukraine, as well as the country's hospitable business environment for tech startups, have all contributed to this expansion. In light of this, it is now more crucial than ever for technology-based businesses to manage innovation and entrepreneurship since these businesses must stay competitive by staying on the cutting edge.

However, the issue of overcoming uncertainty, technological change, and disruptive innovation makes managing innovation in technology-based enterprises a challenging endeavour. Success depends on having a solid understanding of the fundamentals of technology entrepreneurship and knowing how to manage innovation and entrepreneurship within the framework of a technology-based organization.

Scientific elaboration of the research problem. As technology has evolved to reshape and challenge numerous industries, entrepreneurship in tech-related innovation business has become increasingly prevalent. Researchers from both the West and Ukraine have studied this subject from diverse angles. Researchers from Ukraine, including O. Sytnyk and M. Filippova, have examined the growth of digital companies in Ukraine, noting the difficulties that business owners confront when it comes to financing, legal requirements, and access to talent. In order to promote innovation and growth, they also stress the significance of networking and cooperation within the ecosystem.

Western researchers have focused on the idea of the lean startup methodology, which prioritizes experimentation, iteration, and customer input in the early stages of a startup. Examples of these researchers are S. Shane [70] and E. Ries [69]. Additionally, they underline how venture capitalists and angel investors assist and finance tech firms. In addition, researchers R. McGrath [72] and E. Knight [71] have also studied the idea of disruptive innovation, looking at how new technology might fundamentally alter current industries and open up new business prospects.

The studies conducted by both Western and Ukrainian researchers will play a crucial role in advising policymakers and businesspeople on how to effectively navigate this dynamic and quickly changing environment as the digital industry continues to develop and shape various sectors of the economy. Thus, it can be said that it is necessary to continue research in this sphere.

The Chapter I gives a general overview of technology entrepreneurship while studying the concept and core ideas put forth by academics in the subject. This chapter also examines the organizational structure, procedures, and resources that support innovation and entrepreneurship in the corporate setting. In order to emphasize the significance of technical innovation and entrepreneurship in promoting economic growth and prosperity, the chapter concludes by examining the implications of digital technology entrepreneurship for theory and practice. Policymakers, investors, and entrepreneurs may make better choices about how to

promote innovation and entrepreneurship in Ukraine and other emerging countries by being aware of these features of technological entrepreneurship.

A thorough analysis of “BMN”, a technology-based business renowned for its innovative goods and services, is provided in Chapter II. The chapter begins by giving a thorough description of the business, including its background, mission, vision, and goals. The company’s approach to technology and innovation is then examined, along with the crucial elements that have contributed to its success in these fields. These elements include a dedication to customer-centric innovation, a strong R&D emphasis, investments in emerging technologies, and a culture that encourages experimentation and risk-taking. The corporate technical innovation foundation of the corporation is also explored in this chapter, along with its organizational design, operational procedures, and entrepreneurial support systems. The chapter concludes by analysing the company’s methods for enhancing technology and innovation, which include product development, open innovation, and strategic partnerships.

The methods for improving technology and innovation techniques through enterprise inventive activity management in “BMN” organization are the main topic of Chapter III. The chapter begins by looking at how technology and innovation have affected the workplace within the organization, emphasizing the value of training and development programs for staff members to provide them the skills and knowledge they need to keep up with the quickly evolving technological landscape. The chapter then makes recommendations for fostering open innovation methods and partnerships with academic institutions, research organizations, and other technology firms to expand technology-related enterprises through innovation. The chapter also makes suggestions on how innovative technology-related enterprises should develop, including the necessity of governmental policies that encourage technology entrepreneurship and innovation ecosystems. The chapter concludes by evaluating the potential for the growth of creative technology-related enterprises in emerging economies, stressing the opportunities and difficulties that these markets present. Entrepreneurs, politicians, and investors in Ukraine and other emerging countries can create effective strategies for advancing

technology and innovation practices and promoting a culture of innovation and entrepreneurship by comprehending these ideas and recommendations.

This bachelor's qualification work **aim** is to examine technology entrepreneurship in the context of "BMN", a technology-based company that has achieved success through its approach to innovation and entrepreneurship.

In order to achieve this aim, the following **tasks** were set:

1. To define technology entrepreneurship, investigate its core components, and examine the implications for digital technology entrepreneurship theory and practice.
2. To comprehend and evaluate the value of corporate technological innovation in technology entrepreneurship.
3. To examine the effects of entrepreneurship in digital technology on theory and practice.
4. To understand the peculiarities of the technology and innovation activity within "BMN" company, perform a general analysis of it.
5. To evaluate "BMN's" technological and innovative endeavors, including its company technological innovation foundation and technological and innovative improvement plans.
6. To assess "BMN" company's corporate technical innovation base to determine its strengths and weaknesses; analyse the efficiency and scope for improvement of the "BMN" company's technology and innovation enhancement plans.
7. To understand the significance, look into how innovation and technology have affected the working environment at "BMN" company.
8. Create ideas for the expansion of tech-related enterprises through innovation by experimenting with various methods and strategies; do a thorough investigation to determine the potential for growth of tech-related innovative enterprises in emerging economies and offer recommendations for their progression.

The research subjects are the technology entrepreneurship and innovation in a technology-based company, and the “BMN” company’s technology and innovation activities together with the “Grammarly” company.

The research objects are analysis of the corporate technological innovation base, analysis of “BMN” and “Grammarly” businesses’ technologies and innovation enhancement initiatives; analysis of technology and innovation activity within “BMN” organization; methods for improving the technology and innovation techniques of the “BMN” company through enterprise innovative activity management, including the impact of technology and innovation on the workplace, suggestions for expanding tech-related businesses through innovation within the company, recommendations for the development of tech-related innovative businesses, and an evaluation of the potential for their growth in emerging economies.

A variety of research techniques were used in the qualification work on technology entrepreneurship and innovation in the technology-based enterprise “BMN” to fully investigate the subject. In this study, **the main research methods** used were case study analysis, literature review, and survey research.

The first chapter defined and gave an overview of technology entrepreneurship and its key components using the literature review method. To get a thorough understanding of the subject, it involves evaluating several definitions of technology entrepreneurship and its related concepts. The methodology was also applied in the second chapter's analysis of corporate innovation in technology and in the third chapter's suggestions of ways to enhance technology and innovation techniques.

In the second chapter, the technology and innovation activity within the “BMN” and “Grammarly” companies was examined using the case study approach. Data on the organization's innovation and technology management practices, as well as its initiatives for enhancing innovation, was gathered and analyzed. In order to offer insights into how the company could improve its innovation and technology management processes, the case

study approach was also used to analyze the “BMN” company's technology and innovation enhancement initiatives.

Finally, in the third chapter, the impact of technology and innovation on the working environment was evaluated using the survey research method. The survey research was also utilized to collect suggestions for the evolution of tech-related innovative firms as well as proposals for the growth of businesses associated with technology through corporate innovation. An evaluation of the potential for the growth of tech-related innovative enterprises in emerging economies was also a part of the survey research.

The theoretical value of the obtained results lies in an in-depth explanation of technological entrepreneurship, practical insights into management techniques for technology and innovation, and suggestions for improving these practices. This work can provide significant insights for the creation of efficient technological entrepreneurship and innovation management strategies, as well as influence future research and practice in this field.

The practical value of the obtained results lies in detailed suggestions for enhancing technology and innovation management practices in technology-based organizations. It is possible to apply the study of the technology and innovation activity within the “BMN” and “Grammarly” companies and the suggested methods for improving its technology and innovation procedures through enterprise innovative activity management to other organizations of a like nature. Insights about the potential for technology entrepreneurship in emerging economies can be gained from assessments of the potential for the growth of tech-related innovative enterprises in these countries. Overall, the acquired results have practical significance since they offer practicable recommendations for enhancing technology entrepreneurship and innovation management techniques, which can benefit emerging economies and technology-based businesses.

A Bachelor’s qualification work consists of an introduction, 3 chapters, conclusion, list of references and 2 annexes. Work is carried out on 96 sheets, containing 9 tables, 10 formulas and 11 figures. References include 71 literature sources.

CHAPTER I. TECHNOLOGY ENTREPRENEURSHIP: AN OVERVIEW, DEFINITION, AND FUNDAMENTAL ASPECTS

1.1 Defining technology entrepreneurship and its aspects in proposed definitions

Innovation, technology, and entrepreneurship generate business transformation synergies. Innovation and technology enable businesses to adapt and change, which is crucial to their survival and growth. Technology frequently drives innovation, which assists businesses in creating new opportunities and monetizing them for profit. Innovation and technology enable firms to enhance the usage of their existing products, discover new applications for them, and even create entirely new goods and services [1].

Early Phoenician enterprise in the 11th century B.C. paved the way for modern-day enterprise. The study of entrepreneurship as a business school discipline is just around twenty years old, but its range and significance have exploded during the previous five years. This is due largely to the boom of new technologies pertaining to virtually every aspect of human interest, including communication, manufacturing, processing of information, biotechnology, and medical science. The primary driver behind the invention of these new technologies has frequently been entrepreneurs in all their forms, chasing a goal that was frequently inspired by the need for independence. And occasionally, entrepreneurs have been employees of large firms who have been given the freedom to achieve a goal, and who have acted as virtual entrepreneurs or intrapreneurs, generating significant new industries along the way.

In addition to the traditional conception of the entrepreneur as the creator of new businesses, the reality of running a company in the present fast-paced business environment requires all CEOs to think and behave entrepreneurially. Consequently, it can be concluded that entrepreneurship encompasses both the study of the function of the CEO in organizations of all sizes and the research of tiny, high-growth businesses.

Entrepreneurship also contributes to the creation of company transformation synergies through its change management strategy [2]. This strategy of entrepreneurs assists in

connecting people, processes, and technology within a business, hence fostering technological synergy. Second, actions are carried out that correspond with the organization's goals, objectives, and ambitions. Entrepreneurs have a high tolerance for risk, which frequently results in the development of revolutionary processes, services, and products. All these factors contribute to corporate change.

Rarely is the same technological approach optimal everywhere. The value of an innovation is determined by climatic, socioeconomic, and ecological factors [3]. Significant inventive activities involve the adaptation of technology solutions to particular contexts. Without adjustment, the distribution of technologies between nations may result in negative ecological side effects and waste. Numerous variants of technology may exist to fit the needs and skills of multiple users in a country, for instance, varieties of a piece of farm equipment for massive use versus small farmers. The building of innovative competency begins with the build-up of support for and acceptance of innovations and new technologies.

The most important responsibility of businesspeople is to reform or recreate the pattern of value creation by leveraging inventions. The modern economic environment defined by globalization, knowledge, the growing role of innovation in national innovation systems, and the significance of technology entrepreneurship as a component in the production of wealth lead to the rise of new forms of entrepreneurial ecosystems. Some businesses are more advanced than others due to the effective use of new technologies and the encouragement of technical entrepreneurship. Several terms and definitions for technological entrepreneurship are used in scholarly studies, including technology entrepreneurship, technical entrepreneurship, techno-entrepreneurship, and technology entrepreneurial ecosystems [4]. The most cited authors, Dorf and Byers, define technological entrepreneurship as a style of business leadership characterized by the identification and capitalization of high-potential human resources, technology-intensive commercial opportunities, the management of accelerated growth, and substantial risk-taking [5].

From a research standpoint, the notions of artefacts, platforms, and information infrastructure in information systems are considerably more similar to digital entrepreneurship

[6]. Many times, digital entrepreneurs only really care about the service that is built on the technology that drives their business idea. Technology is merely an input factor in this situation. Entrepreneurship in digital technology is related to technology since its goods are technological.

Technology entrepreneurs, according to Shane and Venkataraman (2003), differ from traditional entrepreneurs in that they heavily rely on three factors: 1) actions that reduce uncertainty and manage knowledge flows; 2) the state of the larger technological system and institutional environment; and 3) the results of patent protection and access to complementary resources.

I am to provide various but related forms of technological entrepreneurship to examine potential discrepancies between alternative characterization studies. Annex A provides a preliminary idea of the multiplicity of forms that technology entrepreneurship can take rather than attempting to provide a full description. Even in the most extreme case of pure digital entrepreneurship, it can be argued that this type of business rarely fits into a technology-push perspective and is instead much more in line with ideas like demand-driven approaches to technological innovation in the context of market-pull [7].

In the absence of a specific definition of technology entrepreneurship, it is impossible to evaluate if we are still within the fundamental concept's parameters. In the recent detailed evaluation of the literature, Ferreira and colleagues (2016) [8] choose a broad definition of technological entrepreneurship, proposing that it is a mix of entrepreneurship and technology-based innovation. Likewise, Beckman and colleagues said in a special issue on technology entrepreneurship that it is a form of entrepreneurship that seeks to identify opportunities associated with scientific and technological developments.

The definition of "technology" has presented an unforeseen obstacle to this conception. Although the majority of research on technology entrepreneurship began by examining new competitors in high-tech industries, a great deal of attention has been paid to the technology commercialization activities of new enterprises, such as academic spin-offs. Consequently, the phenomenon under study was normally classified as a technology-push situation in which the

entrepreneur was tasked with finding an application for a unique and sophisticated technology and creating a market for it. But how well does this perspective align with digital technology-based entrepreneurial activity? According to a recent article by Nambisan, the digitalization of “technology” not only modifies its features but also influences the technology entrepreneurship process as a whole. This appears to have significant effects on entrepreneurial processes in general.

Technological entrepreneurship can also be viewed as various methods through which an entrepreneurial endeavor assembles resources, technical systems, and strategies to seek possibilities [9]. Technology entrepreneurial ecosystems or technical entrepreneurship can be analyzed on multiple levels and from a multidisciplinary standpoint. Over nine essential parts of the technology entrepreneurial ecosystem are identified, including new technological ventures, communities, universities, corporations, money and investments, markets, business sectors, government, professionals, advisers, accelerators, and hubs. The entrepreneur is the most essential element of the technology entrepreneurial ecosystem, as he is the primary driver for the formation of new business sectors and the expansion of start-ups. Entrepreneurs in the technology sector have more technological abilities and competencies than non-technical ones, such as business skills. The change of an entrepreneur’s mentality into a manager’s is a crucial aspect of a new venture’s success. Entrepreneurs in the technology sector must comprehend the evolution of their firms, the significance of managerial abilities, and most importantly, a strategic attitude. Independence, exploitation of opportunity, and creation of value are the three most essential motivator drivers for technical entrepreneurs.

Entrepreneurship based on technology increases the number of novelties, innovations, and R&D items on the market. If technology is involved, entrepreneurship consists of introducing significant changes to both existing and emerging markets, compared to traditional entrepreneurship. For a technology-based entrepreneur, opportunity recognition begins with the perception of a need and culminates with inventive solutions whose future potential economic worth has been evaluated and identified. If the creator understands the entrepreneurial ecosystem, the new business will generate value. Information and knowledge

should have been obtained in order to address crucial questions concerning the business strategy, the new enterprise, and the markets.

Entrepreneurs will expand their resources and knowledge of technology, markets, management skills and competencies through their professional networks, but their ability to absorb and comprehend the components of the entrepreneurial ecosystem and their interrelationships will limit their growth. Techno-entrepreneurs will design and revise their vision and strategy regarding business environments and startup capacities. Proactive entrepreneurs will comprehend the business climate and innovate the business model in order to maintain or become successful. Additionally, technology parks will play a significant role in entrepreneurial ecosystems and in encouraging the competitiveness of businesses [10]. The primary function of technology parks is to connect components such as communities, universities, government agencies and organizations, and resources, as well as to promote innovation through partnership. Technology parks provide infrastructure, consultancy and support services, and act as an interface between academic institutions and businesses. The most important goals of technological parks are to foster the emergence of technological companies with a high degree of innovation based on optimal circumstances, to serve as an interface between the scientific and business communities, to promote the growth of the national economy, and to offer technical and business consulting services.

Additionally, corporations have a significant influence on technology ecosystems. In addition to the innovative nature of corporate entrepreneurship activities in large, medium, and small businesses, spin-offs can be created when employees desire to apply their talents and knowledge to a new startup.

Before implementing a company idea into a new venture, entrepreneurs cite a lack of networking relationships and industry professionals as a significant obstacle. The absence of early identification harms relationships with partners and customers, and the validation of business ideas is challenging. These relationships may be generated by cohesion elements of an entrepreneurial environment. Before beginning a business, all entrepreneurs lack experience and expertise in entrepreneurship and business. They have few abilities in entrepreneurship and

business, are unaware of how to launch a startup, and so have drastically diminished prospects of convincing investors. Therefore, business knowledge is essential, not only for launching and expanding a business but also for making it more competitive and attracting the required financial resources to sustain growth [11]. In my research, the main goal of which was to identify the most significant obstacles, namely the opportunities and threats recognized by entrepreneurs during the first stage of business formation. Due to the dangers posed by business instability, entrepreneurs usually make more conscious choices. Over time, the majority of surveyed entrepreneurs transformed their entrepreneurial thinking into management thinking that is more strategically centered on opportunities and enhancing corporate competitiveness. During the business development phases, this type of shift was more obvious. Entrepreneurs' conditions have become increasingly challenging as a result of business growth, and their duties have expanded with time.

Nevertheless, entrepreneurs have become more conscious and start acting more responsibly in new situations. Additionally, when individuals must make decisions with significant risks, they must improve certain talents. At the growth and maturity stages, entrepreneurs were less ready to take risks. Entrepreneurs are believed to be more susceptible to making risky judgments. Because business complexity develops over time, business development transforms entrepreneurial thought. It has been also concluded that startups are conforming to the requirements of global corporations, which is another obstacle. Although multinational corporations prefer the security of legal agreements, entrepreneurs have discovered that the flexibility and adaptability of their startups are necessary for the company to remain competitive. Due to the formality and operational processes that distinguish organizations with a high degree of vertical organizational hierarchy, the majority of entrepreneurs believe that strategic flexibility is especially crucial in dealings with major clients. Therefore, a startup or an entrepreneur should adopt proactive tactics to comprehend customer behavior and be adaptable in modifying the approach to the client's policies and procedures.

