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The Importance of Location for Innovation: Perspective of Kazakh Subsidiaries in Particular Industry Diploma Thesis

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Aim: The aim of the thesis is to discuss locational determinants for activities of multinational corporations (MNCs), in particular related to R&D and innovation. Conclusions will be drawn based on empirical study of Kazakh subsidiaries from a chosen industry .

Content areas:

1. The importance of location – location and FDI, location determinants and factors, offshoring, backshoring
2. The importance of R&D and innovation for multinational corporations – competitiveness, locations for innovation
3. Empirical study – survey, case studies or interviews, analysis of research evidence
4. Conclusion

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Recommended literature:

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Contents

Introduction.....	5
1 Multinational and location choice for the Innovation.....	9
1.1 Multinational Companies	10
1.2 Multinational strategies.....	12
1.3 Offshoring.....	14
1.4 Drivers of offshoring	14
1.5 Subnational location choice for research and development subsidiaries	17
1.6 Culture.....	18
1.7 The importance of location for Innovation and R&D	21
2 Kazakhstan as a location for innovation.....	23
2.1 Demographics	23
2.2 Economy	26
2.3 Foreign Direct Investments.....	28
2.4 MNCs in Kazakhstan.....	30
2.5 Kazakhstan as the location for innovation	32
2.6 Government and Political System	38
3 Case Study	40
3.1 Chevron.....	41
3.2 Shell Company	48
3.3 Exxon Mobil.....	55
3.4 Comparison and Analysis across Cases	62
Conclusion.....	64
Bibliography.....	66
List of figures and tables.....	68

List of abbreviations and symbols

EEC	European Economic Community
GATT	General Agreement of Tariffs and Trade
GM	General Motors
ILO	Labor Organization
MNC	Multinational Company
OPEC	Organization of the Petroleum Exporting Countries
OECD	Organizations of Economic Development
R&D	Research and Development
WTO	World Trade Organization

Introduction

In the 21st century, globalization has led to changes in almost all spheres of human activity. Open borders, Internet accessibility, news, trade, culture - all this marked the advent of a kind of "transparent" world in which almost any information is available. Speed and the intensity of the interpenetration of economies increases and makes the national economies of states interdependent, and socio-economic conditions comparable, allowing for the possibility of choosing the most profitable of them. Elements of national economies (national producers, consumers, financial and other institutions) are directly integrated into the common global economic space. Over the past two decades, the global labor market has become more integrated. Political changes and economic reforms have transformed China, India and the countries of the Southeast region, involving their huge labor resources in the global economy, which has led to a fourfold increase in the effective labor force, which may more than double by 2050.

These changes also affected companies that previously had a presence only in local markets, but, over time, expanded their influence beyond a certain state. A. Smith also theoretically justified the principle of absolute advantages, laying the foundations of the concept of "offshoring" as the principle of "minimizing costs". A little later, an English economist D. Ricardo developed the theory of comparative advantage, which states that the abundance of certain resources determines the production specialization of a particular economy, and the state receives the missing goods and services because of exchange.

International companies have realized the importance of integrating and adapting their product outside the local market - several factors contributed to this, but profit was, is and will be the main driving force behind going beyond their own country. However, such companies should take into account the readiness of the countries to which they plan to enter the market. Thanks to globalization, the world seems the same to us wherever we are, but this is not the case at all. Each region has its own unique features that can be explored only after spending some time here. That is why offshoring has advantages and disadvantages. The positive factors of offshore zones include numerous procedures for conducting international and cross-border financial transactions with capital, including procedures for obtaining listing (admission) of securities to international stock exchanges; protection of

property from unfriendly takeovers; simplification of procedures for the sale of assets or change of ownership; the use of guarantees to foreign investors, etc. The disadvantage of offshoring can be attributed to the socio-economic problems of the population of the country in which the company plans to do business, regulations and barriers that the government implements, trying to protect local producers. In addition, it is necessary to take into account the availability of raw materials, security, trade potential and the degree of openness of the border. These factors can greatly affect the business development of international companies.

Offshoring as a way to optimize economic activity in order to preserve and strengthen competitive advantages at the global and regional scenes.

Against the background of increasing globalization, the management of companies is forced to look for new ways to optimize their economic activities, allowing them to maintain and strengthen their competitive advantage in the market. The use of offshoring in order to minimize personnel costs has become regarded by most Western companies as an effective way of doing business in the context of globalization.

In economic literature and practice, the term "offshoring", derived from the English words "outside resource using— — "Outsourcing" - "use of external resources", appeared at the end of the last century and means attracting resources to perform certain tasks (business functions) by a third party abroad (therefore, offshoring is often considered as outsourcing abroad).

In management science, there are concepts of offshoring as an element of the organizational structure of an enterprise, offshoring as a business process and the concept of personnel offshoring as one of the company's business processes. In this study, personnel offshoring is considered as an innovative technology of human resource management, with the transfer of jobs of the same company from one country to another in order to minimize personnel costs and increase capitalization. According to the McKinsey classification Institute there are several types of offshoring.

1. The company opens its own divisions in the home country, only in its other territories. This form of offshoring is the initial stage of transferring jobs. An example is, for example, the transfer of the production process completely from the North of the United States to the South. Then the transfer began to be carried out in relation to individual production processes, for example,

technological support, software, accounting, human resource management. This is the so-called onshore outsourcing.

2. The company transfers the right to implement a certain technological process to another company in the territory of the home country.
3. The company opens its divisions in another country.
4. The firm transfers the right to carry out certain production or technological processes to other companies in another country.

Factors such as increased liberalization at the international and regional levels, accelerated development of information technologies, reduction of risks of manufacturing and other activities in developing countries, and labor shortages in developed countries affect the "removal" of production and services outside the country. An important factor in the movement of production of goods and services to developing countries has also been the support of the Governments of these countries for initiatives to protect the rights of intellectual property. This is the so-called offshore outsourcing. The latter type is pure offshoring. For example, in the global business in the Eurasian space, it is widely known about the high efficiency of manufacturing companies operating in Asia. Today, 74% of companies with one outsourcing partner are looking for it in India. Thus, the Philippine eTelecare serves a number of American blue— chip corporations, including a well-known company famous for the highest level of customer service, which operates in the field of financial services of a leading computer manufacturer. Companies that used to process their customers' calls themselves or worked with other operators have felt the advantage of eTelecare: it takes 25% less time to process one call, and, in addition, the quality of its services is incomparably higher. The same is the case with the provision of technical support to consumers. eTelecare services cost the leading American electronics manufacturer 40% cheaper than its own call center Located in the USA, 16% more than its Indian division, and 30% more than competing American outsourcing firms. At the same time, the quality of service exceeded all expectations: 99% of customers described it as high or very high. After that, the American electronics manufacturer moved production from the USA to China, its productivity tripled. The production cycle has become shorter, and the percentage of defects per unit of time has significantly decreased. It should be noted that Kazakhstan is currently considered as a source

of relatively inexpensive intellectual resources for high-quality research, development and scientific research. In this regard, it is of interest and relevance to study the features of the practical application of offshoring as one of the innovative methods of employment management and labor relations.

This thesis begins with an introduction. This includes the motivation for this research as well as the research contributors, which serves as the basis for the formulation of the research question and sub-questions. The literature study in chapter 2 begins with a study on Kazakhstan as the location choice, its importance as an offshoring trend of international companies. Next, there follows a description of the region and its economic significance, the advantages and disadvantages of the country, and a description of local problems that directly affect the work of international companies. Both sections end with a summary, in which the sub-questions are answered based on what has been found in the literature. Chapter 2 concludes with the conceptual model derived from the literature.

Chapter 3 concludes the Case study of three specifically chosen MNCs. The Chapter contains history of relations with the chosen region – Kazakhstan – challenges and benefits, which MNCs came across to in Central Asia. Furthermore, there is a description on how MNCs operate and use the local determinants to improve their innovation and research and development strategies.

1 Multinational and location choice for the Innovation

One important factor that MNCs consider when choosing a location for innovation is access to skilled labor. According to a study by Deloitte, access to skilled labor is one of the most critical factors in the location decision-making process for MNCs. MNCs often seek to locate their innovation activities in countries with a highly educated workforce and a robust research and development (R&D) infrastructure. For example, countries like the United States, Japan, Germany, and South Korea have a high concentration of skilled workers and strong R&D capabilities, making them attractive locations for innovation.

Another critical factor that MNCs consider when choosing a location for innovation is access to markets. MNCs often seek to locate their innovation activities in countries where they have established markets or are looking to enter new markets. According to a study by the European Commission, MNCs often prefer to locate their innovation activities close to their customers to ensure that their products and services meet their customers' needs. For example, the Chinese market is becoming increasingly important for many MNCs, and they are setting up R&D centers in China to better understand the needs of the local market and develop products tailored to local customers.

In addition to access to skilled labor and markets, MNCs also consider other factors when choosing a location for innovation. For example, MNCs often seek to locate their innovation activities in countries with favorable tax policies and incentives for R&D activities. The availability of funding and resources for R&D is also critical, as MNCs require significant investments in R&D to develop new products and services.

Moreover, MNCs also consider the political and regulatory environment when choosing a location for innovation. Countries with stable political systems, strong intellectual property protection laws, and a favorable regulatory environment are attractive locations for innovation. For example, the United States has a robust intellectual property protection framework, making it a desirable location for MNCs looking to protect their innovations.

In conclusion, MNCs consider various factors when choosing a location for innovation, including access to skilled labor, markets, favorable tax policies and incentives, availability of funding and resources for R&D, and the political and regulatory environment. The location decision for innovation is unique for each MNC and depends on their specific goals and objectives. As MNCs continue to expand their global presence, location decisions for innovation will remain a critical factor in their long-term success.

1.1 Multinational Companies

Multinational companies (MNCs) are firms that have business operations in several countries and are engaged in various economic activities, such as manufacturing, services and research activities (R&D). One of the main goals of MNCs is to maximize profits, their activities at the international level help them to reduce costs and expand sales markets. In the modern world, MNCs are one of the key players in the global economy.

According to a study by the World Trade Organization (WTO), the largest MNCs in 2019 included companies such as Walmart, Toyota, Volkswagen and Nestle. As noted in the report, the most successful MNCs strive for international expansion, attraction and use of talented employees, as well as the active use of scientific and technological innovations in their activities (WTO, 2019).

MNCs have not only economic, but also social and political weight in the countries where they operate. These companies can have a significant impact on the economic growth and development of the country, as well as on the culture and lifestyle of the population. In addition, MNCs can contribute to the development of new technologies, products and services, which in turn can improve the standard of living of the population and strengthen economic ties between countries.

According to a study by the International Labour Organization (ILO), MNCs create jobs, increase labor productivity and contribute to economic development (ILO, 2017). In addition, ILO notes that MNCs can make a significant contribution to the development of innovation, technological knowledge and know-how in different countries of the world (ILO, 2017).

MNCs, being multinational companies, operate in different countries and sometimes in different continents, including developing countries. They can make a significant contribution to promoting the economic development of such countries, for example,

through job creation, productivity improvement, etc. In addition, they can help developing countries introduce new technologies and innovations that can contribute to improving people's quality of life.

However, MNCs have their own characteristics that may affect their contribution to the economic development of the country where they operate. For example, they may bring their own technologies and management methods with them, which may not always be adapted to local conditions and requirements. This can lead to a lack of interaction between local employees and the company, as well as a decrease in local competitiveness.

Another factor that can influence the contribution of MNCs to economic development is the degree of their involvement in tax schemes that may be unfair and ineffective for developing countries (UNCTAD, 2015). In such cases, MNCs can benefit from local resources and markets, but not make a proper tax contribution to the country's economy.

Thus, the impact of multinational companies on economic development can be significant, but it also depends on a number of factors, such as the ability to adapt to local conditions and tax policy. However, as stated in the ILO study, MNCs can have great potential to create jobs and promote innovation, which in turn can help developing countries achieve sustainable economic development.

It is important to note that multinational companies can have a significant impact on the global economy. According to a World Bank study, the top 100 multinational corporations controlled more than 40% of the global economy in 2017 (World Bank, 2021). These companies play an important role in international trade and investment, which in turn affects the economic development and well-being of countries.

Multinational companies may have different strategies that allow them to achieve their goals. One of such strategies is globalization, which involves the use of large-scale economic advantages and the use of profitable factors of production in different countries. In addition, multinational companies can apply diversification strategies that allow them to reduce risks and expand their business.

Multinational companies can be associated with various sectors of the economy, including manufacturing, trade, finance and services. They can work in various forms, including branches, subsidiaries, joint ventures, etc. Such companies may

be global in nature and located in different regions of the world, which allows them to take advantage of scale and global coordination.

However, multinational companies may also face a number of challenges related to local competition, regulation, and cultural differences. Some researchers note that T=MNCs may have a negative impact on the economy and social sphere in some countries (Gonenc & Aybar, 2016). In addition, some MNCs may use their economic resources to exert political influence on States and other organizations (Jung & Lee, 2018).

There is also the problem of profit shifting, which can affect the tax revenues of local governments. MNCs can use various methods to transfer profits to countries with lower tax rates, which can lead to a decrease in the income and tax bases of local governments (Heather & Prowse, 2017).