Cash flow is one of the most commonly mentioned issues among businesses. Regardless of the level of development of the business, entrepreneurs viewed finance planning as crucial to

ensuring the future stages of development. Considering the capacity of entrepreneurial ecosystems to develop necessary skills, entrepreneurs have differing viewpoints. Numerous abilities are required for the effective operation of an information technology startup, including engineers with expertise in information technology and superior technical and business skills. Entrepreneurs claim they can obtain specialized human resources in the field of computer technology due to the educational component of the entrepreneurial ecosystem, but at the national scale, they believe there is a shortage of capabilities in social and economic sciences. According to entrepreneurs surveyed, it is exceedingly challenging to locate suitable personnel in fields such as project management and marketing of information technology products. Other entrepreneurs reported that it is exceedingly challenging to discover and recruit strategic human resources for business development phases. It appears from the survey that all entrepreneurs while starting a business, were extremely dynamic in their efforts to respond to business opportunities as soon and effectively as possible. They replied to product demands with samples because their time to market is highly condensed. This opportunistic conduct, such as learning by doing, was a solid strategy, particularly if the entrepreneurs established a plan to enter a new market with new items, leaving product enhancement for later stages. Strategic proactivity and adaptation to consumer needs lead to additional competitive advantages for firms that have achieved the initial phases of growth.

The behaviour of businesspeople with a higher risk and uncertainty sensitivity reflects their mentality. Specifically, it is preferable for them to test a business idea, product, or service directly with the market, even if it is risky.

1.2 The corporate technological innovation base

When developing the management structures of high-technology organizations, technical innovation appears to have been mainly undervalued in the past. The majority of businesses organize themselves around the conventional functions of finance, marketing, production,

human resources, and research and development. Many also identify an engineering function, which focuses on advanced design and development or the reproduction of existing advanced technologies. At first glance, it may seem acceptable to connect the technological innovation base with the R&D and engineering responsibilities of the organization. However, this is an overly simplified comparison. Even though the R&D and (if present) engineering functions are where the technological innovation process begins, it continues and presents itself in other organizational roles [12].

This argument is shown by Porter's value chain's technology development activities [13]. His method of incorporating technology into the organization is conceptually interesting, but to meet urgent needs, a descriptive method will serve.

The technological innovation base must be generally defined enough to include both R&D and other technological activities undertaken in other organizational functions that contribute to the innovation process' business potential. The components of the technical innovation base should be assessed systematically and developed to match the company's overall technological attitude, as a consequence of this broad idea.

Building and encouraging an innovative organization is an important part of innovation and its management. An innovative organization is one in which most or all employees are aware of innovations created elsewhere, consider how these innovations could improve their own firm's business, create (and help each other create) innovations within the firm's walls, assist customers in using innovative products, and eventually reach a point where a high percentage of the firm's sales are comprised of new and innovative products, thereby achieving a high percentage of new and innovative products in the market. Technology policy, research and development management, new product development, technology forecasting, technology scanning and assessment, technology replacement, technology acquisition, technology transfer, technology adoption and dispersion, intellectual property management, and technology marketing are all components of technology management.

The rate of technological advancement in these early decades of the 21st century is mind-boggling. This is the case not only in technological fields that have been around for a while,

such as transportation, communications, computers, and agriculture, but also in fields that are very new to society, such as biotechnology, nanotechnology, and cognitive technologies. Even in more peaceful times, there are chances for technology entrepreneurs to start their own businesses. However, in times like the present, technological development provides a world of unlimited entrepreneurial opportunities.

The importance of entrepreneurship for the growth of an area or state is generally accepted. However, the issue of how to encourage entrepreneurship still exists. Entrepreneurial ecosystems have gained popularity in recent years as a way to explain high-growth entrepreneurship, and research on how entrepreneurs interact with their environments shows that successful entrepreneurial ecosystems are associated with high rates of entrepreneurship [14]. The ecosystem's output has traditionally been understood to be entrepreneurship or entrepreneurial activities.

The COVID-19 pandemic has accelerated the transformation of the global economy and business practices brought about by new digital technologies during the past few decades [15]. The nature and structure of businesses as well as the overall economic environment are starting to shift as a result of digital technologies and their usage. Particularly, digital technologies are transforming how businesses produce, sell, and distribute goods and services and help to raise living standards and the economy. As a result, more chances are becoming available for entrepreneurs to take advantage of. In this perspective, digital technology is seen as one of the major external enablers in entrepreneurial ecosystems, along with other enablers like culture, institutions, and demand. Despite its significance, research on how digital technology affects entrepreneurship has received little attention, and there is little concrete evidence to back up the claim that it encourages entrepreneurship in a given nation or region. Entrepreneurial ecosystem research has acknowledged that digital technology modifies the dynamics of interactions among ecosystem participants and strengthens the bonds between them [16].

It is now more obvious what works in e-commerce, specifically what causes a buyer to trust a non-local retailer whose only "face" is a homepage. Intellectual property (IP) management has gotten increasingly comprehensive, with patents being used not only to protect a company's

own technology, but also to define industry standards, negotiate cross-licenses, and issue countersuits when a company confronts violation lawsuits.

“Life patents” have become a sensitive subject in the international IP arena, as transnational corporations appear to rob poor nations of their genetic heritage [17]. As local farmers cultivate genetically engineered crops, they become hostages of international seed companies on the import side.

Environmental damage is a risk in both instances. In terms of technology policy, World Trade Organization regulations will affect the local content and technology transfer requirements applicable to international investors.

The results of a poll of CEOs of technology-intensive enterprises are presented in Table 1.1. It is evident from the table that the interests of executives of large, established enterprises and leaders of small, entrepreneurial firms are vastly different.

Table 1.1

Technology executives' top concerns

In large companies:	In small, growing companies:
Increasing innovation speed	Access to essential and helpful data
Coordinating R&D for enterprise development	Making the correct business connections through networking
Incorporation of technology strategy into business planning	Compliance with federal, state, and local laws
Focusing R&D on both the long- and short-term	Recruiting competent personnel

Continued tab.1.1

Reduced timeframe in R&D, Information Technology/Information Systems	Effective advertising
Measuring and enhancing R&D performance	Investing in the appropriate Information Technology/Information Systems
Access to a skilled labor force	When will the economic recession end?
Management of knowledge	Capital access

Source: Phillips, F. (2009). *Managing Innovation, Technology, Entrepreneurship* [Kindle Edition]

A product innovation, a process innovation, a financial innovation, or an organizational innovation can all be the foundation of an entrepreneurial venture. It could even be based on marketing innovation, such as developing an appealing approach to deliver a product (with a flooded market) to a new and rising consumer base. Table 1.2 illustrates many types of innovation. These are only a few instances. The extent of the invention is only limited by the entrepreneur's imagination and the technology available.

Table 1.2

Examples of different types of entrepreneurial innovation

Innovation type	Example
Product development	Gyro scooters
Process improvement	A robotic production line

Organizational innovation	Outsourcing customer support to an Indian phone bank
Marketing creativity	Outlet shopping centers

Source: compiled by author

As can be seen, venture funders prefer a “10x advantage”. This means that in the high-risk game of investing in entrepreneurial start-ups, a sufficient return can only be generated by an innovation that provides an order-of-magnitude improvement in the customer’s productivity, health, wealth, or enjoyment relative to the alternatives currently available to that customer. Therefore, the common marketing concept of the “product category” is irrelevant when discussing entrepreneurial innovation. A product category is a grouping of similar products that a certain customer segment views as suitable substitutes. A new method of delivering the same benefit with a 10x benefit cannot be compared to any existing product or service. Almost usually, an entrepreneurial innovation comprises a new product category, with all the extra marketing expenses and difficulties that accompany it.

The entrepreneur is tempted to believe that a 10-x advantage will sell itself. In truth, the bigger the suggested variance from the status quo, the higher the customer’s resistance to the change. This is a significant increase. Because of this, it is always simpler to introduce an evolutionary enhancement to a product category already on the market. Entrepreneurial business ideas consistently underestimate the required marketing budget and marketing creativity.

1.3 Implications for theory and practice of digital technology entrepreneurship

The digital transformation of most input technologies utilized by entrepreneurs to propose their new innovative enterprises has expanded the number of potential technology

entrepreneurs. Instead of suggesting a conceptual framework between digital and technology entrepreneurship, I suggest describing the evolution of “technology” as a vast spectrum between the commercialization of the most recent scientific breakthroughs (such as graphene) and the most recent application for smartphones (e.g., a new food delivery app). Figure 1.1 depicts the overlap between these concepts.

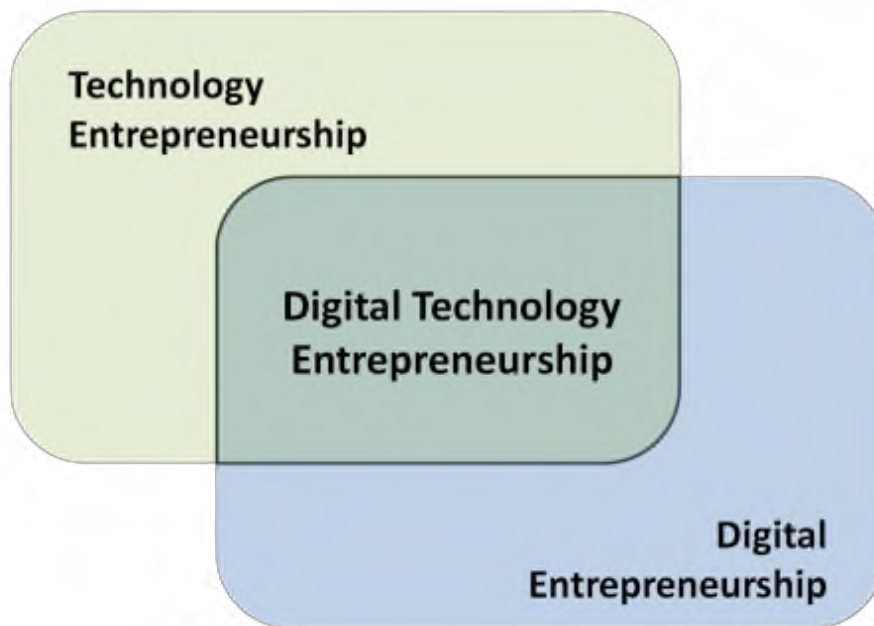


Figure 1.1 Digital technology entrepreneurship: a conceptualization of a unique type of technology entrepreneurship. (Source: Giones, F., & Brem, A. (2017). Digital Technology Entrepreneurship: A Definition and Research Agenda. *Business Technology Innovation Management Review*)

Therefore, the idea of digital technology entrepreneurship integrates technology and digital entrepreneurship. I offer to expand Bailetti’s (2012) definition of technology entrepreneurship to include specific aspects associated with this particular form of entrepreneurship: digital technology entrepreneurship is centered on the recognition and exploitation of possibilities based on scientific or technological knowledge through the creation of digital artifacts. Entrepreneurs in the digital technology industry create businesses based on technologies on the one hand and services on the other.

The expansion of the concept suggests that this type of entrepreneur faces not only the difficulties of technical or scientific advancement but also the complicated aspects of digital platforms and infrastructures (Nambisan, 2016). Digital technology entrepreneurs rely on innovative ecosystems in addition to digital entrepreneurs. They merge technological product expertise (“technology push”) and customer information (“market pull”) in a strategic manner. Researchers could use many definitions of entrepreneurship to understand more about the personal motivations and starting behaviors of entrepreneurs, as well as their funding preferences, etc. One may additionally believe that such designations may not apply to entrepreneurs. However, entrepreneurs who aspire to launch a business may benefit by consciously deciding which type of technology entrepreneur they wish to be.

In fact, the incorporation of digital technology as input for entrepreneurship creates additional opportunities for researchers, entrepreneurs, and policymakers. Below, I explain the implications of new definitions of technology entrepreneurship, digital technology entrepreneurship, and digital entrepreneurship for each of these categories:

1. **Researchers.** In older types of technology entrepreneurship, the essential decision for the entrepreneur was whether to license their technology or commercialize their product. When digital technology entrepreneurs seek to market their solutions, they are engaged in an interconnected system; it is an environment where platforms and distribution channels matter and where standards or dominant designs can dictate the limitations and adaptability of goods.

2. **Entrepreneurs.** Incorporating digital components into the technological entrepreneurship process shows a positive aspect for entrepreneurs. For instance, the digital characteristics of technology support the implementation of born-global strategies. These businesses may rapidly expand their product lines and target a global market. In addition, the digitization of manufacturing processes enables companies to be both agile and global, so breaking the old barriers of technological entrepreneurship. Changes are occurring in entrepreneurial activities such as resource acquisition; digital technology offers new opportunities. The ability to bring up early functional prototypes that can be utilized in

reward crowdfunding campaigns radically transforms the new company's technological innovation management process. With so many potential futures, the capacity to build and innovate a company model is crucial. The digital potential of technological enterprises has a negative side. For ambitious digital entrepreneurs moving into emerging ecosystems, where the roles of each stakeholder are still unknown and the underlying technology is still evolving, rapid development and large jumps ahead are sometimes accompanied by increased failure risks. Westerlund, Leminen, and Rajahonka use the example of newcomers on the Internet of Things (IoT) ecosystem to illustrate how the ecosystem's lack of structure and stable standards increases the complexity of entrepreneurs' decisions.

3. **Policymakers.** The impact of digitization surpasses the characteristics of the entrepreneurial procedure. The successful I-Corps program (<http://www.nsf.gov/i-corps>) run by the National Science Foundation in the United States is an example of how digital technology entrepreneurship is also generating new policy and support systems. New technologies' digital base allows for quicker approaches to market validation and early-stage expansion.

When a genuine innovation is offered to the market, uncertainty and competition occur. Consequently, one standard or design becomes dominant, and market growth is predictable until the later stages of the product's life cycle when it begins to slow. At that point, newer technologies will be introduced, producing a situation known as "technology substitution". The unpredictable competition phases of the life cycle are represented by a wavy line in Figure 1.2, while the more predictable middle phase is depicted by a solid line.

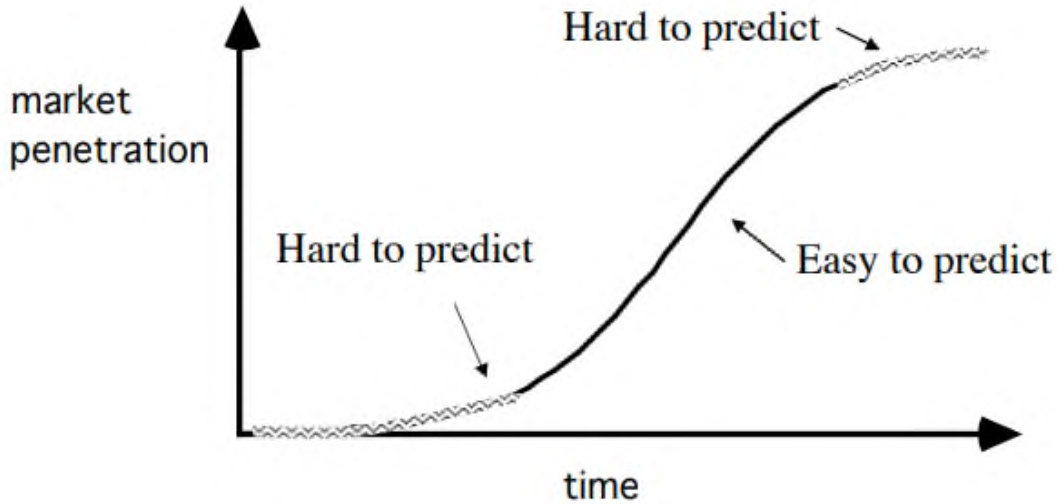


Figure 1.2. Predictability and the technology life cycle. (Source: Source: Phillips, F. (2009). *Managing Innovation, Technology, Entrepreneurship* [Kindle Edition])

One example would be the distribution of broadband digital services to the household. Initially, DSL was in competition with coaxial cable as a delivery system. At least in the United States, the cable appears to be winning. When the growth of cable slows in the future, satellite or other distribution techniques may become dominant (Figure 1.3).

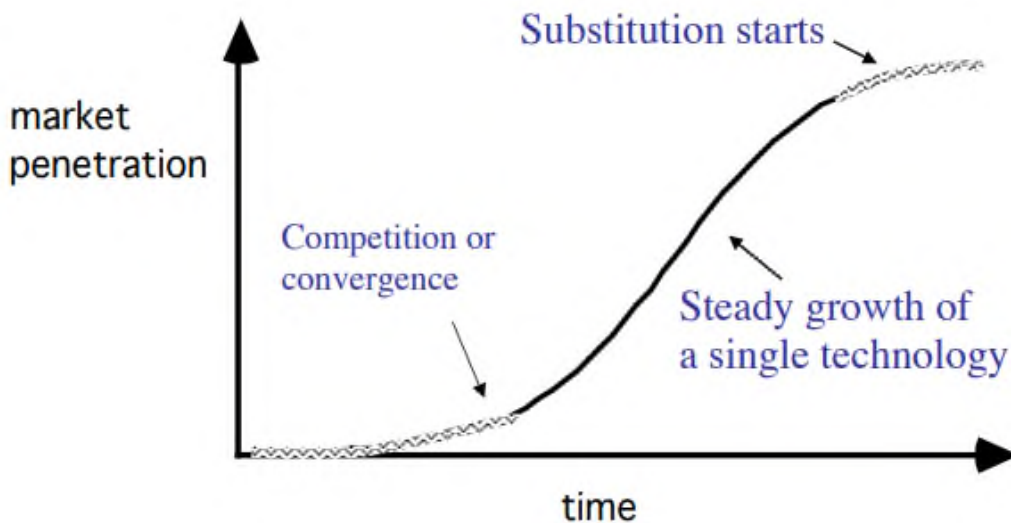


Figure 1.3. Effects of technology throughout the life cycle. (Source: Phillips, F. (2009). *Managing Innovation, Technology, Entrepreneurship* [Kindle Edition])

Entrepreneurs are prepared to take on the dangers of these “fuzzy ends”, whereas large, established firms are not. It is in the best interest of huge corporations to allow entrepreneurs to assume risk. Eventually, the large companies will benefit from the ideas of the entrepreneurs, either by acquiring the most successful entrepreneurial organizations or by developing supplier agreements with them (Figure 1.4).

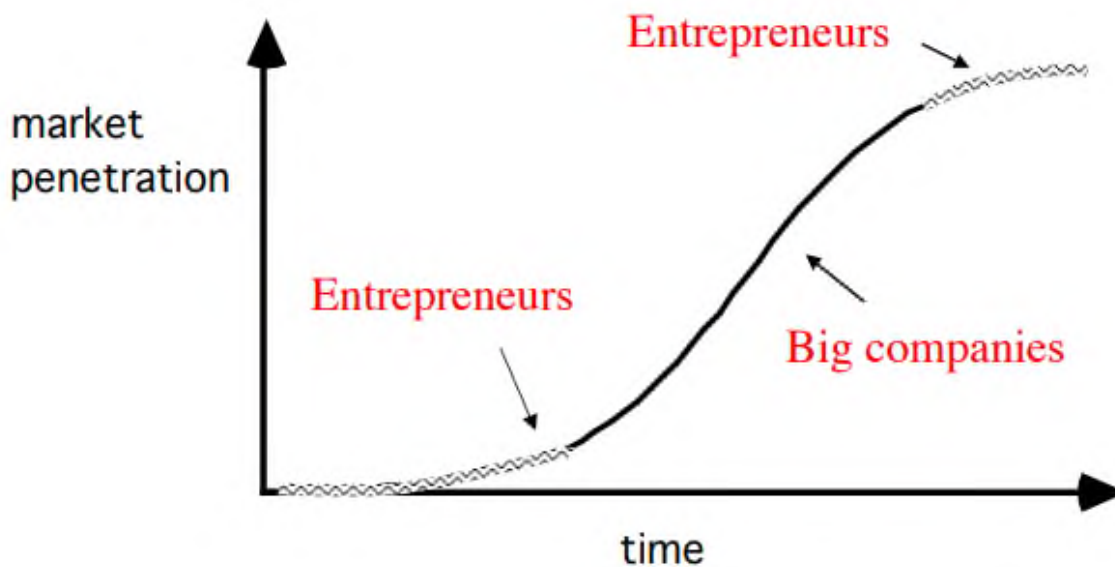


Figure 1.4. Who assumes the risk? (Source: Source: Phillips, F. (2009). *Managing Innovation, Technology, Entrepreneurship* [Kindle Edition])

Technology fusion is the trend of integrating existing technology to create new goods. Fumio Kodama argued in a *Harvard Business Review* article that when markets determine the R&D strategy, market data are transformed into a product concept. In turn, the product concept stimulates the development of technology from various resources.

Moreover, as Kodama continued, there is such a multiplicity of recent technological advancements in the world’s corporations, industries, and locations that a company can release new items in this manner for decades without conducting additional basic scientific study. He compares this process of technological fusion to that of producing new goods by focusing R&D

on the continuous advancement of a single technology. The thesis of Kodama has far-reaching implications:

- No single business can acquire all the necessary technologies to succeed in a competitive industry. Today's corporate environment necessitates a variety of franchising, outsourcing, and other inter-firm technology transfer techniques.

- Technology monitoring is becoming increasingly important. Companies must collect intelligence from a wider range of sources than in the past, including from sources other than their most obvious competitors. The "invisible competitors" of an organization exist in a separate industry and possess technologies that could pose a danger if applied to new markets. A bright example was when flash memory device manufacturers posed a significant challenge to disk drive manufacturers.

- Partnerships are prevalent today. Technology fusion is a result of long-term R&D partnerships with a number of organizations in a diverse range of industries.

- In addition to capital liberalization, globalization is driven by the need to combine technology and evaluate varied market requirements.

To even become aware of the existence and usefulness of so many technologies, or only get actual access to them, requires proficiency in networking and coalition creation. As can be seen, various city, state, and university-run entrepreneurship facilitation programs are crucial for assisting entrepreneurs in acquiring these networking and partnership abilities.

This does not mean that a single inventive product or method is sufficient to create a successful entrepreneurial enterprise. In certain types of economies, investors will invest in a single-product firm. In other economies, investors will only invest in businesses with the ability to produce an ongoing supply of creative items.

CHAPTER II. MANAGING INNOVATION AND ENTREPRENEURSHIP IN TECHNOLOGY-BASED COMPANY “BMN”

2.1 General characteristics and analysis of technology and innovation activity within “BMN” company

Business Media Network was founded in January 2022 by the Association of Students of Ukraine, a teacher of UACU University and the founder of Economy of Trust Company Alex Sheyner with the main goal to develop a virtual platform for Ukrainian people and businesses in order to promote small- and medium-sized entities internationally.

Three projects and three related platforms are combined into Business Media Network. These are City Showcase, Deal Flow, and Marketplace.

Marketplace is a searchable database of firms wishing to do business and collaborate with other enterprises domestically and internationally. The only searchable database of B2B-focused Ukrainian enterprises is EoT (Economy of Trust) Marketplace. EoT confirms that businesses in the marketplace conduct business lawfully, fairly, and without engaging in fraud or corruption as an ardent member of the Association of World Trade Centers. Market participants specify their sector specialization, current B2B requirements, and the regions they wish to export to or conduct business with.

The departments of Quality Assurance and Navigation Menu have combined to form City Showcase. The team builds websites for Ukrainian cities and regional hubs and populates them with commerce and infrastructure. Employees also assess the effectiveness of city websites in terms of the presence of businesses.

The platform of International Digital Weekly Publications is called Deal Flow. Deal Flow is one of the most crucial aspects of the project since it serves as a public face and the way that people around the world perceive BMN as partners. The main objective is to promote the Ukrainian company on a global scale. Every day, the portal publishes the “CEO of the Week,” “Company of the Week”, “Project of the Week” and “Startup of the Week” articles.

Business Media Network specializes in promoting Ukrainian businesspeople and cities around the world, gathering them, compiling information and data, and administering content locally and internationally. BMN company acts as a big database that consists of thousands of linkable websites. Therefore, a dominant type of business operation is, undoubtedly, a service business. A service business is centered on the concept of a business offering intangible commodities to its clients – that is a virtual, non-physical combination of a group of goods and services in the form of objects that are transformed into links which are then directed to the main customers and clients with the particular objective.

The success of a BMN corporation is greatly influenced by technology and innovation for a number of reasons:

- 1) Automation of processes and a reduction in manual labor increases production and efficiency.
- 2) Enhance the customer experience by offering creative solutions to their issues.
- 3) Creating a competitive edge over others by offering unique and advanced products or services.
- 4) Enable cost-saving by reducing waste, minimizing errors and streamlining processes.
- 5) Drive growth and revenue through increased sales, market share and brand reputation.

There are also a number of important qualities and factors that may be designed to examine a company's technology and innovation activity within BMN (see Annex B).

These are just a few of the many factors that can be used to analyze technology and innovation activity within a company. To get a comprehensive understanding of a company's technology and innovation activity, it is best to analyze multiple factors and data points.

An example of technology and innovation in a company is the implementation of artificial intelligence (AI) in customer service. A company can use AI-powered chatbots to handle customer inquiries, freeing up customer service representatives to focus on more complex issues [18]. The chatbots can be trained to handle common questions and provide quick, accurate responses 24/7. This implementation has several benefits, including:

- 1) **Improved customer experience:** chatbots can provide quick and convenient responses to customer inquiries, leading to higher customer satisfaction.

2) **Increased efficiency:** chatbots can handle a large volume of inquiries simultaneously, leading to faster response times and reduced wait times for customers.

3) **Cost savings:** by automating routine tasks, companies can reduce the number of customer service representatives needed and lower labor costs.

4) **Data analysis:** AI chatbots can collect and analyze customer data, providing valuable insights into customer behavior and preferences.

Since the BMN company is still in its early stages, it does not yet have a profound technology & innovation system. However, for purposes of comparison, I have used Grammarly, a technology company that offers a writing enhancement and proofreading tool. The company has been active in the field of technology and innovation, constantly updating its tools to better serve its users. Some of the notable technology and innovation activities by Grammarly include:

1) **AI-powered writing suggestions:** Grammarly uses artificial intelligence to provide writing suggestions and corrections in real-time as users write.

2) **Integration with third-party tools:** Grammarly has integrated its tool into popular writing and productivity tools such as Microsoft Office and Google Docs to make it more accessible to users.

3) **Mobile app:** Grammarly has a mobile app that allows users to access the tool and write on-the-go, making it easier for users to improve their writing no matter where they are.

4) **Customized writing feedback:** Grammarly offers personalized feedback based on users' writing goals and preferences, helping users to improve their writing skills.

Grammarly's technology and innovation activities demonstrate the company's commitment to providing high-quality writing enhancement tools to its users, and its ability to stay ahead of the curve in the field of AI-powered writing technology. The statistics regarding Grammarly's technology and innovation are included in the following Table 2.1. It highlights Grammarly's success as a technology and innovation company and its commitment to using AI and machine learning to improve writing.

Table 2.1

Grammarly Statistics	
User base	Grammarly has over 20 million daily active users, and its writing tools are used by people in over 190 countries.
Product portfolio	Grammarly offers a range of AI-powered writing tools, including a writing assistant, a plagiarism checker, and a grammar and spell checker.
Funding	Grammarly has received over \$200 million in funding from investors, including General Catalyst and IVP.
AI technology	Grammarly uses machine learning algorithms and natural language processing techniques to provide users with personalized writing feedback.
Awards	Grammarly has won several awards, including the Webby Award for the best writing app in 2019 and the Fast Company's Innovation by Design Award in 2020.

Source: compiled by author

However, it is less to say about the development of the technology and innovation in Ukraine, since BMN company extends its services exclusively to the Ukrainian platform. Ukraine has a highly educated workforce and a strong tradition in engineering and technology, which has resulted in a growing technology sector. The country has a strong potential for innovation in areas such as IT services, software development, and engineering. The government has also made efforts to support and promote the technology industry,

including tax incentives and programs to attract foreign investment. However, corruption and political instability continue to pose challenges to the development of the technology sector in Ukraine.

Since the BMN company operates on both the European and Ukrainian markets, it is worthwhile to compare the innovation and technology of these two regions (Table 2.2).

Table 2.2

Innovation & technology comparison of Ukraine and Europe

	Ukraine	Europe
Tech industry	A growing tech industry, with a focus on IT services, software development, and engineering.	A well-established tech industry with major tech companies such as Nokia, Ericsson, and SAP.
Investment	Government support for technology development, but investment is lower compared to Europe.	Attracts a significant amount of investment in technology and innovation, with government and private sector initiatives aimed at promoting tech innovation.
Talent pool	A highly educated workforce, but the talent pool is smaller compared to Europe.	A large pool of highly skilled tech workers, including software developers, engineers, and data scientists

Regulation	Making efforts to improve its regulatory environment, but it still faces challenges such as corruption and political instability.	A supportive regulatory environment for technology and innovation, with EU laws that encourage technology innovation and protect intellectual property.
Innovation	Making efforts to foster innovation, but its tech industry is still in its early stages compared to Europe.	Known for its innovation, with numerous research and development centers and initiatives aimed at promoting technology innovation.

Source: compiled by author

According to the World Bank’s “PATH FOR UKRAINE’S ECONOMIC GROWTH: TECHNOLOGY UPGRADING” report, in middle-income countries, innovation occurs most frequently in “downstream” activities connected to production capacities, such as the adoption of technologies and regulations, cost- and quality-focused process improvements, and enhanced management techniques [19]. For instance, Korea and Taiwan, which were impoverished and undeveloped forty years ago, achieved rapid economic growth by concentrating on industrial upgrading and collecting superior industrial capabilities over time [20]. Because it is close to Western Europe and its manufacturing and educational heritage, the World Bank’s research hypothesizes that industrial upgrading provides Ukraine a similarly attractive path to rapid economic growth.

The concept for technology upgrading assumes that economic growth is a function of technology capability, with upgrading occurring via technological, industrial, and organizational change [21]. Based on the analytical work of Slavo Radosevic and Esin Yoruk, this paradigm conceptualizes technology upgrading as a three-dimensional process

(Figure 1) comprising technological intensity, breadth of technology upgrading (structural characteristics), and interactions with the global economy [22].

As shown in Figure 2.1, technology upgrading is the outcome of the interaction between the intensity of technology-related activities (dimension I), structural characteristics that influence the breadth of upgrading (dimension II), and the manner in which an economy interacts with the other two factors (dimension III).

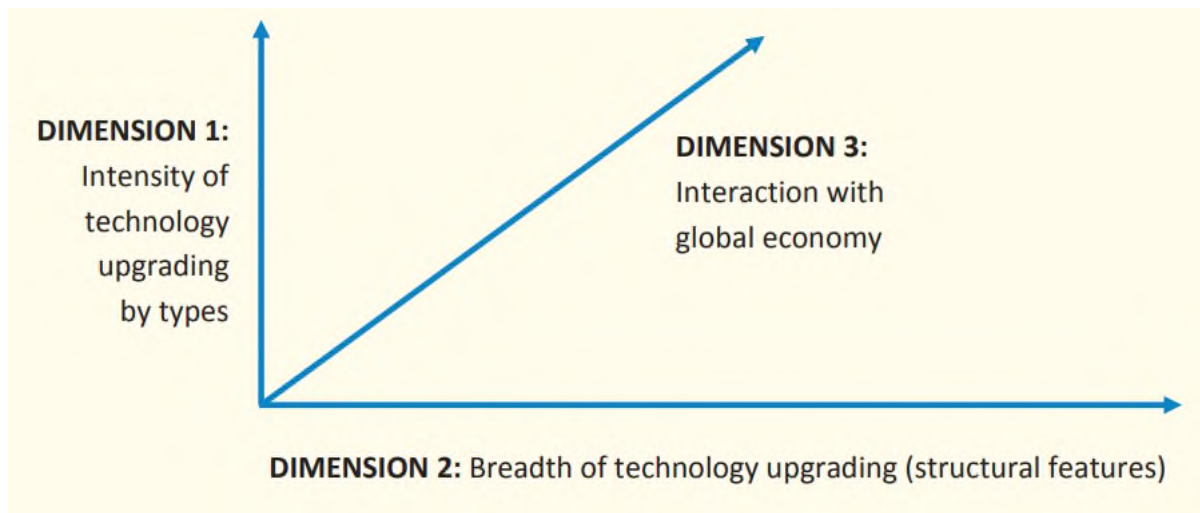


Figure 2.5. Dimensions of Technology Upgrading. (Source: World Bank. (2018). Path for Ukraine's Economic Growth: Technology Upgrading (p. 7))

The technological intensity component of the industrial upgrading framework consists of five sub-categories: production, management, R&D, technology capabilities, and innovation activities. Here, domestic and foreign patenting represent, respectively, technological capacity to develop new knowledge behind or at the technological frontier. Ukraine's patenting rate is one of the lowest among peer and aspiring nations. Figure 2.2 illustrates, according to the World Intellectual Property Organization (WIPO), that the number of patent applications filed in Ukraine has been steadily increasing over the last five years. In 2016, there were 2,233 patent applications filed in Ukraine, which slightly increased to 2,283 in 2017, and then began to decrease to 2,107 in 2018, and 2,097 in 2019.

Moreover, there was a sharp fall in the number of patent applications filed in 2020, with 1,361 applications filed.

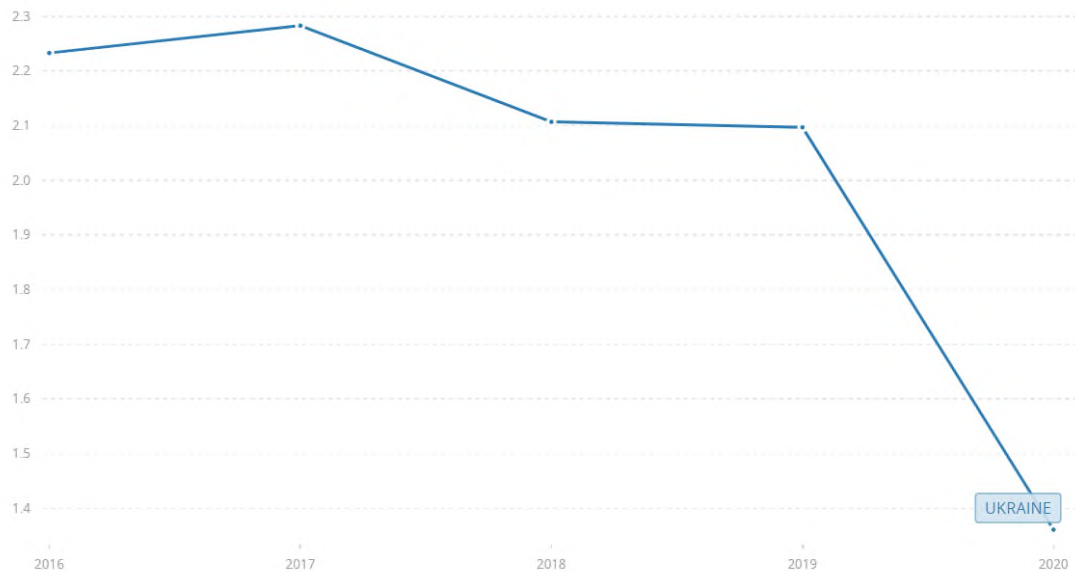


Figure 6.2. Patent applications, residents of Ukraine. (Source: WIPO Patent Report: Statistics on Worldwide Patent Activity)

The number of international patent applications submitted per population to the U.S. Patent and Trademark Office has increased but remains quite low (Figure 2.3). In other words, Ukraine's capacity to develop innovations below the technological frontier has diminished significantly, while its capacity to generate knowledge at the technological frontier is minor. Below are the numbers of international patent applications filed by Ukraine per million people over the previous five years, according to data from the WIPO website.