In addition, some MNCs may also use their economic and political influence to lobby for their interests to the detriment of the interests of local communities and the environment (Jung & Lee, 2018). This can lead to negative social and environmental consequences, such as environmental pollution, violations of workers' rights and reduction of tax revenues of local governments.

Thus, it is important to take into account both positive and negative aspects of the influence of multinational companies on economic development. In order for them to play a positive role in development, it is necessary to ensure a balance between the interests of companies and the interests of local communities and the environment. In addition, it is necessary to create favorable conditions for investment in order to attract MNCs and their innovative potential to various regions.

1.2 Multinational strategies

Multinational companies (MNCs) develop various strategies to achieve their goals in the global market. In their article "Strategic Approaches of Transnational Corporations", A. Samalavicius and A. Savaneviciene (2011) emphasize that the choice of strategy depends on many factors, including industry characteristics, competitive advantages, geographical and cultural differences. In this chapter, we will look at several strategies that MNCs use to ensure their success in the global market.

Globalization

One of the most common strategies used by MNCs is globalization. This strategy is to take advantage of scale and standardize its products and services for the global market. In his book *Globalization and its Critics*, Joseph Steiglitz (2002) points out that globalization allows companies to achieve economic benefits, reduce production costs and ensure competitiveness in the global market. However, some researchers note that globalization can lead to a decrease in the quality of products and services, as well as to a deterioration in working conditions for workers in developing countries (Klein, 2000).

Localization

Another strategy used by MNCs is localization. This strategy is to adapt its products and services to local markets and cultural specificities. In his book *"The Priority Choice"*, Michael Porter (1990) emphasizes that localization allows companies to create competitive advantages in local markets, as well as improve interaction with local partners and society as a whole. However, localization can also be costly for MNCs, especially if it requires investments in production facilities and research centers in local regions.

According to Maharajan and Krishnan (2015), localization is one of the most effective strategies for MNCs operating in developing countries, where local markets and cultural characteristics have their own requirements and limitations. For example, Unilever successfully applies a localization strategy, adapting its products to local needs and cultural preferences, which leads to an increase in its market share in various countries of the world (Unilever, 2017).

However, localization may face a number of problems, including difficulties with access to local resources, difficulties with the organization of production and distribution, as well as restrictions at the local level in the field of law and regulation. In addition, localization must take into account local cultural and social factors, which may lead to some contradictions in the strategy of MNCs.

Thus, localization is an important strategy for multinational companies, allowing them to adapt to local markets and increase their competitiveness. However, when using this strategy, it is necessary to take into account a number of factors, including cultural, social, legal and economic aspects, which can create a number of problems and limitations for MNCs.

1.3 Offshoring

Another strategy that MNCs often use is offshoring. Offshoring is the relocation of a business or part of it to another country to gain advantages in the form of lower taxes, cheaper labor and more favorable business conditions.

Offshoring became popular in the 1980s and has since become a common practice in business. According to a study by McKinsey & Company, over the past 10 years, offshoring has become the most popular method of cost optimization for companies around the world (McKinsey & Company, 2019).

One of the main advantages of offshoring is the possibility of reducing tax payments. As noted by Benson and Bransberg (2010), MNCs can move their profits to jurisdictions with lower tax rates and thereby reduce their tax payments. In addition, moving a business to a country with low labor costs allows you to reduce labor costs and increase the company's profit.

However, offshoring can also have negative consequences for local economies. As Michelle Helen Roux (2018) points out, offshoring can lead to job losses in the company's home country and a decrease in domestic investment. In addition, offshoring can lead to a decrease in product quality, as a company may seek to reduce production costs in a new country.

In general, offshoring can be an effective strategy for companies that are looking for opportunities to reduce their costs and increase profits. However, companies should also take into account possible risks and negative consequences for local economies before making a decision on offshoring.

1.4 Drivers of offshoring

Among the goals of offshoring, the greatest strength and purpose of offshoring is cost cutting. When comparing the wages in India and USA, people in India make less than 10% of US salaries for similar workplaces (Lewin & Peeters, 2006; Berry, 2006.) Moreover, the tax structure in low-wage countries like India and the Philippines differs from Europe or the USA. According to Berry J., 2006, the organization will not pay a 35% tax if the money stays invested overseas in those countries (Berry J., 2006).

Another advantage of offshoring is that services not possible in European or North American countries, such as 24/7 customer support, can be offered. But, companies can recruit highly qualified employees from low-cost countries who are motivated

and interested in working at the level of "low" job (Lewin & Peeters, 2006; Lampel&Bhalla, 2011). Then it is possible to recruit them.

Barriers for offshoring in EAEU

McKinsey global institute has identified 8 business sectors for offshoring: car service, financial services; insurance; IT systems and development of standard software, pharmaceuticals (service only), and retail. The list of eight business areas that can be transferred to offshoring consists in the selection of eight companies from the ranking of top ten countries. Mckinsey's experts predicted that 11% of global service work can be performed remotely, creating about 26 million jobs. A new opportunity for the national economic development is offshoring. It is not only an unexpected possibility, but also has its own hidden threats.

It is worth noting that the new report of the International Labor Organization (ILO), "Prospects for social protection in the world: 2017 Trends", has included graph and digital tablet with an analysis of unemployment rate forecasts for 2017 and 2018 in countries, emerging regions or development countries. In addition, the report reports on quality of jobs, unprotected forms of work, and that the shortage of decent work causes social discontent and forces people to migrate. The fact is that the shortage of decent work causes social discontent and forces people to migrate. The report shows strategic directions to accelerate economic growth and opportunities for decent work worldwide. It is also shown that they are intended to stimulate economic growth and opportunity for decent work,

A few years later, this is because of the losses in jobs and prospects for destruction and the disappearance from all sectors of the national economic economy. For example, in the annual report "Employment Prospects" from The Organization for Economic Development (OECD), funded by 30 countries of world power, issued on June 2017, it is notable to mention that concerns about the danger posed by globalization are overblown. The OECD report confirms that "offshoring is a potential source of vulnerability for workers." This is mainly because "jobs and wages have become more vulnerable to external shocks."

In addition, there are many different estimates of job losses from offshoring; the information is varied in quality and detail. In other words, according to INTERNATIONAL COOPERATION OF THE EURASIAN STATES: POLITICS, ECONOMICS, and Law 8 2 No3 2017

Studies posted on the website of The International Monetary Fund show that job losses from offshoring are only 0.3-0.7% of total employment in Europe and the United States. In recent years, there has been a tendency to raise this indicator by more than 30% since last year's publication.

Therefore, in the USA, offshoring contributes to instability in the labor market. According to Blender estimates, losses for the USA amounted to 22-29%. The ability to move production outside the country tightens employers' position in negotiations with employees and trade unions, leading to lower wages and deterioration of social security conditions, i.e., reducing the social security of the workplace. Nevertheless, in the near future, there will be no significant changes in employment in general, since in the service sector, for example, only 9% of jobs can, in principle, be remote. Based on this, it should be remembered that the number of jobs for transfer to offshoring is not unlimited. Along with the growing needs of the labor market, we must not forget about the shortage of highly qualified specialists for high-tech industries. Workers in developed countries have an alternative when looking for a new job lost due to offshoring. This is a change in the work profile, a transition from one industry to another, obtaining additional education or advanced training.

There are two main obstacles to the development of offshoring in Kazakhstan: underestimation by potential customers of Kazakhstan's capabilities and severe institutional barriers. There is a firm belief in public opinion that since these problems are not subject to the competence of individual companies, they cannot be solved without active government intervention since it is necessary to develop unified mechanisms to compensate for the uneven impact on domestic markets, as well as to limit the possible economic risks of citizens by developing a system of social guarantees, improving the education system.

In the long term, the state policy of the states, including the members of the EEC, regarding the advantages of the development of offshoring as a mechanism for business organization, should strive for the following goals.

In the EAEU, it is necessary to promote the improvement of the functioning of labor markets, the development of policies that allow employers to reduce labor costs, reduce the tax burden, encourage the hiring of new workers, increase the freedom of movement of workers from declining industries to developing industries. It is necessary to make the labor market more flexible by reducing hiring and firing barriers.

The governments of the EAEU member states should assist workers in finding work, including through zones of stimulating development, taxation, and increased wages, while also giving them a sense of financial, social security in case of job loss. To make healthcare less dependent on the duration of employment, keep pension insurance when changing jobs. It is essential to expand educational and professional development opportunities. Workers' skilled sectors adapt better to changing conditions due to advances in information technology and telecommunications than workers in low-skilled sectors. Improving the education and professional development system will help workers from developed countries compete with workers from emerging economies, especially from Asia, in the context of the growing globalization of the labor market.

It is necessary to guarantee employees adequate security measures when looking for work and admission to it, including stimulating development zones, preferential taxation, and increased salaries

1.5 Subnational location choice for research and development subsidiaries

Multinational companies often create subsidiaries that engage in research and development (R&D) in different countries in order to improve their products and services and remain competitive in the global market. However, the selection of a subnational location for the subsidiaries of the IR is a complex process that requires taking into account many factors, such as the availability of qualified personnel, the availability of scientific and research centers, the availability of tax benefits and other business factors.

Research shows that the choice of a subnational location for the subsidiaries of the IR can have a significant impact on the success of a multinational company. As noted in a study conducted by Willem Marsman and his colleagues, "most large multinational companies tend to focus their subsidiaries on research and development in regions where there is a strong scientific and research infrastructure, the availability of highly qualified personnel and there is a favorable tax climate" (Marsman et al., 2016).

However, in addition to the research infrastructure and personnel qualifications, the choice of a subnational location for the subsidiaries of the IR may also depend on many other factors, such as the innovative potential of the region, the availability of

infrastructure for communications and logistics, the availability of a suitable legal and regulatory environment.

For example, in a study conducted by Liu Xiaoming and Shi Jinyan, it is noted that "the choice of location for the subsidiaries of the IR should take into account not only technical and economic factors, but also cultural, social and political factors, as they also affect the effectiveness of the IR" (Liu & Shi, 2013). This highlights the importance of taking contextual factors into account when choosing a subnational location for research and development subsidiaries.

In addition, in a study conducted by Malcolm Turnbull and his colleagues, it was found that the choice of location for research and development is influenced by factors such as the availability of highly qualified specialists, the availability of scientific and technological infrastructures, the availability of support from the government and industry communities, as well as tax benefits (Turnbull et al., 2016). However, it is important to keep in mind that the choice of location for research and development should be justified, and not accepted on the basis of superficial factors such as low costs or availability. As Morgan and Kristy (2015) note, "the choice of location should be based on the competitiveness of the company, not on the availability of resources." This means that the choice of location for the subsidiaries of the IR (International Research) should correspond to the strategic goals of the company and provide access to the resources and expertise that are necessary to achieve these goals.

Thus, the selection of a subnational location for research and development subsidiaries is a complex and multifaceted process that requires consideration of various factors, including technical, economic, cultural, social and political factors. At the same time, the choice of location must be justified and correspond to the strategic goals of the company.

1.6 Culture

Multinational corporations (MNCs) are organizations that operate in various countries, cultures, and legal environments around the world. The success of an MNC depends heavily on how it adapts to the cultural nuances of each country it operates in. Culture is a complex and multifaceted concept, and it can influence an MNC's work in numerous ways. In this response, I will discuss how culture affects the work of MNCs.

Firstly, culture influences an MNC's communication style. In high-context cultures like Japan and China, where nonverbal communication plays a crucial role, MNCs need to pay close attention to body language and other nonverbal cues to understand the meaning of what is being said. In contrast, low-context cultures like the United States and Germany rely more on verbal communication, and MNCs need to communicate clearly and concisely. Failure to adapt to the communication style of a particular culture can lead to misunderstandings and mistakes that can affect the MNC's work.

Secondly, culture affects an MNC's human resource management practices. For example, in collectivist cultures like Japan and South Korea, where the group is more important than the individual, MNCs need to focus on building strong relationships with their employees and fostering a sense of teamwork. In contrast, in individualistic cultures like the United States and the United Kingdom, where the individual is more important than the group, MNCs need to focus on employee autonomy and recognition of individual achievement. Failure to adapt to the cultural values of a particular country can lead to high employee turnover and a lack of motivation among employees.

Thirdly, culture affects an MNC's marketing strategies. For example, in some cultures, such as India and China, where family and social connections are highly valued, MNCs need to focus on building relationships with key individuals and leveraging their social networks to build brand awareness. In contrast, in cultures like the United States and the United Kingdom, where individualism is more prevalent, MNCs need to focus on building a strong brand identity and differentiating themselves from competitors. Failure to adapt to the cultural values of a particular country can lead to poor sales performance and a lack of brand recognition.

Finally, culture affects an MNC's ethical practices. In some cultures, such as Japan and South Korea, where loyalty to the company and the group is highly valued, MNCs need to be mindful of conflicts of interest and the potential for corruption. In contrast, in cultures like the United States and the United Kingdom, where individualism is more prevalent, MNCs need to be mindful of issues such as data privacy and transparency. Failure to adapt to the cultural values of a particular country can lead to reputational damage and legal issues.

Culture can have a significant impact on innovation and research and development in multinational companies. As noted in a study by M. Hofstede (1980), cultural differences can affect the perception and evaluation of new technologies, as well as risk-taking and changing thinking patterns.