Figure 2.7. International Patent Applications to the USPTO (per million inhabitants).
(Source: WIPO Statistics Database)

These figures represent the annual number of worldwide patent applications submitted to international patent offices by Ukrainian researchers and inventors per million population. The rate of international patent applications per million people grew slightly to 5.6 in 2018. Then, Ukraine submitted 5.5 international patent applications per million residents in 2019, which was the same as in 2017. A new peak of 5.6 international patent applications per million people was reached in 2020. Eventually, in 2021, Ukraine submitted 6.1 more international patent applications per million population.

These figures imply that the degree of innovation activity in Ukraine has varied somewhat over the previous five years. A recent increase in Ukraine's R&D activity may be shown by the rise in the number of foreign patent applications submitted per million inhabitants in 2021 compared to earlier years. Nonetheless, compared to other nations with more advanced innovation ecosystems, the overall number of patent applications filed by Ukraine per resident remains low.

Ukraine has average innovation capabilities at the business level. Several factors, including the amount of investment in R&D, the protection of intellectual property, the regulatory environment, and the availability of trained labor, can affect how much

technology is adopted in a country [23]. These elements can affect how quickly new technologies are adopted and can differ greatly between nations.

To attract foreign investment, including in technology and innovation, Ukraine has been attempting to transform its political and economic landscape. The World Intellectual Property Organization (WIPO) reports that Ukraine has improved its intellectual property protection framework over the past few years, which is a crucial component in promoting the use of licensed technology.

These are some statistics I have found about Ukraine's system for protecting intellectual property:

- Ukraine placed 53rd out of 132 economies in the “IP receipts” sub-index of the 2021 Global Innovation Index (GII), which analyses the effectiveness of intellectual property protection in a country and is co-published by WIPO. This was a rise from its 57th place in 2019.

- According to the World Bank's Doing Business report, which assesses the effectiveness of the legal system for resolving business disputes, Ukraine was placed 64th out of 190 nations in the “Enforcing Contracts” category in 2021. This category includes elements that affect how intellectual property rights are implemented.

- Ukraine was rated 42nd on the U.S. Chamber of Commerce's 2021 International IP Index, which evaluates the strength of IP rights in 53 economies. This was a rise from its 43rd place finish in 2020.

- According to WIPO's “Global Innovation Index 2021 - IP Protection” study, Ukraine has made great advancements in recent years to strengthen its legal and regulatory framework for protecting intellectual property. The research also mentions Ukraine's reasonably robust legal system for trademark and patent protection.

Increasing numbers of Ukrainian businesses are renewing inventive activities, however the proportion of businesses engaged in innovation has just recently approached the level observed in 2002. In addition, the total frequency of these actions remains low, which is consistent with the low level of the technology upgrading index. Innovation activities are limited to a tiny proportion of businesses, which explains the tense relationship between aggregate innovation trends and productivity [24].

A smaller proportion of major companies participate in creative projects than their aspirational peers. Typically, the proportion of large business innovators is greater than that of small firm innovators, and large enterprises are responsible for a disproportionate share of inventive activities in the most advanced industries and economies [25]. While the proportion of innovators is more in large firms than in small enterprises in Ukraine, the proportion of innovators in large firms is half that of their aspirational peers (Figure 2.4). This shows that huge enterprises do not drive the innovation activities of the economy to the same extent as in more developed economies.

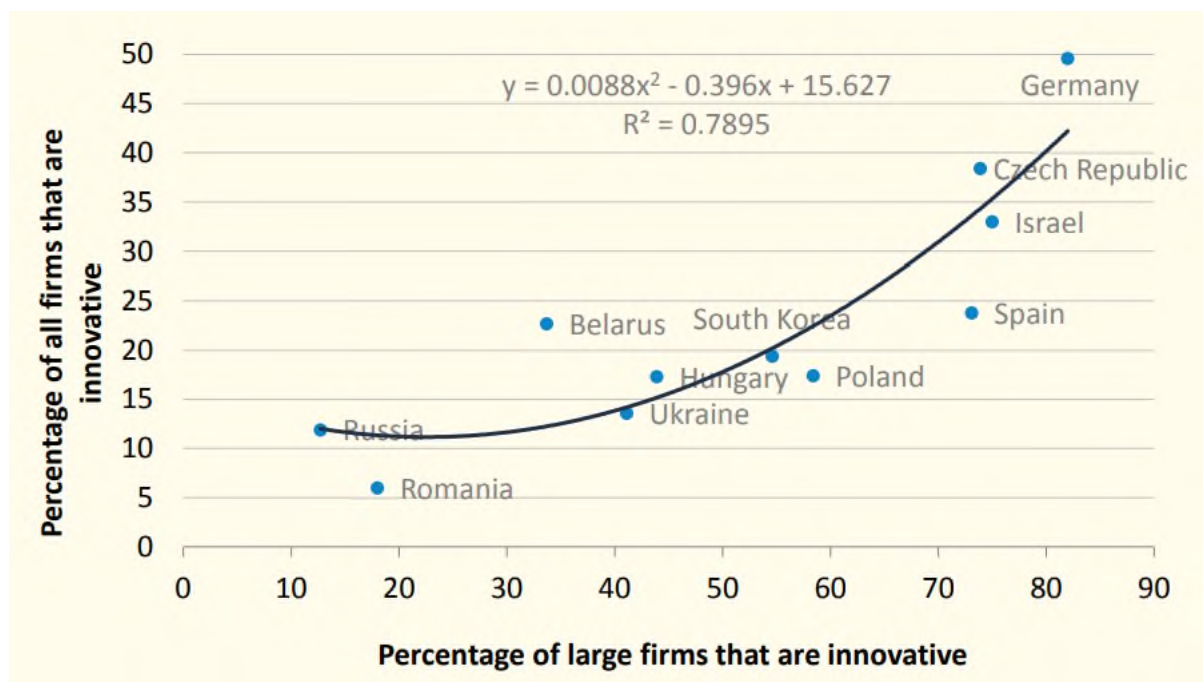


Figure 2.4. Percentage of All Firms and Large Firms Engaged in Innovative Activities (2014). (Source: authors, based on UNESCO Innovation Statistics 2019)

Lastly, innovative activity are focused in the three most populated urban areas (before the Russian-Ukrainian war). Kyiv, Harkiv, and Zaporizhzhia are the top three innovative regions in Ukraine, accounting for 48 percent of innovation expenditures and 56 percent of innovative activity (Kislenko, 2018). Up to 85 percent of yearly innovation-related activities can be comprised of equipment acquisitions, hence the relative concentration of inventive activity reflects the high capital intensity of these regions.

2.2 The corporate technological innovation base

A corporate technological base refers to the collection of technology and technical resources that a corporation has at its disposal. This can include hardware, software, data, networks, and other IT infrastructure, as well as the human expertise required to make use of these resources. The corporate technological base is a critical component of a company's competitiveness and ability to innovate, and companies are constantly looking for ways to upgrade and improve their technological base to stay ahead in their industries [26].

Products and services are made in a way that heavily relies on innovative strategies. A plan utilized by enterprises, firms, corporations, and organizations to improve the supply of goods and services is known as an innovative strategy [27].

BMN company seeks to obtain a competitive advantage and has an innovative strategy. A great innovation strategy, in the company's view, should be motivating and bring something original to the goods and services being created. As a business, it wants to add value to goods and services overall and develop something fresh that will bring in new clients.

In the BMN company, innovation responsibility is often dispersed throughout. Due to the backgrounds and areas of particular specialization, different business units frequently produce distinct sorts of innovation. This kind of innovation entails enhancing already existing goods, services, and procedures, so it makes sense for one business unit to oversee this process.

A list of factors makes it vital for an organization to innovate [28]:

- Creative tactics generate a unique concept and drive.
- It assists you in developing a dependable method that meets your competitive requirements.
- Without a defined innovation strategy, goals can simply conflict across various elements of a firm.
- The innovation process becomes quantifiable with a successful innovation strategy.
- An innovative culture is encouraged by an innovation strategy.

BMN has long-term strategic objectives that offer the work on innovation structure and support. The corporation strives to explain the role of innovation within the boundaries of the business in order to move forward with innovation strategy integration. Additionally, it is made sure that the institution's digital business strategy properly incorporates the innovation strategy and process. The company's personnel are often aware of the tactics used to accomplish organizational objectives. BMN makes an effort to collaborate with the appropriate individuals both inside and outside the business and to develop personal objectives that will support the innovation strategy in order to incorporate innovation strategies into the business.

The Innovation Matrix, which is shown below (see Fig. 2.5), represents one of the most popular ways to see and analyze innovation in business [29].

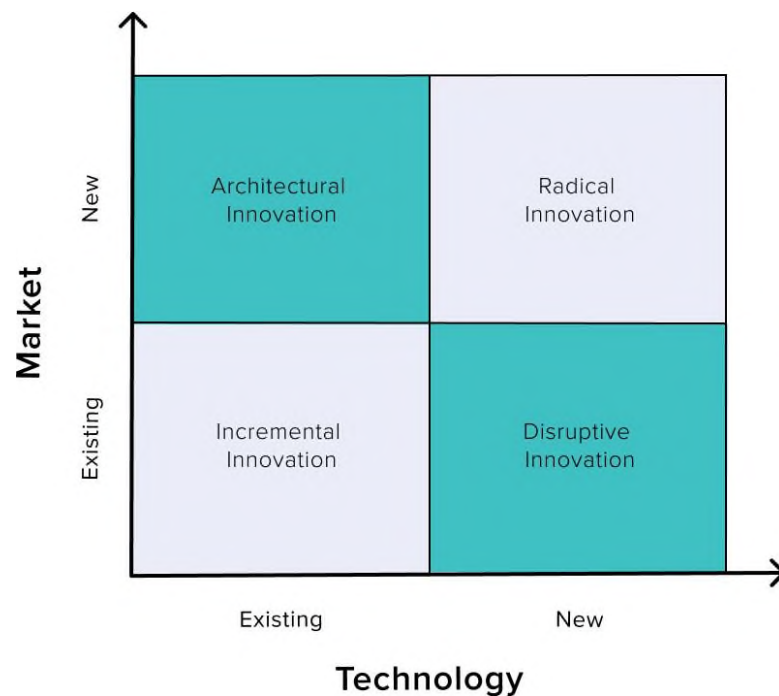


Figure 2.5. Business Innovation Figure. (Source: EA Consulting. (n.d.). We Are All Innovators: Our Interpretation of Six Models of Innovation. Retrieved from <https://ea.consulting/we-are-all-innovators-our-interpretation-of-six-models-of-innovation/>)

The Innovation Matrix categorizes inventions based on the technology the company employs as well as the market it serves. As a result, the table enables us to envision four different types of innovation. In brief:

1) **Architectural innovation** is transferring a technique, technology, or strategy from one industry to another. According to various studies, this kind of innovation has become increasingly prevalent, accounting for 40% of all granted patents in the last 150 years, with the percentage rising yearly.

2) **Radical innovation** is typically what comes to mind because it entails the creation of new industries and the use of “breaking” technologies.

3) **Incremental innovation** has numerous tiny, seemingly minor changes combined to create a big organizational shift. This is the easiest type of innovation to implement because it frequently doesn’t call for substantial expenditures, a large staff, or a change in the company’s strategy.

4) When an innovation develops a completely new value network, it is referred to as a **disruptive innovation**. This can be accomplished by either starting a brand-new market or by entering an already-existing market and altering the way in which consumers engage with it.

Since Grammarly was previously used as a case study as the company is the closest to BMN in a number of technologies and innovations in its structure, I would like to continue to use Grammarly as a case study and analysis that can be compared to BMN. I have evaluated Grammarly using Innovation Matrix and its two types – disruptive and incremental innovation (see Table 2.3).

Table 2.3

Analysis of Grammarly innovation using the Innovation Matrix	
Disruptive Innovation	Grammarly has introduced a new category of online writing tools that offer real-time grammar and spelling checks, which has disrupted traditional proofreading methods and has become popular among students, professionals, and non-native English speakers.

Incremental Innovation	Grammarly has also made improvements to its existing features, such as adding a plagiarism checker and enhancing its suggestions for improving writing style, which have increased its market potential and attracted more users.
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Source: compiled by author

Grammarly disrupted the language correction and writing enhancement market through its AI-powered software which provides real-time suggestions and corrections for grammar, spelling, punctuation, and style in written content. It operates as a browser extension, desktop app, and mobile app, making it accessible to a wide range of users, from students to professionals. The ease of use, accuracy, and versatility of its features made it a popular choice among users looking to improve their written communication skills.

Grammarly has continually improved and expanded its product offerings through incremental innovation. Some examples include adding new features such as a plagiarism checker and tone detection; expanding language support to include more languages beyond English; improving accuracy and personalization through machine learning algorithms; offering integrations with other writing and productivity tools, such as Google Docs and Microsoft Office; providing a range of pricing plans to cater to different needs and budgets. By consistently updating and refining its product, Grammarly has been able to stay ahead of competitors and meet the changing needs of its users.

It is worth saying that BMN has incremental innovation in its day-to-day activities. The company is currently only in the initial stage of its development. However, it has already managed to introduce several innovative ideas quite successfully into the production process, which so far have not greatly influenced the work of the company as a whole but have definitely improved and facilitated the workflow in several departments. For example, employees of the technical department have recently developed a program to automate the introduction of virtual data into a common database. Thus, if earlier information was entered manually by workers, now this automated process has reduced time and improved the overall production efficiency of labor. Undoubtedly, this is an innovative step both towards

further automating some of the monotonous activities previously performed manually and towards improving the continued success and productivity of BMN.

As a matter of fact, using technology to optimize business operations and compete with bigger players in sectors is becoming more common among small businesses [30]. Below is the list of the following technological advancements that small businesses, including BMN, should watch in 2023 and beyond:

- **Artificial intelligence (AI):** AI enables small businesses to get insights from data, automate repetitive operations, and enhance customer service. More AI-powered solutions and platforms oriented toward small enterprises are anticipated in the upcoming years.
- **Virtual and augmented reality (VR/AR):** VR/AR can be used to build virtual marketplaces, immersive customer experience, and product demos. These technologies can be used by small enterprises to interact with clients in unique and engaging ways.
- **Blockchain:** Peer-to-peer transactions can be made easier with the usage of blockchain, which can also be used to securely store and exchange data. More small businesses are likely to use blockchain-based solutions in the upcoming years as a way to streamline their operations and win over customers' trust.
- **Internet of Things (IoT):** IoT devices can be utilized to automate numerous operations and increase productivity. Smaller businesses will likely use IoT in the upcoming years to streamline operations, cut costs, and enhance customer experiences.
- **Cloud computing:** Without making significant upfront investments, cloud-based solutions can give small firms access to tools and infrastructure that are on par with those used by major corporations. Small firms are likely to employ cloud-based solutions in the upcoming years to streamline their processes and boost their agility.
- **Cybersecurity:** As more companies transact business online, cybersecurity is becoming more and more crucial. Small businesses may anticipate seeing more cybersecurity solutions created expressly for their requirements, such as cloud-based security services, threat detection powered by AI, and employee training initiatives.

According to the 2020 Global Innovation Index, Ukraine increased in four positions from the previous year to hold the 45th place out of 131 nations in terms of innovation performance. The assessment emphasized Ukraine's strengths in research and human

capital, as well as its strong innovation clusters. Regarding specific technologies, Ukraine has a developing tech sector with businesses engaged in blockchain, cloud computing, cybersecurity, and other fields.

Deloitte research from 2021 claims that the Ukrainian IT sector has expanded quickly over the past ten years, with an average annual growth rate of almost 20%. The COVID-19 pandemic has sped up digital transformation efforts among Ukrainian enterprises, with a rise in demand for cloud-based solutions, AI, and cybersecurity, according to the research.

Therefore, even though Ukraine may not yet be regarded as a global leader in technological innovation, the country has made steady progress, has a booming tech industry, and is well-positioned to continue developing and implementing new technologies in the years to come.

The war in Ukraine has a complex, diverse range of repercussions on technological innovation [31]. Positively, the crisis has accelerated the development of new military and defense technologies as Ukrainian businesses and entrepreneurs looked to produce groundbreaking solutions to aid the military in its battle against rebels who are supported by Russia. During the war, Ukraine experienced technological progress in a number of fields, including:

1. Unmanned Aerial Vehicles (UAVs): Ukrainian businesses have produced a variety of UAVs, including armed and reconnaissance drones, which have been used by the military to gather intelligence and launch precise attacks against enemy positions.

2. Systems for Electronic Warfare (EW): Both sides have been utilizing technology to interfere with each other's communications and command and control systems throughout the conflict in eastern Ukraine. To combat these dangers, Ukrainian businesses have created a variety of EW systems, including signal intelligence tools and jamming devices.

3. Cybersecurity: Both state-sponsored entities and criminal organizations have increased their cyberattacks because of the situation in Ukraine. Ukrainian businesses and cybersecurity specialists have created new tools and defenses against these threats.

The main drawback is that the war has a lot of detrimental effects on Ukraine's technological innovation. Supply chains have been interrupted, and the violence has restricted access to capital and other resources, making it more challenging for businesses

to develop and expand. Additionally, collaboration and idea sharing between researchers and businesspeople have become more difficult as a result of the damage to infrastructure and research institutions [32].

Businesses in the country have been significantly impacted by the conflict in eastern Ukraine [33]. Below are some significant numbers that assist to highlight the extent of the issue, even though it is challenging to offer an exhaustive statistical study of the conflict's effects on all enterprises in Ukraine:

- **Losses in the Donetsk and Luhansk regions:** The National Bank of Ukraine estimates that the war in the Donetsk and Luhansk regions has caused up to \$100 billion in economic damages. Infrastructure damage, lost productivity, and decreased investment are all examples of this.

- **Business closures:** When the conflict erupted in 2014, thousands of companies went out of business or had to leave the area. According to a 2019 poll by the International Financial Corporation (IFC), 23% of small and medium-sized firms (SMEs) in eastern Ukraine had to close down due to the conflict, while another 28% had to move.

- **Significant job losses** have also occurred in Ukraine because of the war. The IFC survey found that SMEs in the crisis zone have cut their workforces by an average of 60% since the conflict began. An estimated 1.5 million jobs were lost in Ukraine as a result.

- **Supply chains** have been interrupted in Ukraine because of the conflict, making it more challenging for firms to get raw materials and other inputs. For many businesses, this has resulted in increased expenses and decreased production.

- **Investment decline:** The conflict has had a detrimental effect on international investment in Ukraine. Foreign direct investment in Ukraine decreased from \$4.5 billion in 2013 to \$2.2 billion in 2018, according to the United Nations Conference on Trade and Development (UNCTAD).

Startups in Ukraine have also been significantly impacted by the situation in Ukraine, especially those located in or close to the conflict zone. Here are some figures and details that give insight on how the war has affected startups:

1. **Funding:** After the war, Ukrainian startups have had difficulty obtaining investment. According to a research by the Ukrainian Venture Capital and Private Equity Association,

there were just 16 venture agreements in Ukraine in 2018 as opposed to 42 in 2013 and \$43 million less in capital overall.

2. Retaining talent: The war has made it difficult for startups to keep staff, especially in the country's east. Due to the migration of many highly qualified workers in search of better employment opportunities, startups are now having difficulty filling critical roles.

3. Networking and collaboration: The conflict has interfered with Ukrainian startups' ability to network and operate together. Due to the numerous cancellations and postponements of events and conferences over security issues, it is now more challenging for entrepreneurs to network with one another and with investors.

4. Innovation: Despite various difficulties, the war has encouraged creativity among Ukrainian startups. Several businesspeople have created fresh ways to deal with the difficulties brought on by the conflict, notably in the fields of logistics, security, and humanitarian aid.

Nevertheless, innovations at the initial stage of development of the BMN company are currently following the necessary rhythm. Every day there are more and more ideas for the implementation of any plans. Another question is whether the company will be able to turn innovative ideas into reality in the foreseeable future.

In the case of success and smooth flow of all company processes, there is a certain probability that innovations in thoughts will be transformed into innovations in reality. It is only a matter of time and partial dependence on what events will develop in Ukraine further because the company's projects are directly aimed at the country's support and entrepreneurial stabilization.

2.3 Analysis of “BMN” company's technology and innovation enhancement strategies

Any enterprise creates employment, which benefits the entire economy and society, and gives back financial rewards in the form of profits [34]. Not an exception is the BMN

organization. Strong ambitions are therefore necessary for corporate expansion, and businesses that have high aspirations benefit local areas, people, cultures, nations, and the global community.

Innovation enhancement strategies refer to the methods and tactics that organizations use to encourage and support innovation within the company [35]. There are 5 main enhancement strategies I have developed for BMN while having an internship program there for 3 months:

- 1) Encouraging employee participation and collaboration, such as through open innovation initiatives, hackathons, and cross-functional teams.
- 2) Investing in research and development, including funding for internal projects and partnerships with academic institutions and other startups.
- 3) Fostering a culture of innovation, such as through leadership support, recognition, and rewards for innovative achievements, and providing opportunities for experimentation and risk-taking.
- 4) Leveraging technology and digital tools, such as artificial intelligence, big data analytics, and the Internet of Things, to drive innovation.
- 5) Building partnerships and networks with other organizations, such as through strategic collaborations, acquisitions, and joint ventures.

While searching for the formulas of company's technology and innovation, I have made a conclusion that there is no single formula for innovation as it is a complex and multi-faceted process. However, there are some frameworks and approaches that have been found to be useful in fostering innovation. Most of them I have compiled in Table 2.5.

Table 2.5

Frameworks and approaches in fostering innovation	
Design thinking	a human-centred approach that involves understanding the needs and desires of users and then iteratively designing and testing solutions.

Lean start-up	a method for rapidly prototyping and testing ideas to determine their viability before investing significant resources in them.
Agile methodologies	a flexible, iterative approach to project management that emphasizes collaboration, adaptability, and continuous improvement.
Open innovation	a collaborative approach that leverages the knowledge and expertise of individuals and organizations outside of a company to drive innovation.

Source: compiled by author

Design thinking is a problem-solving approach that emphasizes empathy, experimentation, and iteration to arrive at creative and effective solutions. It consists of five stages: Empathize, Define, Ideate, Prototype, and Test [36]. In the case of BMN, design thinking might involve the following steps:

- 1) Empathize: understanding the needs, motivations, and pain points of the target users through research and user testing.
- 2) Define: defining the problem based on the insights gained from empathy and outlining specific design goals and requirements.
- 3) Ideate: generating a wide range of creative ideas for solving the problem and selecting the most promising ones to explore further.
- 4) Prototype: creating early versions of the solution to test and validate the ideas.
- 5) Test: conducting user testing and getting feedback on the prototypes to refine and improve the design.

The Lean Startup is a business methodology that emphasizes rapid iteration and customer feedback to build and develop successful products and services. The approach involves creating a minimum viable product (MVP), testing it with real customers, and using their feedback to refine and improve the product. The goal is to minimize waste and maximize efficiency by quickly identifying and addressing customer needs and by making

data-driven decisions based on actual customer behavior, rather than assumptions [37]. The Lean Startup methodology is often used by startups and small businesses, but it can also be applied to larger organizations and established companies seeking to develop new products or services.

Agile methodologies are a group of iterative, flexible, and customer-centric approaches to software development. They emphasize collaboration, adaptability and delivering small, working increments of a product rather than a complete, polished product at the end of a development cycle. The Agile Manifesto outlines the principles of Agile development, including individuals and interactions over processes and tools, working software over comprehensive documentation, customer collaboration over contract negotiation, and responding to change over following a plan [38]. Popular Agile methodologies include Scrum, Kanban, and Extreme Programming (XP). BMN, as a software company, uses various Agile methodologies to develop and improve products. However, without specific information, it's not possible to say which exact Agile methodology it uses. Some companies use a pure form of an Agile methodology, while others may use a hybrid approach or create their own custom methodology that incorporates elements from multiple methodologies. The specific Agile methodology used by a company depends on various factors such as the size and nature of the organization, the type of products being developed, and the preferences of the development team.

Open innovation is a business strategy that encourages the flow of ideas and information between a company and external sources, such as customers, suppliers, universities, and other organizations. The idea behind open innovation is that a company can achieve better results by tapping into the knowledge and expertise of a wider range of individuals and organizations. This approach helps companies to identify and develop new products, services, and processes more quickly and effectively, as well as stay ahead of the competition [39]. There are several forms of open innovation in BMN, including:

- Crowdsourcing: seeking ideas and solutions from a large, undefined group of people through an online platform or a competition.
- Co-creation: working with customers, suppliers, or other stakeholders to develop new products or services together.

- Open source: making a product or technology available for free use and modification by others.
- Licensing and acquiring external technology: acquiring or licensing technology from external sources to complement or enhance in-house R&D efforts.

The key to successful open innovation is to establish a culture and structure that supports collaboration and encourages the sharing of ideas and information. This requires clear communication, trust, and a willingness to experiment and embrace change.

Grammarly, for instance, has embraced open innovation through its partnerships with other organizations and integration with third-party platforms and software. The company has integrated its writing tools with various email and word processing software, such as Gmail, Google Docs, and Microsoft Word, to provide users with real-time feedback and suggestions for improving their writing. Additionally, Grammarly has established partnerships with educational institutions and businesses to co-create and develop new writing tools and resources that meet their specific needs and requirements. Overall, Grammarly's open innovation approach has enabled the company to expand its reach, build new relationships, and offer more comprehensive and valuable writing tools to its users.

Grammarly, a language technology company, likely employs several strategies to enhance its product's innovation, including:

1) Artificial Intelligence and Machine Learning: Grammarly utilizes AI and ML algorithms to improve its language processing capabilities and provide real-time feedback to users.

2) User Feedback and Data Analysis: Grammarly collects and analyzes user feedback and data to identify areas for improvement and prioritize product enhancements.

3) Collaboration with Academic Institutions and Language Experts: Grammarly partners with academic institutions and language experts to stay up to date on the latest linguistic research and incorporate it into its product.

4) Investment in Research and Development: Grammarly invests in R&D to develop new features and technologies that enhance its product's performance and user experience.

5) Expansion into New Markets: Grammarly continuously expands into new markets to reach a wider audience and gather insights from diverse language users.

Also, based on some publicly accessible data, a brief quantitative analysis of Grammarly's technology and innovation performance is provided in Table 2.6.

Table 2.6

Quantitative analysis of Grammarly's technology and innovation performance	
Revenue Growth	Grammarly has experienced strong revenue growth in recent years. The firm reported \$200 million in annual recurring revenue (ARR) in 2020, up from \$90 million in 2018, or a CAGR of more than 60%. This demonstrates the effectiveness of the company's technology and innovation efforts in generating revenue growth [40].
User Base	With over 30 million daily active users and over 10 million paying customers as of 2021, Grammarly has a sizable and expanding user base. With over 50 million installs on Android and iOS devices, the company has also witnessed a huge increase in the downloads of its mobile apps. This proves that Grammarly's technology and innovation tactics are effective in drawing and keeping users.
Patents	Grammarly has been actively pursuing patent protection for its technological and innovative advancements. Grammarly committed to defending its intellectual property and showed this by investing in R&D by having 22 issued patents as of April 2021 and 31 pending patent applications.
Product Development	The business introduced a plagiarism checker and a tone detector in 2020, which employ cutting-edge machine learning algorithms to spot possible plagiarism and make writing style and tone suggestions. This shows that the business's innovation and technology strategies were effective in advancing product development and enhancing the value proposition for customers.

Source: compiled by author

The performance of Grammarly's technology and innovation can be measured using a few formulas. It's crucial to keep in mind that these equations are not all-inclusive and might not include all the company's technological and innovative tactics. These are meant to serve as a benchmark for assessing Grammarly's success in terms of technology and innovation:

1. **Innovation Index:** The innovation index is determined by dividing the total amount spent on R&D by the number of patents actually granted. The formula is:

$$\text{Innovation Index} = \text{Number of Patents Granted} / \text{Total R\&D Investment}$$

This equation can be used to determine whether Grammarly's research and development efforts have resulted in any useful intellectual property.

Assuming that Grammarly's R&D investment is equal to its total operating expenses, which was \$166 million in 2020, and the number of patents granted was 22 as of April 2021, the innovation index for Grammarly can be calculated as:

$$\text{Innovation Index} = 22 / \$166 \text{ million} = 0.00013$$

This suggests that Grammarly's innovation score is very low when compared to certain other technological companies. However, it shows that the company has made an investment in intellectual property protection through patent filings.

2. **Revenue per User:** The total revenue divided by the number of users gives the revenue per user (RPU). The equation is:

$$\text{RPU} = \text{Total Revenue} / \text{Number of Users}$$

This equation can be used to determine each user's potential for earning income as well as to determine how well Grammarly's technological and innovative strategies are working to increase revenue.

Assuming that Grammarly had 30 million users [41] in 2020 and that its total income was \$200 million, the following formula can be used to determine the revenue per user of Grammarly:

$$\text{RPU} = \$200 \text{ million} / 30 \text{ million} = \$6.67$$

According to this, each Grammarly user contributes an average of \$6.67 to the company's annual revenue, which is a significant RPU in comparison to certain other software providers.

3. **User Growth Rate:** The percentage change in the total number of users during a specific time period can be used to compute user growth rate. The equation is:

$$\text{User Growth Rate} = ((\text{Number of Users in Current Period} - \text{Number of Users in Previous Period}) / \text{Number of Users in Previous Period}) \times 100$$

This equation can be used to determine how well Grammarly's technology and innovation tactics are working to draw in and keep users. Assuming that there were 20 million users in 2020 and 30 million users in 2021, the following equation can be used to determine Grammarly's user growth rate:

$$\text{User Growth Rate} = ((30 \text{ million} - 20 \text{ million}) / 20 \text{ million}) \times 100 = 50\%$$

This shows that Grammarly has been successful in attracting and keeping consumers, as evidenced by its rapid user growth rate as compared to those of certain other software companies.

The following additional special formulas can be used to assess Grammarly's success in terms of technology and innovation (see Table 2.7).

Table 2.7

Formulas to assess Grammarly's success in terms of technology and innovation

Description	Formula
Conversion Rate (the proportion of Grammarly Premium subscribers who first tried the free version)	Conversion Rate = (Number of Premium Subscribers / Number of Free Version Users) x 100
Time to Suggestion (average amount of time it takes Grammarly's writing assistant to offer a suggestion after a user enters text)	Time to Suggestion = Total Time for Suggestion / Number of Suggestions
Engagement Rate (percentage of users who regularly interact with Grammarly's writing assistant)	Engagement Rate = (Number of Active Users / Total Number of Users) x 100
Language Support Index (number of languages that Grammarly's writing assistant supports)	Language Support Index = Number of Languages Supported / Total Number of Languages

Source: compiled by author

The precise information required to calculate several of the calculations I described above, such as the conversion rate, time to suggestion, and engagement rate, is not available to me. These calculations would need in-depth knowledge of user habits and usage trends, which is not publicly available.

I can, however, demonstrate how to calculate the language support index formula. English, Spanish, French, German, Italian, Portuguese, and Russian are presently supported languages by Grammarly's writing assistance, according to the company's website [42]. Almost 7,000 different languages are thought to be spoken throughout the planet. These figures allow us to determine the Grammarly language support index as follows:

$$\text{Language Support Index} = 7 / 7,000 = 0.001$$

This indicates that Grammarly has expanded its language support to include a rather varied range of languages through the use of technology and innovation, but there is still space for development in this area.

Nevertheless, innovation enhancement strategy is important for companies because it helps to stay competitive, drive growth, respond to changing market needs, foster a culture of innovation and increase efficiency and productivity.

a. Stay competitive: in today's fast-paced business environment, innovation is crucial for companies to stay ahead of their competitors and maintain a competitive edge.

b. Drive growth: By constantly introducing new products, services, or processes, companies can drive growth and expand their customer base.

c. Respond to changing market needs: An innovation strategy allows companies to respond quickly to shifts in consumer demand, technology advancements, and market trends.

d. Foster a culture of innovation: By encouraging and supporting innovation, companies can create a culture that values and prioritizes new ideas and thinking.

e. Increase efficiency and productivity: Innovation can lead to the development of more efficient and effective processes, reducing waste and increasing productivity.

Overall, an innovation enhancement strategy helps companies to stay relevant, meet customer needs, and thrive in an ever-changing business environment.

For the purpose of comparison, I will further analyze the company of my internship program. As digital platforms have grown, businesses now have more ways than ever to communicate with customers around the world. Ukrainian company Business Media Network (BMN) was established with the goal of promoting small and medium-sized businesses abroad via a digital platform. City Showcase, Deal Flow, and Marketplace are three projects and platforms that are combined to create BMN (as was mentioned in the subtitle 2.1), which offers a comprehensive platform for connecting Ukrainian firms with businesses both locally and abroad. This study intends to examine BMN's technology and innovation enhancement methods and assess how well they contribute to the organization's objectives. I will specifically look at its platforms' AI accuracy, innovation score, and digital impact score. In addition, I am going to offer a special method for calculating how well the BMN International Digital Weekly Publications platform promotes Ukrainian companies abroad. The goal of this research is to offer insightful information about BMN's technology and innovation strategies and how they affect the promotion of Ukrainian enterprises.

Due to the fact that Business Media Network (BMN) is a tech startup, there is currently little knowledge regarding its digital impact score, innovation quotient, and AI accuracy. But, depending on the company's objectives and market trends, I can make some forecasts:

1. **AI Accuracy:** To connect businesses with other companies domestically and abroad, BMN's Marketplace platform will significantly rely on the accuracy of AI-powered algorithms. As a result, it seems to reason that BMN would prioritize establishing a high level of AI accuracy. To make sure the data is precise and current, BMN may combine AI and human verification.

2. **Innovation Quotient:** The main goal of BMN is to support Ukrainian small and medium-sized businesses (SMEs) globally. In order to accomplish this, BMN may concentrate on creating cutting-edge solutions that give companies a competitive edge. This could involve using the latest technologies like machine learning, blockchain, and artificial intelligence to generate strategies for organizations that are more productive and efficient.

3. **Digital Impact Score:** The success of BMN will be determined by its capacity to draw in and keep users, as well as by the effect it has on the Ukrainian business community. By developing a substantial user base, forming alliances with significant industry players,

and offering insightful data to enterprises, BMN may seek to attain a high digital impact score. The BMN may also concentrate on creating programs that support the expansion and development of SMEs in Ukraine, which might have a favorable social and economic impact on the country as a whole.

The International Digital Weekly Publications platform, which acts as the company's public face and a way to advertise Ukrainian companies on a global scale, is one of the most important components of the BMN initiative. The portal highlights the accomplishments and successes of Ukrainian firms to a global audience by publishing articles on the "CEO of the Week," "Business of the Week," "Project of the Week," and "Startup of the Week".

One potential formula to evaluate the effectiveness of BMN's International Digital Weekly Publications platform in promoting Ukrainian businesses on a global scale is:

$$\left(\frac{\text{Number of new international business partnerships formed through platform}}{\text{Total number of platform users}} * 100 \right) + \left(\frac{\text{Average increase in revenue for Ukrainian businesses after partnering with an international business through platform}}{\text{Total number of platform users}} * 100 \right)$$

This equation accounts for both the quantity and quality of partnerships created through the platform. We can determine the proportion of users who have successfully established a partnership through the platform by dividing the number of new international business partnerships formed through the platform by the overall number of platform users. This demonstrates how well the platform connects Ukrainian companies with foreign partners.