In his work, Hofstede identified four cultural dimensions that can influence innovation and research and development: individualism/collectivism, distance of power, uncertainty, and masculinity/femininity. For example, a high level of individualism may encourage new ideas and innovations, while a high level of collectivism may constrain innovation due to a more conservative approach to change. In addition, a high level of uncertainty may mean that companies will be more prone to risky projects, while a low level of uncertainty may deter innovation due to a more conservative approach.

Cultural differences can also influence the ways of interaction and communication within a company and between different national subsidiaries. For example, in a study conducted by Liu Xiaoming and Shi Jinyan (Liu & Shi, 2010), it is noted that cultural differences between the parent company and its subsidiaries can make communication and interaction difficult in the research and development process. This can lead to a delay in project deadlines, a decrease in the quality of work and an increase in costs.

Thus, cultural differences can have both a positive and negative impact on research and development and innovation in multinational companies. Therefore, companies must take into account cultural differences and adapt to them in order to successfully develop in the international market.

Some researchers point out that cultural differences can contribute to innovation in MNCs. In the article "Culture and Innovation in Transnational Corporations" (Culture and Innovation in Transnational Corporations), Chang and Hu (2010) note that different cultural approaches can stimulate creative thinking and innovation. For example, Japanese companies are known for their innovative approach based on a unique Japanese culture, such as kaizen (continuous improvement), which encourages employees to come up with new ideas and improve processes.

However, cultural differences can also create barriers to innovation. A study conducted by Shen and others (2019) notes that different cultural values, such as individualism and collectivism, can influence companies' ability to innovate. For example, in cultures where individualism prevails, employees tend to be more

innovative and more willing to take risks, while in cultures where collectivism prevails, employees tend to be more conservative and more cautious in taking risks. Thus, for successful research and development in MNCs, it is necessary to take into account cultural differences and use them as an advantage, as well as overcome possible cultural obstacles in order to develop and innovate in an international context.

In conclusion, culture plays a crucial role in the success of MNCs operating in multiple countries. Failure to adapt to the cultural nuances of each country can lead to misunderstandings, poor performance, and legal issues. Therefore, MNCs need to be aware of the cultural values and practices of each country they operate in and adapt their communication styles, human resource management practices, marketing strategies, and ethical practices accordingly. Culture can have a significant impact on innovation and research and development in multinational companies. As noted in a study by M. Hofstede (1980), cultural differences can affect the perception and evaluation of new technologies, as well as risk-taking and changing thinking patterns.

1.7 The importance of location for Innovation and R&D

Location is one of the key factors influencing R&D and innovation in multinational companies. As noted in a study conducted by Martinsons and Flischauer (2008), location can have an important impact on innovation processes, since a number of factors, such as the availability of highly qualified employees, the availability of markets and resources, can significantly contribute to the successful implementation of projects on research and innovation.

In addition, the location can influence the company's interaction with local universities, research centers and other innovative actors. As Niemela and Karhuna (2013) note, "companies based in industrial clusters are more likely to establish cooperation with other companies in their field, and are also more likely to cooperate with universities and research centers."

It is also important to take into account regional peculiarities, such as culture and legislation, which may have an impact on R&D and innovation in the company. For example, in some regions, the government may provide financial support and incentives for companies engaged in research and innovation. As noted by Kannegard and Laurinen (2015), "government support programs can stimulate

investment in R&D and innovation, which in turn can lead to an improvement in the competitiveness of the company." Thus, the choice of location for subsidiaries of R&D and innovation can be a critical factor for the success of multinational companies. Companies must take into account a number of factors, such as the availability of qualified personnel, the availability of resources and markets, as well as regional peculiarities, such as culture and legislation

2 Kazakhstan as a location for innovation

2.1 Demographics

Demography and demographic situation are important aspects that have an impact on various spheres of life in Kazakhstan. According to the National Statistical Agency of the Republic of Kazakhstan, at the beginning of 2021, the country's population was about 18.8 million people. In 2023 it estimates now is about 19.2 million people.

There are many nationalities in Kazakhstan, and an ethnic group can influence their social and economic situation in the country. Kazakhs are the largest ethnic group in Kazakhstan and make up about 68% of the population, while Russians make up about 20%. Uzbeks, Uighurs, Tatars, Ukrainians, Belarusians and other nationalities also live in the country. Kazakhstan is home for many ethnic groups, the culture is also highly diverse.

Religion is also an important aspect of Kazakhstan's demographic situation. Islam is the main religion followed by about 70% of the population, while representatives of other religions also live in the country, including Orthodox Christians, Protestants, Jews and Buddhists. Urbanization is an important factor in the demography of Kazakhstan. At the beginning of 2021, about 58% of the population lived in cities. The largest cities are Almaty, Nur-Sultan (formerly Astana), Shymkent, Aktobe and others.

Poverty is one of the problems in Kazakhstan. According to official data, about 2.7 million people or 14.5% of the population live below the poverty line. This may affect the availability and quality of education and healthcare, as well as the economic development of the country as a whole. According to official data, at the beginning of 2021, women make up about 51.3% of the population, and men - 48.7%.

The ratio of young and old also plays an important role in the demographic situation of Kazakhstan. As of the beginning of 2021, about 26.2% of the population are young people under the age of 14, and the proportion of the population over the age of 65 is about 5.3%. However, as noted in the UNFPA report, the percentage of young people in Kazakhstan is decreasing, and the proportion of the older population is increasing, which may lead to socio-economic challenges in the future. Summing up all of the above, there are problems in Kazakhstan such as poverty and low level of education, which also have an impact on the demographic situation.

According to the National Statistical Service of Kazakhstan for 2020, the poverty rate is about 9.9%, and the share of the population with higher education is about 14.7%. These factors can lead to an increased risk of diseases, a decrease in life expectancy and other demographic-related problems.

In general, the demographic situation in Kazakhstan has its own characteristics and challenges that need to be taken into account when developing policies and development strategies.

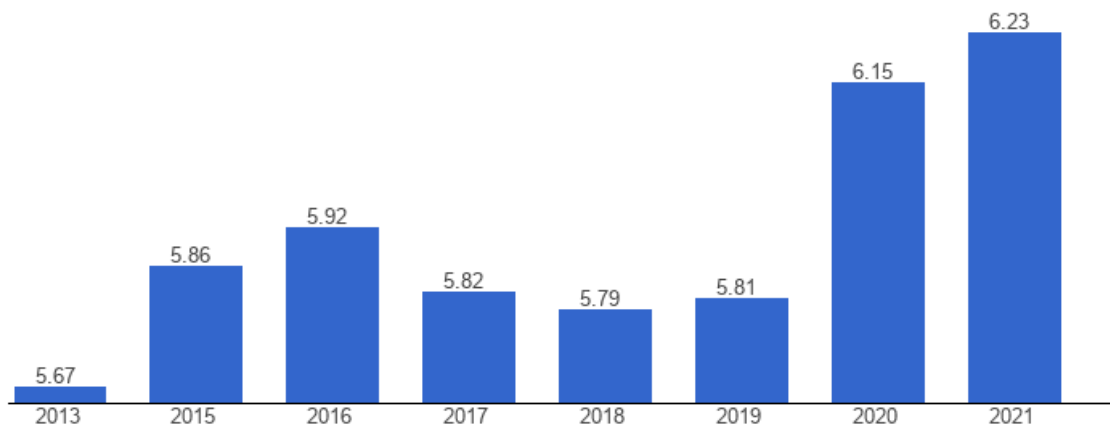


Figure 1 Kazakhstan's Happiness Index over the years

Source: World's Happiness Index

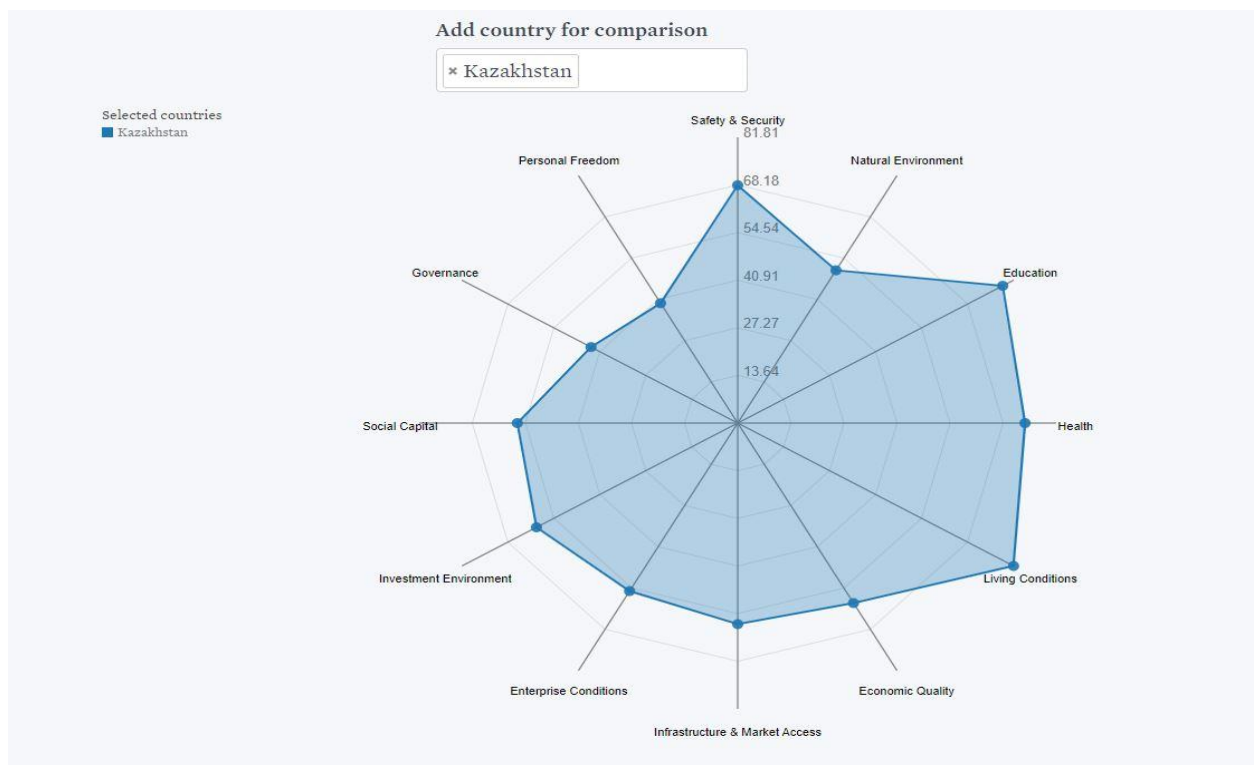


Figure 2 Kazakhstan's Prosperity Index

Source: Legatum Prosperity Index

The international organization Legatum Institute, which studies issues of global economic development, annually publishes a rating of countries by standard of living. It is recognized by experts as one of the most authoritative, since it not only reflects the official reports of state bodies, but also takes into account the general opinion of people inhabiting a particular territory. In the latest published ranking, Kazakhstan ranks 82nd out of 149 participants according to a set of nine criteria. Of the countries of the former Union, only the Baltic republics and Kyrgyzstan are higher, Georgia is somewhere nearby, Russia, Moldova, Belarus and all the others are a dozen points lower.

Over the past two years, Kazakhstan's rating has been falling, which is caused by the economic crisis that followed the decline in oil prices. But the country's leadership manages to overcome the problems relatively successfully. New agreements and ways of economy diversification support that.

However, it is one thing to overtake the former brothers on the map in the assessments of independent experts, another thing is to provide the citizens of the country with a decent life and confidence in the future in reality. To solve these problems, Kazakhstan has built a developed system of social protection and support of the population at the state level, which includes:

- 1) Payment of state benefits;
- 2) Compulsory social insurance and guaranteed medical care;
- 3) Pension provision;
- 4) Maternity and childhood protection program;
- 5) The possibility of receiving free education and other social assistance.

State benefits are mandatory in cases of old age or disability, as well as the loss of a breadwinner or job. The Retirement Administration of Republic of Kazakhstan states that individuals who are permanent residents of the country, including foreigners and stateless people, are entitled to receive an old-age pension. The retirement age for men in Kazakhstan is 63 years old, while women retire at 58 years old. However, starting from 2018, the retirement age for women will be increased by six months annually until it reaches the age of 63. In 2027, the retirement age for both men and women will be the same. Knowledge of the demography of Kazakhstan is important for multinational companies that plan to invest in this country or are already working in its market. Demographic data allows you to assess

the potential audience of a product or service, as well as predict changes in its behaviour and preferences.

For example, knowing that about 60% of the population of Kazakhstan live in cities, a multinational company can concentrate its activities on urban residents, offering them appropriate goods and services. According to the report of the Central Agency for Statistics of the Republic of Kazakhstan, the urban population of the country has a higher income level than the rural population, which can be useful information for multinational companies planning to sell expensive goods.

In addition, demographic data helps companies assess the market potential for certain products or services. For instance, if, according to statistics, the number of elderly people in Kazakhstan is increasing, then a multinational company can concentrate its activities on offering goods and services specially designed for this age group. This helps to monitor and gain required knowledge to implement appropriate strategies.

Understanding and studying the demographic situation of Kazakhstan can help multinational companies manage their personnel and develop a recruitment strategy. For example, if the majority of the population is young people, then the company can focus its activities on attracting young professionals and develop training and internship programs. In total, knowledge of the demographic situation of Kazakhstan is an important element for successful business in this country. Strategic analysis of demographic data can help multinational companies develop an effective strategy for marketing, personnel management and risk management.

2.2 Economy

Kazakhstan is one of the largest economies in Central Asia and the post-Soviet space. Currently, Kazakhstan's economy is undergoing a process of modernization and diversification aimed at developing the non-industrial sector and improving the quality of life of the population. The process was quickened by the geopolitical situation in and outside the country.

The basis of Kazakhstan's economy is the extraction of natural resources such as oil, gas, uranium, gold, copper, iron and coal. According to the World Bank, in 2020, the share of oil and gas production in Kazakhstan's GDP was about 17.4%, and the share of the mining industry was about 20.1%. However, in recent years, the Kazakh

authorities have been striving to diversify the economy and develop non-industrial sectors, such as transport, logistics, telecommunications, tourism and others.

According to the National Statistical Committee of Kazakhstan, the country's GDP in 2020 amounted to 32.6 billion US dollars, while GDP growth was 2.7%. However, Kazakhstan, like many other countries, was affected by the COVID-19 pandemic, which affected the economic development of the country.

The development of Kazakhstan's economy is closely linked to its geographical location and the availability of transport highways that connect the country with China, Russia, Central Asia and Europe. Currently, the logistics sector is actively developing in the country, which is becoming increasingly in demand for multinational companies engaged in international trade.

One of the main directions of Kazakhstan's economic policy is to attract foreign investment in various sectors of the economy, including infrastructure, manufacturing, agriculture, energy, and so on. For this purpose, special economic zones have been created in the country, special conditions for investors, and reforms aimed at improving the investment climate are being actively carried out. In addition, Kazakhstan is a member of many international organizations, such as the WTO, the EEC, the OECD and others, which contributes to strengthening economic ties with other countries.

One of the key sectors of Kazakhstan's economy is the extraction of natural resources, such as oil, gas, uranium and other minerals. According to the National Bank of Kazakhstan, the share of oil and gas production and refining in the country's GDP is about 20%. In addition, Kazakhstan is one of the largest oil exporters in the world, so this industry plays an important role in the country's economy.

Agriculture is also a significant sector of the economy, which occupies more than 70% of the country's territory. In 2020, gross value added in agriculture amounted to more than 3.5% of Kazakhstan's GDP. However, in recent years, due to climate changes, population growth and changing market conditions, agriculture has begun to face a number of problems, such as lack of water, reduction of pasture lands, low efficiency of technology use, etc. In addition, such sectors as mechanical engineering, chemical industry, electronics, etc. are developed in Kazakhstan. According to the World Bank report for 2020, Kazakhstan ranks 25th among the countries of the world in terms of industrial development. In general, Kazakhstan's economy is characterized by high dependence on the extraction of natural

resources and price instability on world markets, which creates a risk for multinational companies that can bring stability and diversity to the country's economy.

Although, in addition to dependence on natural resources, in recent years the Government of Kazakhstan has been actively developing other sectors of the economy, such as information technology, transport and logistics, tourism, production of high-tech goods and services. In 2020, the government launched a program for the development of the digital economy until 2025 in order to attract foreign investment and create conditions for the development of innovative startups. In addition, Kazakhstan actively participates in international economic integration processes, such as the Eurasian Economic Union, the Common Economic Zone, the SCO, the OECD and others, which can create additional opportunities for multinational companies.

Thus, knowledge of the economic situation in Kazakhstan is important for multinational companies that can bring stability and diversity to the country's economy and take advantage of the opportunities created by the government for the development of various sectors of the economy. In addition, it provides long-term perspectives and vision. However, there always will be additional obstacles, for example COVID-19 or geopolitical situation in the world.

2.3 Foreign Direct Investments

Kazakhstan is considered one of the most attractive countries for foreign investors in the Central Asian region. The country is actively working to improve the investment climate and assist foreign investors. In this section, we will look at the main directions of foreign investment in Kazakhstan and the current market situation.

In 2020, the total volume of foreign direct investment (FDI) in Kazakhstan decreased by 9.5% compared to the previous year and amounted to \$17.5 billion. The largest volumes of investments fall on mining, transport and communications, energy and construction. The largest investors in Kazakhstan are companies from Russia, the USA, China, the Netherlands and the UK.

However, there are problems and challenges in attracting foreign investment to Kazakhstan. One of the main problems is the dependence of the economy on the extraction of natural resources and the instability of prices on world markets. In

addition, the weakness of the legal system and insufficient protection of investors also create some risks for foreign investors.

In this regard, the Government of Kazakhstan is taking a number of measures to improve the investment climate. In 2020, a new National Development Strategy for 2030 was adopted, which includes goals for economic diversification, promoting the development of small and medium-sized enterprises, innovative development, human capital development, etc. The National Investment Fund was also created, which is aimed at attracting foreign investment and supporting investment projects in the country.

In general, the prospects for foreign direct investment in Kazakhstan remain quite high. With the right approach to economic development and the removal of obstacles such as bureaucracy and corruption, Kazakhstan can continue to attract significant volumes of FDI in various sectors of its economy.

Currently, Kazakhstan is actively working to improve the investment climate, attract new investors and provide more favorable conditions for foreign companies. The country is also actively promoting its infrastructure, especially in the energy, transport and logistics sectors, which makes it even more attractive to foreign investors.

In addition, Kazakhstan is a member of a number of international organizations and cooperates with various countries on economic cooperation and investment. For example, the country is a member of the Eurasian Economic Union, the Commonwealth of Independent States and the Shanghai Cooperation Organization, which provides it with additional opportunities for economic cooperation and investment attraction. However, it should be borne in mind that foreign direct investment is an important, but not the only source of financing for the economy of Kazakhstan. It is also important to develop local entrepreneurship and attract local investors. In general, strategic planning, business support and removal of barriers to investment will be crucial for the further development of Kazakhstan's economy.

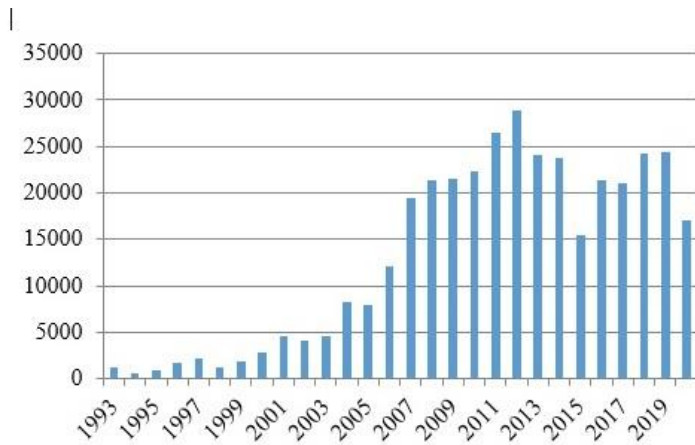


Figure 3 Dynamics of Gross Inflow of Foreign Direct Investments in Kazakhstan, million \$USD

Source: Kazakhstan's National Bank

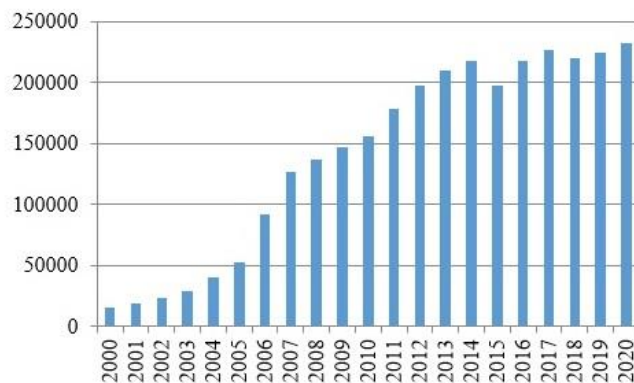


Figure 4 Dynamics of the volume of accumulated foreign investments of all types, million \$USD

Source: Kazakhstan's National Bank

However, it should be borne in mind that foreign direct investment is an important, but not the only source of financing for the economy of Kazakhstan. It is also important to develop local entrepreneurship and attract local investors. In general, strategic planning, business support and removal of barriers to investment will be crucial for the further development of Kazakhstan's economy.

2.4 MNCs in Kazakhstan

Multinational corporations (MNCs) operating in Kazakhstan have to navigate a unique set of challenges and opportunities. Kazakhstan is the largest economy in Central Asia and is rich in natural resources, including oil, gas, and minerals. This makes it an attractive destination for foreign investors looking to tap into the country's abundant resources. Multinational companies (MNCs) are an important factor in the economic development of many countries, including Kazakhstan. In

recent years, the involvement of MNCs has become one of the priorities of Kazakhstan's economic policy. In this chapter, we will consider the role of MNCs in the economy of Kazakhstan, their presence in various sectors of the economy and their contribution to the development of the country.

There are many large multinational companies in Kazakhstan, such as Royal Dutch Shell, Chevron, ExxonMobil, Eni, Total and many others. They are actively investing in various sectors of the economy of Kazakhstan, especially in the extraction and processing of hydrocarbons. According to a study conducted by Ernst & Young consulting company, "Kazakhstan remains an important market for foreign investors, especially for those who are interested in investing in the oil, gas and mining sectors." However, MNCs operating in Kazakhstan also face a range of political, economic, and cultural factors that can impact their business operations.

MNCs also play an important role in the development of infrastructure and transport logistics in Kazakhstan. For example, DP World, one of the world's largest operators of port terminals, has invested in the construction and development of seaports in Kazakhstan, which contributes to the development of international trade and economic growth of the country. MNCs are also actively investing in the development of the agricultural sector in Kazakhstan. For instance, Cargill, one of the world's largest agricultural companies, has invested in the construction of a flour mill in Kazakhstan, which helps to develop grain production and increase the country's export potential.

However, along with the positive aspects of the presence of MNCs in the economy of Kazakhstan, there are risks and problems. Some experts point to the possible negative role of MNCs in the economic development of the country. One of the main problems is related to the insufficient integration of MNCs into the national economy and limited opportunities for local companies. According to a study conducted by the American Chamber of Commerce in Kazakhstan, "Multinational companies have significant economic weight and often own a significant part of national resources, but their contribution to local economies and social programs may be limited."

In addition, there is a risk of monopolization of certain markets and sectors of the MNCs economy, which may negatively affect the competitive environment and make it difficult for other companies to access. Another problem associated with the presence of MNCs in Kazakhstan is the possibility of conflicts with local communities, especially in the field of ecology and the use of natural resources.

Because of that, MNCs operating in Kazakhstan need to be aware of the cultural nuances of doing business in the country. Kazakhstan has a unique cultural heritage that is influenced by both its Central Asian roots and its more recent Soviet past. This can affect business practices, such as communication styles and decision-making processes. MNCs need to be sensitive to these cultural differences to ensure successful business operations in the country.

In conclusion, MNCs operating in Kazakhstan face a range of challenges and opportunities. To succeed in the country, MNCs need to navigate a complex regulatory environment, be aware of cultural differences, consider the geopolitical landscape, and be mindful of their environmental impact. By doing so, MNCs can tap into Kazakhstan's abundant natural resources and growing economy while mitigating potential risks.

2.5 Kazakhstan as the location for innovation

The Republic of Kazakhstan adheres to global trends in the development of progressive socio-economic and political models. Since gaining independence, Kazakhstan has been changing and improving its economic and management system, taking into account the advanced achievements of science and technology. Kazakhstan has implemented two major modernization programs and continues to modernize its economy under the third modernization program. Kazakhstan is an important partner and a key player in Central Asia, and therefore actively participates in international rankings to assess its position in the global socio-economic, political and innovation space.

Other countries have shown that it is impossible to create an innovation system on their own, and this can only be achieved through the development of market systems and relations with the private sector. The state plays an important role in increasing the competitiveness of national economies, regardless of the country. A systematic approach to the creation of an innovative model is the basis for modern relations, where the emphasis is on social development.

State organizations must adapt to changing conditions and requirements in order to effectively perform their functions at the legislative level and in providing high-quality public services. Recognized think tanks and government organizations, such as the World Bank, the Organization for Economic Cooperation and Development (OECD) and others, have repeatedly noted the importance of creating incentives and

conditions for environmental development and improving innovation processes (Gieske, van Buuren, Bekkers, 2018).

The 2018 Global Innovation Index contains a total of 81 indicators that are divided into 21 semantic criteria and seven sub-indices. These sub-indices are used to classify data into two main categories, namely the "input sub-index" and the "output sub-index" (Table 1). The Table 1 shows Innovation criteria's globally, and how the criteria is being studied.

Table 1 The Structure of the Global Innovation Index (2018)

The global innovation index is the aggregate index represented by the average value calculated between the sub-indices of input and output, characterizing the number of points scored determining the place in the innovation development ranking of countries (max - 100).			
No.	Sub-index	Index-Component	Criteria
1	Innovation Input Sub-Index (50% of the end result)	1. Institution	1.1 Political environment
			1.2 Regulatory environment
			1.3 Political environment
		2. Human capital and research	2.1 Education
			2.2 Tertiary education
			2.3 Research and development (R&D)
		3. Infrastructure	3.1 Information and communication technologies (ICTs)
			3.2 General infrastructure
			3.3 Ecological sustainability
		4. Market sophistication	4.1 Credit
			4.2 Investment
			4.3 Trade, competition and market scale
		5. Business sophistication	5.1 Knowledge workers
			5.2 Innovation linkages
5.3 Knowledge absorption			
2	Innovation Output Sub-Index	6. Knowledge and technology	6.1 Knowledge creation
			6.2 Knowledge impact
			6.3 Knowledge diffusion

	(50% of the end result)	outputs	
		7. Creative outputs	7.1 Intangible assets
			7.2 Creative goods and services
			7.3 Online creativity

Source: Global Innovation Index Website

The table provided (Table 1) indicates that the indicators in the Global Innovation Index have an impact not only on the innovation system directly, but also on indirect factors that influence the relationship between innovation and general infrastructure. The purpose of the Global Innovation Index is to identify the leaders, followers, and weakest participants in innovation, and to compare countries to one another.