Since the formula would require input variables such as the number of businesses promoted, the level of global exposure achieved, the increase in international partnerships or investments, and other relevant metrics, which I do not have yet, I can provide a hypothetical example of how the formula could be calculated based on some possible input variables.

Let's assume that over the previous year, 500 Ukrainian companies received promotion from the BMN's International Digital Weekly Publications platform. Of those, 100 companies have benefited from global exposure thanks to the platform, leading to 20 new global collaborations and \$5 million in foreign investments overall.

With this data, we can use the formula below to determine the platform's effectiveness in marketing Ukrainian companies around the world:

Effectiveness = (Number of businesses promoted / Number of businesses with international exposure) * (Total foreign investment / Total number of businesses promoted)

Using the figures from our example as inputs, we get:

$$\text{Effectiveness} = (500 / 100) * (\$5,000,000 / 500) = 5 * \$10,000 = \$50,000$$

To conclude, the platform of the BMN's International Digital Weekly Publications would be \$50,000 successful at promoting Ukrainian companies on a worldwide scale based on this hypothetical example.

Via the platform, we can also determine the average increase in revenue for Ukrainian companies that collaborate with foreign companies. This metric illustrates the actual advantages that Ukrainian businesses are getting from these relationships, which helps assess the quality of the partnerships created through the platform.

Let's suppose that we have information on 10 Ukrainian companies who collaborated with foreign companies via the BMN's International Digital Weekly Publications platform, and that we are aware of their revenue both before and after the collaboration. With this information, we can compute the average revenue growth using the formula below:

Average Increase in Revenue = (Total Revenue After Partnership - Total Revenue Before Partnership) / Number of Businesses

For example, let's say that these 10 Ukrainian companies' combined revenue before collaborating with foreign companies was \$1,000,000 and their combined revenue after partnering was \$1,500,000. According to the equation, the average revenue growth would be:

$$\text{Average Increase in Revenue} = (\$1,500,000 - \$1,000,000) / 10 = \$50,000$$

This indicates that, on average, each of the 10 Ukrainian companies increased its revenue by \$50,000 as a result of collaborating with an international company on the BMN's International Digital Weekly Publications platform.

In conclusion, multiple metrics must be used to assess the success of BMN's International Digital Weekly Publications platform in promoting Ukrainian companies abroad. A comprehensive understanding of the company's technological and innovative capabilities is provided by the platform's AI accuracy and its innovation quotient. The

digital impact score also provides insight into the company's online impact and presence. We may develop a thorough assessment of the platform's influence on the revenue and expansion of Ukrainian enterprises by combining these measures with the suggested formulas for evaluating the platform's performance. BMN, in theory, can use this information to further develop their platform and keep promoting Ukrainian companies abroad.

CHAPTER III. APPROACHES FOR ENHANCEMENT OF TECHNOLOGY AND INNOVATION TECHNIQUES OF “BMN” COMPANY THROUGH ENTERPRISE INNOVATIVE ACTIVITY MANAGEMENT

3.1 Impact of technology and innovation towards job environment in the company

In recent decades, society has been actively progressing, developing in various directions. Since the labor market is an important economic segment, positive changes are certainly taking place in its structure. Its main aspect is the relationship between the employer and the employee, as an element of sustainable development and increasing the level of its economic significance.

For “BMN”, in order to achieve its goals, the effective work of its employees is necessary. First of all, the manager, and then the employees themselves must create comfortable conditions for their work. Conditions not only from the side of physical improvements in the room, if they are office workers, convenient transport for drivers and carriers, but also emotional conditions in the team. And it is not enough just to create such conditions, it is necessary to constantly introduce innovations in them, strive for something bigger and better, without stopping at what has been achieved. It is also important to make changes in the approach of the organization of the labor process.

The concept of “working conditions” implies a set of certain factors of the working environment and the working process itself, which have a direct and indirect impact on the working capacity, physical condition and health of the employee. These include:

- distribution and cooperation of labor processes,
- working hours and rest breaks,
- corporate culture,
- principles of salary payments and payment of work over the norm,
- convenience and comfort of workplaces,
- availability of recreation areas,
- availability of dining areas,
- principles of management within the company,

- socio-psychological and organizational climates within the company, etc.

The working conditions that are created, taking into account the factors listed above, favorably affect the efficiency of the team, and, consequently, lead to the development of the organization itself, increase its profit.

The working conditions in which innovative implementations are needed can be divided into two main groups: external and internal. Under the external, one should remember the physical and chemical characteristics of the environment, under the internal – the potential of the employee, his desire and motivating factors (Table 3.1) [43].

Table 3.1

Rank of Motivation Factors

Rank of importance	Motivation factor
1	Living in safe area
2	Good salary
3	Promotion and growth in the organization
4	Interesting work
5	Conducive working condition
6	Sympathetic help with personal problems
7	Appreciation of work done
8	Personal loyalty to employees

Source: EA Consulting. (n.d.). We Are All Innovators: Our Interpretation of Six Models of Innovation. Retrieved from <https://ea.consulting/we-are-all-innovators-our-interpretation-of-six-models-of-innovation/>

For example, the global company Google, which, thanks to innovative implementations, maximizes the labor return of its employees. The company's offices are equipped with

comfortable furniture and office equipment that meet international standards. There is a gym on the territory of the company, which can be visited directly during work, thanks to this, the employee relieves nervous tension, maintains his physical shape, distracts from routine work. There are also recreation centers and game rooms, you can take a little break or distract yourself, I'll play a game [44].

There are also kitchens, but also a full menu of meals is provided, which is made in accordance with the wishes of each employee. In general, employees of the corporation are allowed to spend a fifth of their working time not for direct work duties, but doing their own business. This reduces the burden of monotonous work. Such characteristics as office lighting, humidification of the air, cleanliness in buildings also have high indicators. In principle, these aspects should be observed by any organization. However, many of these innovations are not available to most organizations in the current environment.

The above was mainly related to external conditions, no emphasis is placed on internal ones, since each external condition presented has an impact on internal ones. And as a result, such conditions create a favorable climate within the team. With emotional and mental stress, an employee may stop and take a break. After all, even a little rested human brain is able to produce more of the required work in the same time than with constant work.

Special attention should be paid to the emotional state of employees. Those workers whose main activity is mental work are forced to constantly be in a tense nervous state, this leads to a state of professional stress. In such conditions, the efficiency of employees' work decreases, the profit of the organization decreases, the level of staff turnover increases. To solve this problem, it is necessary to have rest rooms in such organizations, where employees will be able to gain strength for further work during the lunch break.

New times dictate new rules. Currently, full-time employment and high achievements are in fashion. But next to such desired hyper-productivity there is always emotional burnout. And as much as we want employees to consistently perform at their best, the price can be too high.

An emotionally exhausted employee is physically tired, suffers from insomnia, headaches, eating disorders, is irritable and unmotivated. His condition affects both other colleagues and team performance. Who is at risk?

No one is immune to emotional burnout. Nevertheless, there are professions whose representatives fall into the risk zone more often than others. Those whose work involves frequent interaction with other people are most likely to burn out. When regular communication is part of the profession, it risks emotional overload. Add increased responsibility, and you get an explosive mixture.

Who is more prone to emotional exhaustion - men or women? According to McKinsey & Co's annual study, 42% of women and 35% of men will experience burnout in 2021. A year earlier it was 32% and 28%, respectively. There is a stereotype that men are the stronger sex and manage to control their emotions more successfully, but the research speaks for itself [45].

Due to the pandemic and the war, many of us had to work remotely. Closed educational and preschool institutions brought children back home, and this significantly increased the amount of responsibilities of parents, especially mothers. In families, it was mainly women who took care of children, monitoring distance learning and current household affairs. And if, in addition to all of the above, a woman conducts 3-5 online classes with groups or students every day.

A huge list of responsibilities and an unchanged daily picture — this combination creates tension and contributes to emotional burnout.

Having been in contact with the IT environment for more than a year, I have noticed that many acquaintances from other fields consider working in IT to be ideal: you sit at a computer, drink tea, and receive a considerable (and sometimes cosmic) salary. Not a job, but a dream. However, in this industry, employees are also subject to emotional burnout.

The reasons include the pressure of deadlines, the need to be constantly in touch, multitasking, the pursuit of career growth, working with representatives of other cultures, forced communication in a foreign language.

Simply put, any stress, if its impact on a person is repeated and prolonged, sooner or later can cause burnout. So, how to recognize burnout in employees?

Unfortunately, emotional exhaustion is not a runny nose or an allergy, which are easily recognized by visible symptoms. There could be a person with burnout sitting at the table

next to you, and you won't notice it for weeks. What can be said about remote work, when you hardly see each other. In order to find out how a colleague feels, you need to talk.

Regular conversations with employees allow you to keep your finger on the pulse and notice changes in behavior in time, which are the first bells of burnout. For the “BMN”, one of the most effective HR tools is 1:1 (one-on-one) practice — regular meetings of an employee with his mentor, direct manager or HR manager.

The peculiarity is an informal atmosphere, where there is no place for conversations about the status of current tasks. During 1:1, the focus shifts to the employee, his ambitions and development plans, thoughts about the atmosphere in the team, personal experiences. [46]. The main goal of a manager who conducts one-on-one is to form or maintain a level of trust with a subordinate, to show that he can sincerely talk about what worries him, even if these topics are not directly related to work tasks.

Of course, workers rarely open up at the very first meeting. Everyone needs time to confide their feelings to the interlocutor, especially if this person is higher in the corporate hierarchy. Therefore, it is important to make such meetings regular (optimally, once a week or twice a month). Over time, they will become more and more informal, the employee will relax and talk more freely - and not only on work topics.

It is important that the manager shows interest and empathy, asks the right questions. Then he will be able to recognize alarm bells in the conversation, namely:

1. **Lots of overtime.** Even if it is well paid, such work takes time away from the employee to rest and restore mental strength.
2. **Impossible tasks.** When an employee is constantly given tasks that he cannot handle on his own, he is under constant stress and this has a destructive effect on his self-esteem.
3. **Tasks are too simple.** Lack of professional challenges, monotonous boring work also entails problems with self-esteem, deterioration of motivation.
4. **Micromanagement.** The logic of the employee is as follows: “If I am constantly monitored, therefore, I am not trusted, I am not doing my job well.” Such employees are constantly waiting for negative feedback.

5. **Tense atmosphere in the team.** Lack of friends at work, problems in communication, conflict situations in the team and, as a result, lack of support from colleagues lead to dissatisfaction with oneself and one's work.

6. **Uncomfortable working conditions.** The lack of equipment necessary for work, a dark, uncomfortable room, the need to get to the office by public transport with several transfers - these nuances can significantly affect emotions and well-being.

7. **Insufficient pay.** An employee who is not paid enough, underestimates himself, considers his work unimportant, thinks that he can be replaced by another specialist at any moment, so he lives in constant stress and worry about his workplace.

Any of these problems in isolation may not have a serious impact on a person's emotional state. But the situation should be evaluated in a complex way.

If problems in personal life, relocation, birth of a child, etc., are added to the dissatisfaction with the work schedule, the complexity of tasks, or the salary, then the result will be predictable - the employee will burn out over time, his productivity will decrease significantly and will probably affect the entire team.

A manager or mentor who takes care of an employee is responsible not only for his work productivity, but also for his mental health. Therefore, it is important to regularly communicate with the wards, actively listen to him, pay attention to weak points, and together look for a solution even before the problem becomes obvious.

However, it should be understood that the innovations considered in the example are suitable only for global companies, they are not available to small organizations due to limited financial resources. But there will also be suitable innovations for such organizations. Firstly, stability is necessary, the employee must be confident in his future. To be confident in your future, you need a clear system of career growth. Incentive bonuses and benefits to motivate you to work harder. This list of innovations can be painted indefinitely, and that's why it is innovative, because it does not know the end, but only brings new ideas.

In conclusion, I would like to emphasize that BMN should strive to achieve its goal, and constantly change, in accordance with the changing world, innovate in its system and not

stop there. It can be said that innovative working conditions have a positive impact on the organization and contribute to its development.

3.2 Proposals for the growth of tech-related businesses through innovation in the company

Many success stories started with an innovative business model, not a superior product. Amazon has become the largest online store in the world without having a single traditional store. Amazon (Amazon.com , Inc.) is an American company, the world's largest in the markets of e-commerce platforms and public cloud computing by revenue and market capitalization. The headquarters is in Seattle. For 26 years of its existence, Amazon has turned from a small bookstore into a large-scale trading platform that implements all available innovations. Jeff Bezos' extraordinary vision allowed the brand to acquire its own airport, introduce drone delivery of goods, and much more. In the near future, the trading empire plans to launch its own cryptocurrency, as well as accept it as payment. But let's take a closer look at the main "chips" of the company and figure out why Amazon business is the future.

In 2019, Amazon launched a large-scale project - delivery of goods by robots. Mechanisms, under the supervision of the company's employees, transport parcels. Such a peculiar postman looks like a box with 6 wheels that rides on the sidewalk. The robot drives up to the recipient's house and stops near the front door. Although Marble has already tried to implement such a project, the trading empire has every chance to bring the project to mind.

Another interesting Amazon project is drone delivery. Work on it began back in 2013. However, so far the legislation prohibits the use of such a method, so the company continues to modernize it in order to be the very first to launch such a delivery method. For example, in 2018, Amazon patented the technology of dropping parcels from a height of 1.5-7.6 meters. A special air cushion is used for this. In addition, the company plans to build airports for drones. It is in them that the aircraft will receive orders. It is worth noting that air delivery

will solve a lot of problems. The drone will not need to stand in traffic jams, and parcels can be delivered almost anywhere.

Apple is the largest seller of music, although it does not own any studios and does not sell CDs. Apple's innovation strategy is about creation and monopolisation of reinvention waves out of scale, scope, network externality and global ecosystem of suppliers. (Figure 3.1) [47]

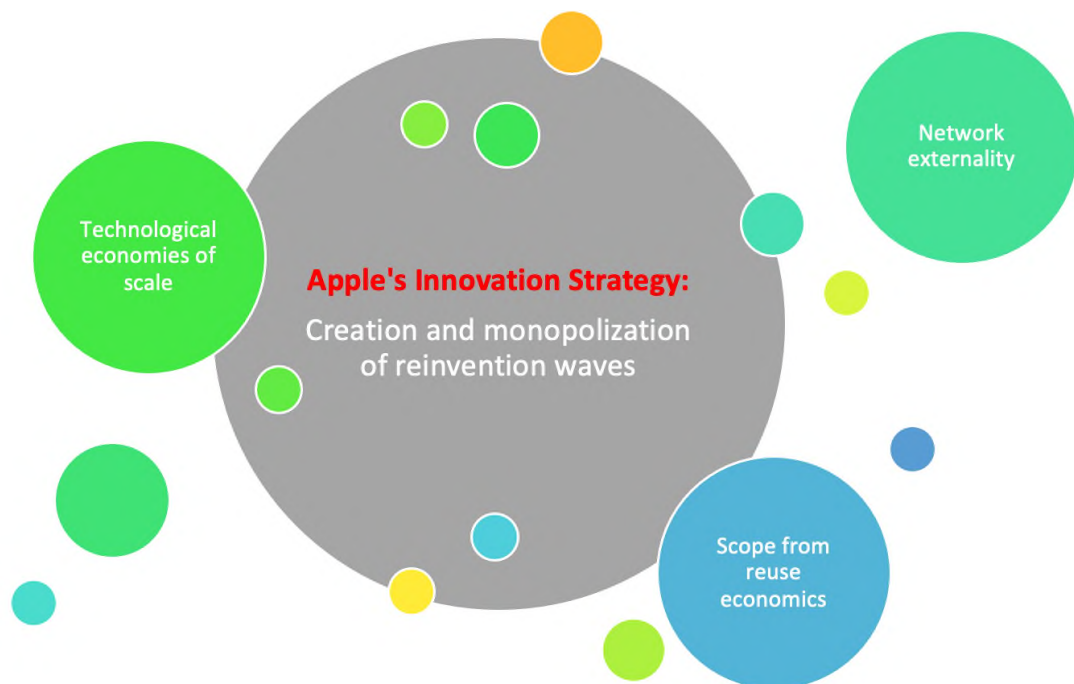


Figure 3.1. Apple's Innovation Strategy. (Source: Waves, T. (2022, March 4). Apple's Innovation Strategy: Creating and Monopolizing. Retrieved from <https://www.the-waves.org/2022/03/04/apples-innovation-strategy-creating-and-monopolizing/>)

Skype is the largest telecommunications provider in the world, although it does not have its own network infrastructure [48].

An innovative strategy is a plan that helps an organization or person achieve improvements that lead to expansion and achievement of goals. Innovation can be gradual innovation, breakthrough innovation, radical innovation and architectural innovation. Moreover, the advantages of the innovation strategy are to reduce costs, motivate employees and increase productivity [49].

The company that has demonstrated one of the innovative strategic steps, especially breakthrough technologies, is Netflix. Netflix breathed new life into video rental without

having a single physical store. Moreover, it improved and modified the film industry, formulating various projects from different countries. Netflix's strategic steps are an operational strategy to ensure proper data management and customer satisfaction with the right service. In addition, the company has a competitive strategy that allows the company to benefit and ensure the proper use of resources to achieve recognition by maintaining sustainability in business operations.

Netflix market analysis is that the size of the market is large with recognition from various marketing activities. The company's competitors are Hulu, Amazon prime video and Disney. In addition, Netflix's market segment covers demographic segmentation, allowing all ages to access and use the service. Netflix's cooperative movement includes joint ventures and alliances to expand towards the international market. The law allows the company to achieve growth and increase in profits. Netflix's competitive move is a combination of a cost leadership strategy and a differentiation strategy. The most effective choice is to conduct various studies and surveys using technology so that customers can provide feedback that will help improve Netflix. This is the best step, because the use of technology allows the company to achieve a competitive advantage.

Starbucks can be another example of the world's largest chain of coffee shops selling ordinary coffee at premium prices

Of course, a quality product and processes play a big role, but they do not determine the future success or failure of a company. We have entered an era where the fate of the company depends on their ability to apply the appropriate innovation model to more effectively monetize technology, as well as stand out from mediocre competitors.