Generally, the basis of any rating research is the identification of leaders, their followers and the weakest participants. Therefore, Kazakhstan is considered in comparison to other countries within the Global Innovation Index. In particular, in comparison to the absolute ranking leaders (Table 2).

Switzerland has consistently held the top position in the ranking from 2011 to 2018, and their success in innovation deserves attention. The country possesses several advantages, including a provision in the Federal Swiss Constitution that promotes academic freedom in scientific research, a highly modernized and developed infrastructure, low state influence in the market which encourages competitiveness and private initiative, strong intellectual property protection system as a member of the European Patent Organization, a favourable tax regime, and an investment and innovation climate that is especially attractive to new entrants in the innovation process (Sergeeva, 2018).

Table 2 Kazakhstan's score on the global ranking of innovation Index

Year	Position of Kazakhstan in the rating	Number of points received of Kazakhstan	Number of participating countries	Leading country (1 st position)	Number of points received of leading country
2007*	6 1	2.45	10 7	USA	5.80
2008-	7	2.85	13	USA	5.28

2009*	2		0		
2009-2010*	6 3	3.05	13 2	Iceland	4.86
2011	8 4	30.32	12 5	Switzerla nd	63.8 2
2012	8 3	31.9	14 1	Switzerla nd	68.2
2013	8 4	32.73	14 2	Switzerla nd	66.5 9
2014	7 9	32.75	14 3	Switzerla nd	64.7 8
2015	8 2	31.25	14 1	Switzerla nd	68.3
2016	7 5	31.51	12 8	Switzerla nd	66.2 8
2017	7 8	31.50	12 7	Switzerla nd	67.6 9
2018	7 4	31.42	12 6	Switzerla nd	68.4
Note - during the periods indicated with the "*" sign, another system of scoring with gradation "1-min-7-max" was used.					

Source: Global Innovation Index Website

Kazakhstan ranks below the top 30-50 countries with the highest innovation score and is placed in the second half of the list of participants. However, its position is determined by the general index, and during its participation in this rating system, there were both negative and positive assessments for the composite ratio. From 2011 to 2018, similar indicators were used, enabling the observation of changing positions by key characteristics. According to Table 3, Kazakhstan has consistently held the lowest position for the "creative outputs" indicators, which are part of the sub-index output. This indicates that the conditions for innovation activity's development and effectiveness have not been created in the country, which is the main platform of the entire innovation system. For example, the weakest components of the "Creative outputs" indicator are as follows: 7.1.1 - Trademarks

by origin (92nd in 2011; 90th in 2015); 7.1.2 - Industrial designs by origin (94th in 2016); 7.1.3 - ICTs & business model creation (98th in 2011); 7.2.1 - Cultural & creative services exports, % total trade (65th in 2013; 81st in 2015); 7.2.5 - Creative goods exports, % total trade (125th in 2012); 7.3.1 - Generic top-level domains (117th in 2014; 119th in 2015; 113th in 2016; 112th in 2017; 113th in 2018).

Table 3 The Lowest and Highest Positions of the Republic of Kazakhstan in the GII: Key Indicators

Year	RK position in the rating	Number of points received	RK position in the rating with the lowest score □			RK position in the rating with the highest score □		
			Title	Rank	Score	Title	Rank	Score
2011	84	30.32	7 - Creative outputs	113	20.2	3 - Infrastructure	60	28.5
						5 - Business sophistication		37.0
2012	83	31.9	7 - Creative outputs	119	21.0	1 - Institution	52	64.5
2013	84	32.73	7 - Creative outputs	116	27.9	3 - Infrastructure	52	37.0
2014	79	32.75	5 - Business sophistication	106	26.4	3 - Infrastructure	44	43.8
			7 - Creative		23.9			

			e outputs					
2015	8 2	31.25	7 - Creativ e outputs	117	21.1	3 - Infrastructur e	54	43.3
2016	75	31.51	7 - Creativ e outputs	99	21.4	1 –Institution	54	66.5
						3 – Infrastructur e		46.8
2017	7 8	31.50	7 - Creativ e outputs	95	21.9	1 – Institution	55	66.1
2018	7 4	31.42	7 - Creativ e outputs	100	18.7	4 – Market sophistica tion	51	49.7

Source: Innovation Simple Website

The most common with a low component are communication top-level domains. Indeed, today humanity is increasingly dependent on their participation and inclusion in the Internet space. Government policy in many countries of the world concerning the involvement of Internet technologies has been noticeably more intensive over the past two decades, and this reflects a global trend. This allows you to expand the possibilities: for both business and communications. In Kazakhstan, however, Internet technologies are still relatively undeveloped. The central problem is still the low level of digitalization and computer literacy among the population; insufficient qualifications of judicial bodies that control relations and make decisions in the field of certain categories and concepts of information activity; lack of sustainable legislative regulation in the field of Internet technologies; problems related to intellectual property and intangible assets, such as domain names (Mederkhanova, 2017). Going through the time of reforms, Kazakhstan was able to create an institutional and infrastructural base that supports market relations in the

country. For example, in 2004, a state program known as "Electronic Government" was introduced, which allowed the opening of an information portal (www.e.gov.kz) with long-term prospects. Later in 2017, the State Program "Digital Kazakhstan" was approved in order to create a progressive digital ecosystem that improves the quality of life and economic competitiveness of the republic. Following the results of the international exhibition EXPO-2017, held in Kazakhstan, several joint projects of investors in high-tech and renewable industries of the real sector of the country's economy were signed. These trends have become even more noticeable due to the geopolitical situation and the willingness of the government to help move large IT companies out of Russia.

2.6 Government and Political System

The Constitution of Kazakhstan was adopted in 1995 and was last amended in 2022. According to the Constitution, power in Kazakhstan is divided into executive, legislative and judicial. However, there are problems with democracy and human rights in the country. According to Freedom House data for 2019, Kazakhstan was classified as a "non-free" country. Experts also note the problem of corruption, which remains a significant problem in Kazakhstan.

In addition, in 2019, a political reform was carried out in Kazakhstan, which limited the powers of the president and transferred them to the parliament and the government. According to the new legislation, the President now has no right to dissolve parliament without the consent of the Constitutional Court. In addition it was forbidden by the law to appoint relatives to positions in the government and other state bodies.

The judicial power in Kazakhstan is independent. The judicial system includes the Constitutional Court, the Supreme Court and other courts. The Constitutional Court checks laws for their compliance with the Constitution, and the Supreme Court deals with appeals and cassations.

Kazakhstan is a presidential republic, in which the president is the head of Armed Forces. The president can assign prime ministers, and politics into High and Low sittings (Senate and Mazhilis). Also, president can accept or veto the normative acts or laws which are recommended by Senate and Mazhilis. And this reason of having such a power was met with scepticism, because despite the reforms, many experts continue to express their concern about democracy and human rights in

Kazakhstan. In 2021, a group of UN experts stated that Kazakhstan should strengthen its efforts in the field of human rights protection and media freedom.

At the beginning of 2022, on January 6, popular uprisings broke out in Kazakhstan. The reason was the increase in prices for liquefied gas from 5 to 10 Kazakhstani tenge. The uprisings that began in the West of the Republic gradually turned into open clashes with representatives of law enforcement agencies. Already on January 7, the masses began to take to the streets of the largest cities of Kazakhstan - Almaty, Astana (at that time still Nur-Sultan), and Shymkent. The protesters demanded the complete resignation of the government, the resignation of the incumbent President Kassym Jomart Tokayev, the creation of a new "people's council" and the liberalization of society.

Also on January 7, the President of the Republic Kassym Jomart-Tokayev dissolved the government and vetoed the raising of prices for liquefied gas. However, the protesters did not disperse and also demanded the resignation of the former president and leader of the nation Nursultan Nazarbayev. During the "bloody January", as these events are mentioned in official Kazakh reports, some high-ranking officials will resign from their posts, and then they will be arrested. The first president of Kazakhstan, Nursultan Nazarbayev, will officially resign all his powers, withdrawing from the struggle for power. In general, the "Tokayev thaw" is now coming in Kazakhstan. Despite the violations at the polling stations in the presidential elections of 2023, Kazakhstan has become more liberalized.

3 Case Study

In this case study, we will be examining three multinational corporations (MNCs) operating in Kazakhstan's oil and gas sector: Shell, Chevron, and ExxonMobil. These companies were chosen due to their significant presence and impact in the country's oil and gas industry, as well as their involvement in research and development and innovation activities. Additionally, those companies represent well-known brands, which are popular.

Shell is a Dutch-British MNC with a long history of involvement in Kazakhstan's oil and gas sector. The company first entered Kazakhstan in the early 1990s, and has since been involved in a number of major oil and gas projects in the country, including the Kashagan oilfield, the largest oilfield discovery in Kazakhstan in over 30 years (Shell, 2021).

Chevron is an American MNC that entered Kazakhstan in the mid-1990s. The company has since become one of the largest foreign investors in the country's oil and gas sector, with significant holdings in the Tengiz and Karachaganak oilfields. Chevron has also been involved in a number of social and environmental programs in Kazakhstan, including the provision of healthcare and education facilities, and the implementation of programs to reduce greenhouse gas emissions (Chevron, 2021).

ExxonMobil is another American MNC with a significant presence in Kazakhstan's oil and gas sector. The company first entered the country in the late 1990s, and has since been involved in a number of major oil and gas projects, including the Kashagan oilfield. ExxonMobil has also been involved in a number of social and environmental programs in Kazakhstan, including the provision of healthcare and education facilities, and the implementation of programs to reduce greenhouse gas emissions (ExxonMobil, 2021).

These three MNCs were chosen for this case study due to their significant presence and operations in Kazakhstan's oil and gas sector, which is a key driver of the country's economy. The three companies have been involved in various projects and have made significant investments in the country, contributing to Kazakhstan's economic growth.

Furthermore, these companies have been active in implementing social and environmental programs in the country, which aligns with the government's focus on

sustainable development. As such, this case study aims to provide an in-depth analysis of these MNCs' operations, research and development activities, and innovation initiatives in Kazakhstan, with a focus on their contributions to the country's economic and sustainable development.

Overall, the selection of Shell, Chevron, and ExxonMobil for this case study provides a comprehensive understanding of the role of MNCs in Kazakhstan's economy and their impact on sustainable development. Through this case study, we can gain insights into the strategies and practices of these companies and their contributions to the host country. Furthermore, we will study what type of challenges and obstacles do MNCs meet when entering the new market.

3.1 Chevron

3.1.1 Chevron's History

Chevron (Chevron Corporation) is an American oil and gas company, which is one of the largest oil and gas producers in the world. The company was founded in 1879 in the USA and has had several renames and reorganizations in its history. The vast experience in energy sector allowed this company to become one of the leaders.

Chevron started its work in Kazakhstan in 1993, after signing an agreement with the Government of Kazakhstan on the development of the Tengiz and Korolevskoye fields. This was one of the first agreements between the Western oil company and the government of the former USSR. This agreement gave a new strength to the energy sector of Kazakhstan.

At the beginning of his work in Kazakhstan, Chevron faced some difficulties, including the instability of the political and economic situation in the country. However, the company continued to invest in its projects in Kazakhstan and in 1996 launched the Tengiz-Chevron Oil Products (TengizChevroil) project, which also involves the Kazakh state Oil Company KazMunayGas, ExxonMobil and Lukoil. Now Chevron is one of the largest investors in Kazakhstan and participates in several major projects. One of them is the Phase-3 project for the development of the Tengiz field, which is one of the largest in the world.

Chevron is also actively involved in social program projects in Kazakhstan, including in the field of health, education and culture. The company also supports projects to preserve the cultural heritage of Kazakhstan.

However, Chevron's involvement in Kazakhstan's oil and gas industry is not without criticism. Some experts and public organizations express concerns about the impact of the company's activities on the environment and the health of the local population. In addition, there is criticism that Chevron's participation in the oil and gas industry of Kazakhstan may lead to an unequal distribution of economic benefits between the company and the state.

For example, in 2011 the company was criticized for an oil leak in Kazakhstan, which was caused by a violation of safety regulations. This was reported in an article on The Guardian website:

"Chevron Corporation was criticized for its activities in Kazakhstan after an oil leak occurred caused by a violation of safety regulations. About 14 thousand tons of oil spilled out of the Tengiz field in Kazakhstan as a result of a pipe burst. This leak, which occurred in November 2011, became one of the largest in the history of the country." In addition, in 2012, Corporation was heavily criticized for its activities in Kazakhstan by Amnesty International. The organization expressed concern about the impact of the company's activities on the health of the local population and the environment:

Amnesty International expressed concern about the impact of Chevron's activities on the health of the local population and the environment in Kazakhstan. The organization states that Chevron does not take sufficient measures to reduce the impact of its activities on the environment and the health of the local population, which can lead to serious consequences for the life and health of people in the region." Despite the criticism, Chevron continues to participate in the oil and gas industry of Kazakhstan and invest significant funds in it.

3.1.2 Entering to the Kazakhstan's Market

Chevron started its activity in Kazakhstan in 1993, when it signed an agreement on the exploration and production of oil and gas at the Tengiz field in the Kazakh sector of the Caspian Sea. At that time, it was one of the largest investments in Kazakhstan, which was written about by many media. The agreement was signed

jointly with other international companies such as ExxonMobil, LUKoil and KazMunayGas.

However, the start of work in Kazakhstan was not smooth for Chevron. In 1993, an accident occurred at the Tengiz field, where more than 20 workers were killed. This incident led to the termination of work at the field for several months.

Nevertheless, Chevron continued its work in Kazakhstan, and since then has invested a lot of funds in various projects in the country. In 1997, Chevron entered into an agreement with Kazakhstan to establish a joint venture, called Tengizchevroil, for oil production at the Tengiz field. The company is currently one of the largest oil projects in Kazakhstan and in the world.

However, among a number of projects launched by Chevron in Kazakhstan, there are also unsuccessful ones. For example, the Kashagan oil development project, which Chevron launched in 2001 together with other international companies, has become one of the most expensive projects in the oil and gas industry in history. In 2012, Chevron sold its stake in the Kashagan project.

In addition, Chevron's participation in the oil and gas industry of Kazakhstan is not without criticism. Some experts and public organizations express concerns about the impact of the company's activities on the environment and the health of the local population. Chevron's involvement in the oil and gas industry in Kazakhstan is causing concern among some experts and public organizations who express concerns about the possible impact of the company's activities on the environment and the health of the local population.

One of the biggest critics of Chevron in Kazakhstan is Nursultan Zhenis, the founder and head of the NGO "Green Salvation". He claims that Chevron oil production leads to environmental pollution and threatens the health of local residents. In an interview given in 2012, he said: "Their activities have a devastating impact on nature, and they refuse to take responsibility for their actions."

Another non-profit organization, the Kazakhstan Association for the Protection of the Environment and Public Health, also expresses concerns about Chevron's activities in Kazakhstan. In 2019, they published a report in which they note that "the oil and gas industry in Kazakhstan is becoming increasingly polluted and poses a threat to the health of the local population."

Chevron responds to criticism by stating that they adhere to strict environmental safety standards and interact with local authorities and the community to minimize environmental impacts. They also note that they are introducing new technologies and mining methods to reduce the impact on the environment. Despite this, critics continue to express concerns about the impact of Chevron's activities on the environment and the health of the local population, and demand that the company take more active actions in this area.

3.1.3 Operations in Kazakhstan

Chevron's operational activity in Kazakhstan began in 1993, when the company entered into an agreement with the Government of Kazakhstan on the development of the Tengiz field. The company has invested heavily in the development of oil and gas infrastructure and created new jobs for local residents.

However, despite significant successes, Chevron's activities in Kazakhstan have not been without problems. Some experts and public organizations express concerns about the impact of the company's activities on the environment and the health of the local population. In particular, they point to problems with water and soil pollution caused by the company's oil and gas operations

One of Chevron's main projects in Kazakhstan is the development of the Tengiz field, which is one of the largest oil and gas fields in the world. The company works in partnership with other oil and gas companies, including ExxonMobil, KTO and LUKOIL, to develop the field and deliver oil for export.

Chevron also has a stake in the Kashagan project, one of the largest oil and gas fields in the world. Eni, ExxonMobil, KTO and Royal Dutch Shell are also involved in the project. The project was launched in 2016 after several years of delay and problems with environmental safety.

As part of its operational activities in Kazakhstan, Chevron actively develops its social responsibility by financing various projects in the field of education, health and ecology. The company also pays attention to local cultural and traditional values. For example, in 2014 Chevron provided financial support for the restoration of the historical monument "Khoja Ahmed Yassawi". In addition, Chevron actively

cooperates with local authorities and organizations in the field of economic and infrastructure development in the region. In 2013, as part of its local supplier development program, the company entered into an agreement with the Kazakh company Aktobemunaygas aimed at supporting local manufacturers and suppliers. In addition, Chevron is actively involved in various projects for the development of infrastructure and transport logistics, for example, the construction of new roads and airports.

However, Chevron's participation in the oil and gas industry of Kazakhstan is not without criticism. Some experts and public organizations express concerns about the impact of the company's activities on the environment and the health of the local population. In addition, there is criticism regarding working conditions and wages for local employees, which, according to critics, may be below the standards set for employees in other countries. However, Chevron continues its operations in Kazakhstan, considering it an important area of its international business. The company continues to develop its investment projects and cooperate with local partners, striving for sustainable and responsible development of the oil and gas industry in the region.

3.1.4 Research and Development activities in Kazakhstan

Chevron has been involved in several research and development activities in Kazakhstan aimed at improving its operations and exploring new opportunities. In 2013, Chevron signed a memorandum of understanding with the Kazakh government to develop a research and development center in the country. The center would focus on "energy and technology solutions, subsurface characterization, and oil and gas production efficiency" (Chevron, 2013).

One example of Chevron's research and development activities in Kazakhstan is its partnership with the Kazakh-British Technical University (KBTU). In 2018, Chevron and KBTU signed an agreement to establish the Chevron-KBTU Center for Digitalization and Data-Driven Technologies. The center aims to develop digitalization and data-driven solutions for the oil and gas industry in Kazakhstan, as well as provide training and research opportunities for KBTU students and faculty (Chevron, 2018).

Chevron has also been involved in exploring new technologies and techniques for enhanced oil recovery in Kazakhstan. In 2019, the company signed a memorandum of understanding with the Kazakh government to study the potential use of chemical flooding to enhance oil recovery at the Tengiz oil field (Chevron, 2019). Additionally, Chevron has been using advanced drilling technologies in its operations in Kazakhstan, including horizontal drilling and hydraulic fracturing (Chevron, 2020).

Furthermore, Chevron has been working with local universities and research institutions in Kazakhstan to develop new technologies and solutions. For example, the company has partnered with the Nazarbayev University Research and Innovation System to establish the Chevron-Nazarbayev University Collaborative Research Laboratory. The laboratory focuses on developing new technologies for the oil and gas industry, including advanced sensors and data analysis techniques (Chevron, 2018).

In summary, Chevron's research and development activities in Kazakhstan have focused on improving its operations, exploring new technologies for enhanced oil recovery, and developing solutions for the oil and gas industry through partnerships with local institutions.

3.1.5 Innovation in Kazakhstan

Chevron has been active in Kazakhstan's oil and gas sector for several decades, and during this time, the company has implemented a number of innovation initiatives to improve its operations and strengthen its position in the market. This section will discuss some of Chevron's key innovation initiatives in Kazakhstan, including technology transfer agreements with Kazakhstani companies, digitalization and automation, and environmental sustainability.

Technology Transfer Agreements

Chevron has been actively engaged in technology transfer agreements with Kazakhstani companies to promote local content development and support the growth of the country's oil and gas industry. In 2018, Chevron signed an agreement with the Kazakh National Technical University (KazNTU) to establish a Center of Excellence in Oil and Gas, which aims to promote research and development in the energy sector and facilitate knowledge transfer between industry and academia (Chevron, 2018).

Chevron has also signed agreements with several local companies to promote the transfer of technology and expertise. For example, in 2015, Chevron signed a technology transfer agreement with KazMunayGas Exploration Production (KMG EP) to share knowledge and expertise in areas such as drilling and completion techniques, reservoir characterization, and project management (Chevron, 2015). Similarly, in 2016, Chevron signed a technology transfer agreement with Kazakh-British Technical University (KBTU) to promote research and development in the oil and gas sector (Chevron, 2016).

These technology transfer agreements have not only contributed to the development of local content in Kazakhstan's oil and gas industry, but they have also helped to build stronger partnerships between Chevron and local companies, which can lead to further innovation and collaboration in the future.

Digitalization and Automation

Chevron has been investing in digitalization and automation technologies to improve its operations in Kazakhstan. The company has implemented a range of digital solutions, including remote monitoring and control systems, advanced analytics, and machine learning algorithms, to optimize its production processes and increase efficiency (Chevron, 2021). One example of Chevron's digitalization initiatives in Kazakhstan is the implementation of a real-time drilling optimization system. This system uses data analytics and machine learning algorithms to optimize drilling parameters and improve drilling efficiency, which can lead to significant cost savings and increased production (Chevron, 2021). Chevron has also implemented automation technologies to improve safety and reduce operational risks. For instance, the company has introduced automated drilling systems, which can operate with minimal human intervention and reduce the risk of accidents and injuries (Chevron, 2021).

Environmental Sustainability

Chevron has been committed to promoting environmental sustainability in its operations in Kazakhstan. The company has implemented various initiatives to reduce greenhouse gas emissions, conserve water resources, and promote biodiversity.

One example of Chevron's environmental sustainability initiatives in Kazakhstan is the Tengizchevroil Future Growth Project-Wellhead Pressure Management Project (FGP-WPMP), which aims to increase oil production while reducing greenhouse gas emissions and minimizing the impact on the environment (Chevron, 2021). The project involves the installation of new technology to improve efficiency and reduce emissions, such as advanced gas processing systems and sulfur recovery units.

Chevron has also implemented a range of water conservation initiatives in Kazakhstan. For example, the company has introduced a produced water treatment system, which recycles and reuses water from its operations, reducing the need for freshwater (Chevron, 2021). Chevron has also implemented a biodiversity conservation program, which aims to protect the local flora and fauna and promote sustainable land use practices.

Overall, Chevron's innovation initiatives in Kazakhstan demonstrate the company's commitment to promoting local content development, improving efficiency and sustainability, and enhancing operational safety in its oil and gas activities. By partnering with local companies and investing in research and development, Chevron has been able to implement cutting-edge technologies and practices that have resulted in significant improvements in its operations in Kazakhstan.

3.2 Shell Company

3.2.1 History

Shell is a multinational oil and gas company that has been operating in Kazakhstan since the early 1990s. The company has been involved in several major oil and gas projects in the country, including the development of the Kashagan oilfield in the Caspian Sea. Shell first entered Kazakhstan in 1992, shortly after the country gained independence from the Soviet Union. At the time, the Kazakhstani government was actively seeking foreign investment to help develop its natural resources, including its vast oil and gas reserves (Shell, 2021a). Shell was one of the first foreign companies to establish a presence in the country, and it quickly began exploring for oil and gas in the western part of Kazakhstan.

In 1994, Shell signed a production sharing agreement (PSA) with the Kazakhstani government to develop the North Caspian Sea Production Sharing Agreement

(NCSPSA). The NCSPSA covers several oil and gas fields in the Caspian Sea, including the Kashagan oilfield, one of the largest oil discoveries of the past few decades (Kashagan Project, 2021). Shell is the lead operator of the NCSPSA consortium, with a 16.8% stake in the project.

Shell's involvement in the Kashagan project has not been without challenges. The project has experienced several delays and cost overruns, with production starting more than a decade after the initial discovery of the field (OilPrice, 2016). However, Shell has remained committed to the project and has worked closely with its partners and the Kazakhstani government to overcome these challenges.

In addition to its involvement in the Kashagan project, Shell has also been involved in other oil and gas projects in Kazakhstan. For example, the company is a partner in the Karachaganak oil and gas field in western Kazakhstan, which is one of the largest oil and gas fields in the world (Karachaganak Petroleum Operating, 2021).

Over the years, Shell has also been involved in various social and environmental initiatives in Kazakhstan. For example, the company has supported the development of local communities through the provision of education and healthcare facilities (Shell, 2021b). Shell has also been working to reduce greenhouse gas emissions from its operations in Kazakhstan, as part of its global commitment to address climate change (Shell, 2021c).

In conclusion, Shell has been a key player in Kazakhstan's oil and gas sector for several decades. The company's involvement in the Kashagan project, as well as other oil and gas projects in the country, has helped to develop Kazakhstan's natural resources and boost its economy. Shell's commitment to social and environmental initiatives in Kazakhstan also demonstrates the company's dedication to sustainable development in the country.

3.2.2 Entering to the Kazakhstan's Market

Shell first entered the Kazakhstan market in 1992, through the acquisition of a 25% stake in the offshore exploration license for the North Caspian Sea block (Shell, 2018). The company was part of a consortium that also included Eni, ExxonMobil, Total, and KazMunayGas. The block was believed to contain significant hydrocarbon reserves, and the consortium began drilling in the area in the mid-1990s (PWC, 2018).

In 1997, Shell signed a production sharing agreement (PSA) with the Kazakhstani government to develop the Karachaganak oil and gas field, located in the country's northwest region (Shell, 2021). The field is one of the largest gas condensate deposits in the world, with estimated reserves of around 1.2 billion tonnes of oil equivalent (PWC, 2018). The Karachaganak project has been one of Shell's most significant investments in Kazakhstan, and the company has been involved in the development of the field for over two decades.