Research from IBM and BCG shows that 14 of the 25 most innovative companies in the world are adopting business model innovations and that leaders innovate their business models twice as often as laggards.

As studies on new innovative business models show, innovation is the creative reproduction and recombination of existing business model templates. Scientists from the business school of the University of St. Gallen, included in the Top 10 leading business schools in Europe according to the Financial Times, analyzed breakthrough business models over the past 100 years and found that 90% of innovative and revolutionary business models

are the result of creative reproduction, recombination and synthesis of 55 basic patterns (templates) of business models. They detailed their developments in the book “Business Models: 55 Best Templates” [50].

The information presented underlines the value of innovative company concepts in obtaining success rather than relying exclusively on product quality. It gives cases of businesses that have successfully adopted creative techniques, including Amazon, Apple, Skype, Netflix, and Starbucks. The concept of business model innovation and how businesses might profit from it are also discussed in the text itself. Last but not least, it provides studies that highlight the importance of business model innovation for organizations to keep one step ahead of their rivals.

Here are a few recommendations for the BMN company based on the information that was given:

1. **Concentrate on creating an innovative business model:** Success frequently relies on having a distinctive and inventive business strategy, rather than just a top-notch product, as the examples of Amazon, Apple, Skype, Netflix, and Starbucks indicate. In order to differentiate themselves from rivals, the BMN company or Ukraine should devote time and money to creating a creative and distinctive business plan.

2. **Embrace technology:** Companies that effectively apply technology typically have greater success than those who don't. Technology is a fundamental driver of innovation. Focus should be placed on adopting cutting-edge technologies and figuring out how to use them to enhance customer satisfaction and commercial operations for the BMN company.

3. **Keep an eye on world trends:** According to research from IBM and BCG, innovative businesses tend to adopt new business models more often than those who are behind. BMN organization should keep an eye on international trends in business innovation and be prepared to modify their business model as needed.

4. **Put a strong emphasis on customer satisfaction:** Many of the reputable companies mentioned above owe their success to providing outstanding customer service. Customer satisfaction should be given first priority by BMN company, and efforts should be made to promote a customer-centric culture inside the business.

5. Collaborate and form partnerships: Joint ventures and alliances can help a business grow and improve its chances of success. To accomplish growth and boost revenues, BMN company should think about developing collaborations with other businesses.

Each pattern corresponds to one or more business model dimensions: customer (who?), value proposition (what?), value creation process (how?), cost effectiveness (why?). Let's look at the components of the business model innovation process.

In the process of innovation, several main stages can be distinguished: analysis, creative reproduction and recombination of existing ideas and principles from other areas, implementation. Basic principles of innovative business modeling are:

- Ignore the status quo (dominant industry logic).
- Forget about the past.
- Stop looking at competitors.
- Challenge orthodoxy.
- Generate as many ideas as possible.
- Allow yourself to be wrong.

The goal of any business model innovation is to break the dominant industry logic in such a way that your customer gains even more value and your company gains a competitive advantage and more profit. This is exactly what companies have achieved by implementing business model innovation using the patterns from the list below.

1. **Freemium.** As the name implies, the template consists of two parts: “Free” goes for “free” and “Premium” is basically “premium”. The basic part of the product is provided for free, while the advanced and more valuable version is for money. The key indicator of this template is the conversion rate of the transition from the free version to the paid version (Figure 3.2.) [51].

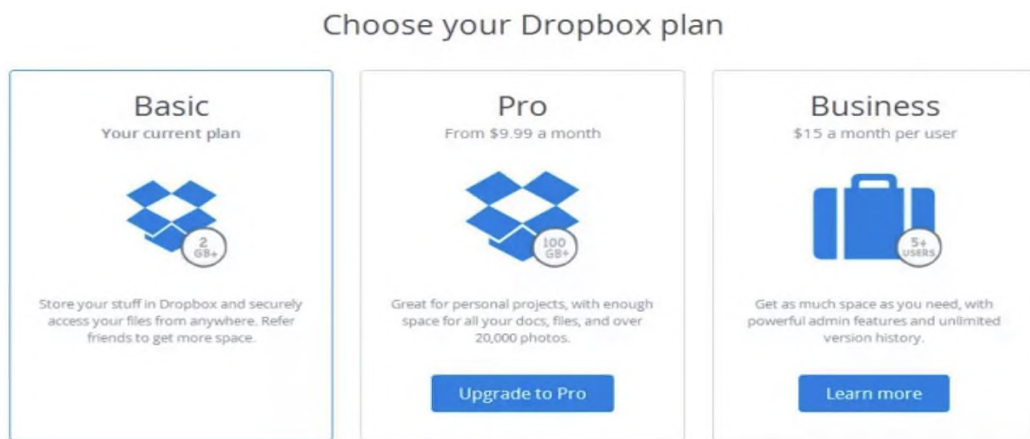


Figure 3.2. Freemium. (Source: Dropbox. (n.d.). Compare Dropbox plans. Retrieved from <https://www.dropbox.com/plans>)

The basic version of the product is being offered for free in the hope of persuading customers to purchase the premium version over time. The free offer attracts the maximum number of customers possible for the company, while the income is provided by premium users (of which there are usually fewer).

A perfect example of Freemium is Spotify, a music streaming service. Customers using it for free are forced to constantly listen to commercials that are not present in the premium package, which is more enjoyable for users. Other examples of successful Freemium exploitation are in such innovative companies as Hotmail (1996), SurveyMonkey (1998), LinkedIn (2003), Skype (2003), Dropbox (2007) [52].

To apply this template, think about whether it is possible in your value proposition to do something for free, but so that this part already benefits the client, and after he starts using the free product, offer him an improvement that will give even more value.

Immediately think about the costs of the free version of the product - is it possible to minimize them. As a guide, you can use the current cost of attracting a client to a paid product, and if the cost of a client decreases as a result of using the Freemium template, this is a clear signal that the template suits you.

This pattern is especially popular among Internet companies, as marginal cost of production tends to zero. Also, this template is used by software developers to test their designs and acceptability for users. These templates are well complemented with:

- Subscription
- Fixed cost
- Razor and blade
- Addition

Questions for reflection are:

- What do our clients need?
- How can we improve our customer experience when working with us?

Can we bind clients with something?

- What features add value and increase the willingness of customers to pay for our product or service?

By implementing business model patterns that challenge the logic that now dominates the sector, produce a large number of ideas, and allow for experimentation and learning, BMN company can accomplish growth through innovation. The Freemium model, which provides a basic version of the product for free while earning money from premium users, is one unique pattern that can be used. By making their product available for free, BMN can reach a wider audience and measure how well received their ideas and value proposition are. In addition, BMN can take into account additional patterns to supplement the freemium model, such as subscription, fixed cost, razor and blade, etc. BMN can enhance customer satisfaction and acquire a competitive edge through its business model innovation by concentrating on client needs.

2. Long Tail. Chris Anderson first wrote about this concept in Wired Magazine in 2004. [53]. The basic principle of this template is selling a little bit of a lot. This principle rejects the 80/20 Pareto law, in which 20% of the “best sellers” products bring 80% of the profits.

Companies that use this pattern can earn up to 60% profit from the sale of goods with low demand. The bulk of profits come not from blockbuster products, but from a long tail of niche products that do not require large volumes and do not provide large margins on their own. If you offer a variety of such products in large quantities, the total revenue from small sales translates into a decent amount. These business models require low storage costs and an efficient platform to deliver products quickly to customers.

The Amazon online store, founded in 1994, can rightfully be considered one of the founders of the Long Tail pattern. According to some estimates, 40% of Amazon's profits come from selling books not found in traditional bookstores. For Amazon, this "long tail" of niche products is not only a valuable source of income, but also an important way to stand out from the mainstream bookselling. Other examples of successful Long Tail exploitation are in such innovative companies as Amazon Store (1995), eBay (1995), Netflix (1999), Apple iPad/iTunes (2003), YouTube (2005), LEGO (2005), Lulu.com (2006).

If you have to compete with many companies on many product lines and can keep your costs of maintaining mass and distributing products below competitors, then the Long Tail pattern opens up excellent prospects for you.

Ideal for online stores and services offering some valuable content. For this business model template, a quality search, filter, and recommendation system is very important.

These templates are well complemented with:

- Mass customization
- Custom project
- Affiliation

Questions for reflection are:

- Will customers receive additional value if we supply them absolutely everything?
- Are we better at managing mass than our competitors?
- Can our processes and IT systems handle a huge variety of products?
- Can we handle internal processes such as purchasing, order processing, logistics and IT?

A BMN company has an immense opportunity to thrive through innovation by focusing on providing a wide variety of specific goods according to the long tail pattern. The business can provide a wide range of items that are customized to meet the specific interests and demands of its clients by utilizing the power of online platforms, which will increase sales and profits.

The business must concentrate on developing an effective platform that can deliver products to clients fast if it expects to adopt the Long Tail pattern effectively. To assist

customers in navigating the extensive product options, this calls for a powerful search, filter, and recommendation system. To maintain a seamless and effective supply chain, the business must also be able to manage internal procedures like purchasing, order processing, and IT.

The business can stand out from rivals and access new revenue sources by selling a little bit of a lot by adopting the Long Tail pattern. The business can make big profits while lowering risk thanks to minimal storage costs and a concentration on specialized products. The Long Tail pattern is particularly well-suited for internet businesses that give useful information in order to expand their customer base and reach new markets.

3. **Lock-In.** This business model template was firstly used by the famous John D. Rockefeller's Standard Oil Company [54-56]. At the end of the 19th century, he sold cheap kerosene lamps and expensive oil, which was produced at factories.

But this type of model became more widely known after its use at Gillette. The central idea behind the business model template is to gain confidence in the customer by lowering the barriers to buying the base product. After that, the client becomes dependent on the seller. If you buy a Gillette machine, you will also buy blades from the same company. Switching to a competitor is very expensive.

The base product is offered at a low price or given away for free, while the additional items needed to use the base product are sold at a high price, providing a significant share of the revenue. The price of the initial product lowers the barriers that prevent customers from making a purchase, but it is covered by cross-funding subsequent stable sales. Usually these products are technologically connected with each other, reinforcing this effect. Apple uses this pattern in reverse: the company sells songs cheaply, but expensively sells playback equipment.

Hewlett-Packard adopted this model in 1984, adapting it to the ThinkJet, the world's first inkjet printer designed for personal use. Unlike expensive industrial printers, this one retailed for just \$495, which was affordable for the average American. Most of Hewlett-Packard's revenue came from the subsequent sale of printer cartridges. Other examples of successful Lock-In exploitation are in such innovative companies as Standard Oil (1860),

Gillette (1904), Lego (1949), Microsoft (1975), Nestlé Nespresso (1986), Nestlé BabyNes (2012), Nestlé Special.T (2010).

This example of a business model is well known in the B2C segment, but it can already be found in B2B, especially in mechanical engineering and after-sales service. This pattern is good to use to protect against copycat competitors. To get the most out of this model, you need to have a mature and scalable sales funnel, as well as strong copyright protection and branding. If, after purchasing your products, consumables or related materials are required, think about how you can bind a client with them. This may be, for example, a technological or design feature protected by a patent.

These templates are well complemented with:

- Subscription
- Freemium
- Client Linking

Questions for reflection are:

- Can we protect after-sales service with features and functions created during the product development phase (for example, a remote diagnostic device requiring service from the original manufacturer)?
- Will unique and non-copyable components prevent our competitors from replicating our service or parts business?

According to the Lock-In business model, BMN company may think about giving away their primary product while making money off the sales of complements or consumables. For instance, if BMN manufactures printers, they can sell the printers at a low cost and make money by selling ink cartridges or other accessories.

As clients grow dependant on the connected products the company sells, this approach can help BMN build customer loyalty and guarantee ongoing revenue. In order to prevent competitors from creating a similar strategy, BMN should concentrate on creating strong copyright protection and branding.

A subscription or freemium model can be added to the lock-in strategy to boost income and customer retention even more. To stop rivals from duplicating their service or parts

businesses, BMN may also think about including distinctive and uncopyable components into its products.

4. **Crowdfunding.** This business model template is characterized by the financing of a project by a large number of individuals and has several goals:

- 1) Raise money for the implementation of the idea
- 2) Check demand and make sales
- 3) Limit the influence of professional investors.

In exchange for financial support, donors receive a certain reward, one way or another related to it: a finished product obtained as a result of the project (for example, a CD or DVD), or special additional benefits, say, bonus materials. Funding is usually built on an all-or-nothing basis. In other words, the project is implemented only when the minimum required amount is collected, which reduces the likelihood of its termination or pause after the start of implementation.

Unlike traditional financiers and bankers, crowdfunders are less interested in the highest possible return on investment. They are more attracted to assistance in the implementation of the project, i.e. they are attracted to the idea.

For example, you can get funding for your movie or music album, and in return, send your creation to everyone who participated in the fundraiser. A very popular way to finance creative and charitable projects: books, films, music, games, concerts, events, etc.

A product, project, or entire startup is funded (usually via the Internet) by a group of investors willing to support the idea. When a critical mass is reached, the idea is realized, and investors receive a special reward, usually commensurate with the amount of money invested.

An example of the successful use of “Crowdfunding” is the startup Pebble Technology, which in 2009 launched a project on the Kickstarter crowdfunding platform. The company was tasked with raising \$100,000 to produce a Pebble watch, a digital device that can connect to smartphones via Bluetooth, allowing users to receive calls and read messages or emails right on the watch’s screen. The project was such a resounding success that Pebble collected the required amount in just two hours. In total, \$10 million was received, a hundred times more than the originally planned amount. Other examples of successful Crowdfunding

exploitation are in Marillion (1997), Cassava Films (1998), Diaspora (2010), Brainpool (2011).

Use this model when you want to test an original idea to see if people are willing to invest in it in the form of investments/purchases. In addition to the first sales, you can get product feedback and interest-free funding for your idea.

Questions for reflection are:

- Is the idea exciting enough to raise the necessary funds?
- Should we offer sponsors compensation, whether in cash or otherwise, and how do we make sure it complies with applicable law?
- How can we protect our intellectual property?
- Can crowdfunders become our new customers or even fans of the product?

BMN company might use crowdfunding as a way to fund and try out new product concepts. BMN can assess consumer demand and generate interest in new items using this business model, and it can also raise money to support their development and production.

BMN may launch a campaign on a well-known crowdsourcing website like Kickstarter or Indiegogo and provide contributors with incentives like early access to the product or special products. This not only encourages people to participate, but also develops a group of early supporters who can spread the word about the product.

Crowdfunding might also be used by BMN to test various product concepts and determine which ones are more popular with customers. They can determine which goods are most profitable by starting multiple ads for various products, then they can decide which ones to focus on developing first.

5. P2P (Peer-to-Peer). This model (often abbreviated P2P) is based on the interaction of individuals belonging to a homogeneous group. The organizing company provides a place and opportunity for interaction, usually an online database and communication service that brings participants together. On such a platform, you can advertise the rental of personal belongings, offer goods and services, share information or impressions.

The “You for me, I for you” business model began to develop in the early 1990s. The advent of the Internet has become the main driving factor in its development. The “co-

consumption” trend also had a partial impact. This trend is built on the desire to revive the spirit of community and the collective use of resources. One of the founders of this scheme, eBay’s online auction site, provides people in 30 countries with the opportunity to put up unwanted items for sale. Every day, about 12 million auctions take place on eBay.

The maximum effect of this pattern is seen in online communities. Its cornerstone is the increase in marginal utility. With each new user, the attractiveness of the network for other participants is growing. A self-reinforcing “winner takes all” cycle emerges, making it extremely difficult for new entrants to gain a foothold in the market

These templates are well complemented with:

- Multilateral platform
- Fractional ownership
- Hidden income
- Subscription
- Fixed cost

Questions for reflection are:

- How do we convince users to migrate from the existing network to our own? What can we contribute to the community?
- What incentives will we have to apply to convince users to stay in our network; are we able to achieve unobtrusive “attachment” of customers?
- How can we technically implement our ideas?
- What do we expect to achieve with the help of the network “You for me, I for you”?
- Should we (and if we should, when) move away from the free use of our platform and implement a subscription fee or Freemium model?

The P2P business model might provide the BMN company a potential path to expansion and innovation. BMN can capitalize on the trend of co-consumption and the demand for community-driven consumption by developing a platform that allows people to trade goods and services.

In order to make this model successful, BMN would have to concentrate on building a dependable and user-friendly platform that offers a smooth experience for both consumers and sellers. This would necessitate a large investment in the platform's infrastructure and technology, as well as a strong marketing plan to draw in and keep users.

Convincing consumers to switch from current P2P networks to BMN's own platform could be a challenge. In order to get over this, BMN would have to provide strong incentives like decreased fees, an enhanced customer experience, or a greater selection of products and services. The business might also concentrate on creating a strong sense of community and providing special features that set their platform apart from rivals already on the market.

The commercialization of their platform would be another important factor for BMN. Although the P2P model often relies on a commission-based revenue model, BMN might investigate alternate possibilities including a subscription or freemium model, which could provide a more consistent cash stream and enable the business to make continuing platform upgrades.

3.3 Recommendations for the evolution of tech-related innovative businesses, and assessment of the potential for their development in emerging economies

The system for determining the effectiveness of innovation activity can assume the possibility of finalizing certain areas of projects and programs at absolutely all stages of their life cycle [57].

It is very important that the methodology for determining the effectiveness allows you to simultaneously evaluate the effectiveness of innovation in the following areas:

- commercial efficiency;
- research efficiency;
- investment efficiency.

Most business leaders recognize the value of innovation. In a study by consulting firm Accenture, 96% of executives surveyed said their organization's long-term success depends on developing ideas in a new direction [58].

In addition, 87% of leaders believe that their companies' innovations have resulted in a good return on investment; however, 82% of respondents did not make a significant

difference between significant innovation and the achievement of productivity gains. This study identifies specific steps that are most frequently encountered in the development of sustainable and successful technology innovations [59].