In 1999, Shell signed another PSA with the Kazakhstani government, this time for the development of the Kashagan oil field in the Caspian Sea (Shell, 2021). The field is believed to be one of the largest oil discoveries in the world in the past 30 years, with estimated reserves of up to 13 billion barrels (PWC, 2018). However, the development of Kashagan has been plagued by technical and logistical challenges, and production did not begin until 2016, more than a decade after the project was first launched (BBC, 2016).

Shell has also been involved in other exploration and production activities in Kazakhstan, including the appraisal and development of the Pearls field in the Caspian Sea (Shell, 2021). The company has continued to expand its presence in the country's oil and gas sector in recent years, with the acquisition of a 100% stake in the BNG project in 2019 (Shell, 2019). The project is located in the western part of Kazakhstan and is believed to contain significant oil reserves.

Overall, Shell's entry into the Kazakhstan market has been driven by the country's significant oil and gas reserves, particularly in the Caspian Sea region. The company has been involved in some of the largest oil and gas projects in Kazakhstan, including the Karachaganak and Kashagan fields. Despite challenges and delays in some of these projects, Shell has continued to invest in the country's oil and gas sector in recent years.

3.2.3 Operations in Kazakhstan

After entering the Kazakhstani market in the late 1990s, Shell has been involved in a number of significant oil and gas projects in the country. Some of the most notable projects that the company has been involved in include the Kashagan oil field, which is one of the largest oil fields in the world (Shell, 2021a).

Kashagan Oil Field

The Kashagan oil field, which is located in the Caspian Sea, was discovered in 2000 and is considered one of the largest oil fields in the world. The field is estimated to contain between 9 billion and 13 billion barrels of recoverable oil (Kashagan Project, 2021). Shell became involved in the project in 2007, when it acquired a 16.8% stake in the consortium developing the field (Shell, 2021a). Shell's involvement in the Kashagan oil field has been significant. The company has provided technical expertise and financial resources to help develop the field, and has been involved in the construction of several key infrastructure projects, including an onshore processing plant and an offshore production platform (Kashagan Project, 2021). In addition, Shell has also been involved in the development of the project's environmental and social programs, which include initiatives to protect the local environment and support local communities (Shell, 2021b).

Other Operations

In addition to its involvement in the Kashagan oil field, Shell has also been involved in a number of other oil and gas projects in Kazakhstan. For example, the company has a 25% stake in the Karachaganak gas condensate field, which is one of the largest gas fields in the world (Shell, 2021a). Shell has also been involved in the development of several exploration blocks in the country, including the Khazar and Caspian blocks (Shell, 2021a).

Shell's operations in Kazakhstan have not been without controversy, however. In 2018, the company was fined \$2.5 million by Kazakhstani authorities for environmental violations at the Kashagan oil field (Reuters, 2018). The company was also criticized by environmental groups for its involvement in the development of the Karachaganak field, which has been associated with air and water pollution (Friends of the Earth, n.d.). Despite this accusations, Shell continues to insists about their operations and performance.

Overall, Shell's operations in Kazakhstan have been significant, with the company involved in several major oil and gas projects in the country. While the company's involvement in the Kashagan oil field has been the most notable, Shell has also been involved in other projects and has continued to explore new opportunities in the country.

3.2.4 Research and Development Activities in Kazakhstan

Shell has been actively involved in research and development activities in Kazakhstan, particularly in the areas of oil and gas exploration, production, and processing. The company has established a number of research and development projects and collaborations with local universities and research institutions.

Research and Development Projects

One of Shell's most significant research and development projects in Kazakhstan is the development of the Kashagan oilfield. Shell was one of the companies involved in the consortium that won the bid for the exploration and development of the Kashagan oilfield in 1997. Since then, the company has invested heavily in research and development activities to optimize the production processes at the oilfield (Shell, n.d.).

Shell has also been involved in a number of other research and development projects in Kazakhstan, including the development of new technologies for enhanced oil recovery, as well as research into the environmental impact of oil and gas activities in the region. In 2014, Shell signed a Memorandum of Understanding with the Kazakh-British Technical University to establish a research and development center focused on energy efficiency and sustainability (Shell, 2014).

Collaboration with Local Universities and Research Institutions

Shell has also been working closely with local universities and research institutions in Kazakhstan to support research and development activities in the country. In 2013, the company signed a Memorandum of Understanding with the Nazarbayev University to establish a research and development center focused on oil and gas exploration and production (Shell, 2013).

Shell has also established partnerships with other local research institutions, such as the Institute of Physics and Technology at the Al-Farabi Kazakh National University, to support research into the use of nanotechnologies in oil and gas production processes (Shell, n.d.).

Through these collaborations, Shell is not only supporting the development of local research capabilities but is also contributing to the development of new technologies and best practices in the oil and gas industry.

Overall, Shell's research and development activities in Kazakhstan demonstrate the company's commitment to innovation and sustainability in the country's oil and gas sector, and its efforts to promote local content development and collaboration with local institutions.

Therefore, in conclusion, there are some unique research and development activities conducted by Shell in Kazakhstan:

1. **Enhanced Oil Recovery Techniques:** Shell has been researching various enhanced oil recovery (EOR) techniques to improve the recovery rate of oil from existing fields in Kazakhstan. In partnership with the Kazakh national oil company, KazMunayGas, Shell has developed a novel EOR technology called "low-salinity water injection," which involves injecting low-salinity water into reservoirs to improve the displacement of oil.
2. **Gas-to-Liquids (GTL) Technology:** Shell has been studying the feasibility of using gas-to-liquids (GTL) technology in Kazakhstan to convert natural gas into liquid fuels such as diesel and jet fuel. The company has built a demonstration plant in the country to test the technology and assess its commercial viability.
3. **Carbon Capture and Storage (CCS):** Shell has been investigating the use of carbon capture and storage (CCS) technology in Kazakhstan to reduce greenhouse gas emissions from industrial operations. The company has conducted several studies on the feasibility of CCS in the country, and is currently exploring potential CCS projects in partnership with Kazakh authorities.
4. **Alternative Energy Sources:** Shell has been researching various alternative energy sources in Kazakhstan, including wind, solar, and geothermal energy. The company has conducted several feasibility studies on the potential for renewable energy in the country, and is exploring opportunities for investment in these sectors.
5. **Local Community Development:** Shell has also been involved in several research and development activities aimed at supporting local communities in Kazakhstan. The company has partnered with local organizations to promote education, healthcare, and economic development in the country.

3.2.5 Innovation in Kazakhstan

Shell has signed several technology transfer agreements with Kazakhstani companies to support the development of local capabilities and enhance innovation in the country's energy sector. In 2017, Shell signed an agreement with KazMunayGas to transfer its technical expertise in enhanced oil recovery (EOR) techniques to the Kazakhstani oil company (Shell, 2017). The agreement aimed to help KazMunayGas increase its oil recovery rates and extend the life of its mature oilfields. In 2020, Shell also signed an agreement with Kazakhstan Petrochemical Industries (KPI) to provide technology support and expertise for the construction of a new petrochemical plant in western Kazakhstan (Shell, 2020). The agreement aimed to help KPI develop local capabilities in the petrochemical sector and enhance its competitiveness in the global market.

Innovation Hub

In 2018, Shell established an innovation hub in Astana, Kazakhstan, to support the development of innovative solutions for the energy sector in the country. The hub, called the Shell Technology Centre, brought together experts from various fields, including geology, engineering, and data science, to work on projects aimed at improving the efficiency and sustainability of the energy industry in Kazakhstan (Shell, 2018). The centre also collaborated with local universities and research institutions to support the development of local talent and capabilities in the energy sector.

Social Innovation

Shell has also been involved in social innovation initiatives in Kazakhstan aimed at supporting local communities and promoting sustainable development. In 2018, Shell launched a social investment program called "Nurly Zher" (Bright Earth) to support social and economic development in the Atyrau region of Kazakhstan (Shell, 2018). The program aimed to support local entrepreneurs, promote education and healthcare, and improve the living standards of the local population. The program also included initiatives aimed at reducing greenhouse gas emissions and promoting sustainable energy practices in the region.

Overall, Shell's innovation initiatives in Kazakhstan demonstrate the company's commitment to supporting local content development and promoting sustainable

development in the country's energy sector. Through its technology transfer agreements, innovation hub, and social innovation initiatives, Shell has been able to contribute to the development of local capabilities and enhance innovation in the energy industry in Kazakhstan.

So, the key approaches to innovation were:

1. Collaborating with local universities and research institutions: Shell has partnered with local universities and research institutions in Kazakhstan to promote research and development in the energy sector. These partnerships have helped to support the development of new technologies and processes for carbon capture and storage, as well as renewable energy.
2. Investing in digital technologies: Shell has been investing heavily in the development of digital technologies to improve operational efficiency and optimize production processes in the oil and gas industry. This includes the use of advanced analytics, machine learning, and artificial intelligence to analyze data and optimize processes in real-time.
3. Focusing on pipeline management: Shell has been exploring the use of unmanned aerial vehicles (UAVs) and other advanced technologies to monitor pipelines and detect potential leaks or other issues. This has helped to improve the safety and efficiency of pipeline operations in Kazakhstan.
4. Developing new renewable energy projects: Shell has been working with local partners to develop new renewable energy projects in Kazakhstan, including wind and solar power facilities. These projects have helped to increase the country's renewable energy capacity and reduce its dependence on fossil fuels.

3.3 Exxon Mobil

3.3.1 History

ExxonMobil is a multinational oil and gas corporation headquartered in Irving, Texas, USA. The company has a long history of involvement in the oil and gas sector in Kazakhstan, having first entered the country in the late 1990s. ExxonMobil's entry into the Kazakh oil and gas market was through the Tengizchevroil joint venture with Chevron, in which it held a 25% stake. The Tengizchevroil joint venture was

established in 1993 to develop the Tengiz oilfield, which is one of the world's largest oilfields located in western Kazakhstan (ExxonMobil, 2021a).

In addition to the Tengizchevroil joint venture, ExxonMobil has been involved in several other major oil and gas projects in Kazakhstan. These include the Kashagan oilfield, in which ExxonMobil holds an 18% stake. The Kashagan oilfield is located in the Caspian Sea and is one of the largest oil discoveries in recent years (ExxonMobil, 2021b).

ExxonMobil has also been involved in various social and environmental programs in Kazakhstan. For example, the company has funded the construction of healthcare and education facilities in the country. Additionally, ExxonMobil has implemented programs to reduce greenhouse gas emissions in Kazakhstan, such as the use of carbon capture and storage technology at the Tengizchevroil joint venture (ExxonMobil, 2021a).

Overall, ExxonMobil's long-standing presence in Kazakhstan's oil and gas sector has made the company an important player in the country's economy. The company's involvement in major oil and gas projects, as well as its commitment to social and environmental programs, has helped to promote economic growth and sustainability in Kazakhstan.

3.3.2 Entering to the Kazakhstan's Market

ExxonMobil's entry into the Kazakhstan market was the result of a Production Sharing Agreement (PSA) signed between the company and the Kazakh government in 1995 (ExxonMobil, 2021a). The PSA provided ExxonMobil with exploration and development rights for the Zhaikmunai and Kurmangazy fields in the Caspian Sea (ExxonMobil, 2021b). Under the terms of the PSA, ExxonMobil and its partners were required to invest a minimum of \$9 billion in the development of these fields over a 40-year period (EIA, 2018).

ExxonMobil's initial investment in Kazakhstan was the result of the company's desire to expand its global oil and gas portfolio and to gain access to new markets. The PSA allowed ExxonMobil to establish a foothold in a region that was rich in oil and gas reserves, and that offered significant growth potential (ExxonMobil, 2021a).

Since entering the Kazakhstan market, ExxonMobil has expanded its operations in the country. In 1996, the company acquired a 25% stake in the Tengizchevroil joint venture, which operates the Tengiz oilfield in western Kazakhstan (ExxonMobil, 2021a). The Tengiz oilfield is one of the largest oilfields in the world, with estimated reserves of 6-9 billion barrels of crude oil (EIA, 2021).

ExxonMobil's investments in Kazakhstan have helped to drive economic growth and development in the country. The company's activities have generated employment opportunities, tax revenues, and have contributed to the development of local infrastructure and social programs (ExxonMobil, 2021).

Despite the many successes that ExxonMobil has enjoyed in Kazakhstan, the company has also faced challenges in the country. In 2011, the Kazakh government seized control of the Kashagan oilfield, in which ExxonMobil was a partner (Reuters, 2011). The seizure was the result of disputes over cost overruns and delays in the development of the field (BBC News, 2011). ExxonMobil's involvement in the Kashagan project has been a key factor in the company's history with Kazakhstan, and the company continues to seek ways to expand its presence in the country's oil and gas sector (ExxonMobil, 2021).

Overall, ExxonMobil's entry into the Kazakhstan market was a significant milestone in the company's history, and has allowed it to establish a strong presence in a region that is rich in natural resources. Despite the challenges that it has faced, ExxonMobil remains committed to the Kazakhstan market, and is actively exploring opportunities to expand its operations in the country (ExxonMobil, 2021a).

3.3.3 Operations in Kazakhstan

ExxonMobil is one of the largest oil and gas companies in the world, and has a long history of involvement in Kazakhstan's energy sector. The company's operations in Kazakhstan began in the 1990s, when the country first opened up to foreign investment following the collapse of the Soviet Union. After the time ExxonMobil invested into various projects in Kazakhstan.