In the third phase of the research, the idea is tested, for example with a prototype or an experimental test. Experimentation does not test the objective merits of an idea, it tests the suitability of an idea for a particular organization at a particular time.

Some ideas may be ahead of their time or exceed the current capacity of the company, such ideas may be listed as future innovative directions for development at a later time. Sometimes experiments lead to new ideas because of the information gathered from the results and the overall feasibility of the original idea.

Time is critical in this process; people need to be given enough time to experiment. As refinements and evaluations take place, they should be given enough time to think about experimentation.

At the fourth phase, the idea is commercialized. Commercialization aims to create market value for an idea by focusing on its potential impact. This step makes the idea attractive to the audience, such as by packaging the idea with other ideas, explaining how and when the idea can be used, and using data or prototypes from experiments to demonstrate the benefits. Commercialization is the stage in the innovation process where the focus shifts from development to persuasion. Once the idea has been refined and a business plan has been created, it will be ready for dissemination and implementation [60].

In the process of analysis, the main problems of the development of innovative activity at the enterprise were identified:

- 1) lack of increase in the level of creative activity; low level of economic knowledge of employees;
- 2) insufficient or old material base;
- 3) lack of a fair system of labor evaluation.

These problems are typical for many large enterprises, therefore, typical recommendations can be given to reduce the degree of impact of problems in the development of innovative activity on production. They can be conditionally divided into the following groups [61]:

- Implementation of remuneration to employees in relation to their contribution to the innovation project. Various incentives, that is, levers or tools of influence on people, which encourage them to activate innovative activities, have become widespread in the practice of modern enterprises. In order to speed up work on innovative projects, the management of many enterprises pays attention to stimulating not only scientists and designers, but also other employees who are involved in this process.

One of the most important incentives is a reward, which can be both monetary (material) and non-monetary (intangible). At the same time, the main role in stimulation belongs to the monetary reward, the main types of which are: wages, bonuses, various types of extra payments and allowances, dividends on shares, profit sharing and income sharing.

The majority of employees involved in innovative activities (researchers, designers, engineers, technologists, marketers, economists, financiers, etc.) are paid on an hourly basis, that is, they receive a fixed salary for the number of hours they must work during a certain period. For the purpose of stimulation, the management of the organization can periodically increase the amount of wages. However, the increase in wages for the purpose of improving the efficiency of operations becomes ineffective for the staff after two months, because the effect of getting used to income works. At the same time, the motivation of employees decreases.

In general, a fixed wage provides the least incentive to work more efficiently, because workers know that they will be paid regularly regardless of their level of effort. Although there may be some deductions for absenteeism, poor performance, the hourly rate of pay mostly guarantees a more or less acceptable level of performance for a particular job. Bonuses are a traditional form of special monetary reward for company employees, but not all types of bonuses have the same stimulating effect. Quite often there is a situation at the enterprise when employees receive guaranteed, that is, planned bonuses, the payment of which is carried out regularly (for example, quarterly) and the size of which is usually fixed (that is, it is not related to the individual performance indicators of employees). This type of bonus does not stimulate employees to achieve better results, because it is perceived by them not as a bonus for effective work, but as an integral part of, for example, quarterly income.

Thus, the reward is one of the most important incentives, with the help of which the management of the organization can encourage employees to increase their innovative activity. Taking into account the fact that the implementation of the innovation process at the enterprise involves employees of various categories who have their own needs and whose work has its own characteristics, a complex reward system should include various types of monetary and non-monetary rewards, which are components of the external remuneration of the enterprise's employees. In order to increase the motivation of employees (especially creative activity), the management of the organization should offer them not only external rewards, but also create conditions for them to receive internal rewards [62]. It is the use of various types of external and internal rewards in a complex that will allow the management of the enterprise to increase the innovative activity of employees.

- Providing employees with the necessary information on the problems they have of the innovative activity of the enterprise at all its stages; partial limitation of the control of employees by management, the introduction of self-control. Conventional quality control has the following negative consequences: does not improve quality, but is intended only to separate the bad from the good; does not add value, but increases costs; is needed only where the processes are mastered unreliably, because what is established does not require verification (the exception is checking the safety of products); fails to improve products, processes and practices. Conclusion - quality should be built into the product, not proven by control [63].

The transition to the principles of total quality management allows to build industrial relationships in a different way. The main rule of work is the constant satisfaction of all customer requirements by improving their activities. In this case, the consumer is understood as buyers within the country and buyers abroad, dealers, as well as all related divisions and performers within the production of their own company, i.e. the principle of Japanese quality specialists is implemented in the following phrase: "The performer of the subsequent technological operation is your consumer" [64].

The improvement of one's own work is ensured by the correct, competent management on the one hand, and the conscious behavior of each employee of the company, his

conscientious attitude to business, on the other. As a result, a “corporate culture” is formed in the company, the content of which is the involvement of the human factor, the understanding that quality is everyone’s concern.

The following techniques contribute to the creation of corporate culture: consider the employees of the enterprise as an “active balance sheet item”, and not as an indicator of costs; find the causes of errors instead of finding the guilty and proving guilt; prevent mistakes rather than wait until they have to be corrected lead by example instead of issuing instructions; stimulate quality improvement activities, not hinder their implementation; use facts, not speculation; work on improving all processes instead of optimizing any area. Having mastered these principles and techniques, having introduced them into the quality system, the company can move on to the phased use of the self-control method.

The sequence of operations of quality self-control [65]. At the first stage, an ordinary performer in the company (worker or operator) mastered the first tasks: current control of the technological process, both without registration and with registration of quality data; filling in accompanying documentation with a given quality of execution of the assigned operation; making a decision on further operations. The goals of the next stage are the mastering by the performer in the self-control mode of such tasks as decision to improve the operation; correction of detected defects and shortcomings of the performed operation with administrative registration of all work.

The final step in implementing the principles of self-control is conducting research and analysis of the technological process by the performers; final output control of products. After the introduction of self-control in full, the function of the company’s quality service remains only to test samples and general control over compliance with the requirements of regulatory and technical documentation. The introduction of automated equipment in all cases requires ensuring the organizational autonomy of operators and expanding the functions they perform, which include self-control without fail. The necessary conditions for the transition to self-control are retraining of personnel and changes in the organizational structure of the enterprise. Together, these measures provide a significant increase in labor productivity and profitability [66]:

- Organization of additional events to improve the skills of employees in the field in which they work, in order to increase the knowledge of the personnel of the current standards of the enterprise, as well as informing employees about the latest updates in the field in which they work;

- Organization of motivational measures, incentives - for making proposals that will contribute to the development of employees and increase knowledge in the area in which they work.

To improve the productivity of staff and strengthen their faith in the company, which increases the focus on the overall result, agencies offer to conduct a number of motivational activities. Types of motivational activities can be divided into three types [67]: 1) Material motivation. Here we are talking not only about awards and other incentives issued in monetary terms, but also about gift certificates, theater tickets, etc; 2) Work motivation. Its essence is to improve working conditions. This may be giving employees the opportunity to independently manage their working time, providing time off, changing the work schedule, etc.; 3) Status motivation. It includes a number of psychological techniques aimed at the employee's desire for career growth.

For the development of tech-related innovative enterprises and their potential in emerging countries, a number of recommendations have been made:

- BMN's success is largely attributable to its virtual platform, which links businesses and promotes their goods and services internationally. Emphasis should be placed on developing creative and user-friendly virtual platforms. Emerging economies' tech-related innovative firms should concentrate on developing user-friendly, widely accessible virtual platforms. They may become more visible, more accessible, and more competitive on the international market as a result.

- BMN's Economy of Trust Marketplace ensures that firms conduct their activities legally and openly, which is a critical criteria for success in the global market. This highlights the significance of quality assurance and transparency. To earn the trust and confidence of foreign partners and customers, tech-related creative enterprises in emerging economies should prioritize quality assurance and transparency in their operations.

- BMN's City Showcase project promotes Ukrainian cities and regional hubs, which can aid in recruiting investment and economic prospects to such locations. To boost their exposure and competitiveness in the global market, tech-related innovative enterprises in emerging economies should invest in supporting regional hubs and local businesses.

- Foster collaborations with worldwide enterprises and organizations. BMN's International Digital Weekly Publications acts as the company's public face and global brand ambassador. To expand their exposure and commercial reach, tech-related innovative enterprises in emerging economies may build relationships with international organizations and companies.

There is a lot of potential for expansion and success when it comes to the development of tech-related innovative firms in emerging economies. Innovative enterprises in emerging economies now have the chance to access a worldwide market and compete with established competitors due to the quick development of technology and growing global connectivity. However, in order for these companies to be successful on the global market, they must place a high priority on quality control, transparency, and user-friendly online platforms, as well as make investments in boosting local companies and regional hubs. They can broaden their presence and commercial reach by creating collaborations with international organizations and corporations.

In conclusion, it can be said that the development of innovative activity in the enterprise is of great importance for the competitiveness of the enterprise. The main problems of the development of innovative activity at the enterprise are related to the personnel, including the lack of an up-to-date material base and a flexible system of motivations for the contribution of employees to the innovative activity of the enterprise [68]. The main measures to eliminate the problems of the development of innovative activity are proposed, which are associated with a general increase in the qualification level of employees, providing employees with all the necessary information on their problems.

CONCLUSIONS AND PROPOSALS

In conclusion, in today's digital economy, entrepreneurship is essential for promoting innovation and economic expansion. Particularly in the technology sector, innovation and technological improvements occur quickly, opening up new business prospects. Technology entrepreneurship entails the discovery and implementation of fresh technology possibilities, the creation of novel values, and the commercialization of cutting-edge goods and services. In light of this, businesses in the technology sector must be outfitted with the knowledge and tools required to foster innovation and maintain market dominance.

The aim of this thesis was to investigate the idea of technology entrepreneurship and its core components, examine the technology and innovation activity within the technology-based company "BMN", and assess the company's strategies for enhancing technology and innovation. Furthermore, the objective was to determine the potential for the growth of tech-related innovative firms in emerging economies and to suggest methods for improving the technology and innovation techniques of the "BMN" company through enterprise creative activity management. By attaining these goals, this thesis intended to add to the body of knowledge about technology entrepreneurship and offer helpful advice for businesses in the sector.

The first section of this thesis gives an overview of technological entrepreneurship, including its definition and key features. I started by defining technology entrepreneurship and looking at the numerous concepts that have been put out. The distinction between entrepreneurship and technological entrepreneurship was analyzed, as well as the particular opportunities and difficulties that it brings. The corporate technological innovation base is then examined in depth along with its implications for both the theory and the practice of digital technology entrepreneurship. This contains a discussion of the numerous frameworks and models, such as the technology push and market pull models, that are used to describe technological entrepreneurship. In this part, I emphasized the significance of technological advancement and innovation in fostering entrepreneurship in the technology sector, as well as the function of technology entrepreneurship in developing new markets and shifting established ones.

In addition, I went over the essential traits and abilities needed for successful technology entrepreneurship, including a thorough knowledge of technology, the capacity to recognize market demands, and the willingness to face measured risks. Moreover, I investigated how entrepreneurial ecosystems, such as incubators, accelerators, and venture capitalists, foster technology entrepreneurship. It was also discussed about the value of networking and teamwork in the tech sector, as well as how open innovation and crowdsourcing can foster creativity and entrepreneurship.

This section establishes the groundwork for the remaining sections of the thesis, which concentrate on the management of innovation and entrepreneurship in the technology-based company “BMN” and the improvement of technology and innovation processes through enterprise innovative activity management.

The management of innovation and entrepreneurship in the technology-based company “BMN”, analysis of the “Grammarly” enterprise, and the comparison of the “BMN” with the “Grammarly” enterprise is the subject of the second section of this thesis. I give a comprehensive review of the businesses in this section and examine their technological and innovative endeavors. I examine the organizations’ corporate technological innovation foundation, which includes technology resources, intellectual property portfolio, and research and development skills.

Additionally, I explore the innovative ecosystem of the businesses and how it has aided in their development. The companies’ internal innovation initiatives, such as research and development, as well as external innovation relationships, such as collaborations with academic institutions, startups, and other businesses, are both included in the innovation ecosystem. I also look at the companies’ innovation culture and the elements that have made them successful, including the backing of the leadership, employee empowerment, and a willingness to take risks.

I also go into further depth into the “BMN” company’s strategies for enhancing its use of technology and innovation. I review the company’s approach to open innovation and how it has made its technologies accessible to customers. Particularly covered is the business’s strategy for product creation, which emphasizes user-centered design and uses agile development processes.

Finally, I evaluate the chances and difficulties “BMN” company had while managing its entrepreneurial and innovative initiatives. I highlight the value of managing risk, creating an innovative culture, and achieving a balance between short-term and long-term goals. I also look at how organizational structure and leadership help “BMN” company to foster innovation and entrepreneurship. This section sheds light on the potential and problems faced by technology-based organizations in managing their innovation and entrepreneurship activities by evaluating the management of innovation and entrepreneurship in the “BMN” and “Grammarly” companies.

In the third section, I discuss the impact of technology and innovation on job environments in emerging economies. I examine how companies involved in technology might help these nations’ economies expand and create jobs.

Last but not least, I offer suggestions for the development of tech-related creative enterprises in emerging economies such as concentrating on creating an innovative business model, embracing technology, keeping an eye on global trends in business innovation, prioritizing customer satisfaction, and collaborating and forming partnerships. This entails looking at the local talent pool, funding and resource availability, and regulatory climate in these areas. I also go into detail on how government initiatives like tax breaks, subsidies for research and development, and intellectual property protection encourage technology and innovation.

This chapter attempts to offer insights and suggestions for entrepreneurs and policymakers wanting to drive economic growth and job creation through technology and innovation by reviewing the methods for strengthening technology and innovation practices in emerging nations.

My analysis leads to offer the following suggestions for improving “BMN” company technology and innovation methods through enterprise innovative activity management:

1. Create an innovative culture: Business should support and foster an innovative culture by offering rewards for original and unique ideas. This can be accomplished by setting up innovation workshops, hackathons, and competitions to inspire staff members’ original and unique ideas.

2. Promote cooperation: In order to develop creativity, collaboration between staff members, teams, and departments is crucial. Businesses should create cross-functional teams to promote interaction and knowledge exchange, which can result in fresh, creative ideas.

3. Invest in technology and research: To stay current of the newest trends and innovations, the organization should make investments in research and development. This could aid the business in creating new goods and services and giving it a market advantage.

4. Establish a management system for innovation: A management system for innovation can assist the business in managing and tracking innovation projects. Along with ensuring that innovation activities are in line with the company's overarching aims and objectives, it can also assist in identifying and removing obstacles to innovation.

In the current digital economy, technology entrepreneurship is essential for the development and success of businesses. Technology-based businesses like "BMN" are developed and expand in large part due to innovation and technology. My investigation has shown that firms can improve their technology and innovation approaches, promote an innovative culture, and achieve a competitive advantage in the market by using innovative management tactics. Hence, in order to be relevant and competitive in the quickly changing digital economy, businesses should invest in technology and innovation.

The role of technology entrepreneurship in the digital economy goes beyond just the success of individual businesses. It significantly contributes to economic expansion and job creation. Entrepreneurs can build new markets, fundamentally change established sectors, and eventually contribute to the expansion of the economy by creating and scaling revolutionary technology. Thus, it is crucial for society as a whole to support and encourage technology entrepreneurship as well as for individual firms to invest in technology and innovation. This can be accomplished by enacting laws that encourage entrepreneurship, spending money on R&D, and establishing environments that are helpful to new and small enterprises.

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ANNEXES

Annex A

Alternative forms of technology and digital entrepreneurship

Typology	Technology Behind the Opportunity	Key Activities in the Process	Access to Resources and Funding
Technology Entrepreneurship	Research-based innovations; scientific advancements based on specialized knowledge in a distinct field. <i>Example: Graphene</i>	A global but limited market is activated as the first client is convinced of the technology's potential (Clarysse et al., 2011).	Grants from the public sector and other forms of "soft money". Intellectual property with great potential can attract venture funding (Audretsch et al., 2012; Giones & Miralles, 2015).
Digital Technology Entrepreneurship	Making smart gadgets using the potential of the Internet of Things; developing new goods based only on ICT technologies. <i>Example: Smartphone</i>	Utilizing current technologies: market acceptance, growth, and scalability.	Stock exchange, seed and venture capital, and business angels. Crowdfunding: rewards and ownership (Gedda et al., 2016).
Digital Entrepreneurship	Brand-new internet-based goods and services. Services exclusively operating on the cloud; utilizing artificial intelligence or big data. <i>Example: Tik Tok</i>	High growth ambitions (Wallinet et al., 2016); staying one step ahead of rivals; being the category's leading player.	Stock exchange, seed and venture capital, business angels. Crowdfunding for equity (Tomczak & Brem, 2013).

Source: Bailetti, A. J. (2012). Entrepreneurial and innovative ecosystems: the role of strategic alliances. *Technology Innovation Management Review*, 2(2), 38-44.

Factors to examine a company's technology and innovation activity

Investment in Research & Development (R&D)	A company that invests heavily in R&D is likely to have a strong focus on technology and innovation.
Use of Emerging Technologies	Companies that adopt and use new and emerging technologies are more likely to be innovative and technologically advanced.
Intellectual Property (IP) Portfolio	A company with a strong IP portfolio is likely to be at the forefront of technology and innovation in its industry.
Organizational Culture	A company with a culture that values and encourages innovation is more likely to be technologically advanced and innovative.
Collaboration and Partnerships	Companies that collaborate with other companies, research institutions, or universities are more likely to be innovative, as they can leverage the expertise and resources of their partners.
Market Presence and Competition	Companies that have a strong market presence and face stiff competition are more likely to be innovative and technologically advanced, as they need to continuously improve their products and services to remain competitive.
Employee Skills and Expertise	Companies that invest in their employees' skills and expertise are more likely to be innovative and technologically advanced.

Source: compiled by author