In 1993, ExxonMobil signed a production sharing agreement with the government of Kazakhstan for the development of the Tengiz oil field, one of the largest oil fields in the world. The agreement granted ExxonMobil a 25% stake in the project, with other partners including Chevron, KazMunayGas, and Lukoil.

Since then, ExxonMobil has been involved in a number of other major energy projects in Kazakhstan, including the Kashagan oil field, one of the largest offshore oil fields in the world. The company also has an interest in the Karachaganak gas field, one of the world's largest gas fields.

ExxonMobil's operations in Kazakhstan involve a range of activities, including exploration, drilling, and production. The company has invested heavily in developing new technologies to improve efficiency and reduce the environmental impact of its operations. For example, it has pioneered the use of extended reach drilling technology, which allows it to access remote and difficult-to-reach oil reserves with minimal surface disruption.

ExxonMobil is also committed to social responsibility and has undertaken a number of initiatives to support local communities in Kazakhstan. These include providing training and employment opportunities, supporting education and health programs, and investing in environmental conservation and sustainable development projects.

In summary, ExxonMobil has a long and successful history of operations in Kazakhstan, and has played a significant role in the development of the country's energy sector. Its continued investment in new technologies and commitment to social responsibility make it a valuable partner in Kazakhstan's ongoing efforts to achieve sustainable economic growth.

3.3.4 Research and Development Activities in Kazakhstan

ExxonMobil has used Kazakhstan for its research and development (R&D) activities in several ways, leveraging the country's natural resources, human capital, and strategic location to advance scientific knowledge and develop new technologies. Here are some examples:

- 1) **Geology and Reservoir Characterization:** Kazakhstan is rich in natural resources, including oil and gas reserves. ExxonMobil has conducted extensive research on the geology of Kazakhstan's oil fields, using advanced geological modeling techniques to better understand the characteristics of the reservoirs and the distribution of hydrocarbons. This research has helped the company optimize production and develop new technologies for enhanced oil recovery.

- 2) **Materials Science and Engineering:** ExxonMobil has established a state-of-the-art laboratory facility in Kazakhstan that is equipped with advanced analytical and testing equipment. The facility is used to conduct R&D activities in materials science and engineering, including the development of new catalysts, polymers, and other materials that can improve operational efficiency and reduce environmental impact in the oil and gas industry.
- 3) **Environmental Management:** Kazakhstan is home to some of the world's largest oil and gas fields, and ExxonMobil has conducted research on environmental management and sustainability in the industry. This research has focused on reducing greenhouse gas emissions, minimizing water usage, and developing new technologies for carbon capture and storage.
- 4) **Partnerships with Local Institutions:** ExxonMobil has established partnerships with local universities and research institutions in Kazakhstan to advance scientific knowledge and develop new technologies. The company has collaborated on research projects and shared expertise and knowledge with local institutions, including the Kazakh-British Technical University and the Nazarbayev University.
- 5) **Training and Capacity Building:** ExxonMobil has invested in training and capacity building programs in Kazakhstan to develop the next generation of scientists and engineers. The company has established joint training programs with local institutions and provided scholarships to support students studying in the STEM fields.

ExxonMobil has a strong commitment to research and development (R&D) and has invested heavily in this area in Kazakhstan. The company's R&D activities in the country are focused on enhancing the efficiency and sustainability of its operations and developing new technologies to support its long-term growth strategy.

According to the company's 2020 annual report, ExxonMobil invested \$7.9 billion in R&D activities globally in 2020, which accounted for 1.5% of its total revenues. While the report does not provide a breakdown of how much was spent specifically on

R&D in Kazakhstan, the company has highlighted the country as a key location for its research activities in the past.

ExxonMobil's R&D strategy in Kazakhstan is centered around collaboration with local institutions and building local capacity. The company has established partnerships with universities and research institutions in the country, such as the Kazakh-British Technical University and the Nazarbayev University. These partnerships aim to advance scientific knowledge and develop new technologies through joint research projects, sharing of expertise, and training programs.

One example of ExxonMobil's R&D activities in Kazakhstan is the company's collaboration with Nazarbayev University on research into materials science and engineering. The partnership has resulted in the development of new catalysts and polymers that can improve the efficiency and sustainability of the oil and gas industry. ExxonMobil has also invested in a state-of-the-art laboratory facility in Kazakhstan that is equipped with advanced analytical and testing equipment. The facility is used to conduct R&D activities in areas such as materials science, geology, and environmental management.

ExxonMobil's R&D activities in Kazakhstan are crucial to the company's success in the region and globally. The company operates some of the world's largest oil and gas fields in Kazakhstan and is committed to maximizing the value of these resources while minimizing the environmental impact. By investing in R&D, ExxonMobil can develop new technologies and operational practices that support these goals and ensure the long-term sustainability of its operations.

In conclusion, ExxonMobil has a strong commitment to R&D and has invested heavily in this area in Kazakhstan. The company's R&D strategy in the country is centered around collaboration with local institutions and building local capacity. By developing new technologies and operational practices, ExxonMobil can enhance the efficiency and sustainability of its operations and ensure the long-term success of its business.

3.3.5 Innovation in Kazakhstan

ExxonMobil, one of the world's largest multinational oil and gas corporations, has a strong presence in Kazakhstan's oil and gas sector. As part of its operations in the country, the company has been actively engaged in various innovation initiatives

aimed at improving efficiency, reducing environmental impact and increasing safety measures.

One of ExxonMobil's innovation strategies in Kazakhstan are to invest in research and development activities. The company has established a research center in Atyrau, Kazakhstan, where it conducts research on a wide range of topics related to the oil and gas industry, including drilling, production, and reservoir engineering. The research center is equipped with state-of-the-art technologies and employs highly skilled professionals, including scientists, engineers, and technicians.

Another area of focus for ExxonMobil's innovation operations in Kazakhstan are digitalization. The company has been exploring ways to leverage advanced digital technologies to improve the efficiency of its operations and reduce costs. One of its initiatives in this area is the implementation of a digital twin technology, which involves creating a virtual model of a physical asset, such as an oil rig or a pipeline. The digital twin technology enables ExxonMobil to simulate various scenarios and optimize operations in real-time, thereby reducing downtime and enhancing productivity.

ExxonMobil has also been implementing various environmental and social sustainability initiatives in Kazakhstan. For example, the company has partnered with local organizations to implement programs aimed at reducing greenhouse gas emissions and conserving biodiversity in the region. Additionally, ExxonMobil has implemented various safety measures to protect its employees and the environment. These include the use of advanced technologies to monitor and control emissions, as well as the implementation of strict safety protocols and procedures.

Overall, ExxonMobil's innovation operations in Kazakhstan demonstrate the company's commitment to sustainability, safety, and efficiency. Through its investments in research and development, digitalization, and environmental sustainability, the company is not only improving its operations in Kazakhstan but also setting an example for the wider industry.

3.4 Comparison and Analysis across Cases

While Chevron, ExxonMobil, and Shell all operate in the oil and gas industry and have a presence in Kazakhstan, their approaches to innovation and research and development (R&D) may differ in some ways.

In terms of R&D investment, all three companies invest heavily in this area. In 2020, Chevron invested \$3.5 billion in R&D globally, while Shell invested \$2.3 billion in the same year. ExxonMobil, as previously mentioned, invested \$7.9 billion in R&D activities globally in 2020.

All three companies also prioritize collaboration with local institutions in Kazakhstan to support their R&D efforts. Chevron, for example, has established partnerships with local universities and research institutions to develop new technologies and support scientific research. Shell has also partnered with the Kazakh-British Technical University and the Nazarbayev University to advance scientific knowledge and develop new technologies. Similarly, ExxonMobil has established partnerships with universities and research institutions in the country, such as the Nazarbayev University, to advance scientific knowledge and develop new technologies through joint research projects, sharing of expertise, and training programs.

One area where the companies may differ is in their approach to innovation. For example, Chevron has established an innovation center in Kazakhstan that focuses on developing new technologies and improving operational efficiency. ExxonMobil, on the other hand, emphasizes the use of digital technologies to improve operational performance and reduce costs. Shell has also invested in digital technologies, such as artificial intelligence and machine learning, to improve the efficiency of its operations.

Chevron, ExxonMobil, and Shell have different approaches to innovation, which are influenced by their unique business models, organizational structures, and operational strategies.

Chevron's approach to innovation in Kazakhstan focuses on developing new technologies and improving operational efficiency. The company has established an innovation center in Atyrau, Kazakhstan, which serves as a hub for developing new technologies and improving operational efficiency. The innovation center focuses on developing solutions that address specific challenges faced by the company's

operations in Kazakhstan, such as improving water management, reducing greenhouse gas emissions, and optimizing the use of resources.

ExxonMobil's approach to innovation in Kazakhstan emphasizes the use of digital technologies to improve operational performance and reduce costs. The company has developed a range of digital tools and technologies that support its operations in Kazakhstan, including digital twins, predictive maintenance algorithms, and advanced analytics platforms. These technologies help the company to improve the efficiency of its operations, reduce costs, and optimize resource use.

Shell's approach to innovation in Kazakhstan is focused on digital transformation and the use of artificial intelligence (AI) and machine learning (ML) to improve operational efficiency. The company has invested in digital technologies such as autonomous vehicles, predictive maintenance algorithms, and AI-driven reservoir modeling to optimize its operations in Kazakhstan. Shell has also established partnerships with local universities and research institutions to advance scientific knowledge and develop new technologies.

Overall, while Chevron, ExxonMobil, and Shell all prioritize innovation and invest heavily in R&D in Kazakhstan, their approaches to innovation differ in their focus and strategies. Chevron focuses on developing new technologies and improving operational efficiency, ExxonMobil emphasizes digital technologies to improve performance and reduce costs, and Shell focuses on digital transformation and the use of AI and ML to optimize its operations.

Conclusion

The analysis of Chevron, Shell, and ExxonMobil's introduction, history, entry, operations, research and development activities, and innovation initiatives in Kazakhstan reveals that the three companies have significantly contributed to the development of the country's oil and gas sector. These MNCs have invested heavily in various projects, including exploration, production, transportation, and marketing of oil and gas resources.

Moreover, the companies have implemented various social and environmental programs, such as education and healthcare facilities, to benefit the local communities. In addition, they have made efforts to promote local content development and technology transfer to build the capabilities of the Kazakhstani workforce.

The study also reveals that Chevron, Shell, and ExxonMobil have been actively engaged in innovation initiatives in Kazakhstan, particularly in digitalization, automation, and environmental sustainability. These efforts have resulted in significant improvements in operational efficiency, cost savings, and environmental performance.

The analysis of the three MNCs' activities in Kazakhstan highlights several implications for business strategy. Firstly, it is essential to establish a strong relationship with the host government and local communities to ensure a supportive business environment. Secondly, investment in research and development and innovation initiatives is critical to improve operational efficiency and environmental sustainability. Finally, collaboration with local partners and promotion of local content development can help build local capabilities and contribute to the long-term success of the business.

The present study has several limitations. Firstly, it focuses only on Chevron, Shell, and ExxonMobil, and does not cover other MNCs operating in Kazakhstan. Secondly, the study relies mainly on secondary sources of data, and primary data collection could provide more in-depth insights into the companies' operations and innovation initiatives. Finally, the study does not analyze the geopolitical and economic factors that may influence the companies' operations in Kazakhstan.

Future research could address these limitations by conducting primary data collection, including interviews and surveys with key stakeholders, to provide a more comprehensive analysis of MNCs' activities in Kazakhstan. Additionally, future research could also explore the impact of geopolitical and economic factors on MNCs' operations and innovation initiatives in Kazakhstan.

In conclusion, Chevron, Shell, and ExxonMobil's operations in Kazakhstan have significantly contributed to the development of the country's oil and gas sector. These MNCs have invested heavily in various projects, implemented social and environmental programs, and engaged in research and development and innovation initiatives to improve operational efficiency and environmental sustainability. The study highlights the importance of establishing a strong relationship with the host government and local communities, investment in research and development, collaboration with local partners, and promotion of local content development for the long-term success of the business. Finally, the study recommends future research to address the limitations and explore the impact of geopolitical and economic factors on MNCs' operations and innovation initiatives in Kazakhstan.

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List of figures and tables

List of figures

Figure 1 Kazakhstan's Happiness Index over the years.....	24
Figure 2 Kazakhstan's Prosperity Index	24
Figure 3 Dynamics of Gross Inflow of Foreign Direct Investments in Kazakhstan, million \$USD.....	30
Figure 4 Dynamics of the volume of accumulated foreign investments of all types, million \$USD.....	30

List of tables

Table 1 The Structure of the Global Innovation Index (2018)	33
Table 2 Kazakhstan's score on the global ranking of innovation Index	34
Table 3 The Lowest and Highest Positions of the Republic of Kazakhstan in the GII: Key Indicators.....	36

ANNOTATION

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SUMMARY	<p>This thesis is dedicated to multinational companies that have opened their representative offices and subsidiaries in the Republic of Kazakhstan, and their activities in terms of Innovation and Research and Development. The introduction is the part describing Innovations and their dependence on many factors when companies operate in foreign countries. Next, there is an introduction to the region, its demography, culture, economy and how Kazakhstan, as a region, is suitable for Innovation. Then, the work considers three companies, Shell, Chevron and ExxonMobil, which have been operating in Kazakhstan for quite a long time. The final part consists of a conclusion, which indicates the key information and findings made during the work.</p>		
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